

# Product Selection Guide

November 2014

# Skyworks Solutions

Skyworks Solutions, Inc. is an innovator of high performance analog semiconductors. Leveraging core technologies, Skyworks supports automotive, broadband, wireless infrastructure, energy management, GPS, industrial, medical, military, wireless networking, smartphone, and tablet applications. The Company's portfolio includes amplifiers, attenuators, circulators, demodulators, detectors, diodes, directional couplers, front-end modules, hybrids, infrastructure RF subsystems, isolators, lighting and display solutions, mixers, modulators, optocouplers, optoisolators, phase shifters, PLLs/synthesizers/VCOs, power dividers/combiners, power management devices, receivers, switches, and technical ceramics.

Headquartered in Woburn, Massachusetts, USA, Skyworks is worldwide with engineering, manufacturing, sales and service facilities throughout Asia, Europe, and North America.

New products are continually being introduced at Skyworks. For the latest information, visit our Web site at [www.skyworksinc.com](http://www.skyworksinc.com), contact your local sales office, or email us at [sales@skyworksinc.com](mailto:sales@skyworksinc.com).

## The Skyworks Advantage

- Broad front-end module and precision analog product portfolio
- Market leadership in key product segments
- Solutions for all air interface standards, including CDMA, GSM / GPRS / EDGE, LTE, WCDMA, and WLAN
- Engagements with a diverse set of top-tier customers
- Strategic partnerships with all leading baseband suppliers
- Analog, RF and mixed-signal design capabilities
- Access to all key process technologies: GaAs HBT, pHEMT, BiCMOS, SiGe, CMOS and RF CMOS, and Silicon
- World-class manufacturing capabilities and scale
- Unparalleled level of customer service and technical support
- Commitment to technology innovation





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#### **Innovation to Go™**

Select products and sample/designer kits available for purchase online at [www.skyworksinc.com](http://www.skyworksinc.com).



Skyworks' Green™ products are compliant to all applicable materials legislation and are halogen-free. For additional information, refer to *Skyworks' Definition of Green™*, document number SQ04-0074.



The (Pb)-free symbol or "LF" in the part number denotes lead (Pb)-free, RoHS-compliant package. Tin/lead (SnPb) packaging is not recommended for new designs.

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## Products

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## AMPLIFIERS

Skyworks Solutions is pleased to offer a broad selection of power amplifiers (PAs) and low noise amplifiers (LNAs) for cellular applications and diverse markets such as wireless infrastructure, WiFi connectivity, automotive, test & measurement, energy management, and other high performance microwave applications. These amplifier solutions leverage the extensive design knowledge, technical leadership, manufacturing expertise, and superior quality of Skyworks.

### Select Ultra Low Noise Amplifiers (LNAs)

#### Select LNAs Available from Stock for Prototype or High Volume Production




Skyworks' family of low noise amplifiers consists of a series of devices which cover a frequency range from 400 to 5900 MHz. Skyworks also offers low cost, discrete pHEMT FET packaged devices for those designers seeking the ultimate in application flexibility and customization. Applications include high performance GPS, WLAN/WiFi, and cellular infrastructure base station receivers for GSM, WCDMA, and LTE modulation schemes, as well as any other high performance LNA application in the 400–5900 MHz frequency range. These devices come packaged in a variety of industry-standard plastic packages which offer excellent thermal performance.

#### LNAs for Cellular Infrastructure, GPS, Broadband, ISM Band, and WLAN Applications

| Part Number    | Application             | Frequency Range (GHz) | Test Frequency (MHz) | Gain (dB) | NF (dB) | OIP3 (dBm) | OP <sub>1</sub> (dBm) | V <sub>DD</sub> (V) (Operating Range) | I <sub>DD</sub> (mA) (Operating Range) | Package (mm)            |
|----------------|-------------------------|-----------------------|----------------------|-----------|---------|------------|-----------------------|---------------------------------------|--|-------------------------|
| SKY67151-396LF | Cellular Infrastructure | 500–3800              | 2500                 | 19        | 0.50    | 35.0       | 19                    | 5 (3.0–5.0)                           | 70 (20–100)                            | DFN 8L<br>2 x 2 x 0.75  |
| SKY67101-396LF | Cellular Infrastructure | 0.4–1.2               | 900                  | 17.5      | 0.50    | 34.0       | 19.0                  | 4 (3.3–5.0)                           | 50 (20–90)                             | DFN 8L<br>2 x 2 x 0.75  |
| SKY67100-396LF | Cellular Infrastructure | 1.2–2.3               | 1950                 | 17.5      | 0.70    | 34.0       | 18.5                  | 4 (3.3–5.0)                           | 50 (20–90)                             | DFN 8L<br>2 x 2 x 0.75  |
| SKY67102-396LF | Cellular Infrastructure | 2.0–3.0               | 2600                 | 17.2      | 0.80    | 33.8       | 15.0                  | 4 (3.3–5.0)                           | 50 (20–90)                             | DFN 8L<br>2 x 2 x 0.75  |
| SKY67110-396LF | Cellular Infrastructure | 0.3–0.75              | 450                  | 21.0      | 0.65    | 37.0       | 21.0                  | 5                                     | 75 (50–120)                            | DFN 8L<br>2 x 2 x 0.75  |
| SKY67111-396LF | Cellular Infrastructure | 0.7–1.2               | 900                  | 20.5      | 0.50    | 40         | 20.0                  | 5                                     | 75 (50–120)                            | DFN 8L<br>2 x 2 x 0.75  |
| SKY67021-396LF | Cellular Infrastructure | 0.6–1.2               | 900                  | 17.5      | 0.60    | 40.5       | 21.0                  | 5 (3.3–5.0)                           | 100 (50–120)                           | DFN 8L<br>2 x 2 x 0.75  |
| SKY67022-396LF | Cellular Infrastructure | 1.6–2.1               | 1850                 | 17.5      | 0.65    | 39.5       | 20.0                  | 5 (3.3–5.0)                           | 100 (50–120)                           | DFN 8L<br>2 x 2 x 0.75  |
| SKY67023-396LF | Cellular Infrastructure | 2.0–3.0               | 2600                 | 17.5      | 0.88    | 39.0       | 19.7                  | 5 (3.3–5.0)                           | 100 (50–120)                           | DFN 8L<br>2 x 2 x 0.75  |
| SKY67161-306LF | Cellular Infrastructure | 0.6–1.1               | 850                  | 38.0      | 0.30    | 40.0       | 25.0                  | 5 (4.0–5.0)                           | 120 (80–140)                           | QFN 16L<br>4 x 4 x 0.90 |
| SKY67105-306LF | Cellular Infrastructure | 0.6–1.1               | 850                  | 37.0      | 0.70    | 41.0       | 26.0                  | 5 (3.5–5.0)                           | 140 (120–155)                          | QFN 16L<br>4 x 4 x 0.90 |
| SKY67106-306LF | Cellular Infrastructure | 1.5–3.0               | 1950                 | 35.0      | 0.65    | 37.0       | 24.0                  | 5 (3.5–5.0)                           | 100 (80–125)                           | QFN 16L<br>4 x 4 x 0.90 |
| SKY67107-306LF | Cellular Infrastructure | 2.3–2.8               | 2600                 | 32.0      | 0.85    | 37.5       | 18.5                  | 5 (3.5–5.0)                           | 125 (50–145)                           | QFN 16L<br>4 x 4 x 0.75 |
| SKY67015-396LF | General Purpose         | 0.05–0.3              | 250                  | 17.5      | 0.80    | 25         | 12.5                  | 3.3 (1.8–5.0)                         | 18 (5–30)                              | DFN 8L<br>2 x 2 x 0.75  |

## Select Ultra Low Noise Amplifiers (LNAs)



### LNAs for Cellular Infrastructure, GPS, Broadband, ISM Band, and WLAN Applications

| Part Number  | Application               | Frequency Range (GHz) | Test Frequency (MHz) | Gain (dB) | NF (dB) | OIP3 (dBm) | OP <sub>1</sub> dB (dBm) | V <sub>DD</sub> (V) (Operating Range) | I <sub>DD</sub> (mA) (Operating Range) | Package (mm)               |
|--|---------------------------|-----------------------|----------------------|-----------|---------|------------|--------------------------|---------------------------------------|--|----------------------------|
|  SKY67012-396LF | General Purpose           | 0.3–0.6               | 450                  | 16.5      | 0.85    | 24.0       | 14.0                     | 3.3 (1.8–5.0)                         | 18 (5–30)                              | DFN 8L<br>2 x 2 x 0.75     |
|  SKY67013-396LF | General Purpose           | 0.6–1.5               | 900                  | 14.0      | 0.85    | 26.0       | 15.5                     | 3.3 (1.8–5.0)                         | 18 (5–30)                              | DFN 8L<br>2 x 2 x 0.75     |
|  SKY67014-396LF | General Purpose           | 1.5–3.0               | 2450                 | 13.0      | 0.85    | 28.0       | 15.5                     | 3.3 (1.8–5.0)                         | 18 (5–30)                              | DFN 8L<br>2 x 2 x 0.75     |
| SKY65404-31  | 5.8 GHz WLAN and ISM Band | 4.9–5.9               | 5800                 | 13.0      | 1.20    | 20.0       | 9.0                      | 3.3 (2.8–5.0)                         | 11 (10–15)                             | DFN 6L<br>1.5 x 1.5 x 0.45 |
| SKY65405-21  | 2.4 GHz WLAN and ISM Band | 2.4–2.5               | 2450                 | 15.0      | 1.10    | 24.0       | 15.0                     | 3.3 (2.8–5.0)                         | 12 (10–16)                             | DFN 6L<br>1.5 x 1.5 x 0.45 |



## Cellular Power Amplifiers

### CDMA PAs


#### PCS Band

| Part Number  | Frequency (MHz)      | Description   | Typical PAE (%) | Typical Gain (dB) | Supply Voltage (V) | Package (mm)              |
|--|----------------------|---|-----------------|-------------------|--------------------|---------------------------|
|  SKY77176 | 824–849<br>1850–1910 | Dual-band Power Amplifier Module (PAM) for CDMA/PCS | 40              | 28.0              | 3.2–4.2            | 12-pin MCM<br>3 x 5 x 1.0 |
|  SKY77732 | 1850–1910            | PAM for CDMA/PCS                                    | TBD             | 27.5              | 3.2–4.2            | 10-pad MCM<br>3 x 3 x 0.9 |

#### Cell Band

| Part Number  | Frequency (MHz)      | Description                | Typical PAE (%) | Typical Gain (dB) | Supply Voltage (V) | Package (mm)                                |
|--|----------------------|----------------------------|-----------------|-------------------|--------------------|---|
|  SKY77176 | 824–849<br>1850–1910 | Dual-band PAM for CDMA/PCS | 40              | 28.0              | 3.2–4.2            | 12-pin MCM<br>3 x 5 x 1.0                   |
|  SKY77735 | 824–849              | PAM for CDMA               | TBD             | TBD               | 3.2–4.2            | 10-pad MCM<br>3 x 3 x 0.9<br>Bottom of Form |

#### Other Bands

| Part Number  | Frequency (MHz) | Description      | Typical PAE (%) | Typical Gain (dB) | Supply Voltage (V) | Package (mm)               |
|--|-----------------|------------------|-----------------|-------------------|--------------------|----------------------------|
| CX77144  | 887–925         | PAM for J-CDMA   | 40              | 27.5              | 3.2–4.2            | 10-pin MCM<br>4 x 4 x 1.5  |
| SKY77166   | 450–460         | PAM for CDMA2000 | 37              | 29.0              | 3.1–4.6            | 10-pad MCM<br>4 x 4 x 1.15 |
|  <b>SKY77192-14</b> | 450–460         | PAM for CDMA2000 | 40              | 29.0              | 3.2–4.2            | 10-pad MCM<br>4 x 4 x 0.9  |

**NEW** New products (indicated in blue, bold) are continually being introduced at Skyworks. For the latest information, please visit the new products section of our Web site at [www.skyworksinc.com](http://www.skyworksinc.com).

## Cellular Power Amplifiers

### GSM / GPRS Quad-band CMOS Power Amplifier

Our CMOS power amplifier allows the use of 0.13  $\mu\text{m}$  Silicon CMOS process technology, integrating all of the functions between transmitter output and transmit/receive switch. The power gain stages, small signal control circuitry, and 50  $\Omega$  matching are all realized on a single die.

The AX508 PA amplifies low-level radio frequency (RF) signals to the required high-power levels needed for transmission in GSM/GPRS mobile phone handsets or data modules. The device supports quad-band (GSM 850/900/1800/1900) operation. The integrated 50  $\Omega$  input and output matching circuitry enables direct connection to the transceiver output and the transmit/receive switch input without the use of the external matching components. The power level is regulated via a fully integrated closed-loop power controller which ensures that the GSM power/time mask and switching spectrum may be met with adequate margin to allow robust mass production when subjected to a real world cell phone environment, such as highly elevated VSWR, and low supply voltage.

The reliability of our GSM/GPRS quad band CMOS power amplifier has been proven through thousands of hours of life testing, at accelerated operating conditions, including greater than recommended operating temperature, extended duty cycle, load mismatches of greater than VSWR 10:1 at worst case phase angles, and elevated supply voltages.

Our GSM/GPRS quad-band CMOS power amplifier also offers the following:

- GSM/GPRS class 12 operation
- Power supply range of 2.9 to 5.5 V
- RF input range: -2 to 8 dBm
- Fully integrated on chip 50  $\Omega$  matching circuits
- Fully integrated closed-loop power control
- <100 dB/V power control slope
- MSL JEDEC Level 2A, lead (Pb)-free, RoHS-compliant package
  - Low profile 5 x 3.5 x 0.9 mm micro lead frame package

| Part Number | Description                        | Package (mm)                   |
|-------------|------------------------------------|--------------------------------|
| AX508       | GSM/GPRS Quad-band Power Amplifier | Micro Lead Frame 5 x 3.5 x 0.9 |

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## Cellular Power Amplifiers

### GSM / GPRS / EDGE PAs
















| Part Number | Frequency (MHz) | Description                           | Typical Output Power (dBm) GSM/EDGE | Typical PAE (%) | Supply Voltage (V) | Package (mm)                |
|-------------|-----------------|---------------------------------------|-------------------------------------|-----------------|--------------------|-----------------------------|
| SKY77336    |                 | iPAC™ PAM for Quad-band GSM/GPRS/EDGE |                                     |                 | 3.0–4.8            | 16-pad MCM<br>5 x 5 x 1     |
|             | 824–849         | GSM850                                | 35.0                                | 52              |                    |                             |
|             | 880–915         | GSM900                                | 35.0                                | 52              |                    |                             |
|             | 1710–1785       | DCS1800                               | 33.0                                | 50              |                    |                             |
|             | 1850–1910       | PCS1900                               | 33.0                                | 50              |                    |                             |
| SKY77344    |                 | iPAC™ PAM for Quad-band GSM/EDGE      |                                     |                 | 3.0–4.8            | 20-pad MCM<br>5 x 5 x 0.9   |
|             | 824–849         | GSM850                                | 35.0                                | 52              |                    |                             |
|             | 880–915         | GSM900                                | 35.0                                | 52              |                    |                             |
|             | 1710–1785       | DCS1800                               | 33.5                                | 45              |                    |                             |
|             | 1850–1910       | PCS1900                               | 33.5                                | 45              |                    |                             |
| SKY77346    |                 | iPAC™ PAM for Quad-band GSM/GPRS      |                                     |                 | 2.9–4.8            | 26-pin MCM<br>5 x 6 x 0.9   |
|             | 824–849         | GSM850                                | 35.0                                | 52              |                    |                             |
|             | 880–915         | GSM900                                | 35.0                                | 52              |                    |                             |
|             | 1710–1785       | DCS1800                               | 33.5                                | 52              |                    |                             |
|             | 1850–1910       | PCS1900                               | 33.5                                | 52              |                    |                             |
| SKY77351-13 |                 | PAM for Quad-band GSM/GPRS            |                                     |                 | 3.0–4.8            | 13-pad MCM<br>5 x 5 x 1     |
|             | 824–849         | GSM850                                | 35.0                                | 52              |                    |                             |
|             | 880–915         | GSM900                                | 35.0                                | 52              |                    |                             |
|             | 1710–1785       | DCS1800                               | 33.5                                | 45              |                    |                             |
|             | 1850–1910       | PCS1900                               | 33.5                                | 45              |                    |                             |
| SKY77354    |                 | PAM for Quad-band GSM/GPRS/EDGE       |                                     |                 | 3.0–4.8            | 14-pad MCM<br>5 x 3.5 x 0.9 |
|             | 824–849         | GSM850                                | 35.35                               | 55              |                    |                             |
|             | 880–915         | GSM900                                | 35.35                               | 55              |                    |                             |
|             | 1710–1785       | DCS1800                               | 35.45                               | 53              |                    |                             |
|             | 1850–1910       | PCS1900                               | 35.45                               | 53              |                    |                             |

### LTE PAs

| Part Number | Frequency (MHz) | Description   | Typical PAE (%) | Typical Gain (dB) | Typical Linear LTE Power (dBm) | Supply Voltage (V) | Package (mm)                                |
|-------------|-----------------|---|-----------------|-------------------|--------------------------------|--------------------|---|
| SKY77449    | 777–798         | PAM for LTE/E-UTRA Bands XIII/XIV (777–798 MHz)                               | 36              | 27.5              | 29.0                           | 3.0–4.6            | 16-pad MCM<br>4 x 4 x 0.85                  |
| SKY77706    | 2500–2570       | PAM for LTE FDD Band VII (2500–2570 MHz)                                      | 34              | –                 | 28.0                           | 3.2–4.2            | 10-pad MCM<br>3 x 3 x 0.9<br>Bottom of Form |
| SKY77707    | 698–716         | PAM for LTE/EUTRAN Bands XII/XVII (698–716 MHz)                               | 36              | 28.0              | –                              | 3.2–4.2            | 10-pad MCM<br>3 x 3 x 0.9                   |
| SKY77708    | 777–798         | PAM for LTE/EUTRAN Bands XIII/XIV (777–798 MHz)                               | 36              | 28.0              | –                              | 3.2–4.2            | 10-pad MCM<br>3 x 3 x 0.9                   |
| SKY77709    | 2300–2400       | PAM for LTE FDD Band VII (2300–2400 MHz)                                      | 36              | 28.0              | –                              | 3.2–4.2            | 10-pad MCM<br>3 x 3 x 0.9                   |
| SKY77731    | 1427.9–1462.9   | PAM for WCDMA/LTE Band 11 (1427.9–1447.9 MHz) and Band 21 (1447.9–1462.9 MHz) | TBD             | TBD               | TBD                            | 3.2–4.2            | 10-pad MCM<br>3 x 3 x 0.9                   |
| SKY77733    | 777–798         | SkyHi™ PAM for LTE Bands 13/14 (777–798 MHz)                                  | 43              | –                 | 32.0                           | 3.0–4.5            | 10-pad MCM<br>3 x 3 x 0.9                   |
| SKY77736    | 832–862         | SkyHi™ PAM for LTE Band 20 (832–862 MHz)                                      | 42              | –                 | 32.0                           | 3.0–4.5            | 10-pad MCM<br>3 x 3 x 0.9                   |
| SKY77737    | 698–716         | SkyHi™ PAM for LTE Bands 12/17 (698–716 MHz)                                  | 44              | –                 | 32.0                           | 3.0–4.5            | 10-pad MCM<br>3 x 3 x 0.9                   |
| SKY77761-11 | 1920–1980       | SkyHi™ PAM for CDMA/WCDMA/HSDPA/HSUPA/HSPA+ Band I (1920–1980 MHz)            | 48              | –                 | 28.5                           | 3.0–4.5            | 10-pad MCM<br>3 x 3 x 0.9                   |

## Cellular Power Amplifiers

### LTE PAs (Continued)

| Part Number  | Frequency (MHz)   | Description   | Typical PAE (%) | Typical Gain (dB) | Typical Linear LTE Power (dBm) | Supply Voltage (V) | Package (mm)                   |
|--|---|---|-----------------|-------------------|--------------------------------|--------------------|--------------------------------|
|  SKY77761-12          | 1920–1980   | SkyHi™ PAM for CDMA/WCDMA/HSDPA/HSUPA/HSPA+/LTE – Band I (1920–1980 MHz)  | 46              | –                 | 28.5                           | 3.4–4.5            | 10-pad MCM<br>3 x 3 x 0.9      |
|  SKY77762             | 1850–1910   | SkyHi™ PAM for CDMA/WCDMA/HSDPA/HSUPA/HSPA+/LTE – Band II (1850–1910 MHz)   | 46              | –                 | 28.6                           | 3.0–4.5            | 10-pad MCM<br>3 x 3 x 0.9      |
|  SKY77764             | 1710–1785   | SkyHi™ PAM for CDMA/WCDMA/HSDPA/HSUPA/HSPA+/LTE – Bands III, IV, IX (1710 MHz–1785 MHz)   | 46              | –                 | 28.0                           | 3.4–4.5            | 10-pad MCM<br>3 x 3 x 0.9      |
|  SKY77767             | 2500–2570   | SkyHi™ PAM for LTE – Band 7 (2500–2570 MHz)   | TBD             | TBD               | TBD                            | 3.0–4.5            | 10-pad MCM<br>3 x 3 x 0.9      |
|  SKY77768             | 880–915   | SkyHi™ PAM for WCDMA/HSDPA/HSUPA/HSPA+/LTE  | 50              | –                 | 28.0                           | 3.2–4.2            | 10-pad MCM<br>3 x 3 x 0.9      |
|  SKY77771             | 1427.9–1462.9   | PAM for LTE Band 11/21  | TBD             | TBD               | TBD                            | TBD                | 10-pad MCM<br>2 x 2.5 x 0.9    |
|  SKY77772-11          | 699–748   | PAM for LTE – Bands 12, 17, 28  | TBD             | TBD               | TBD                            | TBD                | 10-pad MCM<br>2 x 2.5 x 0.9    |
|  SKY77773             | 1427.9–1462.9   | PAM for LTE Band 11/21  | TBD             | TBD               | TBD                            | TBD                | 10-pad MCM<br>2 x 2.5 x 0.9    |
|  SKY77778-11          | 2500–2570   | PAM for LTE FDD Band 7  | TBD             | TBD               | TBD                            | TBD                | 10-pad MCM<br>2 x 2.5 x 0.9    |
|  SKY77778-21          | 2500–2570<br>2496–2690<br>2300–2400<br>2545–2575              | PAM for LTE FDD Band 7, TDD Bands 38/41, Band 40, and AXGP Band<br>FDD Band 7<br>TDD Bands 38/41<br>TDD Band 40<br>AXGP Band            | TBD             | TBD               | TBD                            | TBD                | 10-pad MCM<br>2 x 2.5 x 0.9    |
|  SKY77778-51        | 2500–2570<br>2496–2690<br>2300–2400<br>2545–2575              | PAM for LTE FDD Band 7, TDD Bands 38/41, Band 40, and AXGP Band<br>FDD Band 7<br>TDD Bands 38/41<br>TDD Band 40<br>AXGP Band            | TBD             | TBD               | TBD                            | TBD                | 10-pad MCM<br>2 x 2.5 x 0.9    |
|  <b>SKY77778-61</b> | 2500–2570   | PAM for LTE FDD Band 7  | TBD             | TBD               | TBD                            | TBD                | 10-pad MCM<br>2 x 2.5 x 0.9    |
|  <b>SKY77781-11</b> | 2500–2570<br>2305–2315<br>2496–2690<br>2300–2400<br>2545–2575 | PAM for LTE FDD Band 7, Band 30, LTE TDD Bands 38/41, Band 40, and AXGP Band<br>LTE B7<br>LTE B30<br>LTE B38/41<br>LTE B40<br>AXGP Band | TBD             | TBD               | TBD                            | TBD                | 10-pad MCM<br>2 x 2.5 x 0.85   |
|  SKY77807           | 2500–2570<br>2570–2620<br>2300–2400<br>2496–2690<br>2300–2400 | Quad-band PAM for FDD/TDD LTE (Tx Bands 7, 38, 40, 41)<br>LTE B7<br>LTE B38<br>LTE B40<br>LTE B41<br>TD-SCDMA B40                       | TBD             | TBD               | TBD                            | TBD                | 24-pad MCM<br>4 x 3 x 1 (Max.) |
|  <b>SKY77814-11</b> | 2500–2570<br>2305–2315<br>2496–2690<br>2300–2400<br>2545–2575 | PAM for LTE FDD Band 7, Band 30, LTE TDD Bands 38/41, Band 40, and AXGP Band<br>LTE B7<br>LTE B30<br>LTE B38/41<br>LTE B40<br>AXGP Band | TBD             | TBD               | TBD                            | TBD                | 24-pad MCM<br>4 x 3 x 0.8      |

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## Cellular Power Amplifiers





### Multimode / Multiband (MMMB) PAs

| Part Number | Frequency (MHz) | Description             | Typical PAE (%) | Typical I <sub>MAX</sub> (mA) | Typical Gain (dB) | Supply Voltage (V) | Package (mm)              |
|-------------|-----------------|-------------------------|-----------------|-------------------------------|-------------------|--------------------|---------------------------|
| SKY77601    |                 | Multimode/Multiband PAM |                 |                               |                   | 3.0–4.5            | 34-pin MCM<br>6 x 8 x 0.9 |
|             | 824–849         | GSM850                  | 55              | –                             | 33.5              |                    |                           |
|             | 880–915         | GSM900                  | 55              | –                             | 33.5              |                    |                           |
|             | 1710–1785       | DCS1800                 | 51              | –                             | 33.5              |                    |                           |
|             | 1850–1910       | PCS1900                 | 51              | –                             | 33.5              |                    |                           |
|             | 1920–1980       | WCDMA B1                | –               | 450                           | 27.0              |                    |                           |
|             | 1850–1910       | WCDMA B2                | –               | 550                           | 27.0              |                    |                           |
|             | 824–849         | WCDMA B5                | –               | 430                           | 27.0              |                    |                           |
|             | 880–915         | WCDMA B8                | –               | 450                           | 27.0              |                    |                           |
| SKY77603    |                 | Multiband/Multimode PAM | TBD             | TBD                           | TBD               | TBD                | 38-pad MCM<br>6 x 8 x 0.9 |
|             | 824–849         | GSM850                  |                 |                               |                   |                    |                           |
|             | 880–915         | EGSM900                 |                 |                               |                   |                    |                           |
|             | 1710–1785       | GSM1800                 |                 |                               |                   |                    |                           |
|             | 1850–1910       | EGSM1900                |                 |                               |                   |                    |                           |
|             | 824–849         | WCDMA/LTE B5            |                 |                               |                   |                    |                           |
|             | 832–862         | WCDMA/LTE B20           |                 |                               |                   |                    |                           |
|             | 880–915         | WCDMA/LTE B8            |                 |                               |                   |                    |                           |
|             | 830–840         | LTE B6                  |                 |                               |                   |                    |                           |
|             | 830–845         | LTE B19                 |                 |                               |                   |                    |                           |
|             | 1920–1980       | WCDMA/LTE B1            |                 |                               |                   |                    |                           |
|             | 1850–1910       | WCDMA/LTE B2            |                 |                               |                   |                    |                           |
|             | 1710–1785       | WCDMA/LTE B3            |                 |                               |                   |                    |                           |
|             | 1710–1755       | WCDMA/LTE B4            |                 |                               |                   |                    |                           |
|             | 1749.9–1784.9   | WCDMA/LTE B9            |                 |                               |                   |                    |                           |
| 1710–1770   | WCDMA/LTE B10   |                         |                 |                               |                   |                    |                           |
| SKY77604–11 |                 | Multimode/Multiband PAM |                 |                               |                   | 2.9–4.7            | 34-pin MCM<br>6 x 8 x 0.9 |
|             | 824–849         | GSM850                  | 56              | –                             | –                 |                    |                           |
|             | 880–915         | GSM900                  | 56              | –                             | –                 |                    |                           |
|             | 1710–1785       | DCS1800                 | 50              | –                             | –                 |                    |                           |
|             | 1850–1910       | PCS1900                 | 50              | –                             | –                 |                    |                           |
|             | 1920–1980       | WCDMA B1                | –               | 465                           | 25.0              |                    |                           |
|             | 1850–1910       | WCDMA B2                | –               | 525                           | 25.0              |                    |                           |
|             | 1750–1780       | WCDMA B4                | –               | 500                           | 25.0              |                    |                           |
|             | 824–849         | WCDMA B5                | –               | 420                           | 24.6              |                    |                           |
| 880–915     | WCDMA B8        | –                       | 450             | 25.0                          |                   |                    |                           |
| SKY77606    |                 | Multimode/Multiband PAM |                 |                               |                   | 3.2–4.5            | 24-pad MCM<br>5 x 7 x 0.9 |
|             | 824–849         | GSM850                  | 50              | 1740                          | –                 |                    |                           |
|             | 880–915         | GSM900                  | 50              | 1740                          | –                 |                    |                           |
|             | 1710–1785       | DCS1800                 | 50              | 1075                          | –                 |                    |                           |
|             | 1850–1910       | PCS1900                 | 50              | 1075                          | –                 |                    |                           |
|             | 1920–1980       | WCDMA B1                | 37              | 478                           | 27.0              |                    |                           |
|             | 824–849         | WCDMA B5                | 35              | 447                           | 28.0              |                    |                           |
|             | 880–915         | WCDMA B8                | 34              | 467                           | 26.5              |                    |                           |
| SKY77615    |                 | Multimode/Multiband PAM | TBD             | TBD                           | TBD               | TBD                | 36-pad MCM<br>6 x 8 x 0.9 |
|             | 824–849         | GSM850                  |                 |                               |                   |                    |                           |
|             | 880–915         | GSM900                  |                 |                               |                   |                    |                           |
|             | 1710–1785       | DCS1800                 |                 |                               |                   |                    |                           |
|             | 1850–1910       | PCS1900                 |                 |                               |                   |                    |                           |
|             | 1920–1980       | WCDMA B1                |                 |                               |                   |                    |                           |
|             | 1850–1910       | WCDMA B2                |                 |                               |                   |                    |                           |
|             | 1710–1785       | WCDMA B3                |                 |                               |                   |                    |                           |
|             | 1710–1755       | WCDMA B4                |                 |                               |                   |                    |                           |
|             | 824–849         | WCDMA B5                |                 |                               |                   |                    |                           |
|             | 830–840         | WCDMA B6                |                 |                               |                   |                    |                           |
|             | 880–915         | WCDMA B8                |                 |                               |                   |                    |                           |
|             | 1710–1770       | WCDMA B10               |                 |                               |                   |                    |                           |



Cellular Power Amplifiers

Multimode / Multiband (MMMB) PAs (Continued)





| Part Number  | Frequency (MHz)  | Description                                | Typical PAE (%) | Typical I <sub>MAX</sub> (mA) | Typical Gain (dB) | Supply Voltage (V) | Package (mm)              |
|--|------------------|--|-----------------|-------------------------------|-------------------|--------------------|---------------------------|
|  SKY77619             |                  | SkyHi™ Multiband/Multimode PAM             |                 |                               |                   | 0.5–4.2            | 42-pin MCM<br>7 x 9 x 0.9 |
|  | 824–849          | GSM850                                     | 53              | TBD                           | 29                |                    |                           |
|  | 880–915          | GSM900                                     | 53              | TBD                           | 29                |                    |                           |
|  | 1710–1785        | DCS1800                                    | 53              | TBD                           | TBD               |                    |                           |
|  | 1850–1910        | PCS1900                                    | 53              | TBD                           | TBD               |                    |                           |
|  | 1920–1980        | WCDMA B1                                   | 44              | TBD                           | TBD               |                    |                           |
|  | 1850–1910        | WCDMA B2                                   | 44              | TBD                           | TBD               |                    |                           |
|  | 1750–1780        | WCDMA B4                                   | 44              | TBD                           | TBD               |                    |                           |
|  | 824–849          | WCDMA B5                                   | 44              | TBD                           | TBD               |                    |                           |
|  | 880–915          | WCDMA B8                                   | 44              | TBD                           | TBD               |                    |                           |
|  SKY77621-11          |                  | Multiband/Multimode PAM                    | TBD             | TBD                           | TBD               | TBD                | 42-pin MCM<br>5 x 7 x 0.9 |
|  | 824–849          | GSM/EDGE850                                |                 |                               |                   |                    |                           |
|  | 880–915          | GSM/EDGE900                                |                 |                               |                   |                    |                           |
|  | 1710–1785        | GSM/EDGE1800                               |                 |                               |                   |                    |                           |
|  | 1850–1910        | GSM/EDGE1900                               |                 |                               |                   |                    |                           |
|  | 1920–1980        | WCDMA/LTE B1                               |                 |                               |                   |                    |                           |
|  | 1850–1910        | WCDMA/LTE B2                               |                 |                               |                   |                    |                           |
|  | 1710–1785        | WCDMA/LTE B3                               |                 |                               |                   |                    |                           |
|  | 1710–1755        | WCDMA/LTE B4                               |                 |                               |                   |                    |                           |
|  | 824–849          | WCDMA/LTE B5                               |                 |                               |                   |                    |                           |
|  | 880–915          | WCDMA/LTE B8                               |                 |                               |                   |                    |                           |
|  | 777–787          | LTE Band 13                                |                 |                               |                   |                    |                           |
|  | 704–716          | LTE Band 17                                |                 |                               |                   |                    |                           |
|  | 832–862          | LTE Band 20                                |                 |                               |                   |                    |                           |
|  | 2010–2025        | TD-SCDMA Band 34                           |                 |                               |                   |                    |                           |
| 1880–1920  | LTE Band 39      |  |                 |                               |                   |                    |                           |
|  <b>SKY77621-31</b> |                  | MMMB PAM                                   | TBD             | TBD                           | TBD               | TBD                | 42-pad MCM<br>5 x 7 x 0.9 |
|  | 824–849          | GSM/EDGE850                                |                 |                               |                   |                    |                           |
|  | 880–915          | GSM/EDGE900                                |                 |                               |                   |                    |                           |
|  | 1710–1785        | GSM/EDGE1800                               |                 |                               |                   |                    |                           |
|  | 1850–1910        | GSM/EDGE1900                               |                 |                               |                   |                    |                           |
|  | 1920–1980        | WCDMA/LTE B1                               |                 |                               |                   |                    |                           |
|  | 1850–1910        | WCDMA/LTE B2                               |                 |                               |                   |                    |                           |
|  | 1710–1785        | WCDMA/LTE B3                               |                 |                               |                   |                    |                           |
|  | 1710–1755        | WCDMA/LTE B4                               |                 |                               |                   |                    |                           |
|  | 824–849          | WCDMA/LTE B5                               |                 |                               |                   |                    |                           |
|  | 880–915          | WCDMA/LTE B8                               |                 |                               |                   |                    |                           |
|  | 699–716          | LTE B12                                    |                 |                               |                   |                    |                           |
|  | 777–787          | LTE B13                                    |                 |                               |                   |                    |                           |
|  | 704–716          | LTE B17                                    |                 |                               |                   |                    |                           |
|  | 832–862          | LTE B20                                    |                 |                               |                   |                    |                           |
|  | 703–748          | LTE B28                                    |                 |                               |                   |                    |                           |
|  | 1880–1920        | LTE B39                                    |                 |                               |                   |                    |                           |
| 2010–2025  | TD-SCDMA Band 34 |  |                 |                               |                   |                    |                           |
|  <b>SKY77621-51</b> |                  | Multiband/Multimode Power Amplifier Module | TBD             | TBD                           | TBD               | TBD                | 42-pad MCM<br>5 x 7 x 0.9 |
|  | 824–849          | GSM850                                     |                 |                               |                   |                    |                           |
|  | 880–915          | GSM900                                     |                 |                               |                   |                    |                           |
|  | 1710–1785        | DCS1800                                    |                 |                               |                   |                    |                           |
|  | 1850–1910        | PCS1900                                    |                 |                               |                   |                    |                           |
|  | 1920–1980        | WCDMA/LTE B1                               |                 |                               |                   |                    |                           |
|  | 1850–1910        | WCDMA/LTE B2                               |                 |                               |                   |                    |                           |
|  | 1710–1785        | WCDMA/LTE B3                               |                 |                               |                   |                    |                           |
|  | 1710–1755        | WCDMA/LTE B4                               |                 |                               |                   |                    |                           |
|  | 824–849          | WCDMA/LTE B5                               |                 |                               |                   |                    |                           |
|  | 880–915          | WCDMA/LTE B8                               |                 |                               |                   |                    |                           |
|  | 832–862          | WCDMA/LTE B20                              |                 |                               |                   |                    |                           |

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## Cellular Power Amplifiers

### Multimode / Multiband (MMMB) PAs (Continued)

| Part Number   | Frequency (MHz) | Description             | Typical PAE (%) | Typical I <sub>MAX</sub> (mA) | Typical Gain (dB) | Supply Voltage (V) | Package (mm)              |
|---|-----------------|-------------------------|-----------------|-------------------------------|-------------------|--------------------|---------------------------|
|  SKY77627-11   | 824-849         | GSM/EDGE850             | TBD             | TBD                           | TBD               | TBD                | 42-pad MCM<br>5 x 7 x 0.9 |
|   | 880-915         | GSM/EDGE900             |                 |                               |                   |                    |                           |
|   | 1710-1785       | GSM/EDGE1800            |                 |                               |                   |                    |                           |
|   | 1850-1910       | GSM/EDGE1900            |                 |                               |                   |                    |                           |
|   | 1920-1980       | WCDMA/LTE B1            |                 |                               |                   |                    |                           |
|   | 1850-1910       | WCDMA/LTE B2            |                 |                               |                   |                    |                           |
|   | 1710-1785       | WCDMA/LTE B3            |                 |                               |                   |                    |                           |
|   | 1710-1755       | WCDMA/LTE B4            |                 |                               |                   |                    |                           |
|   | 824-849         | WCDMA/LTE B5            |                 |                               |                   |                    |                           |
|   | 880-915         | WCDMA/LTE B8            |                 |                               |                   |                    |                           |
|   | 699-716         | LTE B12                 |                 |                               |                   |                    |                           |
|   | 777-787         | LTE B13                 |                 |                               |                   |                    |                           |
|   | 704-716         | LTE B17                 |                 |                               |                   |                    |                           |
|   | 832-862         | LTE B20                 |                 |                               |                   |                    |                           |
|   | 703-748         | LTE B28                 |                 |                               |                   |                    |                           |
|   | 1880-1920       | LTE/TD-SCDMA B39        |                 |                               |                   |                    |                           |
| 2010-2025   | TD-SCDMA B34    |                         |                 |                               |                   |                    |                           |
|  SKY77629      |                 | Multiband/Multimode PAM | TBD             | TBD                           | TBD               | TBD                | 42-pad MCM<br>5 x 7 x 0.9 |
|   | 824-849         | GSM850                  |                 |                               |                   |                    |                           |
|   | 880-915         | GSM900                  |                 |                               |                   |                    |                           |
|   | 1710-1785       | DCS1800                 |                 |                               |                   |                    |                           |
|   | 1850-1910       | PCS1900                 |                 |                               |                   |                    |                           |
|   | 1920-1980       | WCDMA/LTE B1            |                 |                               |                   |                    |                           |
|   | 1850-1910       | WCDMA/LTE B2            |                 |                               |                   |                    |                           |
|   | 1710-1785       | WCDMA/LTE B3            |                 |                               |                   |                    |                           |
|   | 1710-1755       | WCDMA/LTE B4            |                 |                               |                   |                    |                           |
|   | 824-849         | WCDMA/LTE B5            |                 |                               |                   |                    |                           |
| 880-915   | WCDMA/LTE B8    |                         |                 |                               |                   |                    |                           |
|  SKY77629-21 |                 | Multiband/Multimode PAM | TBD             | TBD                           | TBD               | TBD                | 42-pad MCM<br>5 x 7 x 0.9 |
|   | 824-849         | GSM850                  |                 |                               |                   |                    |                           |
|   | 880-915         | GSM900                  |                 |                               |                   |                    |                           |
|   | 1710-1785       | DCS1800                 |                 |                               |                   |                    |                           |
|   | 1850-1910       | PCS1900                 |                 |                               |                   |                    |                           |
|   | 1920-1980       | WCDMA/LTE B1            |                 |                               |                   |                    |                           |
|   | 1850-1910       | WCDMA/LTE B2            |                 |                               |                   |                    |                           |
|   | 1710-1785       | WCDMA/LTE B3            |                 |                               |                   |                    |                           |
|   | 1710-1755       | WCDMA/LTE B4            |                 |                               |                   |                    |                           |
|   | 824-849         | WCDMA/LTE B5            |                 |                               |                   |                    |                           |
| 880-915   | WCDMA/LTE B8    |                         |                 |                               |                   |                    |                           |
|  SKY77629-51 |                 | Multiband/Multimode PAM | TBD             | TBD                           | TBD               | TBD                | 42-pad MCM<br>5 x 7 x 0.9 |
|   | 824-849         | GSM850                  |                 |                               |                   |                    |                           |
|   | 880-915         | GSM900                  |                 |                               |                   |                    |                           |
|   | 1710-1785       | DCS1800                 |                 |                               |                   |                    |                           |
|   | 1850-1910       | PCS1900                 |                 |                               |                   |                    |                           |
|   | 1920-1980       | WCDMA/LTE B1            |                 |                               |                   |                    |                           |
|   | 1850-1910       | WCDMA/LTE B2            |                 |                               |                   |                    |                           |
|   | 1710-1785       | WCDMA/LTE B3            |                 |                               |                   |                    |                           |
|   | 1710-1755       | WCDMA/LTE B4            |                 |                               |                   |                    |                           |
|   | 824-849         | WCDMA/LTE B5            |                 |                               |                   |                    |                           |
|   | 880-915         | WCDMA/LTE B8            |                 |                               |                   |                    |                           |
|   | 832-862         | WCDMA/LTE B20           |                 |                               |                   |                    |                           |

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Cellular Power Amplifiers

Multimode / Multiband (MMMB) PAs (Continued)

| Part Number | Frequency (MHz) | Description  | Typical PAE (%) | Typical I <sub>MAX</sub> (mA) | Typical Gain (dB) | Supply Voltage (V) | Package (mm)                |
|-------------|-----------------|--|-----------------|-------------------------------|-------------------|--------------------|-----------------------------|
| SKY77630    |                 | Multiband/Multimode PAM  | TBD             | TBD                           | TBD               | TBD                | 42-pad MCM<br>5 x 7 x 0.9   |
|             | 824–849         | GSM850   |                 |                               |                   |                    |                             |
|             | 880–915         | GSM900   |                 |                               |                   |                    |                             |
|             | 1710–1785       | DCS1800  |                 |                               |                   |                    |                             |
|             | 1850–1910       | PCS1900  |                 |                               |                   |                    |                             |
|             | 1920–1980       | WCDMA/LTE B1   |                 |                               |                   |                    |                             |
|             | 1850–1910       | WCDMA/LTE B2   |                 |                               |                   |                    |                             |
|             | 1710–1785       | WCDMA/LTE B3   |                 |                               |                   |                    |                             |
|             | 824–849         | WCDMA/LTE B5   |                 |                               |                   |                    |                             |
|             | 880–915         | WCDMA/LTE B8   |                 |                               |                   |                    |                             |
|             | 832–862         | WCDMA/LTE B20  |                 |                               |                   |                    |                             |
| SKY77631    |                 | Multiband/Multimode PAM  | TBD             | TBD                           | TBD               | TBD                | 42-pad MCM<br>5 x 7 x 0.9   |
|             | 824–849         | GSM850   |                 |                               |                   |                    |                             |
|             | 880–915         | GSM900   |                 |                               |                   |                    |                             |
|             | 1710–1785       | DCS1800  |                 |                               |                   |                    |                             |
|             | 1850–1910       | PCS1900  |                 |                               |                   |                    |                             |
|             | 1920–1980       | WCDMA/LTE B1   |                 |                               |                   |                    |                             |
|             | 1850–1910       | WCDMA/LTE B2   |                 |                               |                   |                    |                             |
|             | 1710–1785       | WCDMA/LTE B3   |                 |                               |                   |                    |                             |
|             | 1710–1755       | WCDMA/LTE B4   |                 |                               |                   |                    |                             |
|             | 824–849         | WCDMA/LTE B5   |                 |                               |                   |                    |                             |
|             | 699–716         | WCDMA/LTE B12  |                 |                               |                   |                    |                             |
| SKY77632    |                 | Multiband PAM  | TBD             | TBD                           | TBD               | TBD                | 42-pad MCM<br>5 x 7 x 0.9   |
|             | 824–849         | GSM850   |                 |                               |                   |                    |                             |
|             | 880–915         | GSM900   |                 |                               |                   |                    |                             |
|             | 1710–1785       | DCS1800  |                 |                               |                   |                    |                             |
|             | 1850–1910       | PCS1900  |                 |                               |                   |                    |                             |
|             | 1920–1980       | WCDMA/LTE B1   |                 |                               |                   |                    |                             |
|             | 1850–1910       | WCDMA/LTE B2   |                 |                               |                   |                    |                             |
|             | 1710–1785       | WCDMA/LTE B3   |                 |                               |                   |                    |                             |
|             | 1710–1755       | WCDMA/LTE B4   |                 |                               |                   |                    |                             |
|             | 824–849         | WCDMA/LTE B5   |                 |                               |                   |                    |                             |
|             | 880–915         | WCDMA/LTE B8   |                 |                               |                   |                    |                             |
| SKY77753    |                 | PAM for Penta-band FDD LTE/TD–SCDMA/TDD LTE                      | TBD             | TBD                           | TBD               | TBD                | 26-pad MCM<br>5 x 3.5 x 0.9 |
|             | 2500–2570       | LTE B7   |                 |                               |                   |                    |                             |
|             | 2570–2620       | LTE B38  |                 |                               |                   |                    |                             |
|             | 1880–1920       | LTE B39  |                 |                               |                   |                    |                             |
|             | 2300–2400       | LTE B40  |                 |                               |                   |                    |                             |
|             | 2496–2690       | LTE B41  |                 |                               |                   |                    |                             |
|             | 2010–2025       | TD–SCDMA B34   |                 |                               |                   |                    |                             |
|             | 1880–1920       | TD–SCDMA B39   |                 |                               |                   |                    |                             |
|             | 2300–2400       | TD–SCDMA B40   |                 |                               |                   |                    |                             |
|             |                 |  |                 |                               |                   |                    |                             |
| SKY77754-11 |                 | PAM for Penta-band TD-SCDMA / TDD LTE – Bands 34, 38, 39, 40, 41 | TBD             | TBD                           | TBD               | TBD                | 26-pad MCM<br>5 x 3.5 x 0.9 |
|             | 2570–2620       | LTE B38  |                 |                               |                   |                    |                             |
|             | 1880–1920       | LTE B39  |                 |                               |                   |                    |                             |
|             | 2300–2400       | LTE B40  |                 |                               |                   |                    |                             |
|             | 2496–2690       | LTE B41  |                 |                               |                   |                    |                             |
|             | 2010–2025       | TD-SCDMA B34   |                 |                               |                   |                    |                             |
|             | 1880–1920       | TD-SCDMA B39   |                 |                               |                   |                    |                             |
|             |                 |  |                 |                               |                   |                    |                             |



## Cellular Power Amplifiers

### TD-SCDMA PAs



| Part Number   | Frequency (MHz)        | Description      | Typical PAE (%) | Typical Gain (dB) | Supply Voltage (V) | Package (mm)               |
|---|------------------------|------------------|-----------------|-------------------|--------------------|----------------------------|
| SKY77161  | 2010–2025              | PAM for TD-SCDMA | 41              | 27.5              | 3.2–4.2            | 10-pin MCM<br>4 x 4 x 1.2  |
|  SKY77198-12 | 1880–1920<br>2010–2025 | PAM for TD-SCDMA | 39              | 27.0              | 3.2–4.2            | 10-pad MCM<br>3 x 3 x 0.85 |

### WCDMA PAs



#### Single Band Modules—Band 1

| Part Number  | Frequency (MHz) | Description                                      | Typical PAE (%) | Typical Gain (dB) | Supply Voltage (V) | Package (mm)              |
|--|-----------------|--|-----------------|-------------------|--------------------|---------------------------|
| SKY77174   | 1920–1980       | PAM for WCDMA/HSDPA                              | 38              | 28.5              | 3.1–4.6            | 10-pin MCM<br>4 x 4 x 1.1 |
|  SKY77446 | 1920–1980       | LIPA® Module for for WCDMA/HSDPA/<br>HSUPA/HSPA+ | 31              | 28.0              | 3.0–4.6            | 10-pad MCM<br>4 x 3 x 0.9 |
|  SKY77701 | 1920–1980       | PAM for CDMA/WCDMA/HSDPA/HSUPA/<br>HSPA+/LTE     | 39              | 27.0              | 3.2–4.2            | 10-pad MCM<br>3 x 3 x 0.9 |




#### Single Band Modules—Band 2

| Part Number  | Frequency (MHz) | Description                                  | Typical PAE (%) | Typical Gain (dB) | Supply Voltage (V) | Package (mm)               |
|--|-----------------|--|-----------------|-------------------|--------------------|----------------------------|
|  SKY77447 | 1850–1910       | LIPA® Module for WCDMA/HSDPA/<br>HSUPA/HSPA+ | 34.5            | 29.0              | 3.0–3.4            | 10-pad MCM<br>4 x 3 x 0.9  |
|  SKY77702 | 1850–1910       | PAM for WCDMA/HSDPA/HSUPA/HSPA+/LTE          | 40.0            | 28.5              | 3.2–4.2            | 10-pad MCM<br>3 x 3 x 0.85 |

#### Single Band Modules—Band 4

| Part Number  | Frequency (MHz) | Description                                  | Typical PAE (%) | Typical Gain (dB) | Supply Voltage (V) | Package (mm)              |
|--|-----------------|--|-----------------|-------------------|--------------------|---------------------------|
|  SKY77460 | 1710–1785       | LIPA® Module for WCDMA/HSPA+                 | 28.5            | 29.0              | 3.0–3.4            | 10-pad MCM<br>4 x 3 x 0.9 |
|  SKY77703 | 1710–1785       | PAM for CDMA/WCDMA/HSDPA/HSUPA/<br>HSPA+/LTE | 39.0            | 27.0              | 3.2–4.2            | 10-pad MCM<br>3 x 3 x 0.9 |



#### Single Band Modules—Band 5 & 6

| Part Number  | Frequency (MHz) | Description   | Typical PAE (%) | Typical Gain (dB) | Supply Voltage (V) | Package (mm)              |
|--|-----------------|---|-----------------|-------------------|--------------------|---------------------------|
|  SKY77448 | 824–849         | LIPA® Module for WCDMA/HSDPA/HSUPA/<br>HSPA+        | 34              | 28.0              | 3.0–3.4            | 10-pad MCM<br>4 x 3 x 0.9 |
|  SKY77704 | 824–849         | PAM for CDMA/WCDMA/HSDPA/HSUPA/<br>HSPA+/LTE        | 39              | 27.0              | 3.2–4.2            | 10-pad MCM<br>3 x 3 x 0.9 |
|  SKY77765 | 815–849         | SkyHi™ PAM for CDMA/WCDMA/HSDPA/<br>HSUPA/HSPA+/LTE | 50              | 28.0              | 3.2–4.2            | 10-pad MCM<br>3 x 3 x 0.9 |



## Cellular Power Amplifiers

### WCDMA PAs (Continued)



#### Single Band Modules—Band 8

| Part Number  | Frequency (MHz) | Description                              | Typical PAE (%) | Typical Gain (dB) | Supply Voltage (V) | Package (mm)           |
|--|-----------------|--|-----------------|-------------------|--------------------|------------------------|
|  SKY77461 | 880–915         | LIPA <sup>®</sup> Module for WCDMA/HSPA+ | 33              | 28                | 3.0–3.4            | 10-pad MCM 4 x 3 x 0.9 |
|  SKY77705 | 880–915         | PAM for WCDMA/HSDPA/HSUPA/HSPA+/LTE      | 39              | 27                | 3.2–4.2            | 10-pad MCM 3 x 3 x 0.9 |

#### Multiband Modules—Band 1 & 8

| Part Number  | Frequency (MHz)      | Description  | Typical PAE (%) | Typical Gain (dB) | Supply Voltage (V) | Package (mm)               |
|--|----------------------|--|-----------------|-------------------|--------------------|----------------------------|
|  SKY77195           | 1920–1980<br>880–915 | PAM for WCDMA/HSDPA  | 40              | 27                | 3.2–4.2            | 10-pad MCM<br>5 x 4 x 0.85 |
| SKY77741   | 1920–1980<br>880–915 | PAM for CDMA2000/WCDMA/<br>HSDPA/HSUPA                         | 47              | 27                | 3.2–4.2            | 16-pad MCM<br>4 x 3 x 0.9  |
|  <b>SKY77751-12</b> | 1920–1980<br>880–915 | SkyHi <sup>™</sup> PAM for CDMA2000/WCDMA/<br>HSDPA/HSUPA, LTE | 47              | 27                | 3.2–4.2            | 16-pad MCM<br>4 x 3 x 0.9  |



#### Multiband Modules—Band 2 & 5

| Part Number  | Frequency (MHz)      | Description  | Typical PAE (%) | Typical Gain (dB) | Supply Voltage (V) | Package (mm)               |
|--|----------------------|--|-----------------|-------------------|--------------------|----------------------------|
|  SKY77196  | 1850–1910<br>824–849 | PAM for WCDMA/HSDPA  | 40              | 27                | 3.2–4.2            | 14-pin MCM<br>5 x 4 x 0.85 |
| SKY77742   | 1850–1910<br>824–849 | PAM for CDMA2000/WCDMA/<br>HSDPA/HSUPA                         | 47              | 27                | 3.2–4.2            | 16-pad MCM<br>4 x 3 x 0.9  |
|  SKY77752 | 1850–1910<br>824–849 | SkyHi <sup>™</sup> PAM for CDMA2000/WCDMA/<br>HSDPA/HSUPA, LTE | 47              | 27                | 3.2–4.2            | 16-pad MCM<br>4 x 3 x 0.9  |

#### Multiband Modules—Band 1 & 5

| Part Number  | Frequency (MHz)      | Description         | Typical PAE (%) | Typical Gain (dB) | Supply Voltage (V) | Package (mm)               |
|--|----------------------|---------------------|-----------------|-------------------|--------------------|----------------------------|
|  SKY77197 | 824–849<br>1920–1980 | PAM for WCDMA/HSDPA | 40              | 27                | 3.2–4.2            | 14-pad MCM<br>5 x 4 x 0.85 |

#### Multiband Modules—Band 1, 2, 5, 8

| Part Number  | Frequency (MHz)   | Description  | Package (mm)                  |
|--|---|--|-------------------------------|
|  <b>SKY77742-21</b> | 1920–1980<br>1850–1910<br>1710–1785<br>824–849<br>880–915 | Broadband Power Amplifier Module for WCDMA/HSDPA/HSUPA/HSPA+<br>(Bands I, II, IV, V, VIII) CDMA (Bands I, II, V)<br>WCDMA B1<br>WCDMA B2<br>WCDMA B4<br>WCDMA B5<br>WCDMA B8 | 16-pad MCM<br>3.0 x 4.0 x 0.9 |
|  SKY77758           | 1920–1980<br>1850–1910<br>824–849<br>880–915              | Broadband PAM for WCDMA/HSDPA/HSUPA/HSPA+<br>(Bands 1, 2, 5, 8)<br>WCDMA B1<br>WCDMA B2<br>WCDMA B5<br>WCDMA B8  | 14-pad MCM<br>3.0 x 4.2 x 0.9 |

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## WiFi Connectivity

### 2.5 GHz Power Amplifiers

| Part Number | Frequency Range (GHz) | Test Frequency (GHz) | Typ. Gain (dB) | OIP3 (dBm) | P <sub>1</sub> dB (dBm) | PAE (%) | V <sub>CC</sub> (V) | Typ. Quiescent Current (mA) | Typ. Noise Figure (dB) | Package (mm)               |
|-------------|-----------------------|----------------------|----------------|------------|-------------------------|---------|---------------------|-----------------------------|------------------------|----------------------------|
| SE2425U     | 2.4–2.5               | 2.45                 | 28.2           | –          | –                       | –       | 3.3                 | –                           | –                      | 16-pin QFN<br>3 x 3 x 0.5  |
| SE2527L     | 2.4–2.5               | 2.45                 | 33.0<br>34.0   | –          | 26.5<br>28.5            | –       | 3.5<br>5.0          | –                           | –                      | 16-pin QFN<br>4 x 4 x 0.9  |
| SE2528L     | 2.4–2.5               | 2.45                 | 33.0<br>34.0   | –          | 26.5<br>28.5            | –       | 3.3<br>5.0          | –                           | –                      | 16-pin QFN<br>4 x 4 x 0.9  |
| SE2565T     | 2.4–2.5               | 2.45                 | 31.0           | –          | 30.0                    | –       | 3.3                 | –                           | –                      | 16-pin QFN<br>3 x 3 x 0.6  |
| SE2568L     | 2.4–2.5               | 2.45                 | 27.0<br>27.0   | –          | 25.0<br>25.0            | –       | 3.3<br>5.0          | 90<br>100                   | –                      | 8-pin QFN<br>2 x 2 x 0.9   |
| SE2568U     | 2.4–2.5               | 2.45                 | 27.0<br>27.0   | –          | 25.0<br>25.0            | –       | 3.3<br>5.0          | 90<br>100                   | –                      | 8-pin QFN<br>2 x 2 x 0.5   |
| SE2574BL-R  | 2.4–2.5               | 2.45                 | 27.0           | –          | 25.0                    | –       | 3.3                 | –                           | –                      | 8-pin QFN<br>2 x 2 x 0.9   |
| SE2574L     | 2.4–2.5               | 2.45                 | 28.0           | –          | 25.0                    | –       | 3.3                 | –                           | –                      | 8-pin QFN<br>2 x 2 x 0.9   |
| SE2576L     | 2.4–2.5               | 2.45                 | 33.0           | –          | 32.0                    | –       | 5.0                 | –                           | –                      | 16-pin QFN<br>3 x 3 x 0.9  |
| SE2597L     | 2.4–2.5               | 2.45                 | 28.0           | –          | 26.5                    | –       | 3.3                 | 125                         | –                      | 16-pin QFN<br>3 x 3 x 0.9  |
| SE2598L     | 2.4–2.5               | 2.45                 | 28.0           | –          | 26.5                    | –       | 3.3                 | 125                         | –                      | 16-pin QFN<br>3 x 3 x 0.9  |
| SE2604L     | 2.4–2.5               | 2.45                 | 32.0           | –          | 30.0                    | –       | 3.3                 | –                           | –                      | 16-pin QFN<br>3 x 3 x 0.6  |
| SE2605L     | 2.4–2.5               | 2.45                 | 33.0           | –          | 32.0                    | –       | 5.0                 | –                           | –                      | 16-pin QFN<br>3 x 3 x 0.9  |
| SE2609L     | 2.4–2.5               | 2.45                 | 28.0<br>28.0   | –          | 25.5<br>25.5            | –       | 3.3<br>5.0          | 100                         | –                      | 8-pin QFN<br>2 x 2 x 0.9   |
| SE2623L     | 2.4–2.5               | 2.45                 | 33.0           | –          | 32.0                    | –       | 5.0                 | –                           | –                      | 16-pin QFN<br>3 x 3 x 0.9  |
| SKY65131    | 2.4–2.5               | 2.442                | 26.0           | –          | –                       | 28      | 38.0                | 3.3                         | 150                    | 16-pin MCM<br>4 x 4 x 1.5  |
| SKY65152-11 | 2.4–2.5               | 2.442                | 32.0           | 42         | 33.0                    | 33      | 5.0                 | 490                         | 5                      | 20-pin MCM<br>6 x 6 x 1.05 |
| SKY65174-21 | 2.4–2.5               | 2.442                | 35.0           | –          | –                       | –       | 5.0                 | 285                         | 7                      | 10-pin MCM<br>4 x 4 x 0.85 |

| Part Number   | Frequency Range (GHz) | Test Frequency (GHz) | Typ. Gain (dB) | OIP3 (dBm) | OP <sub>1</sub> dB (dBm) | P <sub>1</sub> dB (dBm) | V <sub>CC</sub> (V) | V <sub>DD</sub> (V) | Typ. Quiescent Current (mA) | Typ. Noise Figure (dB) | Package (mm)              |
|---------------|-----------------------|----------------------|----------------|------------|--------------------------|-------------------------|---------------------|---------------------|-----------------------------|------------------------|---------------------------|
| SKY65162-70LF | 0.4–2.7               | 0.915                | 20.0           | 46.5       | 28.0                     | –                       | –                   | 5                   | 188                         | –                      | 4-pin SOT-89              |
|               | 0.4–2.7               | 1.960                | 15.0           | 43.0       | 30.2                     | –                       | –                   | 5                   | 188                         | –                      | 4.5 x 2.4 x 1.5           |
|               | 0.4–2.7               | 2.400                | 13.2           | 43.5       | 29.5                     | –                       | –                   | 5                   | 188                         | –                      |                           |
|               | 0.4–2.7               | 2.400                | 13.2           | 43.8       | 30.0                     | –                       | –                   | 5                   | 188                         | –                      |                           |
| SKY65900-11   | 2.4–2.5               | TBD                  | TBD            | –          | 34.0                     | –                       | TBD                 | –                   | TBD                         | 275                    | 16-pin QFN<br>4 x 4 x 0.9 |

## WiFi Connectivity

## 5 GHz Power Amplifiers

| Part Number        | Frequency Range (GHz) | Test Frequency (GHz) | Typ. Gain (dB) | OIP3 (dBm) | P <sub>1</sub> dB (dBm) | PAE (%) | V <sub>CC</sub> (V) | Typ. Quiescent Current (mA) | Typ. Noise Figure (dB) | Package (mm)               |
|--------------------|-----------------------|----------------------|----------------|------------|-------------------------|---------|---------------------|-----------------------------|------------------------|----------------------------|
| SE2537L            | 4.90–5.90             | 5.45                 | 28             | –          | 25                      | –       | 3.3                 | 150                         | –                      | 16-pin QFN<br>3 x 3 x 0.9  |
| SE2567L            | 4.90–5.90             | 5.40                 | 30             | –          | 25                      | –       | 3.3                 | 150                         | –                      | 16-pin QFN<br>3 x 3 x 0.9  |
| SE5003L            | 5.15–5.85             | 5.40                 | 32             | –          | 29                      | –       | 5.0                 | 150                         | –                      | 20-pin QFN<br>4 x 4 x 0.9  |
| SE5003L1-R         | 5.15–5.85             | 5.40                 | 32             | –          | 32                      | –       | 5.0                 | 120                         | –                      | 20-pin QFN<br>4 x 4 x 0.9  |
| SE5004L            | 5.15–5.85             | 5.40                 | 26             | –          | 34                      | –       | 5.0                 | 300                         | –                      | 20-pin QFN<br>4 x 4 x 0.9  |
| SE5005L            | 5.15–5.75             | 5.40                 | 27             | –          | 25                      | –       | 3.3                 | –                           | –                      | 16-pin QFN<br>3 x 3 x 0.9  |
| <b>SE5023L</b>     | 5.15–5.85             | 5.40                 | 32             | –          | 34                      | –       | 5.0                 | –                           | –                      | 16-pin QFN<br>4 x 4 x 0.9  |
| <b>SKY85402-11</b> | 5.15–5.9              | 5.45                 | 32             | –          | 29                      | –       | 5.0                 | 300                         | –                      | 20-pin QFN<br>4 x 4 x 0.85 |

## Dual-band Power Amplifiers

| Part Number | Frequency Range (GHz) | Test Frequency (GHz) | Typ. Gain (dB) | OIP3 (dBm) | P <sub>1</sub> dB (dBm) | PAE (%) | V <sub>CC</sub> (V) | Typ. Quiescent Current (mA) | Typ. Noise Figure (dB) | Package (mm) |
|-------------|-----------------------|----------------------|----------------|------------|-------------------------|---------|---------------------|-----------------------------|------------------------|--------------|
| SE2580L     | 4.9–5.875 (a)         | 5.15, 5.45           | 30.0           | –          | 24.0                    | –       | 3.3                 | 145                         | –                      | 20-pin QFN   |
|             | 2.4–2.5 (b)           | 2.45                 | 30.0           | –          | 27.0                    | –       | 3.3                 | TBD                         | –                      | 3 x 3 x 0.9  |
|             | 2.4–2.5 (g)           | 2.45                 | 30.0           | –          | 27.0                    | –       | 3.3                 | 115                         | –                      |              |



## 2.5 GHz Low Noise Amplifiers

| Part Number        | Frequency (GHz) | Typ. Gain (dB) | V <sub>DD</sub> (V) | Typ. Noise Figure (dB) | Package (mm)                     |
|--------------------|-----------------|----------------|---------------------|------------------------|----------------------------------|
| SE2600S            | 2.4–2.50        | 12             | 3.3                 | 1.8                    | 11-pin CSP<br>1.07 x 1.05 x 0.38 |
| SE2601T            | 2.4–2.50        | 12             | 3.3                 | 1.8                    | 12-pin QFN<br>2 x 2 x 0.6        |
| SKY85202-11        | 2.4–2.5         | 14             | 3.6                 | 2.0                    | 15-bump WLCSP<br>1.04 x 1.04     |
| <b>SKY85203-11</b> | 2.4–2.5         | 14             | 3.6                 | 2.0                    | 12-pin QFN<br>2 x 2 x 0.5        |

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## WiFi Connectivity

### 5 GHz Low Noise Amplifiers

| Part Number   | Frequency Range (GHz) | Test Frequency (GHz) | Typ. Gain (dB) | OIP3 (dBm) | OP <sub>1</sub> dB (dBm) | V <sub>DD</sub> (V) | Typ. Supply Current (mA) | Typ. Noise Figure (dB) | Package (mm)                          |
|---|-----------------------|----------------------|----------------|------------|--------------------------|---------------------|--------------------------|------------------------|---------------------------------------|
| SE5008L   | 4.9–5.850             | –                    | 14             | –          | –                        | 3.3                 | –                        | 2.2                    | 16-pin QFN<br>3 x 3 x 0.9             |
| SKY65404-31   | 4.9–5.900             | 5.8                  | 13             | 20         | 9                        | 3.3                 | 11                       | 1.2                    | 6-pin DFN<br>1.5 x 1.5 x 0.45         |
|  SKY85606-11 | 4.9–5.925             | –                    | 12             | –          | –                        | 3.6                 | –                        | 2.5                    | 15-bump WLCSPP<br>1.04 x 1.04 x 0.285 |
|  SKY85608-11 | 4.9–5.925             | –                    | 12             | 4          | –                        | 3.6                 | 12                       | 2.2                    | 8-pin DFN<br>1.5 x 1.5 x 0.4          |

## Wireless Infrastructure / Femtocell Power Amplifiers

### High Gain Linear PA Modules

| Part Number   | Frequency Range (GHz) | Test Frequency (GHz) | Typ. Gain (dB) | OIP3 (dBm) | P <sub>1</sub> dB (dBm) | V <sub>CC</sub> (V) | Typ. Quiescent Current (mA) | Typ. Noise Figure (dB) | Package (mm)               |
|---|-----------------------|----------------------|----------------|------------|-------------------------|---------------------|-----------------------------|------------------------|----------------------------|
| SKY65120-21   | 2.11–2.17             | 2.14                 | 24.6           | 48         | 33.5                    | 5.0                 | 447                         | 8.4                    | 20-pin MCM<br>6 x 6 x 0.9  |
| SKY65124  | 1.93–1.99             | 1.96                 | 24.0           | 45         | 33.0                    | 5.0                 | 550                         | 6.3                    | 20-pin MCM<br>6 x 6 x 1.45 |
| SKY65126-21   | 0.80–0.90             | 0.85                 | 30.0           | 48         | 32.5                    | 5.0                 | 285                         | 4.5                    | 20-pin MCM<br>6 x 6 x 1.45 |
| SKY65127  | 0.70–0.80             | 0.75                 | 36.5           | 44         | 32.5                    | 5.0                 | 264                         | 4.4                    | 20-pin MCM<br>6 x 6 x 1.45 |
| SKY65129-11   | 1.98–2.02             | 2.00                 | 29.5           | –          | 34.5                    | 5.0                 | 425                         | 6.5                    | 20-pin MCM<br>6 x 6 x 1.35 |
| SKY65170-21   | 0.86–0.96             | 0.88                 | 32.0           | 45         | 28.0                    | 5.0                 | 200                         | 6.5                    | 20-pin MCM<br>6 x 6 x 1.35 |
| SKY65171-21   | 1.93–2.17             | 1.96                 | 30.0           | 36         | 28.0                    | 5.0                 | 150                         | 6.5                    | 20-pin MCM<br>6 x 6 x 1.35 |
|  SKY66001-11 | 2.10–2.20             | 2.14                 | 30.0           | 40         | –                       | 5.0                 | 57                          | –                      | 10-pin MCM<br>3 x 3 x 0.9  |
|  SKY66002-11 | 1.90–2.025            | 1.96                 | 30.0           | 40         | –                       | 4.2                 | 60                          | –                      | 10-pin MCM<br>3 x 3 x 0.9  |
|  SKY66005-11 | 0.85–0.92             | 0.883                | 30.0           | –          | –                       | 4.2                 | 46                          | –                      | 10-pin MCM<br>3 x 3 x 0.9  |
|  SKY66008-11 | 0.90–0.99             | 0.9425               | 30.0           | –          | –                       | 4.2                 | 48                          | –                      | 10-pin MCM<br>3 x 3 x 0.9  |
|  SKY66013-11 | 0.70–0.80             | 0.746                | 27.5           | –          | –                       | 4.2                 | 46                          | –                      | 10-pin MCM<br>3 x 3 x 0.9  |

## Smart Energy—Connected Home and Automation 802.15.4, ISM, and ZigBee®

| Part Number    | Frequency Range (GHz) | Test Frequency (GHz) | Typ. Gain (dB) | OIP3 (dBm) | P <sub>1</sub> dB (dBm) | PAE (%) | V <sub>CC</sub> (V) | Typ. Quiescent Current (mA) | Typ. Noise Figure (dB) | Package (mm)                 |
|----------------|-----------------------|----------------------|----------------|------------|-------------------------|---------|---------------------|-----------------------------|------------------------|------------------------------|
| SKY65111-348LF | 0.60–1.1              | 0.915                | 40.0           | 36         | 29.5                    | 50      | 3.5                 | 250                         | 6.5                    | 16-pin QFN<br>3 x 3 x 0.75   |
| SKY65116       | 0.39–0.5              | 0.445                | 35.0           | 43         | 32.5                    | 42      | 3.6                 | 330                         | 6.0                    | 12-pin MCM<br>8 x 8 x 1.45   |
| SE2425U        | 2.4–2.5               | 2.450                | 28.2           | –          | –                       | –       | 2.0–3.3             | –                           | –                      | 16-pin QFN<br>3 x 3 x 0.5    |
| SE2433T        | 2.4–2.5               | 2.450                | 22.0           | –          | 24.0                    | 31      | 2.0–3.6             | 30                          | –                      | 12-pin QFN<br>2 x 2.5 x 0.55 |

## BDS / GPS / GNSS Low Noise Amplifiers

| Part Number    | Frequency (MHz) | Test Frequency (MHz) | Description                      | Gain (dB) | V <sub>DD</sub> (V) | IP <sub>1</sub> dB (dBm) | NF (dB) | Package (mm)                  |
|----------------|-----------------|----------------------|----------------------------------|-----------|---------------------|--------------------------|---------|-------------------------------|
| SKY65601-477LF | 1561–1606       | 1575                 | BDS/GPS/GNSS Low-Noise Amplifier | 16.8      | 2.85                | -13                      | 0.8     | 6-pin DFN<br>2.0 x 1.3 x 0.45 |
| SKY65602-477LF | 1561–1606       | 1575                 | BDS/GPS/GNSS Low-Noise Amplifier | 16.0      | 2.85                | -7.5                     | 0.7     | 6-pin DFN<br>2.0 x 1.3 x 0.45 |

## Broad Market Low Noise Amplifiers (LNAs) and Low Noise Transistors

## Low Noise Amplifiers

| Part Number    | Frequency Range (GHz) | Test Frequency (GHz) | Typ. Gain (dB) | OIP3 (dBm)   | OP <sub>1</sub> dB (dBm) | V <sub>DD</sub> (V) | Typ. Supply Current (mA) | Typ. Noise Figure (dB) | Package (mm)                    |
|----------------|-----------------------|----------------------|----------------|--------------|--------------------------|---------------------|--------------------------|------------------------|---------------------------------|
| SKY65047-360LF | 0.4–3.0               | 1.575                | 16.5           | 19.5         | 0                        | 3.3                 | 5                        | 0.80                   | 8-pin DFN<br>2 x 2 x 0.9        |
| SKY65048-360LF | 0.7–1.2               | 0.900                | 16.5           | 35.0         | 18.0                     | 5                   | 85                       | 0.65                   | 8-pin QFN<br>2 x 2 x 0.9        |
| SKY65050-372LF | 0.45–6.0              | 2.400                | 15.5           | 23.5         | 10.5                     | 3                   | 20                       | 0.65                   | 4-pin SC-70<br>2.2 x 1.35 x 1.1 |
| SKY65404-31    | 4.9-5.9               | 5.800                | 13.0           | 20.0         | 9.0                      | 3.3                 | 11                       | 1.20                   | 6-pin DFN<br>1.5 x 1.5 x 0.45   |
| SKY65405-21    | 2.4–2.5               | 2.450                | 15.0           | 24.0         | 15.0                     | 3.3                 | 12                       | 1.10                   | 6-pin DFN<br>1.5 x 1.5 x 0.45   |
| SKY65971-11    | 2.4-2.5               | 2.450                | 14.5           | –            | –                        | 3.3                 | 13                       | 1.30                   | 6-pin DFN<br>1.5 x 1.5 x 0.45   |
| SKY65981-11    | 5.15-5.85             | 5.800                | 13.0           | –            | –                        | 3.3                 | 12                       | 1.50                   | 6-pin DFN<br>1.5 x 1.5 x 0.45   |
| SKY67012-396LF | 0.3–0.6<br>0.3–0.6    | 0.450<br>0.450       | 16.5<br>15.5   | 24.0<br>18.0 | 14.0<br>15.0             | 3.3<br>3.3          | 15<br>5                  | 0.85<br>1.00           | 8-pin DFN<br>2 x 2 x 0.75       |
| SKY67013-396LF | 0.6–1.5<br>0.6–1.5    | 0.900<br>0.900       | 14.0<br>12.5   | 26.0<br>22.2 | 15.5<br>15.5             | 3.3<br>3.3          | 15<br>5                  | 0.85<br>1.10           | 8-pin DFN<br>2 x 2 x 0.75       |
| SKY67014-396LF | 1.5–3.0               | 2.450                | 13.0<br>12.0   | 28.0<br>18.0 | 15.5<br>16.0             | 3.3<br>3.3          | 18<br>5                  | 0.85<br>1.00           | 8-pin DFN<br>2 x 2 x 0.75       |
| SKY67015-396LF | 0.03–0.30             | 0.250                | 15.5           | 16.0         | 12.0                     | 3.3<br>3.3          | 18<br>5                  | 0.80<br>1.05           | 8-pin DFN<br>2 x 2 x 0.75       |







## Broad Market Low Noise Amplifiers (LNAs) and Low Noise Transistors





### Low Noise Amplifiers (Continued)

| Part Number    | Frequency Range (GHz) | Test Frequency (GHz)             | Typ. Gain (dB)               | OIP3 (dBm)                   | OP <sub>1</sub> dB (dBm)     | V <sub>DD</sub> (V) | Typ. Supply Current (mA) | Typ. Noise Figure (dB)       | Package (mm)              |
|----------------|-----------------------|----------------------------------|------------------------------|------------------------------|------------------------------|---------------------|--------------------------|------------------------------|---------------------------|
| SKY67021-396LF | 0.6–1.2               | 0.900                            | 17.5                         | 40.0                         | 21.7                         | 5                   | 100                      | 0.60                         | 8-pin DFN<br>2 x 2 x 0.75 |
| SKY67022-396LF | 1.6–2.2               | 1.850                            | 17.5                         | 39.5                         | 22.0                         | 5                   | 95                       | 0.65                         | 8-pin DFN<br>2 x 2 x 0.75 |
| SKY67023-396LF | 2.0–3.0               | 2.600                            | 17.3                         | 39.5                         | 19.5                         | 5                   | 100                      | 0.89                         | 8-pin DFN<br>2 x 2 x 0.75 |
| SKY67100-396LF | 1.2–3.0               | 1.950                            | 17.5                         | 34.0                         | 18.5                         | 4                   | 56                       | 0.70                         | 8-pin DFN<br>2 x 2 x 0.75 |
| SKY67101-396LF | 0.4–1.2               | 0.900                            | 17.5                         | 34.0                         | 19.0                         | 4                   | 56                       | 0.50                         | 8-pin DFN<br>2 x 2 x 0.75 |
| SKY67102-396LF | 2.0–3.0               | 2.600                            | 17.2                         | 33.8                         | 15.0                         | 4                   | 50                       | 0.80                         | 8-pin DFN<br>2 x 2 x 0.9  |
| SKY67105-306LF | 0.6–1.1               | 0.850                            | 37.0                         | 41.0                         | 26.0                         | 5                   | 138                      | 0.70                         | 16-pin QFN<br>4 x 4 x 0.9 |
| SKY67106-306LF | 1.5–3.0               | 1.950                            | 35.0                         | 37.0                         | 24.0                         | 5                   | 100                      | 0.65                         | 16-pin QFN<br>4 x 4 x 0.9 |
| SKY67107-306LF | 2.3–2.8               | 2.600                            | 32.0                         | 37.5                         | 18.5                         | 5                   | 125                      | 0.85                         | 16-pin QFN<br>4 x 4 x 0.9 |
| SKY67110-396LF | 0.3-0.70              | 0.500                            | 21.0                         | 37.0                         | 21.0                         | 5                   | 76                       | 0.65                         | 8-pin DFN<br>2 x 2 x 0.75 |
| SKY67111-396LF | 0.7–1.2               | 0.900                            | 20.7                         | 39.6                         | 20.0                         | 5                   | 77                       | 0.50                         | 8-pin DFN<br>2 x 2 x 0.75 |
| SKY67150-396LF | 0.3–2.2               | 0.450<br>0.849<br>1.900          | 23.0<br>20.5<br>14.5         | 36<br>39<br>36.5             | 19<br>21<br>18               | 5<br>5<br>5         | 82<br>82<br>82           | 0.45<br>0.23<br>0.38         | 8-pin DFN<br>2 x 2 x 0.75 |
| SKY67151-396LF | 0.7–3.8               | 0.900<br>1.900<br>2.500<br>3.600 | 26.0<br>20.5<br>19.0<br>16.5 | 36.0<br>36.0<br>37.0<br>34.0 | 22.0<br>19.0<br>19.0<br>19.0 | 5<br>5<br>5<br>5    | 80<br>70<br>70<br>70     | 0.25<br>0.35<br>0.49<br>0.70 | 8-pin DFN<br>2 x 2 x 0.75 |
| SKY67153-396LF | 0.7–3.8               | 0.849<br>2.500<br>3.600          | 26.0<br>19.0<br>16.5         | 34.5<br>36.0<br>36.0         | 21.5<br>20.0<br>18.0         | 5<br>5<br>5         | 80<br>72<br>80           | 0.25<br>0.50<br>0.70         | 8-pin DFN<br>2 x 2 x 0.75 |
| SKY67161-306LF | 0.6–1.1               | 0.850                            | 38.0                         | 39.0                         | 24.5                         | 5.00                | 115                      | 0.30                         | 16-pin QFN<br>4 x 4 x 0.9 |
| SKY67175-306LF | 2.32-2.34             | 2.34                             | 30.5                         | 31                           | 19                           | 5                   | 80                       | 0.55                         | 16-pin QFN<br>4 x 4 x 0.9 |
| SKY67215-11    | 0.4–0.7               | 0.500                            | 21.5                         | 35.5                         | 18.5                         | 5.00                | 75                       | 0.67                         | 16-pin MCM<br>4 x 4 x 1.3 |
| SKY67216-11    | 0.5–1.2               | 0.850                            | 19.0                         | 35.5                         | 21.0                         | 5.00                | 65                       | 0.62                         | 16-pin MCM<br>4 x 4 x 1.3 |
| SKY67221-11    | 1.6–2.1               | 1.950                            | 18.5                         | 37.0                         | 20.7                         | 5.00                | 85                       | 0.90                         | 16-pin MCM<br>4 x 4 x 1.3 |
| SKY67226-11    | 2.2–3.0               | 2.500                            | 16.5                         | 37.5                         | 22.0                         | 5.00                | 89                       | 1.00                         | 16-pin MCM<br>4 x 4 x 1.3 |



**Driver Amplifiers / Linear Amplifiers**

| Part Number  | Frequency Range (GHz)         | Test Frequency (GHz)             | Typ. Gain (dB)               | OIP3 (dBm)                   | OP <sub>1</sub> dB (dBm)     | V <sub>DD</sub> (V) | Typ. Supply Current (mA) | V <sub>CC</sub> (V) | Typ. Quiescent Current (mA) | Typ. Noise Figure (dB) | Package (mm)                                   |
|--|-------------------------------|----------------------------------|------------------------------|------------------------------|------------------------------|---------------------|--------------------------|---------------------|-----------------------------|------------------------|--|
| SKY65008   | 0.25–2.7                      | 1.960                            | 20.0                         | 33.0                         | 21.0                         | –                   | –                        | 3.3                 | 76                          | 3.0                    | 3-pin MCM<br>4 x 4 x 1.5                       |
|  SKY65009-70LF    | 0.25–2.5                      | 1.960                            | 12.0                         | 42.0                         | 27.0                         | –                   | –                        | 3.3 or 5            | 100                         | 4.3                    | 4-pin SOT-89<br>4.5 x 2.5 x 1.5                |
|  SKY65045-70LF    | 0.39–1.5                      | 0.8975                           | 14.0                         | 37.5                         | 25.0                         | –                   | –                        | 5                   | 46                          | 1.8                    | 4-pin SOT-89<br>4.5 x 2.5 x 1.5                |
| SKY65080-70LF  | 1.5–2.5                       | 1.850                            | 15.0                         | 40.5                         | 21.0                         | –                   | 100                      | 5                   | 66                          | 2.3                    | 4-pin SOT-89<br>4.5 x 2.5 x 1.5                |
| SKY65081-70LF  | 2.0–3.0                       | 2.600                            | 14.3                         | 43.9                         | 22.3                         | –                   | 75                       | 5                   | 55                          | 2.0                    | 4-pin SOT-89<br>4.5 x 2.5 x 1.5                |
| SKY65094-360LF   | 0.698–0.915                   | 0.830                            | 17.0                         | 46.5                         | 25.5                         | –                   | 200                      | 5                   | 130                         | 3.2                    | 8-pin DFN<br>2 x 2 x 0.9                       |
| SKY65095-360LF   | 1.6–2.1                       | 1.880                            | 15.0                         | 46.5                         | 27.0                         | –                   | 320                      | 5                   | 135                         | 4.4                    | 8-pin DFN<br>2 x 2 x 0.9                       |
|  SKY65099-360LF   | 0.7–2.7<br>0.7–2.7<br>0.7–2.7 | 0.78<br>2.15<br>2.60             | 23.0<br>15.8<br>14.5         | 41.5<br>41.0<br>41.3         | 24.0<br>24.0<br>24.0         | –                   | 150<br>170<br>158        | 5<br>5<br>5         | 88<br>88<br>88              | 2.8<br>2.6<br>2.5      | 8-pin DFN<br>2 x 2 x 0.9                       |
| SKY65112-84LF  | 0.4–2.3                       | 0.940                            | 18.0                         | 39.0                         | 27.0                         | –                   | –                        | 5                   | 260                         | –                      | SOIC-8<br>Exposed Paddle<br>5.99 x 4.73 x 1.55 |
| SKY65113-84LF  | 0.4–2.3                       | 0.940                            | 20.0                         | 40.0                         | 30.0                         | –                   | –                        | 5                   | 450                         | –                      | SOIC-8<br>Exposed Paddle<br>5.99 x 4.73 x 1.55 |
| SKY65162-70LF  | 0.4–2.7                       | 0.915<br>1.960<br>2.400<br>2.400 | 20.0<br>15.0<br>13.2<br>13.2 | 46.5<br>43.0<br>43.5<br>43.8 | 28.0<br>30.2<br>29.5<br>30.0 | 5<br>5<br>5<br>5    | 400<br>400<br>400<br>400 | –<br>–<br>–<br>–    | 188<br>188<br>188<br>188    | –<br>–<br>–<br>–       | 4-pin SOT-89<br>4.5 x 2.5 x 1.5                |
| SKY65173-70LF  | 0.869–0.960                   | 0.920                            | 16.5                         | 44.0                         | 26.5                         | –                   | 235                      | 5                   | 156                         | 2.6                    | 4-pin SOT-89<br>2.4 x 4.5 x 1.5                |
|  SKY67130-396LF | 0.7–2.7                       | 2.600                            | 13.0                         | 39.0                         | 16.0                         | –                   | –                        | 3.3 or 5            | 22                          | 2.6                    | 8-pin DFN<br>2 x 2 x 0.75                      |












**Gain Block (General Purpose) Amplifiers**

| Part Number  | Frequency Range (GHz) | Test Frequency (GHz) | Typ. Gain (dB) | OIP3 (dBm) | P <sub>1</sub> dB (dBm) | Typ. Quiescent Current (mA) | Typ. Noise Figure (dB) | Package (mm)                    |
|--|-----------------------|----------------------|----------------|------------|-------------------------|-----------------------------|------------------------|---------------------------------|
|  SKY65013-70LF  | 0.1–7                 | 2.0                  | 12.5           | 29         | 12.5                    | 40                          | 5.5                    | 4-pin SOT-89<br>4.5 x 2.5 x 1.5 |
|  SKY65013-214LF | LF–6                  | 2.0                  | 11.5           | 29         | 12.5                    | 40                          | 5.4                    | Plastic Micro-X                 |
|  SKY65014-70LF  | 0.1–6                 | 2.0                  | 16.0           | 36         | 18.0                    | 70                          | 4.8                    | 4-pin SOT-89<br>2.4 x 4.5 x 1.5 |
|  SKY65015-70LF  | 0.1–6                 | 2.0                  | 18.0           | 35         | 17.0                    | 70                          | 4.2                    | 4-pin SOT-89<br>4.5 x 2.5 x 1.5 |

## Gain Block (General Purpose) Amplifiers

| Part Number   | Frequency Range (GHz) | Test Frequency (GHz) | Typ. Gain (dB) | OIP3 (dBm) | P <sub>1</sub> dB (dBm) | Typ. Quiescent Current (mA) | Typ. Noise Figure (dB) | Package (mm)                    |
|---|-----------------------|----------------------|----------------|------------|-------------------------|-----------------------------|------------------------|---------------------------------|
| SKY65015-92LF   | LF-6                  | 2.0                  | 18.0           | 35         | 18.0                    | 70                          | 4.8                    | 6-pin SC-88<br>2.1 x 2.0 x 0.95 |
|  SKY65016-70LF | 0.1-3                 | 2.0                  | 20.0           | 27         | 14.0                    | 40                          | 4.8                    | 4-pin SOT-89<br>4.5 x 2.5 x 1.5 |
|  SKY65017-70LF | 0.1-6                 | 2.0                  | 20.0           | 35         | 20.0                    | 100                         | 4.5                    | 4-pin SOT-89<br>4.5 x 2.5 x 1.5 |

## Variable Gain Amplifiers (VGAs)

| Part Number  | Operating Frequency (MHz) | Architecture   | Attenuation Type | Control Range (dB) | Step Size (dB) | Gain (dB) | Min. NF | IP3 (dBm)   | P <sub>1</sub> dB (dBm)   | Supply Voltage (V) | Package (mm)                       |
|--|---------------------------|----------------|------------------|--------------------|----------------|-----------|---------|-------------|---------------------------|--------------------|------------------------------------|
| SKY65175   | 1710-1950                 | Single Channel | Analog           | 18.0               | N/A            | 26.0      | 2.8     | OIP3 = 41.5 | OP <sub>1</sub> dB = 29   | 5                  | 12-pin MCM<br>8 x 8 x 1.35         |
|  SKY65185             | 1700-2700                 | Dual Channel   | Digital          | 31.5               | 0.5            | 15.0      | 4.5     | OIP3 = 41   | OP <sub>1</sub> dB = 26   | 5                  | 32-pin MCM<br>7 x 7 x 1.35         |
| SKY65186-11  | 330-2700                  | Dual Channel   | Digital          | 31.5               | 0.5            | 13.5      | 5.0     | OIP3 = 36   | OP <sub>1</sub> dB = 20   | 5                  | 32-pin MCM<br>7 x 7 x 1.35         |
| SKY65187-11  | 2000-2230                 | Single Channel | Analog           | 30.0               | N/A            | 24.0      | 2.7     | OIP3 = 41.5 | OP <sub>1</sub> dB = 28   | 5                  | 12-pin MCM<br>8.385 x 8.385 x 1.35 |
|  SKY65369-11        | 832-862                   | Single Channel | Analog           | >35.0              | Analog         | 42.0      | 0.85    | IIP3 = 3.5  | IP <sub>1</sub> dB = -8.5 | 5                  | 16-pin MCM<br>8 x 8 x 1.3          |
|  SKY65370-11        | 814-849                   | Single Channel | Analog           | >35.0              | Analog         | 39.0      | 0.82    | IIP3 = 5    | IP <sub>1</sub> dB = -8.5 | 5                  | 16-pin MCM<br>8 x 8 x 1.3          |
|  SKY65371-11        | 880-915                   | Single Channel | Analog           | >35.0              | Analog         | 39.0      | 0.82    | IIP3 = 5    | IP <sub>1</sub> dB = -7.5 | 5                  | 16-pin MCM<br>8 x 8 x 1.3          |
|  <b>SKY65372-11</b> | 699-748                   | Single Channel | Analog           | >35.0              | Analog         | 42        | 0.8     | IIP3 = 2    | IP <sub>1</sub> dB = -10  | 5                  | 16-pin MCM<br>8 x 8 x 1.3          |
|  SKY65373-11        | 1710-1785                 | Single Channel | Analog           | >35.0              | Analog         | 42.0      | 0.82    | IIP3 = 5    | IP <sub>1</sub> dB = -11  | 5                  | 16-pin MCM<br>8 x 8 x 1.3          |
|  SKY65374-11        | 1850-1915                 | Single Channel | Analog           | >35.0              | Analog         | 39.0      | 0.85    | IIP3 = 5    | IP <sub>1</sub> dB = -7.5 | 5                  | 16-pin MCM<br>8 x 8 x 1.3          |
|  <b>SKY65375-11</b> | 1920-1980                 | Single Channel | Analog           | >35.0              | Analog         | 43.0      | 0.9     | IIP3 = 6    | IP <sub>1</sub> dB = -5.5 | 5                  | 16-pin MCM<br>8 x 8 x 1.3          |
|  <b>SKY65376-11</b> | 2500-2570                 | Single Channel | Analog           | >35.0              | Analog         | 40.0      | 1.1     | IIP3 = 5    | IP <sub>1</sub> dB = -6   | 5                  | 16-pin MCM<br>8 x 8 x 1.3          |
| SKY65385-11  | 791-821                   | Single Channel | Analog           | 33.0               | N/A            | 34.0      | 4.2     | 46          | 31                        | 5                  | 12-pin MCM<br>8.385 x 8.385 x 1.35 |
|  SKY65386-11        | 2620-2690                 | Single Channel | Analog           | 42.0               | N/A            | 25.5      | 3.9     | OIP3 = 41.5 | OP <sub>1</sub> dB = 28.5 | 5                  | 12-pin MCM<br>8.385 x 8.385 x 1.35 |
|  SKY65387-11        | 2000-2230                 | Single Channel | Analog           | 35.0               | N/A            | 30.0      | 3.5     | OIP3 = 42   | OP <sub>1</sub> dB = 28   | 5                  | 12-pin MCM<br>8.385 x 8.385 x 1.35 |
| <b>SKY65388-11</b>   | 695-866                   | Single Channel | Analog           | 34.0               | N/A            | 29.0      | 4.5     | 43          | 26                        | 5                  | 12-pin MCM<br>8.385 x 8.385 x 1.35 |

**NEW** New products (indicated in blue, bold) are continually being introduced at Skyworks. For the latest information, please visit the new products section of our Web site at [www.skyworksinc.com](http://www.skyworksinc.com).

## ATTENUATORS

Skyworks Solutions is pleased to offer a broad selection of GaAs digital attenuators, PIN diode voltage variable attenuators, and silicon fixed attenuator pads for infrastructure, test & measurement, and other high performance microwave applications up to 40 GHz. These product solutions leverage the extensive design knowledge, technical leadership, manufacturing expertise, and superior quality of Skyworks.










Our broad product portfolio also includes plastic packaged PIN diodes for attenuator applications, covering the low frequency to 6 GHz range. Please refer to the PIN Diode section of this guide for more information.

### Select Digital Attenuators













#### Select Digital Attenuators Available from Stock for Prototype or High Volume Production

Skyworks' extensive portfolio of RF microwave products include solutions for wireless communications infrastructure systems, such as cellular telephone base stations (4G and LTE), WiFi connectivity access points, land-mobile radio systems, point-to-point radio links, and more. Skyworks' digital attenuators attenuate signals in receive and transmit signal paths, and are controlled by serial or parallel interfaces and offer attenuation bit accuracy as great as 0.25 dB.

#### Digital Attenuators for IF / UHF / VHF and Broadband RF Applications

| Part Number  | Frequency Range (GHz) | Number of Bits | Least Significant Bit (dB) | Control Interface | Maximum Attenuation (dB)           | Typical Insertion Loss (dB) | Typical IIP3 (dBm) | Package (mm)               |
|--|-----------------------|----------------|----------------------------|-------------------|------------------------------------|-----------------------------|--------------------|----------------------------|
| AA103-72LF   | LF-2.5                | 1              | 10                         | Parallel          | 10                                 | 0.3-0.4                     | 41                 | SOT-23 5L 2.8 x 2.9 x 1.18 |
|  SKY12406-360LF  | 0.05-0.6              | 1              | 12                         | Parallel          | 12                                 | 0.3                         | 46                 | QFN 8L 2 x 2 x 0.9         |
| AA116-72LF   | 0.004-2.0             | 1              | 15                         | Parallel          | 15                                 | 0.35-0.4                    | 41                 | SOT-23 5L 2.8 x 2.9 x 1.18 |
| AA104-73LF   | LF-2.5                | 1              | 32                         | Parallel          | 32                                 | 0.8-1.0                     | 41                 | SOT-23 6L 2.8 x 2.9 x 1.18 |
|  SKY12407-321LF | 0.05-0.6              | 2              | 12                         | Parallel          | 12 (100 $\Omega$ Differential I/O) | 0.3                         | 48                 | QFN 12L 3 x 3 x 0.75       |
| SKY12324-73LF  | 0.3-3.0               | 2              | 4                          | Parallel          | 12                                 | 0.9-1.3                     | 43                 | SOT-23 6L 2.8 x 2.9 x 1.18 |
|  SKY12338-337LF | 0.35-4.0              | 2              | 6                          | Parallel          | 18                                 | 0.55-1.3                    | 45                 | QFN 12L 3 x 3 x 0.75       |
| SKY12325-350LF   | 0.5-6.0               | 3              | 1                          | Parallel          | 7                                  | 0.7-1.3                     | 47                 | QFN 16L 3 x 3 x 0.75       |
|  SKY12348-350LF | 0.1-3.0               | 4              | 1                          | Parallel          | 15                                 | 0.8-1.2                     | 45                 | QFN 16L 3 x 3 x 0.75       |
|  SKY12340-364LF | 0.3-2.0               | 5              | 0.5                        | SPI               | 15.5                               | 1.4-1.8                     | 45                 | QFN 32L 5 x 5 x 0.9        |
| SKY12322-86LF  | 0.5-4.0               | 5              | 0.5                        | Parallel          | 15.5                               | 1.4-3.0                     | 45                 | MSOP 10L 4.9 x 3 x 0.96    |
| SKY12323-303LF   | 0.5-3.0               | 5              | 1                          | Parallel          | 31                                 | 1.4-2.3                     | 48                 | MSOP 10L 4.9 x 3 x 0.96    |
| SKY12328-350LF   | 0.5-4.0               | 5              | 0.5                        | Parallel          | 15.5                               | 1.1-2.3                     | 42                 | QFN 16L 3 x 3 x 0.75       |
|  SKY12339-350LF | 0.4-3.0               | 5              | 1                          | Parallel          | 31                                 | 1.2-2.0                     | 39                 | QFN 12L 3 x 3 x 0.75       |
|  SKY12345-362LF | 0.7-4.0               | 5              | 0.5                        | SPI               | 15.5                               | 1.2-2.0                     | 42                 | QFN 24L 4 x 4 x 0.9        |
|  SKY12347-362LF | LF-3.0                | 6              | 0.5                        | SPI or Parallel   | 31.5                               | 1.2-2.0                     | 50                 | QFN 24L 4 x 4 x 0.9        |
|  SKY12343-364LF | 0.01-4.0              | 7              | 0.25                       | SPI or Parallel   | 31.75                              | 1.8-1.9                     | 50                 | QFN 32L 5 x 5 x 0.9        |

## Digital Attenuators

| Part Number  | Frequency (GHz) | Control Bits/ Interface Parallel/Serial | Attenuation Range (dB) | LSB Attenuation (dB) | Typ. IL (dB) | Typ. IIP3 (dBm) | Typ. IP <sub>1</sub> (dBm) | Package (mm)               |
|--|-----------------|---|------------------------|----------------------|--------------|-----------------|----------------------------|----------------------------|
| AA103-72LF   | LF-2.5          | 1/P                                     | 10.0                   | 10.0                 | 0.3-0.4      | 41              | 20                         | SOT-23 5L 2.8 x 2.9 x 1.18 |
| AA104-73LF   | LF-2.5          | 1/P                                     | 32.0                   | 32.0                 | 0.8-1.0      | 41              | 21                         | SOT-23 6L 2.8 x 2.9 x 1.18 |
| AA116-72LF   | LF-2.0          | 1/P                                     | 15.0                   | 15.0                 | 0.35-0.4     | 41              | 20                         | SOT 23 5L 2.8 x 2.9 x 1.18 |
|  SKY12406-360LF   | 0.05-0.60       | 1/P                                     | 12.0                   | 12.0                 | 0.3          | 46              | 22                         | QFN 8L 2 x 2 x 0.9         |
|  SKY12407-321LF   | 0.05-0.60       | 2/P                                     | 12.0                   | 12.0                 | 0.3          | 48              | 31                         | QFN 12L 3 x 3 x 0.75       |
|  SKY12408-321LF   | 0.05-0.6        | 2/P                                     | 6.0                    | 6.0                  | 0.3          | 49              | 34                         | QFN 12L 3 x 3 x 0.75       |
|  SKY12355-337LF   | 0.35-4.0        | 2/P                                     | 18.0                   | 6.0                  | 0.45-0.75    | 47              | 28                         | QFN 12L 3 x 3 x 0.75       |
| SKY12324-73LF  | 0.5-3.0         | 2/P                                     | 12.0                   | 4.0                  | 0.9-1.3      | 43              | 30                         | SOT-23 6L 2.8 x 2.9 x 1.18 |
|  SKY12338-337LF   | 0.35-4.0        | 2/P                                     | 18.0                   | 6.0                  | 0.55-1.3     | 45              | 30                         | QFN 12L 3 x 3 x 0.75       |
| SKY12325-350LF   | 0.5-6.0         | 3/P                                     | 7.0                    | 1.0                  | 0.7-1.3      | 47              | 27                         | QFN 16L 3 x 3 x 0.75       |
|  SKY12348-350LF   | 0.1-3.0         | 4/P                                     | 15.0                   | 1.0                  | 0.8-1.2      | 45              | 30                         | QFN 16L 3 x 3 x 0.75       |
| SKY12322-86LF  | 0.5-4.0         | 5/P                                     | 15.5                   | 0.5                  | 1.4-3.0      | 45              | 27                         | MSOP 10L 4.9 x 3 x 0.96    |
| SKY12323-303LF   | 0.5-3.0         | 5/P                                     | 31.0                   | 1.0                  | 1.4-2.3      | 48              | 30                         | MSOP 10L 4.9 x 3 x 0.96    |
| AA106-86LF   | 0.5-2.0         | 5/P                                     | 15.5                   | 0.5                  | 2.0-3.0      | 41              | 21                         | MSOP 10L 4.9 x 3 x 0.96    |
| SKY12328-350LF   | 0.5-4.0         | 5/P                                     | 15.5                   | 0.5                  | 1.1-2.3      | 42              | 30                         | QFN 16L 3 x 3 x 0.75       |
| SKY12329-350LF   | 0.4-4.0         | 5/P                                     | 31.0                   | 1.0                  | 1.2-2.7      | 39              | 29                         | QFN 16L 3 x 3 x 0.75       |
|  SKY12339-350LF | 0.4-3.0         | 5/P                                     | 31.0                   | 1.0                  | 1.2-2.0      | 39              | -                          | QFN 12L 3 x 3 x 0.75       |
|  SKY12340-364LF | 0.3-2.0         | 5/S                                     | 15.5                   | 0.5                  | 1.4-1.8      | 45              | 30                         | QFN 32L 5 x 5 x 0.9        |
|  SKY12349-362LF | 0.7-4.0         | 5/S                                     | 15.5                   | 0.5                  | 1.2-2.0      | 42              | 32                         | QFN 24L 4 x 4 x 0.9        |
|  SKY12345-362LF | 0.7-4.0         | 5/S                                     | 15.5                   | 0.5                  | 1.2-2.0      | 42              | 32                         | QFN 24L 4 x 4 x 0.9        |
|  SKY12347-362LF | DC-3.0          | 6/P                                     | 31.5                   | 0.5                  | 1.2-2.0      | 50              | -                          | QFN 24L 4 x 4 x 0.9        |
| SKY12353-470LF   | 0.01-1.0        | 6/P                                     | 31.5                   | 0.5                  | 1.2-1.8      | 48              | 29                         | QFN 32L 5 x 5 x 0.9        |
|  SKY12343-364LF | 0.01-4.0        | 7/P                                     | 31.75                  | 0.25                 | 1.8-1.9      | 50              | 35                         | QFN 32L 5 x 5 x 0.9        |

## Fixed Attenuator Pads
















Skyworks Solutions is pleased to now offer two fixed attenuator pad options for radar, test & measurement, high frequency transceivers, and other high performance microwave applications up to 40 GHz. The next generation ATN3590 series offers enhanced RF power handling and attenuation flexibility. The unique ATN3590 die design eliminates the need for RF ground bonds enabling greatly improved return loss and attenuation flatness across multi-octave bandwidths.

These two product solutions, available in die form, leverage Skyworks extensive design knowledge, technical leadership, manufacturing expertise and superior quality.

The ATN3590 and ATN3580 attenuator families are optimized for surface mounting on co-planar waveguide or microstrip printed circuit boards. Bond wires or ribbons are used to connect the input and output ports of the attenuators to the external circuit transmission lines. Connection to ground is accomplished by through-die vias to the die backside metallization on the ATN3590 family and bond wires or ribbons on the ATN3580 family.

The dice are attached using eutectic solder or conductive epoxy and can operate over a temperature range of -65 °C to 150 °C.

### ATN3580 Fixed Attenuator Pads

| Part Number  | Nominal Attenuation (dB) | Attenuation Tolerance @ DC (dB) | Attenuation Flatness |                   |                 | Return Loss     |                   |                 |
|--|--------------------------|---------------------------------|----------------------|-------------------|-----------------|-----------------|-------------------|-----------------|
|  |                          |                                 | 0.1–12 GHz (dB)      | 0.1–26.5 GHz (dB) | 0.1–40 GHz (dB) | 0.1–12 GHz (dB) | 0.1–26.5 GHz (dB) | 0.1–40 GHz (dB) |
|  ATN3580-01   | 1                        | ±0.15                           | 0.2                  | 0.4               | 0.6             | 23              | 18                | 15              |
|  ATN3580-02   | 2                        | ±0.15                           | 0.2                  | 0.4               | 0.6             | 23              | 18                | 15              |
|  ATN3580-03   | 3                        | ±0.25                           | 0.2                  | 0.4               | 0.6             | 23              | 18                | 15              |
|  ATN3580-04  | 4                        | ±0.25                           | 0.2                  | 0.4               | 0.6             | 23              | 18                | 15              |
|  ATN3580-05 | 5                        | ±0.25                           | 0.3                  | 0.5               | 0.8             | 23              | 18                | 15              |
|  ATN3580-06 | 6                        | ±0.25                           | 0.3                  | 0.5               | 0.8             | 23              | 18                | 15              |
|  ATN3580-07 | 7                        | ±0.25                           | 0.3                  | 0.5               | 0.8             | 23              | 18                | 15              |
|  ATN3580-08 | 8                        | ±0.35                           | 0.3                  | 0.5               | 0.8             | 23              | 18                | 15              |
|  ATN3580-09 | 9                        | ±0.35                           | 0.3                  | 0.5               | 0.8             | 23              | 18                | 15              |
|  ATN3580-10 | 10                       | ±0.35                           | 0.4                  | 0.6               | 1.0             | 23              | 18                | 15              |
|  ATN3580-12 | 12                       | ±0.50                           | 0.4                  | 0.6               | 1.0             | 23              | 18                | 15              |
|  ATN3580-15 | 15                       | ±0.50                           | 0.4                  | 0.6               | 1.0             | 23              | 18                | 15              |
|  ATN3580-20 | 20                       | ±1.10                           | 0.4                  | 0.6               | 1.0             | 23              | 18                | 15              |
|  ATN3580-30 | 30                       | ±1.60                           | 0.6                  | 1.0               | 2.0             | 23              | 18                | 15              |
|  ATN3580-40 | 40                       | ±1.60                           | 1.0                  | 2.0               | 4.0             | 23              | 18                | 15              |

## Fixed Attenuator Pads

The ATN3590 family of fixed resistive attenuators are integrated circuits comprising thin film resistors and through-die vias that provide excellent attenuation flatness from low frequency to 40 GHz or higher. These attenuators are available from 0 to 30 dB.

The ATN3590 attenuator family is optimized for surface mounting on co-planar waveguide or microstrip printed circuit boards. Bond wires or ribbons are used to connect the input and output ports of the attenuators to the external circuit transmission lines. Connection to ground is accomplished by through-die vias to the die backside metallization.





The dice are attached using eutectic solder or conductive epoxy and can operate over a temperature range of -65 °C to 150 °C.

### ATN3590 Fixed Attenuator Pads

| Part Number | Nominal Attenuation (dB) | Attenuation Tolerance @ DC (dB) | Attenuation Flatness |                |                |                | Return Loss    |                |                |                |
|-------------|--------------------------|---------------------------------|----------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
|             |                          |                                 | DC-12 GHz (dB)       | 12-26 GHz (dB) | 26-33 GHz (dB) | 33-40 GHz (dB) | DC-12 GHz (dB) | 12-26 GHz (dB) | 26-33 GHz (dB) | 33-40 GHz (dB) |
| ATN3590-00  | 0                        | 0.25                            | ±0.15                | ±0.15          | ±0.20          | ±0.20          | 28             | 24             | 20             | 16             |
| ATN3590-01  | 1                        | ±0.20                           | ±0.15                | ±0.15          | ±0.20          | ±0.20          | 28             | 24             | 20             | 16             |
| ATN3590-02  | 2                        | ±0.20                           | ±0.15                | ±0.15          | ±0.20          | ±0.20          | 28             | 24             | 20             | 16             |
| ATN3590-03  | 3                        | ±0.20                           | ±0.15                | ±0.15          | ±0.20          | ±0.20          | 28             | 24             | 20             | 16             |
| ATN3590-04  | 4                        | ±0.20                           | ±0.15                | ±0.15          | ±0.20          | ±0.20          | 28             | 24             | 20             | 16             |
| ATN3590-05  | 5                        | ±0.20                           | ±0.15                | ±0.15          | ±0.20          | ±0.20          | 28             | 24             | 20             | 16             |
| ATN3590-06  | 6                        | ±0.40                           | ±0.15                | ±0.15          | ±0.20          | ±0.20          | 28             | 24             | 20             | 16             |
| ATN3590-07  | 7                        | ±0.40                           | ±0.15                | ±0.15          | ±0.20          | ±0.20          | 28             | 24             | 20             | 16             |
| ATN3590-08  | 8                        | ±0.40                           | ±0.15                | ±0.15          | ±0.20          | ±0.20          | 28             | 24             | 20             | 16             |
| ATN3590-09  | 9                        | ±0.40                           | ±0.20                | ±0.20          | ±0.25          | ±0.30          | 28             | 24             | 20             | 16             |
| ATN3590-10  | 10                       | ±0.40                           | ±0.20                | ±0.20          | ±0.25          | ±0.50          | 28             | 24             | 20             | 16             |
| ATN3590-12  | 12                       | ±0.40                           | ±0.20                | ±0.20          | ±0.30          | ±0.50          | 28             | 24             | 20             | 16             |
| ATN3590-15  | 15                       | ±0.40                           | ±0.20                | ±0.20          | ±0.50          | ±0.75          | 28             | 24             | 20             | 16             |
| ATN3590-20  | 20                       | ±1.0                            | ±0.20                | ±0.20          | ±0.75          | ±1.0           | 28             | 24             | 20             | 16             |
| ATN3590-30  | 30                       | ±1.0                            | ±0.20                | ±0.25          | ±0.75          | ±2.5           | 28             | 24             | 20             | 16             |

## Voltage Variable Attenuators

### 0.7–5 GHz Plastic Packaged Voltage Variable Attenuators—PIN Diode-based

| Part Number   | Frequency (GHz) | Description               | Max. Insertion Loss at Min. Control (dB) | Typ. Attenuation Range at Max. Control (dB) | Min. Input IP3 (dBm) | Control Input Range (mA) | Package (mm)              |
|---|-----------------|---------------------------|--|---|----------------------|--------------------------|---------------------------|
| AV101-12LF  | 0.7–1.0         | HIP3™ Variable Attenuator | 1.5                                      | 20  | 47                   | 0–3.0                    | SOIC 8L<br>6 x 4.9 x 1.6  |
| AV102-12LF  | 1.7–2.0         | HIP3™ Variable Attenuator | 1.5                                      | 20  | 47                   | 0–3.0                    | SOIC 8L<br>6 x 4.9 x 1.6  |
| AV111-12LF  | 0.8–1.0         | HIP3™ Variable Attenuator | 1.5                                      | 25  | 37                   | 0–1.4                    | SOIC 8L<br>6 x 4.9 x 1.6  |
| AV113-12LF  | 2.1–2.3         | HIP3™ Variable Attenuator | 1.6                                      | 22  | 37                   | 0–1.5                    | SOIC 8L<br>6 x 4.9 x 1.6  |
| SKY12228-12LF   | 0.7–1.0         | HIP3™ Variable Attenuator | 1.5                                      | 30  | 60                   | 0–1.5                    | SOIC 8L<br>6 x 4.9 x 1.6  |
| SKY12230-12LF   | 1.7–2.3         | HIP3™ Variable Attenuator | 1.5                                      | 30  | 53                   | 0–1.5                    | SOIC 8L<br>6 x 4.9 x 1.6  |
|  SKY12232-21 | 2.65–3.65       | HIP3™ Variable Attenuator | 1.3                                      | 27  | 40                   | 0–5 V                    | MCM 8L<br>4.9 x 3.2 x 1.0 |
|  SKY12233-11 | 2.1–3.1         | HIP3™ Variable Attenuator | 1.5                                      | 34  | 61                   | 0–5 V                    | MCM 8L<br>4.9 x 3.2 x 1.0 |
|  SKY12235-11 | 1.4–2.4         | HIP3™ Variable Attenuator | 2.5                                      | 36  | 61                   | 0–5 V                    | MCM 8L<br>4.9 x 3.2 x 1.0 |
|  SKY12236-11 | 2.6–5.0         | HIP3™ Variable Attenuator | 2.1                                      | 25  | 43 (Typ.)            | 0–5 V                    | MCM 8L<br>4.9 x 3.2 x 1.0 |

### 3.0–3.8 GHz Plastic Packaged Voltage Variable Attenuators—FET-based

| Part Number  | Frequency (GHz) | Description      | Typ. Insertion Loss Range (dB) | Attenuation Range (dB) | Typ. IP3 > 0.5 GHz (dBm) | Package (mm)         |
|--|-----------------|------------------|--------------------------------|------------------------|--------------------------|----------------------|
|  SKY12146-321LF | 3.0–3.8         | 20 dB Single CTL | 1.5–1.6                        | 32–20                  | 20                       | QFN 12L 3 x 3 x 0.75 |



## CIRCULATORS AND ISOLATORS

Skyworks is pleased to offer our customers innovative and cost-competitive ferrite circulators and isolators for both military and commercial markets. Our circulators deliver industry-leading insertion loss performance, a critical parameter in radar design, of less than 0.25 dB. Skyworks' MAFR-000493-000001, for example, is designed to operate in the L band. It has a typical insertion loss of just 0.16 dB at 1030 MHz. Our MAFR-000403 S band circulator, optimized from 2.7 GHz to 3.1 GHz, has a typical insertion loss of only 0.25 dB. And these are just a few examples of our product offerings. Skyworks achieves best-in-class performance through a systematic approach including Six Sigma tools and methodologies, which help ensure quality and reliability from product development through volume production. All production facilities are certified to ISO9001 and ISO14001 standards and our products are compliant to the European Union's RoHS directive 2002/95/EC.

### Radar

#### Circulators

| Part Number        | Frequency (MHz) | Insertion Loss (dB) | Isolation (dB) | Return Loss (dB) | Rotation | Max. Power (W) F/R | Case Size (Inch/mm)                 | Package |
|--------------------|-----------------|---------------------|----------------|------------------|----------|--------------------|-------------------------------------|---------|
| MAFR-000399-000001 | 1450–1500       | 0.30                | 20             | 20               | CW       | 1000               | 1.0/25.4                            | Drop-in |
| MAFR-000409-000001 | 960–1200        | 0.50                | 18             | 18               | CCW      | 1000               | 1.0/25.4                            | Drop-in |
| MAFR-000428-000001 | 960–1200        | 0.50                | 18             | 18               | CCW      | 1200               | 1.0/25.4                            | Drop-in |
| MAFR-000493-000001 | 1030–1090       | 0.30                | 18             | 18               | CW       | 1200               | 1.0/25.4                            | Drop-in |
| MAFR-000514-000001 | 3100–3500       | 0.30                | 23             | 21               | CW       | 1500/1500          | 0.75 <sup>2</sup> /19 <sup>2</sup>  | Drop-in |
| MAFR-000578-000001 | 1200–1400       | 0.30                | 20             | 20               | CW       | 1500               | 1.0/25.4                            | Drop-in |
| MAFR-000608-000001 | 1200–1400       | 0.30                | 20             | 20               | CCW      | 1500               | 1.0/25.4                            | Drop-in |
| MAFR-000613-000001 | 1030–1090       | 0.30                | 18             | 18               | CW       | 1200/1200          | 1.0 <sup>2</sup> /25.4 <sup>2</sup> | Drop-in |
| MAFR-000627-000001 | 1350–1850       | 0.50                | 18             | 18               | CW       | 1500               | 1.0/25.4                            | Drop-in |
| MAFR-000645-000001 | 960–1215        | 0.50                | 16             | 16               | CCW      | 1000/1000          | 1.0 <sup>2</sup> /25.4 <sup>2</sup> | Drop-in |
| MAFR-000668-000001 | 1350–1850       | 0.50                | 18             | 18               | CCW      | 1500/1500          | 1.0 <sup>2</sup> /25.4 <sup>2</sup> | Drop-in |
| MAFR-000677-000001 | 2700–3100       | 0.35                | 20             | 20               | CW       | 1300/1300          | 0.75 <sup>2</sup> /19 <sup>2</sup>  | Drop-in |

#### Isolators

| Part Number        | Frequency (MHz) | Insertion Loss (dB) | Isolation (dB) | Return Loss (dB) | Rotation | Max. Power (W) F/R | Case Size (Inch/mm)    | Package |
|--------------------|-----------------|---------------------|----------------|------------------|----------|--------------------|------------------------|---------|
| MAFR-000430-000001 | 2700–3100       | 0.30                | 20             | 20               | CW       | 1300/75            | 0.75 x 1.0/19 x 25.4   | Drop-in |
| MAFR-000628-000001 | 1200–1400       | 0.30                | 20             | 20               | CCW      | 1500/2             | 1.0/25.4               | Drop-in |
| MAFR-000629-000001 | 1200–1400       | 0.30                | 20             | 20               | CW       | 1500/25            | 1.0 x 1.25/25.4 x 31.7 | Drop-in |
| MAFR-000667-000001 | 1200–1400       | 0.30                | 20             | 20               | CCW      | 1500/25            | 1.0 x 1.25/25.4 x 31.7 | Drop-in |

## Wireless

Skyworks circulators and isolators are used in a variety of wireless communications, as well as aerospace and defense applications. Our circulators and isolators assure clean transmit signals by offering low insertion loss and superior inter-modulation distortion (IMD) performance. We can meet high performance, high power device requirements.



- Broad frequency spectrum: 700 MHz to 3.6 GHz
- High isolation capability: 32 dB single junction and >60 dB in dual junction devices
- Low insertion loss capability: 0.15 dB single junction and <0.30 dB in dual junction devices
- IMD capability: up to -85 dBc
- Surface mount and drop-in packaging available for standard and custom components

## Circulators








| Part Number        | Frequency (MHz) | Insertion Loss (dB) | Isolation/Return Loss (dB) | IMD (dBc) | IMD Conditions                     | Rotation | Case Size (Inch/mm) | Package           |
|--------------------|-----------------|---------------------|----------------------------|-----------|------------------------------------|----------|---------------------|-------------------|
| MAFR-000565-000001 | 791–821         | 0.30                | 23                         | 75        | 2 x 5 W CW Tones, 5 MHz Spacing    | CW       | 1.04/26.6           | SMT – Robust Lead |
| MAFR-000631-000001 | 791–821         | 0.25                | 20                         | 80        | 2 x 65 W CW Tones, 1 MHz Spacing   | CCW      | 1.00/25.4           | Drop-in           |
| SKYFR-000736       | 791–821         | 0.30                | 22/22                      | -65       | 2 x 25 W CW Tones, 5 MHz Spacing   | CW       | 0.98/25             | SMT – Robust Lead |
| MAFR-000649-000001 | 860–894         | 0.30                | 20                         | 80        | 2 x 65 W CW Tones, 1 MHz Spacing   | CCW      | 1.00/25.4           | Drop-in           |
| MAFR-000688-000001 | 860–960         | 0.35                | 20                         | 65        | 2 x 15 W CW Tones, 5 MHz Spacing   | CW       | 0.80/20.4           | SMT – Robust Lead |
| MAFR-000601-000001 | 869–928         | 0.30                | 22                         | 55        | 2 x 37.5 W CW Tones, 5 MHz Spacing | CW       | 1.04/26.6           | SMT – Robust Lead |
| MAFR-000630-000001 | 925–960         | 0.25                | 20                         | 80        | 2 x 65 W CW Tones, 1 MHz Spacing   | CCW      | 1.00/25.4           | Drop-in           |
| MAFR-000562-000001 | 925–960         | 0.25                | 20                         | 74        | 2 x 25 W CW Tones, 5 MHz Spacing   | CW       | 1.04/26.6           | SMT – Robust Lead |
| MAFR-000569-000001 | 925–960         | 0.25                | 20                         | 74        | 2 x 25 W CW Tones, 5 MHz Spacing   | CCW      | 1.04/26.6           | SMT – Robust Lead |
| SKYFR-000700       | 925–960         | 0.25                | 20                         | 90        | 2 x 50 W CW Tones, 5 MHz Spacing   | CW       | 1.00/25.4           | Drop-in           |
| SKYFR-000738       | 925–960         | 0.30                | 22/22                      | -65       | 2 x 25 W CW Tones, 5 MHz Spacing   | CW       | 0.98/25             | SMT – Robust Lead |
| MAFR-000632-000001 | 1805–1880       | 0.25                | 20                         | 80        | 2 x 65 W CW Tones, 1 MHz Spacing   | CCW      | 1.00/25.4           | Drop-in           |
| MAFR-000644-000001 | 1805–1880       | 0.25                | 20                         | 65        | 2 x 15 W CW Tones, 1 MHz Spacing   | CW       | 0.61/15.5           | SMT – Robust Lead |
| MAFR-000533-000001 | 1840–2055       | 0.35                | 20                         | 70        | 2 x 15 W CW Tones, 5 MHz Spacing   | CW       | 0.80/20.4           | SMT – Robust Lead |
| MAFR-000566-000001 | 1840–2055       | 0.25                | 20                         | 70        | 2 x 15 W CW Tones, 5 MHz Spacing   | CCW      | 0.75/18.3           | SMT – Robust Lead |
| MAFR-000553-000001 | 1880–1920       | 0.30                | 21                         | 65        | 2 x 25 W CW Tones, 5 MHz Spacing   | CW       | 0.61/15.5           | SMT – Robust Lead |
| MAFR-000618-000001 | 1880–2025       | 0.25                | 23                         | 65        | 2 x 25 W CW Tones, 5 MHz Spacing   | CCW      | 0.80/20.4           | SMT – Robust Lead |
| MAFR-000650-000001 | 1930–1995       | 0.30                | 20                         | 80        | 2 x 65 W CW Tones, 1 MHz Spacing   | CCW      | 1.00/25.4           | Drop-in           |
| MAFR-000663-000001 | 1930–1995       | 0.29                | 20                         | 65        | 2 x 15 W CW Tones, 1 MHz Spacing   | CW       | 0.61/15.5           | SMT – Robust Lead |
| MAFR-000554-000001 | 2010–2025       | 0.30                | 20                         | 63        | 2 x 25 W CW Tones, 5 MHz Spacing   | CW       | 0.61/15.5           | SMT – Robust Lead |
| MAFR-000592-000001 | 2010–2025       | 0.30                | 21                         | 60        | 2 x 25 W CW Tones, 5 MHz Spacing   | CCW      | 0.61/15.5           | SMT – Robust Lead |
| MAFR-000653-000001 | 2110–2170       | 0.25                | 20                         | 74        | 2 x 5 W CW Tones, 5 MHz Spacing    | CW       | 0.80/20.4           | SMT – Robust Lead |
| MAFR-000654-000001 | 2110–2170       | 0.25                | 20                         | 74        | 2 x 5 W CW Tones, 5 MHz Spacing    | CCW      | 0.80/20.4           | SMT – Robust Lead |

## Wireless

## Circulators (Continued)

| Part Number  | Frequency (MHz) | Insertion Loss (dB) | Isolation/Return Loss (dB) | IMD (dBc) | IMD Conditions                     | Rotation | Case Size (Inch/mm) | Package           |
|--|-----------------|---------------------|----------------------------|-----------|------------------------------------|----------|---------------------|-------------------|
|  SKYFR-000709       | 2110–2170       | 0.32                | 20/20                      | -58       | 2 x 40 W CW Tones, 5 MHz Spacing   | CW       | 0.59/15             | SMT – Robust Lead |
|  SKYFR-000782       | 2110–2170       | 0.12                | 23                         | 70        | 2 x 4 W CW Tones, 5 MHz Spacing    | CW       | 0.75/19.0           | Drop-in           |
|  MAFR-000575-000001 | 2300–2400       | 0.30                | 21                         | 65        | 2 x 25 W CW Tones, 5 MHz Spacing   | CW       | 0.61/15.5           | SMT – Robust Lead |
|  MAFR-000662-000001 | 2300–2400       | 0.30                | 20                         | 60        | 2 x 25 W CW Tones, 5 MHz Spacing   | CCW      | 0.61/15.5           | SMT – Robust Lead |
|  SKYFR-000742       | 2300–2400       | 0.30                | 20/20                      | -60       | 2 x 25 W CW Tones, 5 MHz Spacing   | CW       | 0.59/15             | SMT – Robust Lead |
|  SKYFR-000827       | 2300–2400       | 0.15                | 20                         | 60        | 2 x 40 W CW Tones, 5 MHz Spacing   | CW       | 1.04/26.6           | SMT – Robust Lead |
|  SKYFR-000848       | 2300–2400       | 0.25                | 23/23                      | -65       | 2 x 60 W CW Tones, 5 MHz Spacing   | CCW      | 0.75/20.0           | SMT – Robust Lead |
|  SKYFR-000788       | 2490–2710       | 0.30                | 23/21                      | -66       | 2 x 44.8 W CW Tones, 5 MHz Spacing | CW       | 0.61/15.5           | SMT – Robust Lead |
|  MAFR-000583-000001 | 2500–2630       | 0.30                | 21                         | 60        | 2 x 25 W CW Tones, 5 MHz Spacing   | CCW      | 0.61/15.5           | SMT – Robust Lead |
|  MAFR-000633-000001 | 2500–2630       | 0.30                | 21                         | 60        | 2 x 25 W CW Tones, 5 MHz Spacing   | CW       | 0.61/15.5           | SMT – Robust Lead |
|  MAFR-000589-000001 | 2620–2690       | 0.28                | 20                         | 65        | 2 x 15 W CW Tones, 1 MHz Spacing   | CW       | 0.61/15.5           | SMT – Robust Lead |
|  MAFR-000657-000001 | 2620–2690       | 0.30                | 20                         | 65        | 2 x 15 W CW Tones, 1 MHz Spacing   | CCW      | 0.61/15.5           | SMT – Robust Lead |

## Isolators

| Part Number  | Frequency (MHz) | Insertion Loss (dB) | Isolation/Return Loss (dB) | IMD (dBc) | IMD Conditions                   | Rotation | Case Size (Inch/mm) | Package           |
|--|-----------------|---------------------|----------------------------|-----------|----------------------------------|----------|---------------------|-------------------|
|  SKYFR-000855 | 1930–1995       | 0.30                | 20/20                      | -60       | 2 x 15 W CW Tones, 1 MHz Spacing | CW       | 0.43/11             | SMT – Robust Lead |
|  SKYFR-000748 | 2070–2210       | 0.50                | 18/20                      | -76       | 2 x 4 W CW Tones, 5 MHz Spacing  | CW       | 0.72/18.4           | SMT – Robust Lead |
|  SKYFR-000812 | 2095–2185       | 0.35                | 17/16.8                    | -60       | 2 x 2 W CW Tones, 5 MHz Spacing  | CW       | 0.43/11             | SMT – Robust Lead |
|  SKYFR-000733 | 2095–2185       | 0.25                | 23/23                      | -74       | 2 x 55 W CW Tones, 5 MHz Spacing | CW       | 1.04/25.4           | SMT – Robust Lead |
|  SKYFR-000727 | 2110–2170       | 0.30                | 23/21                      | 60        | 2 x 15 W CW Tones, 1 MHz Spacing | CW       | 0.43/11             | SMT – Robust Lead |
|  SKYFR-000779 | 2110–2170       | 0.25                | 25/21                      | -70       | 2 x 25 W CW Tones, 1 MHz Spacing | CCW      | 0.73/18.6           | SMT – Robust Lead |
|  SKYFR-000781 | 2620–2690       | 0.25                | 25/21                      | -70       | 2 x 25 W CW Tones, 1 MHz Spacing | CCW      | 0.73/18.6           | SMT – Robust Lead |

## DIODES

Building on a proven legacy (including products developed at Alpha Industries prior to its merger with Conexant), our diode product offering includes PIN, limiter, Schottky, and varactor diodes for a wide variety of microwave applications including WLAN, infrastructure, handset, Satcom (LNB/DBS-CATV), automotive, military, test & measurement, metering, medical, and RFID. Our discrete silicon and GaAs semiconductors are available as die, plastic packaged, surface mount (SMT), and ceramic hermetic packaged devices. Frequency ranges include low frequency, HF, VHF, UHF, L band, S band, C band, X band, KU band, K band, and Ka band. Skyworks' diode products are manufactured using the most advanced processes and leadership technology.

### Select PIN, Limiter, Schottky, Varactor Diodes

#### Select Diodes Available from Stock for Prototype or High Volume Production

Skyworks Solutions offers a select group diodes from our diverse RF diode offering in stock and ready for immediate design into your demanding applications.

Select diodes include the most popular PIN, limiter, Schottky and tuning varactor diodes, readily available to ship in 3k reels from stock. These devices provide excellent performance and even better value for applications including low noise block converters (LNB), multiswitches, wireless local area networks (WLAN), cellular telephone networks, cable television (CATV), automotive, test and measurement equipment, land mobile radio, and more.

#### PIN Diodes for Switch and Attenuator Applications

| Part Number                  | Description  | Markets                                       |
|------------------------------|--|---|
| <b>Switching PIN Diodes</b>  |  |   |
| SMP1345-040LF                | High isolation, fast switching, CT 0.12 pF         | WLAN, infrastructure, general                 |
| SMP1320-040LF                | Fast switching, high isolation, low insertion loss | WLAN, infrastructure, general                 |
| SMP1352-079LF                | Large signal                                       | Infrastructure, general                       |
| SMP1302-085LF                | High power (50 W) handling, shunt                  | Land mobile radio, LTE base station, and more |
| SMP1325-087LF                | High Power (35 W) handling, series                 | Land mobile radio, LTE base station, and more |
| <b>Attenuator PIN Diodes</b> |  |   |
| SMP1307-004LF                | Low distortion / high IP3, dual                    | CATV, PON, base station, and more             |
| SMP1307-027LF                | Low distortion / high IP3, quad PI                 | CATV, PON, base station, and more             |

## Select PIN, Limiter, Schottky, Varactor Diodes

### Limiter Diodes for Receiver Protection Applications

| Part Number           | Description   | Markets   |
|-----------------------|---|---|
| <b>Limiter Diodes</b> |   |   |
| SMP1330-005LF         | Clean-up limiter, +30 dBm input power, +13 dBm flat leakage power, up to 2.5 GHz                  | Land mobile radio, military, infrastructure, and more |
| SMP1330-085LF         | Low loss, high power, +30 dBm input power, +13 dBm flat leakage power, up to 4 GHz                | Land mobile radio, military, infrastructure, and more |
| CLA4603-085LF         | Medium power, low loss, +33 dBm input power, +13 dBm flat leakage power, up to 10 GHz             | Land mobile radio, military, infrastructure, and more |
| CLA4606-085LF         | Medium power, low loss, +35 dBm input power, +18 dBm flat leakage power, up to 10 GHz             | Land mobile radio, military, infrastructure, and more |
| CLA4609-086LF         | Course limiter, high power handling, +43 dBm input power, +41 dBm flat leakage power, up to 6 GHz | Land mobile radio, military, infrastructure, and more |

### Schottky Diodes for Detector and Mixer Applications

| <b>Detector Diodes</b> |   |  |
|------------------------|---|--|
| SMS7621-060            | Excellent sensitivity, low capacitance, 0201        | WLAN, military, infrastructure, and more               |
| SMS7621-040LF          | Excellent sensitivity, low capacitance, 0402        | WLAN, military, infrastructure, and more               |
| SMS7621-005LF          | Excellent sensitivity, low capacitance, series pair | Infrastructure, smart energy, infrastructure, and more |
| SMS7630-061            | Best sensitivity, zero bias, 0201                   | WLAN, military, infrastructure, and more               |
| SMS7630-040LF          | Best sensitivity, zero bias, 0402                   | WLAN, military, infrastructure, and more               |
| SMS3922-079LF          | Medium barrier, high breakdown voltage              | Infrastructure and more                                |

### Tuning Varactor Diodes for VCO, Voltage Tuned Filters, and Phase Shifter Applications

| <b>Hyperabrupt Diodes</b> |  |  |
|---------------------------|--|--|
| SMV1234-040LF             | Low capacitance (6.5 pF @ 1 V, 2 pF @ 6 V), low resistance (0.8 $\Omega$ )   | Automotive, smart energy, WLAN, test and measurement, infrastructure, and more |
| SMV1232-040LF             | High capacitance ratio at low reverse voltage: $C_{T1}/C_{T3} = 1.7$ typical | Automotive, smart energy, WLAN, test and measurement, infrastructure, and more |
| SMV1247-040LF             | Low capacitance (7 pF @ 0.3 V, 0.7 pF @ 4.7 V), high Q (1500)                | Automotive, smart energy, WLAN, test and measurement, infrastructure, and more |
| SMV1249-079LF             | Medium capacitance (31 pF @ 0.3 V, 2.6 pF @ 4.7 V)                           | Automotive, smart energy, WLAN, test and measurement, infrastructure, and more |
| SMV1255-079LF             | High capacitance (64 pF @ 0.3 V, 5.2 pF @ 4.7 V)                             | Automotive, smart energy, WLAN, test and measurement, infrastructure, and more |
| <b>Abrupt Diodes</b>      |  |  |
| SMV1405-040LF             | Ultra high Q (3200)  | Automotive, smart energy, WLAN, test and measurement, infrastructure, and more |
| SMV1413-079LF             | Low resistance, high Q   | Automotive, smart energy, WLAN, test and measurement, infrastructure, and more |

## LIMITER DIODES

Core Components for Receiver Protection Applications

### Plastic Surface Mount (SMT) Limiter Diodes—Low Frequency to 6 GHz

| Part Number    | $V_B$<br>$I_R = 10 \mu A$ (V) | Nominal I-Region Thickness ( $\mu m$ ) | $C_T$ 0 V,<br>F = 1 MHz (pF) | $C_T$ 0 V<br>F = 1 GHz (pF) | $R_S$ $I_F = 10$ mA<br>F = 100 MHz ( $\Omega$ ) | Carrier Lifetime $T_L$<br>$I_F = 10$ mA (ns) | Package           |
|----------------|-------------------------------|--|------------------------------|-----------------------------|---|--|-------------------|
| SMP1330 Series | 20–50                         | 3                                      | 0.7 Typ., 1.0 Max.           | 0.7 Typ.                    | 1.25 Typ., 1.5 Max.                             | 4 Typ.                                       | SOT-23, 0402, QFN |

|                               |                                  |                                   |  |
|-------------------------------|----------------------------------|-----------------------------------|--|
|                               |                                  |                                   |  |
| <b>Series Pair<br/>SOT-23</b> | <b>Low Inductance<br/>SOT-23</b> | <b>Single<br/>0402<br/>Green™</b> | <b>Single<br/>QFN 2 x 2<br/>Green™</b> |
| SMP1330-005LF<br>Marking: RQ2 | SMP1330-007LF<br>Marking: RQB    | SMP1330-040LF<br>Marking: F       | SMP1330-085LF<br>Marking: RQ           |

### High Power Limiter Diodes

| Part Number   | Min.<br>$V_B$ @ 10 $\mu A$<br>(V) | Nominal I-Region Thickness ( $\mu m$ ) | Max.<br>$C_T$ @ 6 V<br>(pF) | Max.<br>$C_T$ @ 30 V<br>(pF) | Max.<br>$R_S$ @ 10 mA<br>( $\Omega$ ) | Typ.<br>$T_L$ @ 10 mA<br>( $\mu s$ ) |
|---------------|-----------------------------------|--|-----------------------------|------------------------------|---------------------------------------|--------------------------------------|
| CLA4603-085LF | 20–45                             | 1.5                                    | 0.40                        | —                            | 2.0                                   | 10                                   |
| CLA4605-085LF | 30–60                             | 2.0                                    | 0.45                        | —                            | 2.0                                   | 7                                    |
| CLA4606-085LF | 45–75                             | 2.5                                    | 0.38                        | —                            | 2.0                                   | 10                                   |
| CLA4607-085LF | 120                               | 7.0                                    | 0.35                        | —                            | 2.0                                   | 50                                   |
| CLA4608-085LF | 120                               | 7.0                                    | —                           | 0.65                         | 1.2                                   | 100                                  |
| CLA4609-086LF | 250                               | 28.0                                   | —                           | 0.26                         | 1.2                                   | 1.1                                  |
| CLA4610-085LF | 80–120                            | 4.5                                    | —                           | 0.60                         | 1.5                                   | 20                                   |

|  |
|--|
|  |
| <b>Single<br/>QFN 2 x 2<br/>Green™</b> |
| CLA4603-085LF<br>Marking: EQ           |
| CLA4605-085LF<br>Marking: CQ           |
| CLA4606-085LF<br>Marking: FQ           |
| CLA4607-085LF<br>Marking: DQ           |

|  |
|--|
|  |
| <b>Single<br/>QFN 2 x 2<br/>Green™</b> |
| CLA4608-085LF<br>Marking: GQ           |
| CLA4609-086LF<br>Marking: BQ           |
| CLA4610-085LF<br>Marking: JQ           |

## Silicon Limiter Diode Chips—Low Frequency to 20 GHz

| Part Number | $V_B @ 10 \mu A$ (V) | Nominal I-Region Thickness ( $\mu m$ ) | Typ. $C_J @ 0 V$ (pF) | Max. $C_J @ 6 V$ (pF) | Max. $R_S @ 10 mA$ ( $\Omega$ ) | Typ. $T_L @ 10 mA$ (ns) | Thermal Impedance  |                            |
|-------------|----------------------|--|-----------------------|-----------------------|---------------------------------|-------------------------|--------------------|----------------------------|
|             |                      |  |                       |                       |                                 |                         | Max. Average (C/W) | Typ. 1 $\mu s$ Pulse (C/W) |
| CLA4601-000 | 15–30                | 1.0                                    | 0.12                  | 0.10                  | 2.5                             | 5                       | 120                | 15                         |
| CLA4602-000 | 15–30                | 1.0                                    | 0.20                  | 0.15                  | 2.0                             | 5                       | 80                 | 10                         |
| CLA4603-000 | 20–45                | 1.5                                    | 0.20                  | 0.15                  | 2.0                             | 5                       | 100                | 10                         |
| CLA4604-000 | 30–60                | 2.0                                    | 0.12                  | 0.10                  | 2.5                             | 7                       | 100                | 10                         |
| CLA4605-000 | 30–60                | 2.0                                    | 0.20                  | 0.15                  | 2.0                             | 7                       | 70                 | 7.0                        |
| CLA4606-000 | 45–75                | 2.5                                    | 0.20                  | 0.15                  | 2.0                             | 10                      | 80                 | 7.0                        |
| CLA4607-000 | 120–180              | 7.0                                    | 0.20                  | 0.15 @ 50 V           | 2.0                             | 50                      | 40                 | 1.2                        |
| CLA4608-000 | 120–180              | 7.0                                    | 0.80                  | 0.5 @ 50 V            | 1.2                             | 100                     | 15                 | 0.3                        |
| CLA4609-000 | 250 (Min.)           | 28.0                                   | 0.26                  | 0.14                  | 1.5                             | 1175                    | 15                 | 0.3                        |
| CLA4610-000 | 80–120               | 4.5                                    | 0.13                  | 0.12                  | 2.2                             | 20                      | 72                 | 72                         |

## Hermetic Packaged Silicon Limiter Diodes

| Hermetic Stripline 240 | Hermetic Pill 203 | Hermetic Pill 219 | Hermetic Pill 210 |
|------------------------|-------------------|-------------------|-------------------|
| CLA4601-240            | CLA4601-203       | CLA4601-219       | CLA4601-210       |
| CLA4602-240            | CLA4602-203       | CLA4602-219       | CLA4602-210       |
| CLA4603-240            | CLA4603-203       | CLA4603-219       | CLA4603-210       |
| CLA4604-240            | CLA4604-203       | CLA4604-219       | CLA4604-210       |
| CLA4605-240            | CLA4605-203       | CLA4605-219       | CLA4605-210       |
| CLA4606-240            | CLA4606-203       | CLA4606-219       | CLA4606-210       |
| CLA4607-240            | CLA4607-203       | CLA4607-219       | CLA4607-210       |
| CLA4608-240            | CLA4608-203       | CLA4608-219       | CLA4608-210       |
| CLA4609-240            | CLA4609-203       | CLA4609-219       | CLA4609-210       |
| CLA4610-240            | CLA4610-203       | CLA4610-219       | CLA4610-210       |

Epoxy and ceramic hermetic packaged diode products are available through Isolink (a wholly owned subsidiary of Skyworks Solutions, Inc.)

## Limiter Modules

### Integrated Single-Stage PIN Diode Limiter Module 0.5 to 6 GHz

| Part Number    | Typical Insertion Loss (dB)<br>$P_{IN} = 0 \text{ dBm}$ | Typical Threshold Level (dBm) | Max. Saturated Power (W) | Typical Flat Leakage Power (dBm)<br>$(P_{IN} = 20 \text{ dBm})$ | Min. $V_B$<br>$I_R = 10 \mu A$ (V) | I Region Thickness ( $\mu m$ )<br>Nominal | Typ. $C_T$ (pF) 0 V,<br>$F = 1 \text{ MHz}$ | Typ. Carrier Lifetime<br>$T_L$ (ns)<br>$I_F = 10 \text{ mA}$ | Package                        |
|----------------|---|-------------------------------|--------------------------|---|------------------------------------|---|---|--|--------------------------------|
| SKY16601-555LF | 0.1   | 11                            | 29                       | 13  | 20–45                              | 1.5                                       | 0.36 @<br>2.5 GHz                           | 10 @<br>2.5 GHz  | 2-pin MLP<br>2.5 x 2.5 x 0.75  |
| SKY16602-632LF | 0.3<br>0.5  | 6<br>5                        | 30<br>23                 | 6 (Pin =<br>10 dBm)<br>4 (Pin =<br>10 dBm)                      | –                                  | –   | –   | –  | 2.3 x 2.3 MLP<br>2.3 x 2.3 MLP |

**NEW** New products (indicated in blue, bold) are continually being introduced at Skyworks. For the latest information, please visit the new products section of our Web site at [www.skyworksinc.com](http://www.skyworksinc.com).

## PIN DIODES

Superior Building Blocks for Switch and Attenuator Applications

### Switching Silicon PIN Diodes

#### PIN Diodes—High Power (>20 W) for Large Signal Switch and Attenuator Applications









| Part Number   | Min. $V_B$<br>$I_R = 10 \mu A$<br>(V) | Max. $C_T$<br>$V_R = 20 V$<br>$F = 1 MHz$<br>(pF) | Typ. $C_T$<br>$V_R = 30 V$<br>$F = 1 MHz$<br>(pF) | Max. $V_F$<br>$@ I_F = 50 mA$<br>(V) | Max. $R_S$<br>$F = 100 MHz$<br>( $\Omega$ ) | Typ. $T_L$<br>$I_F = 10 mA$<br>(ns) | Nominal I-Region Thickness ( $\mu m$ ) | Package (mm)       |
|---------------|---------------------------------------|---|---|--------------------------------------|---|-------------------------------------|--|--------------------|
| SMP1302-085LF | 200                                   | –   | 0.30  | 0.8 @ 10 mA                          | 3 @ 10 mA                                   | 700                                 | 50                                     | QFN 3L 2 x 2 x 1   |
| SMP1302-087LF | 200                                   | –   | 0.25  | 0.8 @ 10 mA<br>Typ.                  | 3 @ 10 mA                                   | 700                                 | 50                                     | QFN 2L 2 x 2 x 0.9 |
| SMP1304-085LF | 200                                   | –   | 0.20  | 1.0                                  | 7 @ 10 mA                                   | 1000                                | 100                                    | QFN 3L 2 x 2 x 0.9 |
| SMP1304-087LF | 200                                   | –   | 0.20  | 1.0                                  | 7 @ 10 mA                                   | 1000                                | 100                                    | QFN 2L 2 x 2 x 0.9 |
| SMP1324-087LF | 200                                   | –   | 0.90  | 0.9 Typ.                             | 0.4 Typ. @ 50 mA                            | 6000                                | 100                                    | QFN 2L 2 x 2 x 0.9 |
| SMP1325-085LF | 200                                   | 0.65  | –   | 0.86 Typ.                            | 1.3 Typ. @ 10 mA                            | 5000                                | 100                                    | QFN 3L 2 x 2 x 1   |
| SMP1325-087LF | 200                                   | 0.6   | –   | 0.8 Typ.                             | 1.3 Typ. @ 10 mA                            | 5000                                | 100                                    | QFN 2L 2 x 2 x 0.9 |
| SMP1334-084LF | 200                                   | –   | 0.45 Max.   | 0.75 @ 10 mA<br>Typ.                 | 2.5 @ 10 mA                                 | 700                                 | 50                                     | QFN 2 x 2 x 0.9    |
| SMP1345-087LF | 50                                    | 0.2 @ 5 V   | –   | 0.89                                 | 2 @ 10 mA                                   | 100                                 | 10                                     | QFN 2L 2 x 2 x 0.9 |
| SMP1371-087LF | 35                                    | 1.2   | –   | 1.0                                  | 0.5 @ 10 mA                                 | 200                                 | 12                                     | QFN 2L 2 x 2 x 0.9 |

| <b>Single (Shunt)</b><br>QFN 2 x 2<br><i>Green™</i> | <b>Single (Series)</b><br>QFN 2 x 2<br><i>Green™</i> |
|---|--|
| SMP1302-085LF<br>Marking: RF1                       | SMP1302-087LF<br>Marking: RF                         |
| SMP1304-085LF<br>Marking: RG                        | SMP1304-087LF<br>Marking: PG                         |
|   | SMP1324-087LF<br>Marking: PW                         |
| SMP1325-085LF<br>Marking: RH                        | SMP1325-087LF<br>Marking: PH                         |
|   | SMP1334-084LF<br>Marking: MG                         |
|   | SMP1345-087LF<br>Marking: RU                         |
|   | SMP1371-087LF<br>Marking: RY                         |











## Switching Silicon PIN Diodes

### Plastic Surface Mount (SMT) PIN Diodes—Low Frequency to 6 GHz

| Part Number   | Min. $V_B$<br>$I_R = 10 \mu\text{A}$<br>(V)                                       | Max. $C_T$<br>$V_R = 30 \text{ V}$<br>$F = 1 \text{ MHz}$<br>(pF)                 | Typ. $V_F$<br>@ $I_F = 10 \text{ mA}$<br>(V)                                      | Typ. $R_S$<br>$I_F = 1 \text{ mA}$<br>$F = 100 \text{ MHz}$<br>( $\Omega$ )       | Max. $R_S$<br>$I_F = 10 \text{ mA}$<br>$F = 100 \text{ MHz}$<br>( $\Omega$ )        | Typ. $T_L$<br>$I_F = 10 \text{ mA}$<br>(ns)   | Nominal<br>I-Region<br>Thickness<br>( $\mu\text{m}$ )                               |
|---|---|---|---|---|---|---|---|
| SMP1320 Series  | 50  | 0.3   | 0.85  | 2   | 0.9   | 400   | 8   |
|  |  |  |  |  |  |  |  |
| <b>Single SOT-23 Green™</b>   | <b>Common Anode SOT-23 Green™</b>   | <b>Common Cathode SOT-23 Green™</b>   | <b>Series Pair SOT-23 Green™</b>  | <b>Low Inductance SOT-23 Green™</b>   | <b>Single SOD-323 Green™</b>  | <b>Single SC-79 Green™</b>  | <b>Single 0402 Green™</b>   |
| SMP1320-001LF<br>Marking: RL1   | SMP1320-003LF<br>Marking: RL9   | SMP1320-004LF<br>Marking: RL3   | SMP1320-005LF<br>Marking: RL2   | SMP1320-007LF<br>Marking: RLB   | SMP1320-011LF<br>Marking: RL  | SMP1320-079LF<br>Marking: Cathode   | SMP1320-040LF<br>Marking: N   |
|   |   | <b>SC-70</b>  | <b>SC-70</b>  | <b>SC-70</b>  |   |   |   |
|   |   | SMP1320-074LF<br>Marking: RL3   | SMP1320-075LF<br>Marking: RL2   | SMP1320-077LF<br>Marking: RLB   |   |   |   |









### Low Capacitance Switching PIN Diodes

| Part Number   | Min. $V_B$<br>$I_R = 10 \mu\text{A}$<br>(V)   | Max. $C_T$<br>$V_R = 30 \text{ V}$<br>$F = 1 \text{ MHz}$<br>(pF)                   | Typ. $V_F$<br>@ $I_F = 10 \text{ mA}$<br>(V)  | Typ. $R_S$<br>$I_F = 1 \text{ mA}$<br>$F = 100 \text{ MHz}$<br>( $\Omega$ )         | Max. $R_S$<br>$I_F = 10 \text{ mA}$<br>$F = 100 \text{ MHz}$<br>( $\Omega$ )          | Typ. $T_L$<br>$I_F = 10 \text{ mA}$<br>(ns)   | Nominal<br>I-Region<br>Thickness<br>( $\mu\text{m}$ )                                 |
|---|---|---|---|---|---|---|---|
| SMP1321 Series  | 100   | 0.25  | 0.85  | 3   | 2   | 400   | 15  |
|  |  |  |  |  |  |  |  |
| <b>Single SOT-23 Green™</b>   | <b>Common Anode SOT-23 Green™</b>   | <b>Common Cathode SOT-23 Green™</b>   | <b>Series Pair SOT-23 Green™</b>  | <b>Low Inductance SOT-23 Green™</b>   | <b>Single SOD-323 Green™</b>  | <b>Single SC-79 Green™</b>  | <b>Single 0402 Green™</b>   |
| SMP1321-001LF<br>Marking: RM1   | SMP1321-003LF<br>Marking: RM9   | SMP1321-004LF<br>Marking: RM3   | SMP1321-005LF<br>Marking: RM2   | SMP1321-007LF<br>Marking: RMB   | SMP1321-011LF<br>Marking: RM  | SMP1321-079LF<br>Marking: Cathode   | SMP1321-040LF<br>Marking: C   |
|   |   | <b>SC-70</b>  | <b>SC-70</b>  | <b>SC-70</b>  |   |   |   |
|   | SMP1321-073LF<br>Marking: RM3   | SMP1321-074LF<br>Marking: RM3   | SMP1321-075LF<br>Marking: RM2   |   |   |   |   |

## Switching Silicon PIN Diodes








### Lowest Series Resistance Switching PIN Diodes

| Part Number    | Min. $V_B$<br>$I_R = 10 \mu A$<br>(V) | Max. $C_T$<br>$V_R = 30 V$<br>$F = 1 MHz$<br>(pF) | Typ. $V_F$<br>@ $I_F = 10 mA$<br>(V) | Max. $R_S$<br>$I_F = 1 mA$<br>$F = 100 MHz$<br>( $\Omega$ ) | Typ. $R_S$<br>$I_F = 10 mA$<br>$F = 100 MHz$<br>( $\Omega$ ) | Typ. $T_L$<br>$I_F = 10 mA$<br>(ns) | Nominal I-Region Thickness ( $\mu m$ ) |
|----------------|---------------------------------------|---|--------------------------------------|---|--|-------------------------------------|--|
| SMP1322 Series | 50                                    | 1   | 0.825                                | 1.5   | 0.5  | 400                                 | 8                                      |

|   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|
|  |  |  |  |  |  |  |  |
| <b>Single SOT-23 Green™</b>   | <b>Common Anode SOT-23 Green™</b>   | <b>Common Cathode SOT-23 Green™</b>   | <b>Series Pair SOT-23 Green™</b>  | <b>Single SOD-323 Green™</b>  | <b>T/R Switch SOT-143</b>   | <b>Single SC-79 Green™</b>  | <b>Single 0402 Green™</b>   |
| SMP1322-001LF<br>Marking: RN1   | SMP1322-003LF<br>Marking: RN9   | SMP1322-004LF<br>Marking: RN3   | SMP1322-005LF<br>Marking: RN2   | SMP1322-011LF<br>Marking: RN  | SMP1322-016LF<br>Marking: RN6   | SMP1322-079LF<br>Marking: Cathode   | SMP1322-040LF<br>Marking: T   |
|   |   | <b>SC-70</b>  |   |   |   |   |   |
|   |   | SMP1322-074LF<br>Marking: RN3   |   |   |   |   |   |







### Low Capacitance, Fast Switching PIN Diodes

| Part Number    | Min. $V_B$<br>$I_R = 10 \mu A$<br>(V) | Max. $C_T$<br>$V_R = 5 V$<br>$F = 1 MHz$<br>(pF) | Typ. $V_F$<br>@ $I_F = 10 mA$<br>(V) | Typ. $R_S$<br>$I_F = 1 mA$<br>$F = 100 MHz$<br>( $\Omega$ ) | Max. $R_S$<br>$I_F = 10 mA$<br>$F = 100 MHz$<br>( $\Omega$ ) | Typ. $T_L$<br>$I_F = 10 mA$<br>(ns) | Nominal I-Region Thickness ( $\mu m$ ) |
|----------------|---------------------------------------|--|--------------------------------------|---|--|-------------------------------------|--|
| SMP1340 Series | 50                                    | 0.3  | 0.88                                 | 1.7   | 1.2  | 100                                 | 7                                      |

|   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|
|  |  |  |  |  |  |  |
| <b>Common Anode SOT-23 Green™</b>   | <b>Common Cathode SOT-23 Green™</b>   | <b>Series Pair SOT-23 Green™</b>  | <b>Low Inductance SOT-23 Green™</b>   | <b>Single SOD-323 Green™</b>  | <b>Single SC-79 Green™</b>  | <b>Single 0402 Green™</b>   |
| SMP1340-003LF<br>Marking: RS9   | SMP1340-004LF<br>Marking: RS3   | SMP1340-005LF<br>Marking: RS2   | SMP1340-007LF<br>Marking: RSB   | SMP1340-011LF<br>Marking: RS  | SMP1340-079LF<br>Marking: Cathode   | SMP1340-040LF<br>Marking: D   |
|   | <b>SC-70</b>  | <b>SC-70</b>  |   |   |   |   |
|   | SMP1340-074LF<br>Marking: RS3   | SMP1340-075LF<br>Marking: RS2   |   |   |   |   |





## Switching Silicon PIN Diodes

### Lowest Capacitance Switching PIN Diodes for High Isolation

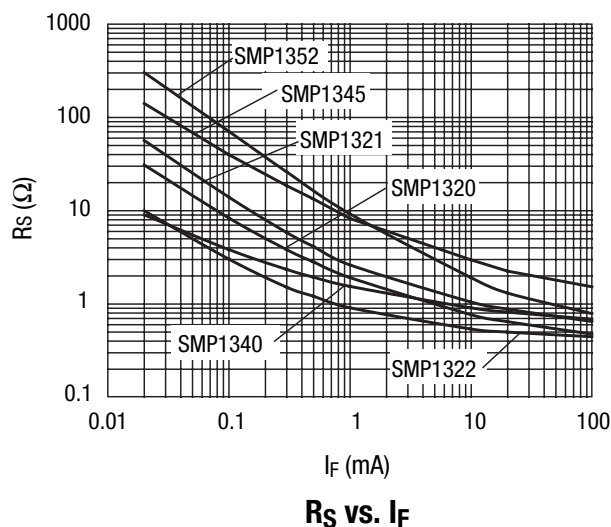
| Part Number   | Min. $V_B$<br>$I_R = 10 \mu A$<br>(V)   | Max. $C_T$<br>$V_R = 20 V$<br>$F = 1 MHz$<br>(pF)                                 | Typ. $V_F$<br>@ $I_F = 10 mA$<br>(V)  | Typ. $R_S$<br>$I_F = 1 mA$<br>$F = 100 MHz$<br>( $\Omega$ )                         | Max. $R_S$<br>$I_F = 10 mA$<br>$F = 100 MHz$<br>( $\Omega$ )                        | Typ. $T_L$<br>$I_F = 10 mA$<br>(ns) | Nominal I-Region Thickness ( $\mu m$ ) |
|---|---|---|---|---|---|-------------------------------------|--|
| SMP1345 Series  | 50  | 0.2   | 0.89  | 3.5   | 2   | 100                                 | 10                                     |
|  |  |  |  |  |  |                                     |  |
| <b>Common Anode SOT-23 Green™</b>   | <b>Common Cathode SOT-23 Green™</b>   | <b>Series Pair SOT-23 Green™</b>  | <b>Single SC-79 Green™</b>  | <b>Ring MIS Green™</b>  | <b>Single 0402 Green™</b>   |                                     |  |
| SMP1345-003LF<br>Marking: RU9   | SMP1345-004LF<br>Marking: RU3   | SMP1345-005LF<br>Marking: RU2   | SMP1345-079LF<br>Marking: Cathode   | SMP1345-518<br>Marking: 0   | SMP1345-040LF<br>Marking: U   |                                     |  |
|   |   | <b>SC-70</b>  |   |   |   |                                     |  |
|   |   | SMP1345-075LF<br>Marking: RU2   |   |   |   |                                     |  |

### Large Signal Switching PIN Diodes

| Part Number    | Min. $V_B$<br>$I_R = 10 \mu A$<br>(V) | Max. $C_T$<br>$V_R = 20 V$<br>$F = 1 MHz$<br>(pF) | Typ. $V_F$<br>@ $I_F = 10 mA$<br>(V) | Max. $R_S$<br>$I_F = 1 mA$<br>$F = 100 MHz$<br>( $\Omega$ ) | Max. $R_S$<br>$I_F = 10 mA$<br>$F = 100 MHz$<br>( $\Omega$ ) | Typ. $T_L$<br>$I_F = 10 mA$<br>(ns) | Nominal I-Region Thickness ( $\mu m$ ) |
|----------------|---------------------------------------|---|--------------------------------------|---|--|-------------------------------------|--|
| SMP1352 Series | 200                                   | 0.35  | 0.8                                  | 15  | 2.8  | 1000                                | 50                                     |

|   |   |   |   |
|---|---|---|---|
|  |  |  |  |
| <b>Single SOD-323 Green™</b>  | <b>Single SC-79 Green™</b>  | <b>Single 0402 Green™</b>   | <b>Series Pair SOT-23 Green™</b>  |
| SMP1352-011LF<br>Marking: RR  | SMP1352-079LF<br>Marking: Cathode   | SMP1352-040LF<br>Marking: S   | SMP1352-005LF<br>Marking: RR2   |

### Typical Performance Characteristics



## Switching Silicon PIN Diodes

### PIN Diode Chips—Low Frequency to 20 GHz

| Part Number    | $V_B$ @ 10 $\mu$ A (V) | Nominal I-Region ( $\mu$ m) | Typ. $C_J$ @ 0 V (pF) | Max. $C_J$ @ 50 V (pF) | Max. $R_S$ @ 10 mA ( $\Omega$ ) | Max. $T_I$ @ 10 mA (ns) | Max. Thermal Resistance (C/W) |
|----------------|------------------------|-----------------------------|-----------------------|------------------------|---------------------------------|-------------------------|-------------------------------|
| APD0505-000    | 50                     | 5                           | 0.10                  | 0.05                   | 2.0                             | 20                      | 100                           |
| APD0510-000    | 50                     | 5                           | 0.20                  | 0.10                   | 1.5                             | 40                      | 80                            |
| APD0520-000    | 50                     | 5                           | 0.25                  | 0.20                   | 1.0                             | 50                      | 80                            |
| APD0805-000    | 100                    | 8                           | 0.10                  | 0.05                   | 2.0                             | 100                     | 80                            |
| APD0810-000    | 100                    | 8                           | 0.15                  | 0.10                   | 1.5                             | 160                     | 60                            |
| APD1505 Series | 200                    | 4.5                         | 0.12                  | 0.06 @ 10 V            | 2.5                             | 350                     | 70                            |
| APD1510-000    | 200                    | 15                          | 0.20                  | 0.10                   | 2.0                             | 300                     | 60                            |
| APD1520-000    | 200                    | 15                          | 0.25                  | 0.20                   | 1.2                             | 900                     | 30                            |

### Ceramic Hermetic Packaged General-purpose PIN Diodes for Switching and Attenuator Applications

| Hermetic Stripline 240 | Hermetic Pill 203 | Hermetic Pill 210 | Hermetic Pill 219 |
|------------------------|-------------------|-------------------|-------------------|
| APD0505-240            | APD0505-203       | APD0505-210       | APD0505-219       |
| APD0510-240            | APD0510-203       | APD0510-210       | APD0510-219       |
| APD0520-240            | APD0520-203       | APD0520-210       | APD0520-219       |
| APD0805-240            | APD0805-203       | APD0805-210       | APD0805-219       |
| APD0810-240            | APD0810-203       | APD0810-210       | APD0810-219       |
| APD1505-240            | APD1505-203       | APD1505-210       | APD1505-219       |
| APD1510-240            | APD1510-203       | APD1510-210       | APD1510-219       |
| APD1520-240            | APD1520-203       | APD1520-210       | APD1520-219       |

Epoxy and ceramic hermetic packaged diode products are available through Isolink (a wholly owned subsidiary of Skyworks Solutions, Inc.)

### PIN Diode Wafer on Film Frame—Low Frequency to 20 GHz

| Part Number | $V_B$ @ 10 $\mu$ A (V) | Typ. $C_J$ @ 0 V (pF) | Max. $C_J$ @ 30 V (pF) | Typ. $V_F$ @ 10 mA (mV) | Max. $R_S$ @ 1 mA ( $\Omega$ ) | Max. $R_S$ @ 10 mA ( $\Omega$ ) | Max. $T_L$ @ 10 mA (ns) | Nominal Chip Size (mils) | Nominal Contact Diameter (mils) |
|-------------|------------------------|-----------------------|------------------------|-------------------------|--------------------------------|---------------------------------|-------------------------|--------------------------|---------------------------------|
| SMP1320-099 | 50                     | 0.23                  | 0.175                  | 850                     | 2 Typ.                         | 0.9                             | 400                     | 13.5                     | 3.0                             |
| SMP1321-099 | 100                    | 0.18                  | 0.15                   | 860                     | 3 Typ.                         | 2.0                             | 400                     | 13.5                     | 3.0                             |
| SMP1322-099 | 50                     | 1.10                  | 0.85                   | 825                     | 1.5                            | 0.45 Typ.                       | 400                     | 13.5                     | 7.5                             |
| SMP1340-099 | 50                     | 0.20                  | 0.15 @ 10 V            | 880                     | 1.7 Typ.                       | 1.2                             | 100                     | 11.0                     | 3.0                             |
| SMP1353-099 | 200                    | 0.35                  | 0.13 @ 20 V            | 825                     | 15                             | 2.8                             | 1000                    | 11.0                     | 7.0                             |

## Switching Silicon PIN Diodes

### Beam-Lead PIN Diodes—Low Frequency to 40 GHz

| Part Number | $V_B$ @ 10 $\mu$ A (V) | Max. $C_J$ @ 10 V (pF) | Max. $C_J$ @ 50 V (pF) | Max. $R_S$ @ 10 mA ( $\Omega$ ) | Typ. $T_L$ @ 10 mA (ns) |
|-------------|------------------------|------------------------|------------------------|---------------------------------|-------------------------|
| DSM8100-000 | 60                     | 0.025                  | –                      | 3.5                             | 25                      |
| DSG9500-000 | 100                    | –                      | 0.025                  | 4.0 @ 50 mA                     | 250                     |

### Switching Silicon PIN Diodes—AEC-Q101 Qualified

| Part Number    | Min. $V_B$<br>$I_R = 10 \mu$ A (V) | Max. $C_T$<br>$V_R = 30$ V<br>(pF) | Typ. $V_F$<br>@ $I_F = 10$ mA (V) | Max. $R_S$<br>$I_F = 1$ mA<br>$F = 100$ MHz ( $\Omega$ ) | Max. $R_S$<br>$I_F = 10$ mA<br>$F = 100$ MHz ( $\Omega$ ) | Max. $R_S$<br>$I_F = 100$ mA<br>$F = 100$ MHz ( $\Omega$ ) | Typ. Carrier Lifetime<br>$I_F = 10$ mA (ns) |
|----------------|------------------------------------|------------------------------------|-----------------------------------|--|---|--|---|
| SMPA1302-079LF | 200                                | 0.30                               | 0.80                              | 20   | 3   | 1.5  | 700   |
| SMPA1320-079LF | 50                                 | 0.3                                | 0.85                              | 2 Typ.   | 0.9   | –  | 400   |

## Attenuator PIN Diodes

### Plastic Surface Mount (SMT) PIN Diodes—Low Frequency to 6 GHz

| Part Number    | Min. $V_B$<br>$I_R = 10 \mu$ A (V) | Max. $C_T$<br>$V_R = 30$ V<br>$F = 1$ MHz (pF) | Typ. $V_F$<br>@ $I_F = 10$ mA (V) | Max. $R_S$<br>$I_F = 1$ mA<br>$F = 100$ MHz ( $\Omega$ ) | Max. $R_S$<br>$I_F = 10$ mA<br>$F = 100$ MHz ( $\Omega$ ) | Max. $R_S$<br>$I_F = 100$ mA<br>$F = 100$ MHz ( $\Omega$ ) | Typ. $T_L$<br>$I_F = 10$ mA (ns) | Nominal I-Region Thickness ( $\mu$ m) |
|----------------|------------------------------------|--|-----------------------------------|--|---|--|----------------------------------|---------------------------------------|
| SMP1302 Series | 200                                | 0.3  | 0.8                               | 20   | 3   | 1.5  | 700                              | 50                                    |

|                               |                                   |                                     |                                  |  |
|-------------------------------|-----------------------------------|-------------------------------------|----------------------------------|--|
|                               |                                   |                                     |                                  |  |
| <b>Single SOT-23 Green™</b>   | <b>Common Anode SOT-23 Green™</b> | <b>Common Cathode SOT-23 Green™</b> | <b>Series Pair SOT-23 Green™</b> | <b>Reverse Series Pair SOT-23 Green™</b> |
| SMP1302-001LF<br>Marking: RF1 | SMP1302-003LF<br>Marking: RF9     | SMP1302-004LF<br>Marking: RF3       | SMP1302-005LF<br>Marking: RF2    | SMP1302-006LF<br>Marking: RF8            |
|                               |                                   | <b>SC-70</b>                        | <b>SC-70</b>                     |  |
|                               |                                   | SMP1302-074LF<br>Marking: RF3       | SMP1302-075LF<br>Marking: RF2    |  |

|                              |                               |                             |                                   |                                |   |
|------------------------------|-------------------------------|-----------------------------|-----------------------------------|--------------------------------|---|
|                              |                               |                             |                                   |                                |   |
| <b>Single SOD-323 Green™</b> | <b>PI SOT-5</b>               | <b>Single 0402 Green™</b>   | <b>Single SC-79 Green™</b>        | <b>Single QFN 2 x 2 Green™</b> | <b>Single (Series) QFN 2 x 2 Green™</b> |
| SMP1302-011LF<br>Marking: RF | SMP1302-027LF<br>Marking: RFM | SMP1302-040LF<br>Marking: W | SMP1302-079LF<br>Marking: Cathode | SMP1302-085LF<br>Marking: RF1  | SMP1302-087LF<br>Marking: RF            |

**NEW** New products (indicated in blue, bold) are continually being introduced at Skyworks. For the latest information, please visit the new products section of our Web site at [www.skyworksinc.com](http://www.skyworksinc.com).

## Attenuator PIN Diodes

### Low-Distortion Attenuator PIN Diodes

| Part Number    | Min. $V_B$<br>$I_R = 10 \mu A$<br>(V) | Max. $C_T$<br>$V_R = 30 V$<br>$F = 1 MHz$<br>(pF) | Typ. $V_F$<br>@ $I_F = 10 mA$<br>(V) | Max. $R_S$<br>$I_F = 1 mA$<br>$F = 100 MHz$<br>( $\Omega$ ) | Max. $R_S$<br>$I_F = 10 mA$<br>$F = 100 MHz$<br>( $\Omega$ ) | Max. $R_S$<br>$I_F = 100 mA$<br>$F = 100 MHz$<br>( $\Omega$ ) | Typ. $T_L$<br>$I_F = 10 mA$<br>(ns) | Nominal I-Region Thickness ( $\mu m$ ) |
|----------------|---------------------------------------|---|--------------------------------------|---|--|---|-------------------------------------|--|
| SMP1304 Series | 200                                   | 0.3   | 0.8                                  | 50  | 7  | 2   | 1000                                | 100                                    |








|                               |                                     |                                  |  |                                     |
|-------------------------------|-------------------------------------|----------------------------------|--|-------------------------------------|
|                               |                                     |                                  |  |                                     |
| <b>Single SOT-23 Green™</b>   | <b>Common Cathode SOT-23 Green™</b> | <b>Series Pair SOT-23 Green™</b> | <b>Reverse Series Pair SOT-23 Green™</b> | <b>Low Inductance SOT-23 Green™</b> |
| SMP1304-001LF<br>Marking: RG1 | SMP1304-004LF<br>Marking: RG3       | SMP1304-005LF<br>Marking: RG2    | SMP1304-006LF<br>Marking: RG8            | SMP1304-007LF<br>Marking: RG8       |

|                               |                               |                               |                                   |   |
|-------------------------------|-------------------------------|-------------------------------|-----------------------------------|---|
|                               |                               |                               |                                   |   |
| <b>Single SOD-323 Green™</b>  | <b>PI SOT-143</b>             | <b>PI SOT-5</b>               | <b>Single SC-79 Green™</b>        | <b>Single (Series) QFN 2 x 2 Green™</b> |
| SMP1304-011LF<br>Marking: RGJ | SMP1304-019LF<br>Marking: RGJ | SMP1304-027LF<br>Marking: RGM | SMP1304-079LF<br>Marking: Cathode | SMP1334-084LF<br>Marking: MG            |

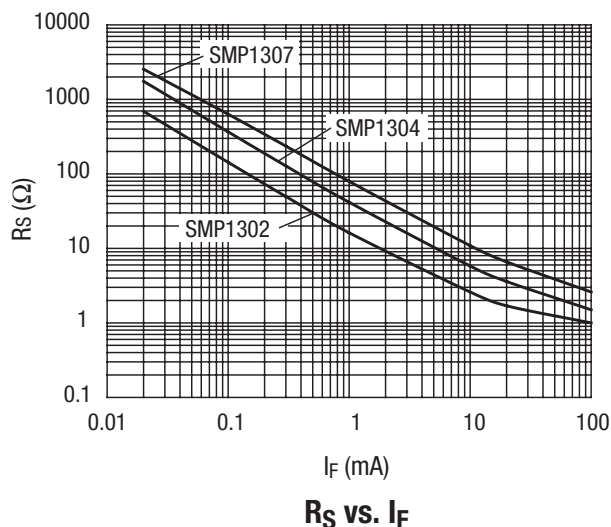
## Attenuator PIN Diodes

### Lowest Distortion, High IP3 Attenuator PIN Diodes

| Part Number    | Min. $V_B$<br>$I_R = 10 \mu A$<br>(V) | Max. $C_T$<br>$V_R = 30 V$<br>$F = 1 MHz$<br>(pF) | Typ. $V_F$<br>@ $I_F = 10 mA$<br>(V) | Max. $R_S$<br>$I_F = 1 mA$<br>$F = 100 MHz$<br>( $\Omega$ ) | Max. $R_S$<br>$I_F = 10 mA$<br>$F = 100 MHz$<br>( $\Omega$ ) | Max. $R_S$<br>$I_F = 100 mA$<br>$F = 100 MHz$<br>( $\Omega$ ) | Typ. $T_L$<br>$I_F = 10 mA$<br>(ns) | Nominal I-Region Thickness ( $\mu m$ ) |
|----------------|---------------------------------------|---|--------------------------------------|---|--|---|-------------------------------------|--|
| SMP1307 Series | 200                                   | 0.3   | 0.85                                 | 100   | 15   | 3   | 1500                                | 175                                    |

|   |   |   |   |  |   |   |
|---|---|---|---|--|---|---|
|  |  |  |  |  |  |  |
| <b>Single SOT-23 Green™</b>   | <b>Common Anode SOT-23 Green™</b>   | <b>Common Cathode SOT-23</b>  | <b>Series Pair SOT-23 Green™</b>  | <b>Reverse Series Pair SOT-23 Green™</b>   | <b>Single SOD-323 Green™</b>  | <b>PI SOT-5</b>   |
| SMP1307-001LF<br>Marking: RJ1   | SMP1307-003LF<br>Marking: RJ9   | SMP1307-004LF<br>Marking: RJ3   | SMP1307-005LF<br>Marking: RJ2   | SMP1307-006LF<br>Marking: RJ8  | SMP1307-011LF<br>Marking: RJ  | SMP1307-027LF<br>Marking: RJM   |

### Typical Performance Characteristics



### General-purpose PIN Diode Chip for Attenuator Applications

| Part Number | $V_B$ @ 10 $\mu A$<br>(V) | Nominal I-Region ( $\mu m$ ) | Typ. $C_J$ @ 0 V<br>(pF) | Max. $C_J$ @ 50 V<br>(pF) | Max. $R_S$ @ 10 mA<br>( $\Omega$ ) | Max. $T_L$ @ 10 mA<br>(ns) | Max. Thermal Resistance (C/W) |
|-------------|---------------------------|------------------------------|--------------------------|---------------------------|------------------------------------|----------------------------|-------------------------------|
| APD2220-000 | 100                       | 50                           | 0.2                      | 0.2                       | 4                                  | 700                        | 80                            |

### Ceramic Hermetic Packaged General-purpose PIN Diodes for Switching and Attenuator Applications

| Hermetic Stripline 240 | Hermetic Pill 203 | Hermetic Pill 210 | Hermetic Pill 219 |
|------------------------|-------------------|-------------------|-------------------|
| APD2220-240            | APD2220-203       | APD2220-210       | APD2220-219       |

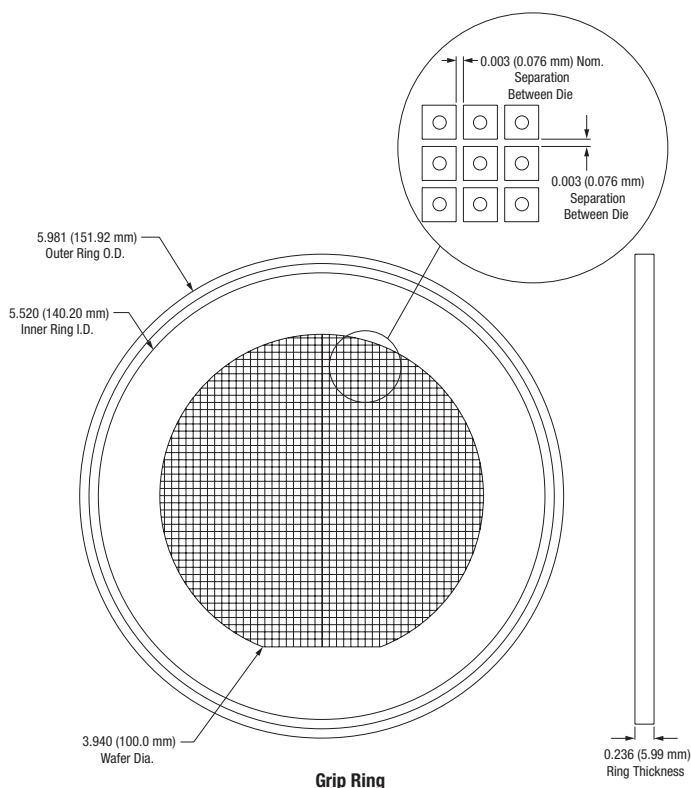
Epoxy and ceramic hermetic packaged diode products are available through Isolink (a wholly owned subsidiary of Skyworks Solutions, Inc.)

## Attenuator PIN Diodes

### PIN Diode Chips Supplied On Film Frame for Attenuator Applications—Low Frequency to 10 GHz

| Part Number | $V_B$ @ 10 $\mu$ A (V) | Typ. $C_J$ @ 0 V (pF) | Max. $C_J$ @ 30 V (pF) | Typ. $V_F$ @ 10 mA (mV) | Max. $R_S$ @ 1 mA ( $\Omega$ ) | Max. $R_S$ @ 10 mA ( $\Omega$ ) | Typ. $T_L$ @ 10 mA (ns) | Nominal Chip Size (mils) | Nominal Contact Diameter (mils) |
|-------------|------------------------|-----------------------|------------------------|-------------------------|--------------------------------|---------------------------------|-------------------------|--------------------------|---------------------------------|
| SMP1302-099 | 200                    | 0.27                  | 0.15                   | 800                     | 20                             | 3                               | 700                     | 13.5                     | 8.5                             |
| SMP1304-099 | 200                    | 0.18                  | 0.15                   | 800                     | 50                             | 7                               | 1000                    | 13.5                     | 8.5                             |
| SMP1307-099 | 200                    | 0.45                  | 0.20                   | 850                     | 75 Typ.                        | 1.5                             | 1500                    | 18.5                     | 11.0                            |

The above PIN diode chips are processed on 100 mm silicon wafers, 100% DC tested, sawn and shipped on 6" film frame hoops. Electrical rejects are identified with black ink.



### Attenuator PIN Diodes—AEC-Q101 Qualified

| Part Number           | Min. $V_B$ $I_R = 10 \mu$ A (V) | Max. $C_T$ $V_R = 30$ V (pF) | Typ. $V_F$ $I_F = 10$ mA (V) | Max. $R_S$ $I_F = 1$ mA $F = 100$ MHz ( $\Omega$ ) | Max. $R_S$ $I_F = 10$ mA $F = 100$ MHz ( $\Omega$ ) | Max. $R_S$ $I_F = 100$ mA $F = 100$ MHz ( $\Omega$ ) | Typical Carrier Lifetime $I_F = 10$ mA (ns) |
|-----------------------|---------------------------------|------------------------------|------------------------------|--|---|--|---|
| <b>SMPA1302-079LF</b> | 200                             | 0.30                         | 0.80                         | 20   | 3   | 1.5  | 700   |
| <b>SMPA1304-011LF</b> | 200                             | 0.30                         | 0.80                         | 50   | 7   | 2.0  | 1000  |
| <b>SMPA1304-019LF</b> | 200                             | 0.45                         | 0.80                         | 50   | 7   | 2.0  | 1000  |

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## SCHOTTKY DIODES

Designed for High Performance, High Volume and Cost Sensitive Mixer and Detector Applications










### Plastic Surface Mount Technology (SMT) Packaged

#### Plastic Surface Mount (SMT) Schottky Diodes—Low Frequency to 24 GHz

| Part Number    | Min. $V_B$<br>$I_R = 10 \mu A$<br>(V) | Typ. $I_R$<br>$V_R = 1 V$<br>(nA) | Min. $V_F$<br>$I_F = 1 mA$<br>(mV) | Max. $C_T$<br>$V_R = 0 V$<br>(pF) | Max. $R_T$<br>$I_F = 10 mA$<br>( $\Omega$ ) |
|----------------|---------------------------------------|-----------------------------------|------------------------------------|-----------------------------------|---|
| SMS1546-005LF  | 2                                     | 300                               | 270                                | 0.63                              | 8   |
| SMS7621 Series | 2                                     | 80                                | 320                                | 0.25                              | 18  |

Delta  $V_F$  for pairs and quads is 10 mV maximum at 1 mA.

Breakdown voltage and reverse leakage cannot be measured directly on ring configurations.









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|---|---|---|---|---|---|---|---|---|
|  |  |  |  |  |  |  |  |  |
| <b>Single SC-79</b><br><i>Green™</i>  | <b>Single SOT-23</b><br><i>Green™</i>   | <b>Common Cathode SOT-23</b><br><i>Green™</i>                                     | <b>Series Pair SOT-23</b><br><i>Green™</i>  | <b>Reverse Series Pair SOT-23</b><br><i>Green™</i>                                | <b>Unconnected Pair SOT-143</b>   | <b>Dual Series Pair SC-88</b>   | <b>Unconnected Pair MIS</b>   | <b>Single 0402</b><br><i>Green™</i>   |
|   |   |   | SMS1546-005LF<br>Marking: SG2   |   |   |   |   |   |
| SMS7621-079LF<br>Marking: Cathode   | SMS7621-001LF<br>Marking: XH1   |   | SMS7621-005LF<br>Marking: XH2   | SMS7621-006LF<br>Marking: XH8   | SMS7621-015LF<br>Marking: XH7   | SMS7621-081LF<br>Marking: XHQ   | SMS7621-517<br>Marking: H   | SMS7621-040LF<br>Marking: E   |
|   |   | <b>SC-70</b>  | <b>SC-70</b>  |   |   |   |   |   |
|   |   | SMS7621-074LF<br>Marking: XH3   | SMS7621-075LF<br>Marking: XH2   |   |   |   |   |   |

| Part Number    | Min. $V_B$<br>$I_R = 100 \mu A$<br>(V) | Typ. $I_R$<br>$V_R = 1 mA$<br>(mV) | Max. $C_T$<br>$V_R = 0 V$<br>(pF) | Typ. $R_T$<br>$I_F = 10 mA$<br>( $\Omega$ ) |
|----------------|--|------------------------------------|-----------------------------------|---|
| SMS7630 Series | 1                                      | 240                                | 0.35                              | 22  |

$V_B$  is measured at 100  $\mu A$  (avalanche breakdown is typically 6 V).

Delta  $V_F$  for pairs and quads is 10 mV maximum at 1 mA.

Breakdown voltage and reverse leakage cannot be measured directly on ring configurations.










|   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|
|  |  |  |  |  |  |  |  |
| <b>Single SC-79</b><br><i>Green™</i>  | <b>Single SOT-323</b><br><i>Green™</i>  | <b>Single SOT-23</b><br><i>Green™</i>   | <b>Series Pair SOT-23</b><br><i>Green™</i>  | <b>Reverse Series Pair SOT-23</b><br><i>Green™</i>                                  | <b>Reverse Unconnected Pair SOT-143</b>   | <b>Unconnected Pair MIS</b>   | <b>Single 0402</b><br><i>Green™</i>   |
| SMS7630-079LF<br>Marking: Anode   | SMS7630-011LF<br>Marking: XD  | SMS7630-001LF<br>Marking: XD1   | SMS7630-005LF<br>Marking: XD2   | SMS7630-006LF<br>Marking: XD8   | SMS7630-020LF<br>Marking: XD0   | SMS7630-517<br>Marking: D   | SMS7630-040LF<br>Marking: P   |

## Plastic Surface Mount Technology (SMT) Packaged

### General-purpose Plastic Packaged Schottky Diodes—Low Frequency to 10 GHz

| Part Number    | Min. $V_B$<br>$I_R = 10 \mu A$<br>(V) | Max. $I_R$<br>$V_R = 1 V$<br>(nA) | Max. $V_F$<br>$I_F = 1 mA$<br>(mV) | Min. $V_F$<br>@ Spec. $I_F$<br>(mV) | Max. $C_T$<br>$V_R = 0 V$<br>(pF) | Typ. $R_T$<br>$I_F = 10 mA$<br>( $\Omega$ ) |
|----------------|---------------------------------------|-----------------------------------|------------------------------------|-------------------------------------|-----------------------------------|---|
| SMS3922 Series | 8                                     | 100                               | 340                                | 450 @ 10 mA                         | 1.03                              | 7   |
| SMS3923 Series | 20                                    | 500 @ 15 V                        | 370                                | 1000 @ 35 mA                        | 1.23                              | 11  |
| SMS3924 Series | 70                                    | 200 @ 50 V                        | 550                                | 1000 @ 15 mA                        | 1.83                              | 7   |
| SMS325-079LF   | 40                                    | –                                 | 670                                | –                                   | 0.60                              | 10  |




Delta  $V_F$  for pairs and quads is 10 mV maximum at 1 mA.  
Breakdown voltage and reverse leakage cannot be measured directly on ring configurations.

|  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|--|---|---|---|
| Single<br>SC-79<br><i>Green™</i>  | Single<br>SOD-323<br><i>Green™</i>  | Single<br>SOT-23<br><i>Green™</i>   | Common<br>Cathode<br>SOT-23<br><i>Green™</i>                                      | Series Pair<br>SOT-23<br><i>Green™</i>  | Unconnected<br>Pair<br>SOT-143   | Dual Series<br>Pair<br>SC-88  | Unconnected<br>Pair<br>MIS<br><i>Green™</i>   | Single<br>0402<br><i>Green™</i>   |
| SMS3922-079LF<br>Marking: Cathode   | SMS3922-011LF<br>Marking: XA  | SMS3922-001LF<br>Marking: XA1   | SMS3922-004LF<br>Marking: XA3   | SMS3922-005LF<br>Marking: XA2   | SMS3922-015LF<br>Marking: XA7  |   |   | SMS3922-040LF<br>Marking: V   |
| SMS3923-079LF<br>Marking: Cathode   | SMS3923-011LF<br>Marking: XB  | SMS3923-001LF<br>Marking: XB1   |   | SMS3923-005LF<br>Marking: XB2   | SMS3923-015LF<br>Marking: XB7  | SMS3923-081LF<br>Marking: XBQ   | SMS3923-517<br>Marking: B   | SMS3923-040LF<br>Marking: X   |
| SMS3924-079LF<br>Marking: Cathode   |   |   |   | SMS3924-005LF<br>Marking: XC2   | SMS3924-015LF<br>Marking: XC7  |   |   | SMS3924-040LF<br>Marking: 1   |
|   |   |   |   | SC-70   |  |   |   |   |
|   |   |   |   | SMS3924-075LF<br>Marking: XC2   |  |   |   |   |
| SMS3925-079LF<br>Marking: Cathode   |   |   |   |   |  |   |   | SMS3925-040LF<br>Marking: 2   |




## Plastic Surface Mount Technology (SMT) Packaged

### Silicon Schottky Mixer Quad Diodes—Low Frequency to 12 GHz

| Part Number                  | Min. $V_B$<br>$I_R = 10 \mu A$<br>(V) | Typ. $I_R$<br>$V_R = 1 V$<br>(mA) | Max. $V_F$<br>$I_F = 1 mA$<br>(mV) | Max. $C_T$<br>$V_R = 0 V$<br>(pF) | Typ. $R_T$<br>$I_F = 10 mA$<br>( $\Omega$ ) |
|------------------------------|---------------------------------------|-----------------------------------|------------------------------------|-----------------------------------|---|
| SMS3926 Series               | 2                                     | 300                               | 270                                | 0.5                               | 8   |
| SMS3927 Series/SMS3930-021LF | 2                                     | 50                                | 370                                | 0.5                               | 8   |
| SMS3928-023LF/SMS3931-021LF  | 4                                     | 5                                 | 580                                | 0.5                               | 8   |

|  |  |  |
|---|---|---|
| <b>Ring Quad<br/>SOT-143</b>  | <b>Crossover Quad<br/>SOT-143</b>   | <b>Bridge Quad<br/>SOT-143</b>  |
| SMS3926-022LF<br>Marking: XE4   | SMS3926-023LF<br>Marking: XE5   |   |
|   | SMS3927-023LF<br>Marking: XJ5   | SMS3930-021LF<br>Marking: XRE   |
|   | SMS3928-023LF<br>Marking: XK5   | SMS3931-021LF<br>Marking: XSE   |



















### Surface Mount Silicon Schottky Mixer and Detector Diodes—Low Frequency to 100 GHz

| Part Number   | Min. $V_B$<br>@ 10 $\mu A$<br>(V) | Max. $C_T$<br>@ 0 V<br>(pF) | Typ. $C_T$<br>@ 0.15 V<br>(pF) | $V_F$ @ 0.1 mA<br>(mV) | $V_F$ @ 1 mA<br>(mV) | Max. Series<br>Resistance<br>( $\Omega$ ) | Video<br>Resistance<br>@ 0 V<br>( $\Omega$ ) | Package | Configuration |
|---|-----------------------------------|-----------------------------|--------------------------------|------------------------|----------------------|---|--|---------|---------------|
|  SMS7621-060 | 2                                 | 0.18                        | –                              | –                      | 260–320              | 12  | –  | 0201    | Single        |
|  SMS7630-061 | 1                                 | –                           | 0.3                            | 60–120                 | 135–240              | –   | 3000–7000                                    | 0201    | Single        |
|  SMS7621-092 | 2                                 | 0.18                        | –                              | –                      | 260–320              | 12  | –  | 0201    | Anti-parallel |

## Ceramic




























### Ceramic Packaged Schottky Diodes—Low Frequency to 20 GHz

#### — Hermetic Ceramic Packaged Detector Schottky Diodes

| Hermetic Ceramic Pill<br>207  | Hermetic Ceramic Pill<br>203  |
|---|---|
|  CDB7620-207 |  CDB7620-203 |
|  CDB7619-207 |  CDB7619-203 |
|  CDF7623-207 |  CDF7623-203 |
|  CDF7621-207 |  CDF7621-203 |
|  CME7660-207 |  CME7660-203 |
|  CDE7618-207 |  CDE7618-203 |
|  CDP7624-207 |  CDP7624-203 |
|  CDC7630-207 |  CDC7630-203 |
|  CDC7631-207 |  CDC7631-203 |

Epoxy and ceramic hermetic packaged diode products are available through Isolink (a wholly owned subsidiary of Skyworks Solutions, Inc.)

#### — Epoxy and Hermetic Ceramic Packaged Single, N-Type, Low, Medium, High Drive Schottky Diodes




























| Epoxy Stripline<br>250  | Epoxy Stripline<br>230  | Hermetic Stripline<br>220   |
|---|---|---|
|  DMF2820-250   |   |  DMF2820-220   |
|  DME2127-250 |   |  DME2127-220 |
|  DMJ2823-250 |   |  DMJ2823-220 |
|  DMF2821-250 |   |  DMF2821-220 |
|  DME2957-250 |   |  DME2957-220 |
|  DMJ2777-250 |   |  DMJ2777-220 |
|  DMF2344-250 |  DMF2344-230 |  DMF2344-220 |
|  DME2333-250 |  DME2333-230 |  DME2333-220 |
|  DMJ2824-250 |  DMJ2824-230 |  DMJ2824-220 |
|   |  DMF2822-230 |  DMF2822-220 |
|   |  DME2458-230 |  DME2458-220 |
|   |  DMJ2825-230 |  DMJ2825-220 |

Epoxy and ceramic hermetic packaged diode products are available through Isolink (a wholly owned subsidiary of Skyworks Solutions, Inc.)

## Ceramic



















### Ceramic Packaged Schottky Diodes—Low Frequency to 20 GHz

 Epoxy and Hermetic Ceramic Packaged Series Pair, N-Type, Low, Medium, High Drive Schottky Diodes

| Epoxy Stripline<br>252  | Epoxy Stripline<br>232  | Hermetic Stripline<br>222   |
|---|---|---|
|  DMF2835-252 |   |  DMF2835-222 |
|  DME2050-252 |   |  DME2050-222 |
|  DMJ2092-252 |   |  DMJ2092-222 |
|  DMF2826-252 |   |  DMF2826-222 |
|  DME2829-252 |   |  DME2829-222 |
|  DMJ2093-252 |   |  DMJ2093-222 |
|  DMF2827-252 |  DMF2827-232 |  DMF2827-222 |
|  DME2830-252 |  DME2830-232 |  DME2830-222 |
|  DMJ2832-252 |  DMJ2832-232 |  DMJ2832-222 |
|   |  DMF2828-232 |  DMF2828-222 |
|   |  DME2831-232 |  DME2831-222 |
|   |  DMJ2833-232 |  DMJ2833-222 |

Epoxy and ceramic hermetic packaged diode products are available through Isolink (a wholly owned subsidiary of Skyworks Solutions, Inc.)

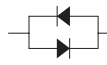
 Epoxy and Hermetic Ceramic Packaged Common Cathode, N-Type, Low, Medium, High Drive Schottky Diodes

| Epoxy Stripline<br>253  | Hermetic Stripline<br>223   |
|---|---|
|  DMF2182-253 |  DMF2182-223 |
|  DME2205-253 |  DME2205-223 |
|  DMJ2208-253 |  DMJ2208-223 |
|  DMF2183-253 |  DMF2183-223 |
|  DME2206-253 |  DME2206-223 |
|  DMJ2209-253 |  DMJ2209-223 |
|  DMF2184-253 |  DMF2184-223 |
|  DME2207-253 |  DME2207-223 |
|  DMJ2210-253 |  DMJ2210-223 |
|   |  DMF2834-223 |
|   |  DME2864-223 |
|   |  DMJ2836-223 |

Epoxy and ceramic hermetic packaged diode products are available through Isolink (a wholly owned subsidiary of Skyworks Solutions, Inc.)

## Ceramic

### Ceramic Packaged Schottky Diodes—Low Frequency to 20 GHz



Epoxy and Hermetic Ceramic Packaged Anti-parallel, N-Type, Low, Medium, High Drive Schottky Diodes

| Epoxy Stripline<br>251 | Hermetic Stripline<br>221 |
|------------------------|---------------------------|
| DMF2185-251            | DMF2185-221               |
| DME2282-251            | DME2282-221               |
| DMJ2303-251            | DMJ2303-221               |
| DMF2186-251            | DMF2186-221               |
| DME2283-251            | DME2283-221               |
| DMJ2304-251            | DMJ2304-221               |
| DMF2187-251            | DMF2187-221               |
| DME2284-251            | DME2284-221               |
| DMJ2246-251            | DMJ2246-221               |
|                        | DMF2837-221               |
|                        | DME2838-221               |
|                        | DMJ2839-221               |

Epoxy and ceramic hermetic packaged diode products are available through Isolink (a wholly owned subsidiary of Skyworks Solutions, Inc.)



Epoxy and Hermetic Ceramic Packaged Ring Quad, N-Type, Low, Medium, High Drive Schottky Diodes

| Epoxy Stripline<br>254 | Epoxy Stripline<br>234 | Hermetic Stripline<br>224 |
|------------------------|------------------------|---------------------------|
| DMF2865-254            |                        | DMF2865-224               |
| DME2857-254            |                        | DME2857-224               |
| DMJ2502-254            |                        | DMJ2502-224               |
| DMF2011-254            | DMF2011-234            | DMF2011-224               |
| DME2858-254            |                        | DME2858-224               |
| DMJ2990-254            |                        | DMJ2990-224               |
| DMF2012-254            | DMF2012-234            | DMF2012-224               |
| DME2859-254            | DME2859-234            | DME2859-224               |
| DMJ2667-254            | DMJ2667-234            | DMJ2667-224               |
|                        | DMF2454-234            | DMF2454-224               |
|                        | DME2459-234            | DME2459-224               |
|                        | DMJ2455-234            | DMJ2455-224               |

Epoxy and ceramic hermetic packaged diode products are available through Isolink (a wholly owned subsidiary of Skyworks Solutions, Inc.)

## Ceramic

## Ceramic Packaged Schottky Diodes—Low Frequency to 20 GHz



## Epoxy and Hermetic Ceramic Packaged Bridge Quad, N-Type, Low, Medium, High Drive Schottky Diodes

| Epoxy Stripline<br>255 | Epoxy Stripline<br>235 | Hermetic Stripline<br>225 |
|------------------------|------------------------|---------------------------|
| DMF2076-255            |                        | DMF2076-225               |
| DME2029-255            |                        | DME2029-225               |
| DMJ2312-255            |                        | DMJ2312-225               |
| DMF2077-255            |                        | DMF2077-225               |
| DME2850-255            |                        | DME2850-225               |
| DMJ2088-255            |                        | DMJ2088-225               |
| DMF2078-255            | DMF2078-235            | DMF2078-225               |
| DME2031-255            | DME2031-235            | DME2031-225               |
| DMJ2768-255            | DMJ2768-235            | DMJ2768-225               |
|                        | DMF2848-235            | DMF2848-225               |
|                        | DME2851-235            | DME2851-225               |
|                        | DMJ2852-235            | DMJ2852-225               |

Epoxy and ceramic hermetic packaged diode products are available through Isolink (a wholly owned subsidiary of Skyworks Solutions, Inc.)



## Epoxy Packaged Octo Quad Ring, N-Type, Low, Medium, High Drive Schottky Diodes

| Part<br>Number | Frequency<br>Band | $C_j$ 0 V, 1 MHz<br>(pF) | Max. $R_S$ @ 5 mA<br>( $\Omega$ ) | Min. $V_B$ @ 10 $\mu$ A<br>(V) | $V_F$ @ 1 mA<br>(mV) | Drive Level |
|----------------|-------------------|--------------------------|-----------------------------------|--------------------------------|----------------------|-------------|
| DMF3938-257    | S-X               | 0.15–0.30                | 16                                | 4                              | 400–520              | Low         |
| DME3939-257    | S-X               | 0.15–0.30                | 16                                | 6                              | 600–800              | Medium      |
| DMJ3940-257    | S-X               | 0.15–0.30                | 16                                | 8                              | 1000–1200            | High        |

Epoxy and ceramic hermetic packaged diode products are available through Isolink (a wholly owned subsidiary of Skyworks Solutions, Inc.)

## Epoxy and Hermetic Ceramic Packaged P-Type Zero Bias Detector Schottky Diodes

| Epoxy Stripline<br>250 | Hermetic<br>220 |
|------------------------|-----------------|
| DDC2353-250            | DDC2353-220     |
| DDC2354-250            | DDC2354-220     |

Epoxy and ceramic hermetic packaged diode products are available through Isolink (a wholly owned subsidiary of Skyworks Solutions, Inc.)

## Epoxy and Hermetic Ceramic Packaged P-Type Detector Schottky Diodes

| Epoxy Stripline<br>250 | Epoxy Stripline<br>230 | Hermetic Stripline<br>220 |
|------------------------|------------------------|---------------------------|
| DDB2503-250            | DDB2503-230            | DDB2503-220               |
| DDB2504-250            | DDB2504-230            | DDB2504-220               |
| DDB2265-250            | DDB2265-230            | DDB2265-220               |

Epoxy and ceramic hermetic packaged diode products are available through Isolink (a wholly owned subsidiary of Skyworks Solutions, Inc.)

**Beam-Lead****Beam-Lead Schottky Diodes—Low Frequency to 40 GHz**

## —▶▶ Single, N-Type, Low, Medium, High Drive Schottky Diodes

| Part Number | Frequency Band | $C_J$ 0 V @ 1 MHz (pF) | Max. $R_S$ @ 5 mA ( $\Omega$ ) | Min. $V_B$ @ 10 $\mu$ A (V) | $V_F$ @ 1 mA (mV) | Drive Level |
|-------------|----------------|------------------------|--------------------------------|-----------------------------|-------------------|-------------|
| DMF2820-000 | S              | 0.30–0.50              | 5                              | 2                           | 200–260           | Low         |
| DME2127-000 | S              | 0.30–0.50              | 5                              | 3                           | 300–400           | Med         |
| DMJ2823-000 | S              | 0.30–0.50              | 5                              | 4                           | 500–600           | High        |
| DMF2821-000 | X              | 0.15–0.30              | 8                              | 2                           | 250–310           | Low         |
| DME2957-000 | X              | 0.15–0.30              | 8                              | 3                           | 325–425           | Med         |
| DMJ2777-000 | X              | 0.15–0.30              | 8                              | 4                           | 550–650           | High        |
| DMF2344-000 | Ku             | 0.05–0.15              | 13                             | 2                           | 260–330           | Low         |
| DME2333-000 | Ku             | 0.05–0.15              | 13                             | 3                           | 350–450           | Med         |
| DMJ2824-000 | Ku             | 0.05–0.15              | 13                             | 4                           | 500–680           | High        |
| DMF2822-000 | K              | 0.1 Max.               | 18                             | 2                           | 270–350           | Low         |
| DME2458-000 | K              | 0.1 Max.               | 18                             | 3                           | 375–550           | Med         |
| DMJ2825-000 | K              | 0.1 Max.               | 18                             | 4                           | 600–700           | High        |

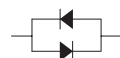
## ▶▶ Series Pair, N-Type, Low, Medium, High Drive Schottky Diodes

| Part Number | Frequency Band | $C_J$ 0 V, 1 MHz (pF) | Max. $R_S$ @ 5 mA ( $\Omega$ ) | Min. $V_B$ @ 10 $\mu$ A (V) | $V_F$ @ 1 mA (mV) | Drive Level |
|-------------|----------------|-----------------------|--------------------------------|-----------------------------|-------------------|-------------|
| DMF2835-000 | S              | 0.30–0.50             | 5                              | 2                           | 200–260           | Low         |
| DME2050-000 | S              | 0.30–0.50             | 5                              | 3                           | 300–400           | Med         |
| DMJ2092-000 | S              | 0.30–0.50             | 5                              | 4                           | 500–600           | High        |
| DMF2826-000 | X              | 0.15–0.30             | 8                              | 2                           | 250–310           | Low         |
| DME2829-000 | X              | 0.15–0.30             | 8                              | 3                           | 325–425           | Med         |
| DMJ2093-000 | X              | 0.15–0.30             | 8                              | 4                           | 550–650           | High        |
| DMF2827-000 | Ku             | 0.05–0.15             | 13                             | 2                           | 260–330           | Low         |
| DME2830-000 | Ku             | 0.05–0.15             | 13                             | 3                           | 350–450           | Med         |
| DMJ2832-000 | Ku             | 0.05–0.15             | 13                             | 4                           | 500–680           | High        |
| DMF2828-000 | K              | 0.1 Max.              | 18                             | 2                           | 270–350           | Low         |
| DME2831-000 | K              | 0.1 Max.              | 18                             | 3                           | 375–550           | Med         |
| DMJ2833-000 | K              | 0.1 Max.              | 18                             | 4                           | 600–700           | High        |



**Beam-Lead****Beam-Lead Schottky Diodes—Low Frequency to 40 GHz****Common Cathode, N-Type, Low, Medium, High Drive Schottky Diodes**

| Part Number | Frequency Band | $C_j$ 0 V, 1 MHz (pF) | Max. $R_S$ @ 5 mA ( $\Omega$ ) | Min. $V_B$ @ 10 $\mu$ A (V) | $V_F$ @ 1 mA (mV) | Drive Level |
|-------------|----------------|-----------------------|--------------------------------|-----------------------------|-------------------|-------------|
| DMF2182-000 | S              | 0.30–0.50             | 5                              | 2                           | 200–260           | Low         |
| DME2205-000 | S              | 0.30–0.50             | 5                              | 3                           | 300–400           | Med         |
| DMJ2208-000 | S              | 0.30–0.50             | 5                              | 4                           | 500–600           | High        |
| DMF2183-000 | X              | 0.15–0.30             | 8                              | 2                           | 250–310           | Low         |
| DME2206-000 | X              | 0.15–0.30             | 8                              | 3                           | 325–425           | Med         |
| DMJ2209-000 | X              | 0.15–0.30             | 8                              | 4                           | 550–650           | High        |
| DMF2184-000 | Ku             | 0.05–0.15             | 13                             | 2                           | 260–330           | Low         |
| DME2207-000 | Ku             | 0.05–0.15             | 13                             | 3                           | 350–450           | Med         |
| DMJ2210-000 | Ku             | 0.05–0.15             | 13                             | 4                           | 500–680           | High        |
| DMF2834-000 | K              | 0.1 Max.              | 18                             | 2                           | 270–350           | Low         |
| DME2864-000 | K              | 0.1 Max.              | 18                             | 3                           | 375–550           | Med         |
| DMJ2836-000 | K              | 0.1 Max.              | 18                             | 4                           | 600–700           | High        |

**Anti-parallel, N-Type, Low, Medium, High Drive Schottky Diodes**

| Part Number | Frequency Band | $C_j$ 0 V, 1 MHz (pF) | Max. $R_S$ @ 5 mA ( $\Omega$ ) | Min. $V_B$ @ 10 $\mu$ A (V) | $V_F$ @ 1 mA (mV) | Drive Level |
|-------------|----------------|-----------------------|--------------------------------|-----------------------------|-------------------|-------------|
| DMF2185-000 | S              | 0.30–0.50             | 5                              | 2                           | 200–260           | Low         |
| DME2282-000 | S              | 0.30–0.50             | 5                              | 3                           | 300–400           | Med         |
| DMJ2303-000 | S              | 0.30–0.50             | 5                              | 4                           | 500–600           | High        |
| DMF2186-000 | X              | 0.15–0.30             | 8                              | 2                           | 250–310           | Low         |
| DME2283-000 | X              | 0.15–0.30             | 8                              | 3                           | 325–425           | Med         |
| DMJ2304-000 | X              | 0.15–0.30             | 8                              | 4                           | 550–650           | High        |
| DMF2187-000 | Ku             | 0.05–0.15             | 13                             | 2                           | 260–330           | Low         |
| DME2284-000 | Ku             | 0.05–0.15             | 13                             | 3                           | 350–450           | Med         |
| DMJ2246-000 | Ku             | 0.05–0.15             | 13                             | 4                           | 500–680           | High        |
| DMF2837-000 | K              | 0.1 Max.              | 18                             | 2                           | 270–350           | Low         |
| DME2838-000 | K              | 0.1 Max.              | 18                             | 3                           | 375–550           | Med         |
| DMJ2839-000 | K              | 0.1 Max.              | 18                             | 4                           | 600–700           | High        |

**Beam-Lead****Beam-Lead Schottky Diodes—Low Frequency to 40 GHz****Ring Quad, N-Type, Low, Medium, High Drive Schottky Diodes**

| Part Number | Frequency Band | $C_j$ 0 V, 1 MHz (pF) | Max. $R_S$ @ 5 mA ( $\Omega$ ) | Min. $V_B$ @ 10 $\mu$ A (V) | $V_F$ @ 1 mA (mV) | Drive Level |
|-------------|----------------|-----------------------|--------------------------------|-----------------------------|-------------------|-------------|
| DMF2865-000 | S              | 0.30–0.50             | 5                              | 2                           | 200–260           | Low         |
| DME2857-000 | S              | 0.30–0.50             | 5                              | 3                           | 300–400           | Med         |
| DMJ2502-000 | S              | 0.30–0.50             | 5                              | 4                           | 500–600           | High        |
| DMF2011-000 | X              | 0.15–0.30             | 8                              | 2                           | 250–310           | Low         |
| DME2858-000 | X              | 0.15–0.30             | 8                              | 3                           | 325–425           | Med         |
| DMJ2990-000 | X              | 0.15–0.30             | 8                              | 4                           | 550–650           | High        |
| DMF2012-000 | Ku             | 0.05–0.15             | 13                             | 2                           | 260–330           | Low         |
| DME2859-000 | Ku             | 0.05–0.15             | 13                             | 3                           | 350–450           | Med         |
| DMJ2667-000 | Ku             | 0.05–0.15             | 13                             | 4                           | 500–680           | High        |
| DMF2454-000 | K              | 0.1 Max.              | 18                             | 2                           | 270–350           | Low         |
| DME2459-000 | K              | 0.1 Max.              | 18                             | 3                           | 375–550           | Med         |
| DMJ2455-000 | K              | 0.1 Max.              | 18                             | 4                           | 600–700           | High        |

**Bridge Quad, N-Type, Low, Medium, High Drive Schottky Diodes**

| Part Number | Frequency Band | $C_j$ 0 V, 1 MHz (pF) | Max. $R_S$ @ 5 mA ( $\Omega$ ) | Min. $V_B$ @ 10 $\mu$ A (V) | $V_F$ @ 1 mA (mV) | Drive Level |
|-------------|----------------|-----------------------|--------------------------------|-----------------------------|-------------------|-------------|
| DMF2076-000 | S              | 0.30–0.50             | 5                              | 2                           | 200–260           | Low         |
| DME2029-000 | S              | 0.30–0.50             | 5                              | 3                           | 300–400           | Med         |
| DMJ2312-000 | S              | 0.30–0.50             | 5                              | 4                           | 500–600           | High        |
| DMF2077-000 | X              | 0.15–0.30             | 8                              | 2                           | 250–310           | Low         |
| DME2850-000 | X              | 0.15–0.30             | 8                              | 3                           | 325–425           | Med         |
| DMJ2088-000 | X              | 0.15–0.30             | 8                              | 4                           | 550–650           | High        |
| DMF2078-000 | Ku             | 0.05–0.15             | 13                             | 2                           | 260–330           | Low         |
| DME2031-000 | Ku             | 0.05–0.15             | 13                             | 3                           | 350–450           | Med         |
| DMJ2768-000 | Ku             | 0.05–0.15             | 13                             | 4                           | 500–680           | High        |
| DMF2848-000 | K              | 0.1 Max.              | 18                             | 2                           | 270–350           | Low         |
| DME2851-000 | K              | 0.1 Max.              | 18                             | 3                           | 375–550           | Med         |
| DMJ2852-000 | K              | 0.1 Max.              | 18                             | 4                           | 600–700           | High        |

## Beam-Lead

### Beam-Lead Schottky Diodes—Low Frequency to 40 GHz

#### Single, P-Type, Zero Bias Detector Schottky Diodes

| Part Number | Min. E <sub>0</sub> (mV) | Z <sub>V</sub> (Ω) | Min. T <sub>SS</sub> (dBm) |
|-------------|--------------------------|--------------------|----------------------------|
| DDC2353-000 | 8                        | 2000–5000          | -52                        |
| DDC2354-000 | 15                       | 5000–15000         | -56                        |

#### Single, P-Type, Low and Medium Drive Detector Schottky Diodes

| Part Number | Frequency Band | Min. T <sub>SS</sub> (dBm) | Z <sub>IF</sub> (Ω) | Max. C <sub>J</sub> @ 0 V (pF) | V <sub>F</sub> @ 1 mA (mV) | Min. V <sub>B</sub> @ 10 μA (V) |
|-------------|----------------|----------------------------|---------------------|--------------------------------|----------------------------|---------------------------------|
| DDB2503-000 | X              | 50                         | 500–700             | 0.15                           | 200–350                    | 2                               |
| DDB2504-000 | Ku             | 48                         | 500–700             | 0.10                           | 200–350                    | 2                               |
| DDB2265-000 | K              | 50                         | 800–1200            | 0.10                           | 300–450                    | 3                               |

## Chip

### Schottky Diode Chips—Low Frequency to 40 GHz

#### Single N-Type and P-Type Schottky Diode Chips

| Part Number | Barrier Height | Junction Type | Max. C <sub>J</sub> (pF) | Max. R <sub>T</sub> (Ω) | V <sub>F</sub> @ 1 mA (mV) | Min. V <sub>B</sub> (V) | Typ. R <sub>V</sub> @ 0 Bias (Ω) |
|-------------|----------------|---------------|--------------------------|-------------------------|----------------------------|-------------------------|----------------------------------|
| CDB7619-000 | Low            | P             | 0.1                      | 40                      | 275–375                    | 2                       | 735                              |
| CDB7620-000 | Low            | P             | 0.15                     | 30                      | 250–350                    | 2                       | 537                              |
| CDC7630-000 | ZBD            | P             | 0.25                     | 30                      | 135–240                    | 1                       | 5,500                            |
| CDC7631-000 | ZBD            | P             | 0.15                     | 80                      | 150–300                    | 2                       | 7,200                            |
| CDF7621-000 | Low            | N             | 0.1                      | 20                      | 270–350                    | 2                       | 680                              |
| CDF7623-000 | Low            | N             | 0.3                      | 10                      | 240–300                    | 2                       | 245                              |
| CME7660-000 | Med.           | N             | 0.15                     | 10                      | 350–450                    | 3                       | –                                |
| CDE7618-000 | Med.           | N             | 0.1                      | 20                      | 375–500                    | 3                       | –                                |
| CDP7624-000 | Med-High       | N             | 0.15                     | 15                      | 450–575                    | 3                       | –                                |

## Chip

## Schottky Diode Chips—Low Frequency to 40 GHz



N-Type, Low, Medium, High Drive Ring Quad Schottky Diodes

| Part Number | Frequency Band | Barrier | $V_F$<br>$I_F = 1 \text{ mA}$<br>(mV) | $\Delta V_F$<br>$I_F = 1 \text{ mA}$<br>(mV) | $C_J$<br>$V_R = 0 \text{ V},$<br>$F = 1 \text{ MHz}$<br>(pF) | $R_S$<br>$I_F = 5 \text{ mA}$<br>( $\Omega$ ) |
|-------------|----------------|---------|---------------------------------------|--|--|---|
| DMF3926-000 | S              | Low     | 200–260                               | 10   | 0.30–0.50  | 5   |
| DME3927-000 | S              | Medium  | 300–400                               | 10   | 0.30–0.50  | 5   |
| DMJ3928-000 | S              | High    | 500–600                               | 10   | 0.30–0.50  | 5   |
| DMF3942-000 | X              | Low     | 250–310                               | 10   | 0.15–0.30  | 8   |
| DME3943-000 | X              | Medium  | 325–425                               | 10   | 0.15–0.30  | 8   |
| DMJ3944-000 | X              | High    | 550–650                               | 10   | 0.15–0.30  | 8   |



N-Type, Low, Medium, High Drive Bridge Quad Schottky Diodes

| Part Number | Frequency Band | Barrier | $V_F$<br>$I_F = 1 \text{ mA}$<br>(mV) | $\Delta V_F$<br>$I_F = 1 \text{ mA}$<br>(mV) | $C_J$<br>$V_R = 0 \text{ V},$<br>$F = 1 \text{ MHz}$<br>(pF) | $R_S$<br>$I_F = 5 \text{ mA}$<br>( $\Omega$ ) |
|-------------|----------------|---------|---------------------------------------|--|--|---|
| DMF3929-000 | S              | Low     | 200–260                               | 10   | 0.3–0.5  | 5   |
| DME3930-000 | S              | Medium  | 300–400                               | 10   | 0.3–0.5  | 5   |
| DMJ3931-000 | S              | High    | 500–600                               | 10   | 0.3–0.5  | 5   |



N-Type, Low, Medium, High Drive Series Pair Schottky Diodes

| Part Number | Frequency Band | Barrier | $V_F$<br>$I_F = 1 \text{ mA}$<br>(mV) | $\Delta V_F$<br>$I_F = 1 \text{ mA}$<br>(mV) | $C_J$<br>$V_R = 0 \text{ V},$<br>$F = 1 \text{ MHz}$<br>(pF) | $R_S$<br>$I_F = 5 \text{ mA}$<br>( $\Omega$ ) |
|-------------|----------------|---------|---------------------------------------|--|--|---|
| DMF3932-000 | S              | Low     | 200–260                               | 10   | 0.3–0.5  | 5   |
| DME3933-000 | S              | Medium  | 300–400                               | 10   | 0.3–0.5  | 5   |
| DMJ3934-000 | S              | High    | 500–600                               | 10   | 0.3–0.5  | 5   |



N-Type, Low, Medium, High Drive Back-to-Back Ring Series Pair Schottky Diodes

| Part Number | Frequency Band | Barrier | $V_F$<br>$I_F = 1 \text{ mA}$<br>(mV) | $\Delta V_F$<br>$I_F = 1 \text{ mA}$<br>(mV) | $C_J$<br>$V_R = 0 \text{ V},$<br>$F = 1 \text{ MHz}$<br>(pF) | $R_S$<br>$I_F = 5 \text{ mA}$<br>( $\Omega$ ) |
|-------------|----------------|---------|---------------------------------------|--|--|---|
| DMF3935-000 | S              | Low     | 200–260                               | 10   | 0.3–0.5  | 5   |
| DME3936-000 | S              | Medium  | 300–400                               | 10   | 0.3–0.5  | 5   |
| DMJ3937-000 | S              | High    | 500–600                               | 10   | 0.3–0.5  | 5   |

## Chip

### Schottky Diode Chips—Low Frequency to 40 GHz



#### N-Type, Low, Medium, High Drive Octo Quad Ring Schottky Diodes

| Part Number | Frequency Band | Barrier | $V_F$<br>$I_F = 1 \text{ mA}$<br>(mV) | $\Delta V_F$<br>$I_F = 1 \text{ mA}$<br>(mV) | $C_J$<br>$V_R = 0 \text{ V},$<br>$F = 1 \text{ MHz}$<br>(pF) | $R_S$<br>$I_F = 5 \text{ mA}$<br>( $\Omega$ ) |
|-------------|----------------|---------|---------------------------------------|--|--|---|
| DMF3938-000 | S-X            | Low     | 400–520                               | 15   | 0.15–0.30  | 16  |
| DME3939-000 | S-X            | Medium  | 600–800                               | 15   | 0.15–0.30  | 16  |
| DMJ3940-000 | S-X            | High    | 1000–1200                             | 15   | 0.15–0.30  | 16  |



#### N-Type, Low, Medium, High Drive Back-to-Back Crossover Quad Schottky Diodes

| Part Number | Frequency Band | Barrier | $V_F$<br>$I_F = 1 \text{ mA}$<br>(mV) | $\Delta V_F$<br>$I_F = 1 \text{ mA}$<br>(mV) | $C_J$<br>$V_R = 0 \text{ V},$<br>$F = 1 \text{ MHz}$<br>(pF) | $R_S$<br>$I_F = 5 \text{ mA}$<br>( $\Omega$ ) |
|-------------|----------------|---------|---------------------------------------|--|--|---|
| DMF3945-000 | S              | Low     | 200–260                               | 15   | 0.3–0.5  | 5   |
| DME3946-000 | S              | Medium  | 300–400                               | 15   | 0.3–0.5  | 5   |
| DMJ3947-000 | S              | High    | 525–625                               | 15   | 0.3–0.5  | 5   |

## GaAs Flip Chip

### GaAs Schottky Flip Chip Diodes—Low Frequency to 77 GHz

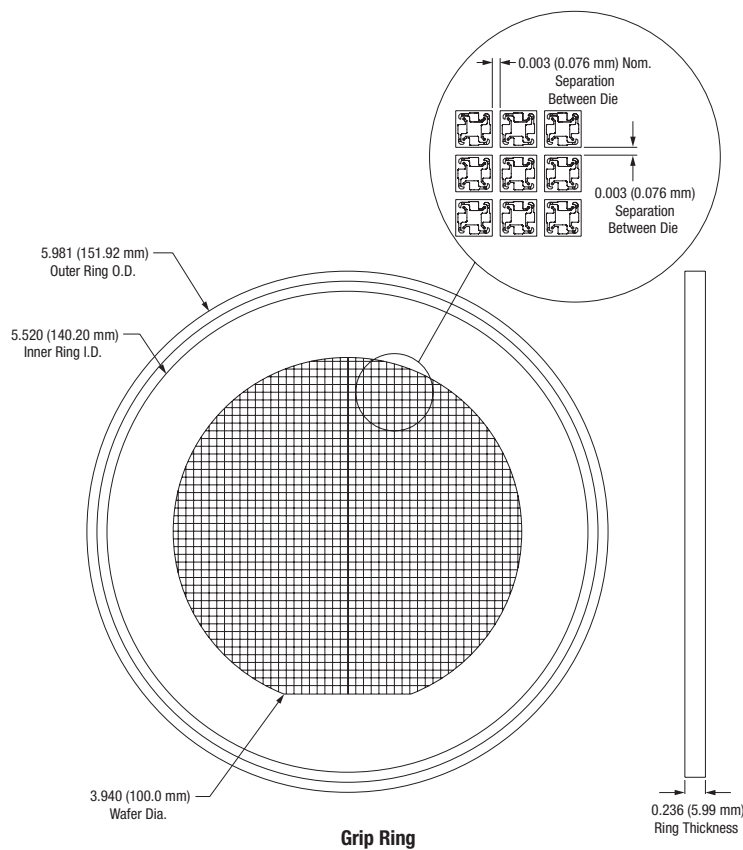
#### GaAs Flip Chip Schottky Diodes

| Part Number | $V_B$ @ 10 $\mu\text{A}$<br>(V) | $C_J$ @ 0 V, 1 MHz<br>(pF) | Max. $R_S$<br>( $\Omega$ ) | $V_F$ @ 1 mA<br>(mV) | Recommended<br>Frequency (GHz) | Configuration |
|-------------|---------------------------------|----------------------------|----------------------------|----------------------|--------------------------------|---------------|
| DMK2308-000 | –                               | 0.04–0.07                  | 7                          | 650–750              | 24–77                          | Anti-parallel |
| DMK2790-000 | 3                               | 0.04–0.07                  | 7                          | 650–750              | 24–77                          | Single        |

## Wafer

### Silicon Schottky Mixer Diode Chips (Wafer on Film Frame)—Low Frequency to 24 GHz Silicon Schottky Mixer Diode Chips

| Part Number | Min. $V_B$ @ 10 $\mu A$ (V) | $C_J$ $V_R = 0 V, F = 1 MHz$ (pF) | $V_F$ $I_F = 1 mA$ (mV) | Max. $\Delta V_F$ @ 1 mA (mV) | Max. $R_T$ $I_F = 10 mA$ ( $\Omega$ ) |
|-------------|-----------------------------|-----------------------------------|-------------------------|-------------------------------|---------------------------------------|
| SMS3926-099 | 2                           | 0.3–0.5                           | 200–260                 | 10                            | 8                                     |
| SMS3927-099 | 3                           | 0.3–0.5                           | 300–400                 | 10                            | 8                                     |
| SMS3928-099 | 4                           | 0.3–0.5                           | 500–600                 | 10                            | 8                                     |



## AEC-Q101 Qualified

| Part Number           | Min. $V_B$ @ 10 $\mu A$ (V) | Max. $C_T$ @ 0 V (pF) | Max. IR $V_R = 1 V$ (nA) | Typ. $C_T$ @ 0.15 V (pF) | $V_F$ $I_F = 1 mA$ (mV) | $V_F$ $I_F = 0.1 mA$ (mV) | Max. $V_F$ @ Spec. $I_F$ (mV) | Series Resistance ( $\Omega$ ) | Video Resistance @ 0 V ( $\Omega$ ) |
|-----------------------|-----------------------------|-----------------------|--------------------------|--------------------------|-------------------------|---------------------------|-------------------------------|--------------------------------|-------------------------------------|
| <b>SMSA3923-011LF</b> | 20                          | 1.23                  | 500 @ 15 V               | –                        | 370                     | –                         | 1000 @ 35 mA                  | 11                             | –                                   |
| <b>SMSA7621-060</b>   | 2                           | 0.18                  | –                        | –                        | 260–320                 | –                         | –                             | 12                             | –                                   |
| <b>SMSA7630-061</b>   | 1                           | –                     | –                        | 0.3                      | 135–240                 | 60–120                    | –                             | –                              | 3000–7000                           |

**NEW** New products (indicated in blue, bold) are continually being introduced at Skyworks. For the latest information, please visit the new products section of our Web site at [www.skyworksinc.com](http://www.skyworksinc.com).






## VARACTOR DIODES

Ideal for VCO, VCXO, Tunable Filters, and Phase Shifter Products

### High Quality Factor (Abrupt) Varactor Diodes

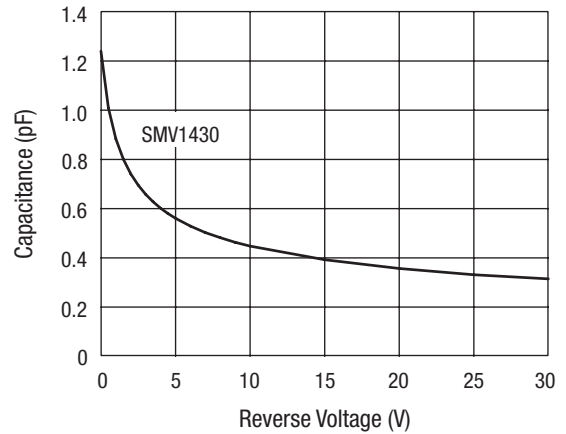
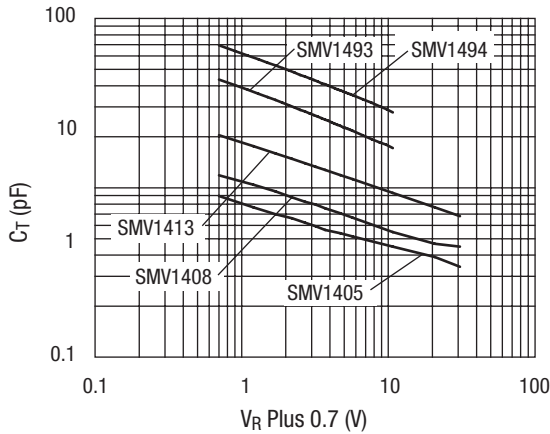
#### Plastic Surface Mount (SMT) Abrupt Varactor Diodes—Low Frequency to 6 GHz

| Part Number    | Min. $V_R$<br>$I_R = 10 \mu\text{A}$<br>(V) | Typ. $C_T$<br>$V_R = 1 \text{ V}$<br>(pF) | Typ. $C_T$<br>$V_R = 4 \text{ V}$<br>(pF) | Typ. $C_T$<br>$V_R = 10 \text{ V}$<br>(pF) | Typ. $C_T$<br>$V_R = 30 \text{ V}$<br>(pF) | Min. Total<br>$C_T = 0 \text{ V}$ /<br>$C_T = 30 \text{ V}$ | Max.<br>$R_S$ 500 MHz<br>( $\Omega$ ) | Min. Q<br>$V_R = 4 \text{ V}$<br>@ 50 MHz |
|----------------|---|---|---|--|--|---|---------------------------------------|---|
| SMV1405 Series | 30  | 1.84                                      | 1.25                                      | 0.95                                       | 0.63                                       | 4.1   | 0.80                                  | 3200                                      |
| SMV1408 Series | 30  | 2.94                                      | 1.88                                      | 1.28                                       | 0.95                                       | 4.1   | 0.60                                  | 2900                                      |
| SMV1413 Series | 30  | 6.37                                      | 4.10                                      | 2.85                                       | 1.77                                       | 4.2   | 0.35                                  | 2400                                      |
| SMV1430 Series | 30  | 0.88                                      | 0.60                                      | 0.44                                       | 0.31                                       | 3.8   | 1.60                                  | 3500                                      |
| SMV1493 Series | 12  | 19.00                                     | 11.20                                     | 7.10                                       | –  | –   | 0.50                                  | –   |
| SMV1494 Series | 12  | 38.40                                     | 23.10                                     | 14.7                                       | –  | –   | 0.45                                  | –   |

|  |  |  |  |  |
|---|---|---|---|---|
| <b>Single<br/>SOT-23<br/>Green™</b>   | <b>Common Cathode<br/>SOT-23<br/>Green™</b>                                       | <b>Common Cathode<br/>SC-70</b>   | <b>Single<br/>SC-79<br/>Green™</b>  | <b>Single<br/>0402<br/>Green™</b>   |
|   |   | SMV1405-074LF<br>Marking: GE3   | SMV1405-079LF<br>Marking: Cathode   | SMV1405-040LF<br>Marking: 5   |
| SMV1408-001LF<br>Marking: DV1   |   |   |   | SMV1408-040LF<br>Marking: DV  |
| SMV1413-001LF<br>Marking: ER1   | SMV1413-004LF<br>Marking: ER3   | SMV1413-074LF<br>Marking: ER3   | SMV1413-079LF<br>Marking: Cathode   |   |
|   |   |   | SMV1430-079LF<br>Marking: Cathode   | SMV1430-040LF<br>Marking: 7   |
|   |   |   | SMV1493-079LF<br>Marking: Cathode   |   |
|   |   |   | SMV1494-079LF<br>Marking: Cathode   |   |

## High Quality Factor (Abrupt) Varactor Diodes

### Typical Performance Characteristics



### Silicon Abrupt Varactor Diode Chips—Low Frequency to 12 GHz

| Part Number | Die Sizes (mils) | Min. $V_R$<br>$I_R = 10 \mu A$<br>(V) | Typ. $C_T$<br>$V_R = 1 V$<br>(pF) | Typ. $C_T$<br>$V_R = 4 V$<br>(pF) | Typ. $C_T$<br>$V_R = 10 V$<br>(pF) | Typ. $C_T$<br>$V_R = 30 V$<br>(pF) | Min. Total<br>$C_T = 0 V /$<br>$C_T = 30 V$ | Max.<br>$R_S$<br>500 MHz<br>( $\Omega$ ) | Min. Q<br>$V_R = 4 V$<br>@ 50 MHz |
|-------------|------------------|---------------------------------------|-----------------------------------|-----------------------------------|------------------------------------|------------------------------------|---|--|-----------------------------------|
| SMV1405-000 | 0.014±0.001      | 30                                    | 1.84                              | 1.25                              | 0.95                               | 0.63                               | 4.1   | 0.80                                     | 3200                              |
| SMV1408-000 | 0.014±0.001      | 30                                    | 2.94                              | 1.88                              | 1.28                               | 0.95                               | 4.1   | 0.60                                     | 2900                              |
| SMV1413-000 | 0.014±0.001      | 30                                    | 6.37                              | 4.10                              | 2.85                               | 1.77                               | 4.2   | 0.35                                     | 2400                              |
| SMV1493-000 | 0.018±0.002      | 12                                    | 19.00                             | 11.20                             | 7.10                               | —                                  | —   | 0.50                                     | —                                 |
| SMV1494-000 | 0.018±0.002      | 12                                    | 38.40                             | 23.10                             | 14.70                              | —                                  | —   | 0.45                                     | —                                 |

### Hermetic Packaged Abrupt Junction Varactor Diodes—Low Frequency to 12 GHz

| Hermetic Stripline<br>240 | Hermetic Pill<br>203 | Hermetic Pill<br>219 | Hermetic Pill<br>210 |
|---------------------------|----------------------|----------------------|----------------------|
| SMV1405-240               | SMV1405-203          | SMV1405-219          | SMV1405-210          |
| SMV1408-240               | SMV1408-203          | SMV1408-219          | SMV1408-210          |
| SMV1413-240               | SMV1413-203          | SMV1413-219          | SMV1413-210          |
| SMV1493-240               | SMV1493-203          | SMV1493-219          | SMV1493-210          |
| SMV1494-240               | SMV1494-203          | SMV1494-219          | SMV1494-210          |

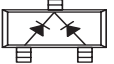




Epoxy and ceramic hermetic packaged diode products are available through Isolink (a wholly owned subsidiary of Skyworks Solutions, Inc.)



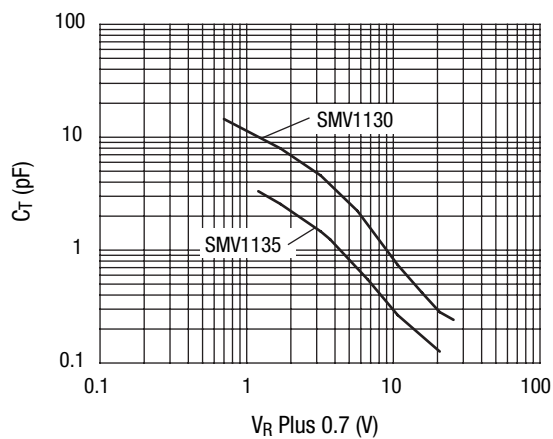
## Plastic Surface Mount (SMT) Hyperabrupt Varactor Diodes—Low Frequency to 6 GHz

### Large Bandwidth Silicon Hyperabrupt Varactor Diodes

| Part Number    | Min. $V_R$<br>$I_R = 10 \mu\text{A}$ (V) | Typ. $C_T$<br>$V_R = 1 \text{ V}$<br>(pF) | Typ. $C_T$<br>$V_R = 20 \text{ V}$<br>(pF) | Min. $C_T$<br>(Ratio) | Capacitance Ratio<br>Range (V) | Max. $R_S$<br>( $\Omega$ ) |
|----------------|--|---|--|-----------------------|--------------------------------|----------------------------|
| SMV1130 Series | 26                                       | 18.50                                     | 2.00                                       | 1.47                  | 1 to 3                         | 0.8                        |
| SMV1135 Series | 28                                       | 8.69                                      | 1.17                                       | 1.47                  | 1 to 3                         | 1.2                        |

|   |   |   |   |   |
|---|---|---|---|---|
|  |  |  |  |  |
| <b>Common Cathode<br/>SOT-23<br/>Green™</b>                                       | <b>Single<br/>SC-79<br/>Green™</b>  | <b>Single<br/>SOT-23<br/>Green™</b>   | <b>Single<br/>SOD-323<br/>Green™</b>  | <b>Single<br/>0402<br/>Green™</b>   |
|   | SMV1130-079LF<br>Marking: Cathode   | SMV1130-001LF<br>Marking: HW1   | SMV1130-011LF<br>Marking: HW  | SMV1130-040LF<br>Marking: HZ1   |
| SMV1135-004LF<br>Marking: EG3   |   |   |   |   |



### Typical Performance Characteristics



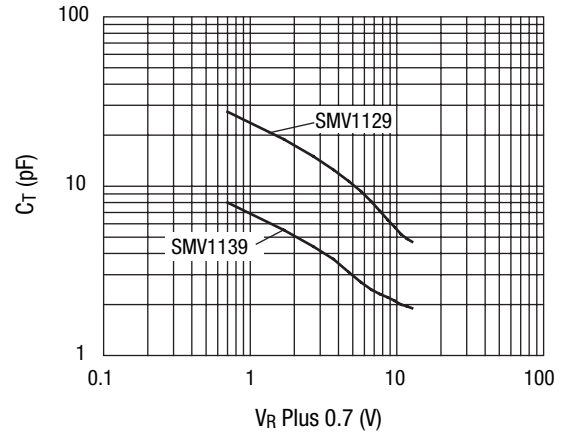
## Plastic Surface Mount (SMT) Hyperabrupt Varactor Diodes—Low Frequency to 6 GHz

### Large Bandwidth Silicon Hyperabrupt Varactor Diodes (Continued)



| Part Number    | Typ. $C_T$<br>$V_R = 1$ V<br>(pF) | Typ. $C_T$<br>$V_R = 4$ V<br>(pF) | Typ. $C_T$<br>$V_R = 8$ V<br>(pF) | Typ. $C_T$<br>$V_R = 12$ V<br>(pF) | Min. $C_T$<br>(Ratio) | Capacitance<br>Ratio Range (V) | Max. $R_S$<br>( $\Omega$ ) |
|----------------|-----------------------------------|-----------------------------------|-----------------------------------|------------------------------------|-----------------------|--------------------------------|----------------------------|
| SMV1129 Series | 18.9                              | 10.7                              | 6.3                               | 4.7                                | 1.4                   | 1 to 3                         | 0.4                        |
| SMV1139 Series | 5.5                               | 3.1                               | 2.2                               | 1.9                                | 1.4                   | 1 to 3                         | 0.6                        |

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| <b>Single SOD-323 Green™</b>  | <b>Single SC-79 Green™</b>  |
|   | SMV1129-079LF<br>Marking: Cathode   |
| SMV1139-011LF<br>Marking: HG  |   |

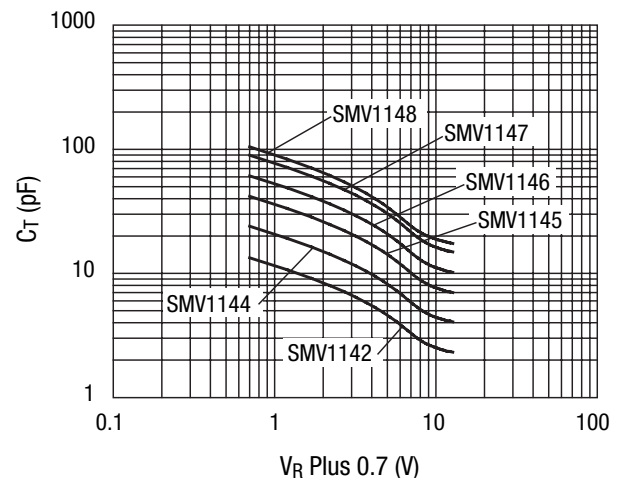
Typical Performance Characteristics



| Part Number    | Min. $V_R$<br>$I_R = 10$ $\mu$ A (V) | Typ. $C_T$<br>$V_R = 1$ V<br>(pF) | Typ. $C_T$<br>$V_R = 4$ V<br>(pF) | Typ. $C_T$<br>$V_R = 8$ V<br>(pF) | Typ. $C_T$<br>$V_R = 12$ V<br>(pF) | Min. $C_T$<br>(Ratio) | Capacitance<br>Ratio Range (V) | Max. $R_S$<br>( $\Omega$ ) |
|----------------|--------------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|------------------------------------|-----------------------|--------------------------------|----------------------------|
| SMV1142 Series | 12                                   | 9.1                               | 4.86                              | 2.72                              | 2.32                               | 1.5                   | 1 to 3                         | 0.7                        |
| SMV1143 Series | 12                                   | 12.9                              | 6.87                              | 3.82                              | 3.25                               | 1.5                   | 1 to 3                         | 0.65                       |
| SMV1144 Series | 12                                   | 16.3                              | 8.66                              | 4.8                               | 4.08                               | 1.5                   | 1 to 3                         | 0.65                       |
| SMV1145 Series | 12                                   | 28.35                             | 15.02                             | 8.29                              | 7.02                               | 1.5                   | 1 to 3                         | 0.6                        |
| SMV1147 Series | 12                                   | 60.65                             | 32.06                             | 17.63                             | 14.9                               | 1.5                   | 1 to 3                         | 0.55                       |
| SMV1148 Series | 12                                   | 70.48                             | 36.29                             | 20.22                             | 17.43                              | 1.5                   | 1 to 3                         | 0.5                        |

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| <b>Single SOD-323 Green™</b>  | <b>Single SC-79 Green™</b>  |
| SMV1142-011LF<br>Marking: GU  |   |
| SMV1143-011LF<br>Marking: GV  |   |
| SMV1144-011LF<br>Marking: GW  |   |
| SMV1145-011LF<br>Marking: GA  | SMV1145-079LF<br>Marking: Cathode   |
| SMV1147-011LF<br>Marking: GY  | SMV1147-079LF<br>Marking: Cathode   |
| SMV1148-011LF<br>Marking: GZ  |   |







Typical Performance Characteristics



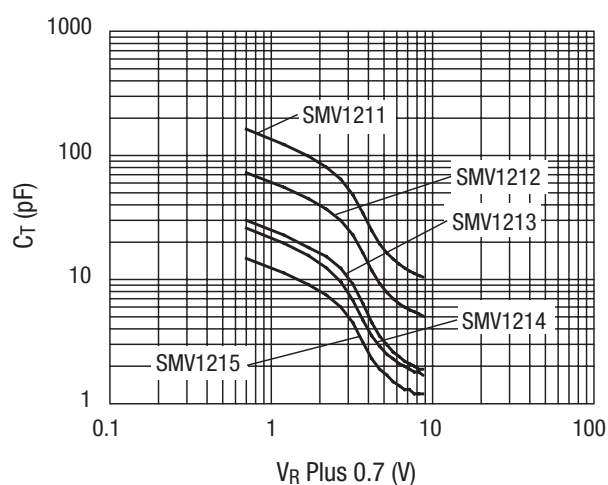
## Plastic Surface Mount (SMT) Hyperabrupt Varactor Diodes—Low Frequency to 6 GHz

### Large Bandwidth Silicon Hyperabrupt Varactor Diodes (Continued)

| Part Number    | Min. $V_R$<br>$I_R = 10 \mu\text{A}$ (V) | Typ. $C_T$<br>$V_R = 1 \text{ V}$<br>(pF) | Typ. $C_T$<br>$V_R = 4 \text{ V}$<br>(pF) | Typ. $C_T$<br>$V_R = 8 \text{ V}$<br>(pF) | Min. $C_T$<br>(Ratio) | Capacitance<br>Ratio Range (V) | Max. $R_S$<br>( $\Omega$ ) |
|----------------|--|---|---|---|-----------------------|--------------------------------|----------------------------|
| SMV1211 Series | 12                                       | 98.6                                      | 19.4                                      | 10.5                                      | 5                     | 1 to 4                         | 0.4                        |
| SMV1212 Series | 12                                       | 44.9                                      | 9.3                                       | 5.1                                       | 5                     | 1 to 4                         | 0.8                        |
| SMV1213 Series | 12                                       | 18.1                                      | 3.5                                       | 1.9                                       | 5                     | 1 to 4                         | 1.4                        |
| SMV1214 Series | 12                                       | 15.6                                      | 2.9                                       | 1.7                                       | 5                     | 1 to 4                         | 1.7                        |
| SMV1215 Series | 12                                       | 9.1                                       | 1.9                                       | 1.2                                       | 5                     | 1 to 4                         | 2.8                        |

|  |  |  |  |  |  |
|---|---|---|---|---|---|
| Single<br>SOT-23<br>Green™  | Common Cathode<br>SOT-23<br>Green™  | Common Cathode<br>SC-70   | Single<br>SOD-323<br>Green™   | Single<br>SC-79<br>Green™   | Single<br>0402<br>Green™  |
| SMV1211-001LF<br>Marking: EA1   |   |   |   |   |   |
| SMV1212-001LF<br>Marking: EB1   | SMV1212-004LF<br>Marking: EB3   | SMV1212-074LF<br>Marking: EB3   |   | SMV1212-079LF<br>Marking: Cathode   |   |
| SMV1213-001LF<br>Marking: D86   | SMV1213-004LF<br>Marking: GD3   | SMV1213-074LF<br>Marking: GD3   | SMV1213-011LF<br>Marking: GD  | SMV1213-079LF<br>Marking: Cathode   | SMV1213-040LF<br>Marking: J   |
| SMV1214-001LF<br>Marking: DL1   |   |   |   |   |   |
| SMV1215-001LF<br>Marking: DM1   |   |   | SMV1215-011LF<br>Marking: DM  |   |   |

### Typical Performance Characteristics



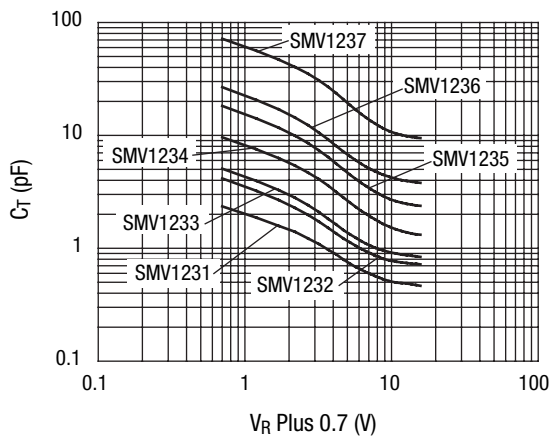
## Plastic Surface Mount (SMT) Hyperabrupt Varactor Diodes—Low Frequency to 6 GHz

### Large Bandwidth Silicon Hyperabrupt Varactor Diodes (Continued)

| Part Number    | Min. $V_R$<br>$I_R = 10 \mu A$ (V) | Typ. $C_T$<br>$V_R = 1 V$<br>(pF) | Typ. $C_T$<br>$V_R = 4 V$<br>(pF) | Typ. $C_T$<br>$V_R = 8 V$<br>(pF) | Typ. $C_T$<br>$V_R = 12 V$<br>(pF) | Min. $C_T$<br>(Ratio) | Capacitance<br>Ratio Range<br>(V) | Max. $R_S$<br>( $\Omega$ ) |
|----------------|------------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|------------------------------------|-----------------------|-----------------------------------|----------------------------|
| SMV1231 Series | 15                                 | 1.58                              | 0.794                             | 0.534                             | 0.487                              | 1.5                   | 1 to 3                            | 2.9                        |
| SMV1232 Series | 15                                 | 2.67                              | 1.22                              | 0.81                              | 0.74                               | 1.5                   | 1 to 3                            | 1.5                        |
| SMV1233 Series | 15                                 | 3.28                              | 1.45                              | 0.96                              | 0.87                               | 1.5                   | 1 to 3                            | 1.2                        |
| SMV1234 Series | 15                                 | 6.28                              | 2.81                              | 1.65                              | 1.38                               | 1.6                   | 1 to 3                            | 0.8                        |
| SMV1235 Series | 15                                 | 11.67                             | 4.99                              | 2.91                              | 2.47                               | 1.6                   | 1 to 3                            | 0.6                        |
| SMV1236 Series | 15                                 | 17.02                             | 7.19                              | 4.49                              | 3.95                               | 1.6                   | 1 to 3                            | 0.5                        |
| SMV1237 Series | 15                                 | 46.89                             | 20.83                             | 11.61                             | 9.84                               | 1.6                   | 1 to 3                            | 0.25                       |

| Single<br>SOT-23<br>Green™    | Common Cathode<br>SOT-23<br>Green™ | Common Cathode<br>SC-70       | Common Anode<br>SC-70         | Single<br>SOD-323<br>Green™   | Single<br>SC-79<br>Green™         | Single<br>0402<br>Green™    |
|-------------------------------|------------------------------------|-------------------------------|-------------------------------|-------------------------------|-----------------------------------|-----------------------------|
|                               |                                    | SMV1231-074LF<br>Marking: KA3 |                               | SMV1231-011LF<br>Marking: KA  | SMV1231-079LF<br>Marking: Cathode | SMV1231-040LF<br>Marking: A |
|                               |                                    | SMV1232-074LF<br>Marking: HC3 |                               | SMV1232-011LF<br>Marking: HC  | SMV1232-079LF<br>Marking: Cathode | SMV1232-040LF<br>Marking: Y |
| SMV1233-001LF<br>Marking: DP1 | SMV1233-004LF<br>Marking: DP3      | SMV1233-074LF<br>Marking: DP3 |                               | SMV1233-011LF<br>Marking: DP  | SMV1233-079LF<br>Marking: Cathode | SMV1233-040LF<br>Marking: B |
| SMV1234-001LF<br>Marking: DQ1 | SMV1234-004LF<br>Marking: DQ3      |                               | SMV1234-073LF<br>Marking: DQ9 | SMV1234-011LF<br>Marking: DQ  | SMV1234-079LF<br>Marking: Cathode | SMV1234-040LF<br>Marking: G |
| SMV1235-001LF<br>Marking: DR1 | SMV1235-004LF<br>Marking: DR3      | SMV1235-074LF<br>Marking: DR3 |                               | SMV1235-011LF<br>Marking: DR  | SMV1235-079LF<br>Marking: Cathode | SMV1235-040LF<br>Marking: M |
| SMV1236-001LF<br>Marking: EQ1 | SMV1236-004LF<br>Marking: EQ3      | SMV1236-074LF<br>Marking: EQ3 |                               | SMV1236-011LF<br>Marking: EQ1 | SMV1236-079LF<br>Marking: Cathode | SMV1236-040LF<br>Marking: R |
| SMV1237-001LF<br>Marking: DT1 |                                    |                               |                               |                               |                                   |                             |

### Typical Performance Characteristics



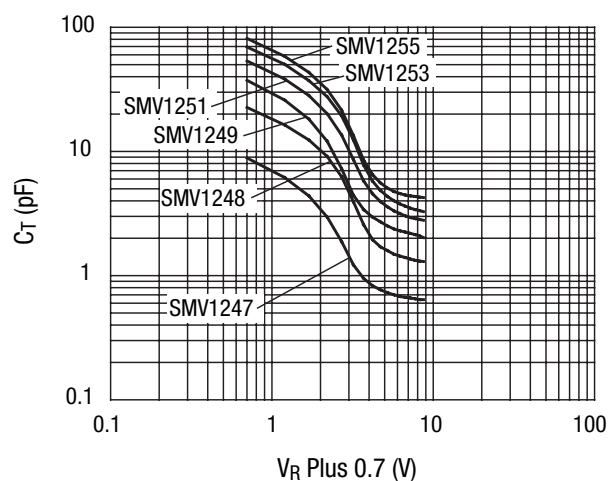
## Plastic Surface Mount (SMT) Hyperabrupt Varactor Diodes—Low Frequency to 6 GHz

### Large Bandwidth Silicon Hyperabrupt Varactor Diodes (Continued)

| Part Number    | Min. $V_R$<br>$I_R = 10 \mu A$<br>(V) | Typ. $C_T$<br>$V_R = 1 V$<br>(pF) | Typ. $C_T$<br>$V_R = 4 V$<br>(pF) | Typ. $C_T$<br>$V_R = 8 V$<br>(pF) | Min. $C_T$<br>(Ratio) | Capacitance<br>Ratio Range<br>(V) | Max. $R_S$<br>( $\Omega$ ) |
|----------------|---------------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------|-----------------------------------|----------------------------|
| SMV1247 Series | 15                                    | 4.37                              | 0.77                              | 0.64                              | 9.5                   | 0.3 to 4.7                        | 6.0                        |
| SMV1248 Series | 15                                    | 12.33                             | 1.71                              | 1.3                               | 10.8                  | 0.3 to 4.7                        | 3.3                        |
| SMV1249 Series | 15                                    | 18.18                             | 2.72                              | 2.03                              | 11.0                  | 0.3 to 4.7                        | 2.2                        |
| SMV1251 Series | 15                                    | 28.09                             | 3.95                              | 2.79                              | 11.0                  | 0.3 to 4.7                        | 1.6                        |
| SMV1253 Series | 15                                    | 37.07                             | 4.86                              | 3.28                              | 11.0                  | 0.3 to 4.7                        | 1.4                        |
| SMV1255 Series | 15                                    | 43.27                             | 5.58                              | 4.26                              | 11.0                  | 0.3 to 4.7                        | 1.3                        |

| Single<br>SOT-23<br>Green™    | Common Anode<br>SOT-23<br>Green™ | Common Cathode<br>SOT-23<br>Green™ | Common Cathode<br>SC-70       | Single<br>SOD-323<br>Green™  | Single<br>SC-79<br>Green™         | Single<br>0402<br>Green™      |
|-------------------------------|----------------------------------|------------------------------------|-------------------------------|------------------------------|-----------------------------------|-------------------------------|
|                               |                                  |                                    | SMV1247-074LF<br>Marking: GF3 | SMV1247-011LF<br>Marking: GF | SMV1247-079LF<br>Marking: Cathode | SMV1247-040LF<br>Marking: H   |
| SMV1248-001LF<br>Marking: GG1 |                                  |                                    | SMV1248-074LF<br>Marking: GG3 |                              | SMV1248-079LF<br>Marking: Cathode | SMV1248-040LF<br>Marking: 8   |
| SMV1249-001LF<br>Marking: EF1 | SMV1249-003LF<br>Marking: EF9    | SMV1249-004LF<br>Marking: EF3      | SMV1249-074LF<br>Marking: EF3 | SMV1249-011LF<br>Marking: EF | SMV1249-079LF<br>Marking: Cathode | SMV1249-040LF<br>Marking: K   |
| SMV1251-001LF<br>Marking: EH  |                                  | SMV1251-004LF<br>Marking: EH3      | SMV1251-074LF<br>Marking: EH3 | SMV1251-011LF<br>Marking: EK | SMV1251-079LF<br>Marking: Cathode | SMV1251-040LF<br>Marking: EH1 |
|                               |                                  | SMV1253-004LF<br>Marking: EJ3      |                               | SMV1253-011LF<br>Marking: EJ | SMV1253-079LF<br>Marking: Cathode | SMV1253-040LF<br>Marking: 3   |
| SMV1255-001LF<br>Marking: EK1 |                                  | SMV1255-004LF<br>Marking: EK3      |                               | SMV1255-011LF<br>Marking: EK | SMV1255-079LF<br>Marking: Cathode | SMV1255-040LF<br>Marking: 4   |





### Typical Performance Characteristics



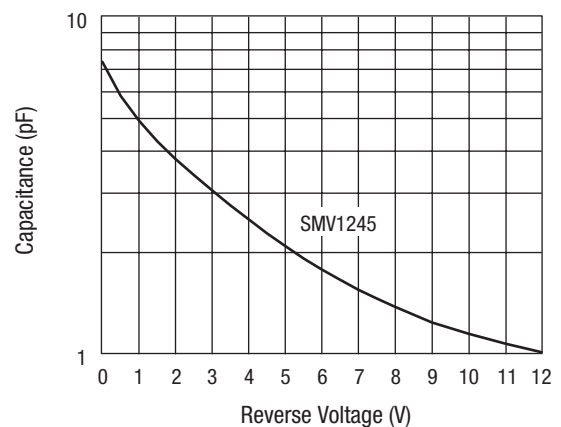
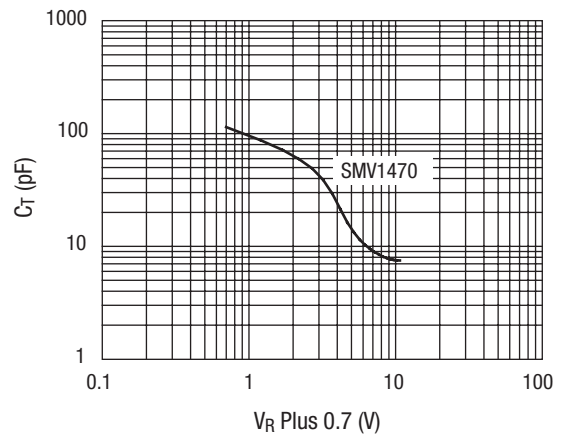
## Plastic Surface Mount (SMT) Hyperabrupt Varactor Diodes—Low Frequency to 6 GHz

### Large Bandwidth Silicon Hyperabrupt Varactor Diodes (Continued)

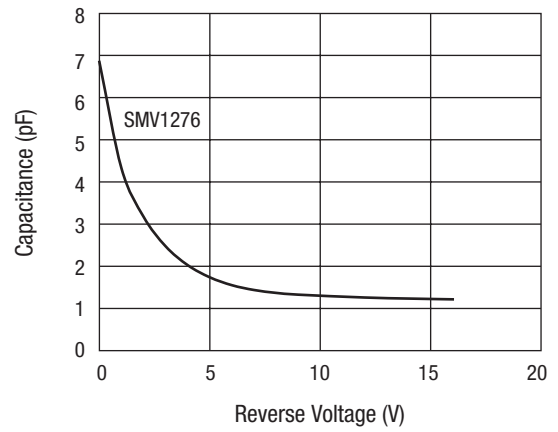
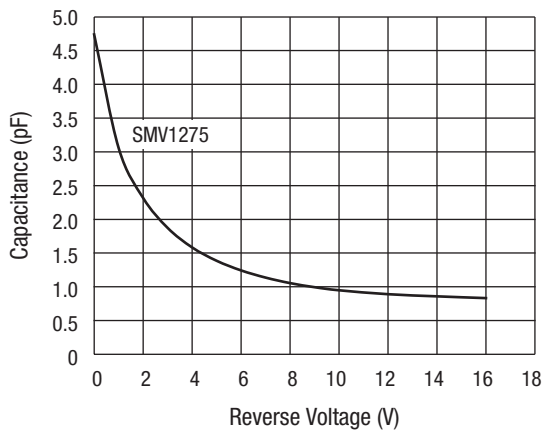
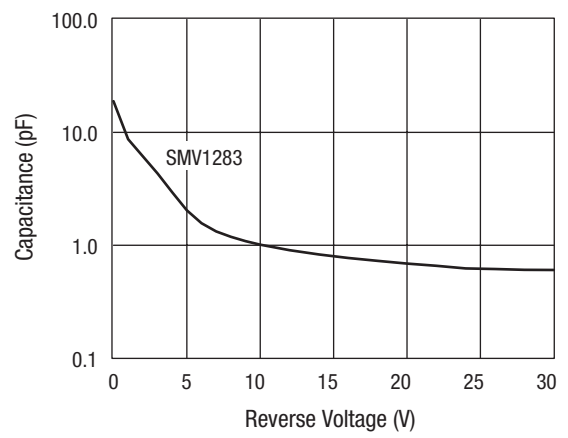
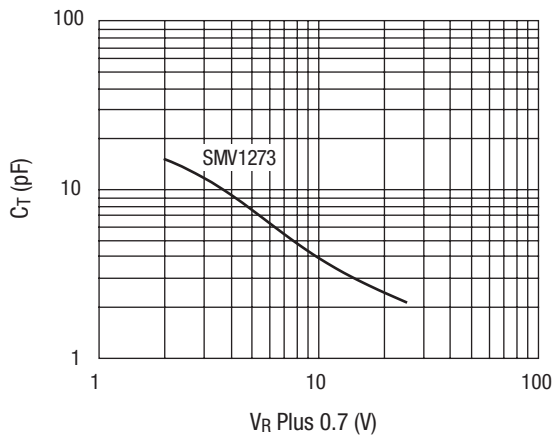
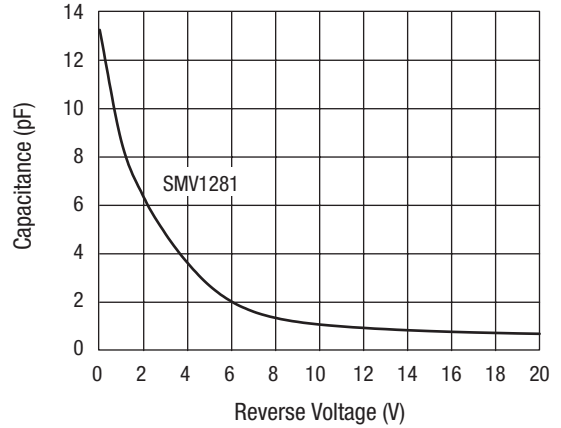
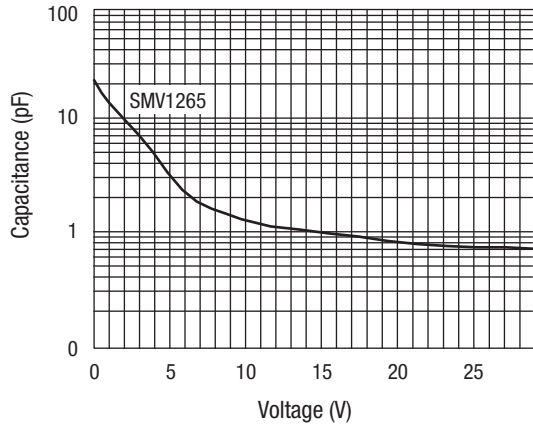
| Part Number    | Min. $V_R$<br>$I_R = 10 \mu A$<br>(V) | Typ. $C_T$<br>$V_R = 1 V$<br>(pF) | Typ. $C_T$<br>$V_R = 4 V$<br>(pF) | Typ. $C_T$<br>$V_R = 8 V$<br>(pF) | Typ. $C_T$<br>$V_R = 12 V$<br>(pF) | Typ. $C_T$<br>$V_R = 20 V$<br>(pF) | Min. $C_T$<br>(Ratio) | Capacitance<br>Ratio Range<br>(V) | Max. $R_S$<br>( $\Omega$ ) |
|----------------|---------------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|------------------------------------|------------------------------------|-----------------------|-----------------------------------|----------------------------|
| SMV1245 Series | 26                                    | 4.93                              | 2.51                              | 1.380                             | 1.020                              | –                                  | 1.47                  | 1 to 3                            | 2.0                        |
| SMV1265 Series | 28                                    | 14.26                             | 5.15                              | 1.610                             | 1.120                              | 0.830                              | 17.70                 | 1 to 26                           | 2.4 Typ.                   |
| SMV1273-079LF  | 29                                    | 20.35                             | 9.34                              | 4.80                              | 3.42                               | 2.45                               | 6.20                  | 2 to 25                           | 0.8 Typ.                   |
| SMV1275-079LF  | 10                                    | 3.06                              | 1.58                              | 1.05                              | 0.89                               | –                                  | 1.8                   | 1 to 4                            | 0.7                        |
| SMV1276-079LF  | 10                                    | 4.32                              | 2.03                              | 1.37                              | 1.26                               | –                                  | 2.0                   | 1 to 4                            | 0.7                        |
| SMV1281 Series | 24                                    | 8.60                              | 3.60                              | 1.400                             | 0.940                              | 0.690                              | 12 Typ.               | 1 to 20                           | 1.7 Typ.                   |
| SMV1283-Series | 28                                    | 9.13                              | 3.64                              | 1.16                              | 0.815                              | 0.589                              | 14.00                 | 1 to 26                           | 2.4 Typ.                   |
| SMV1470-004LF  | 10                                    | 71.30                             | 16.30                             | 7.900                             | –                                  | –                                  | 5.00                  | 1 to 5                            | 0.8                        |

|  |  |  |  |
|---|---|---|---|
| <b>Single SOD-323 Green™</b>  | <b>Single SC-79 Green™</b>  | <b>Common Cathode SOT-23 Green™</b>   | <b>Single 0402 Green™</b>   |
| SMV1245-011LF<br>Marking: HL  | SMV1245-079LF<br>Marking: Cathode   |   |   |
| SMV1265-011LF<br>Marking: HM  |   |   | SMV1265-040LF<br>Marking: HD1   |
|   | SMV1273-079LF<br>Marking: Cathode   |   |   |
|   | SMV1275-079LF<br>Marking: Cathode   |   |   |
|   | SMV1276-079LF<br>Marking: Cathode   |   |   |
| SMV1281-011LF<br>Marking: HP  | SMV1281-079LF<br>Marking: Cathode   |   |   |
| SMV1283-011LF<br>Marking: HQ  |   |   | SMV1283-040LF<br>Marking: HC1   |
|   |   | SMV1470-007LF<br>Marking: ET3   |   |

### Typical Performance Characteristics




**Plastic Surface Mount (SMT) Hyperabrupt Varactor Diodes—Low Frequency to 6 GHz**  
**Typical Performance Characteristics (Continued)**



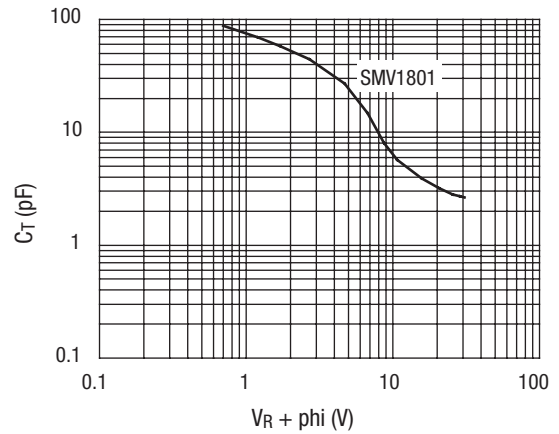
## Plastic Surface Mount (SMT) Hyperabrupt Varactor Diodes—Low Frequency to 6 GHz

### Large Bandwidth Silicon Hyperabrupt Varactor Diodes (Continued)


| Part Number    | Min. $V_R$<br>$I_R = 10 \mu A$ (V) | Typ. $C_T$<br>$V_R = 1 V$<br>(pF) | Typ. $C_T$<br>$V_R = 4 V$<br>(pF) | Typ. $C_T$<br>$V_R = 8 V$<br>(pF) | Typ. $C_T$<br>$V_R = 20 V$<br>(pF) | Min. $C_T$<br>(Ratio) | Capacitance<br>Ratio Range<br>(V) | Max. $R_S$<br>( $\Omega$ ) |
|----------------|------------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|------------------------------------|-----------------------|-----------------------------------|----------------------------|
| SMV1801 Series | 32                                 | 58.00                             | 26.90                             | 8.00                              | 3.20                               | 20.6                  | 1.0 to 28                         | 1.2                        |

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|  |
| <b>Single<br/>SC-79<br/>Green™</b>  |
| SMV1801-079LF<br>Marking: Cathode   |

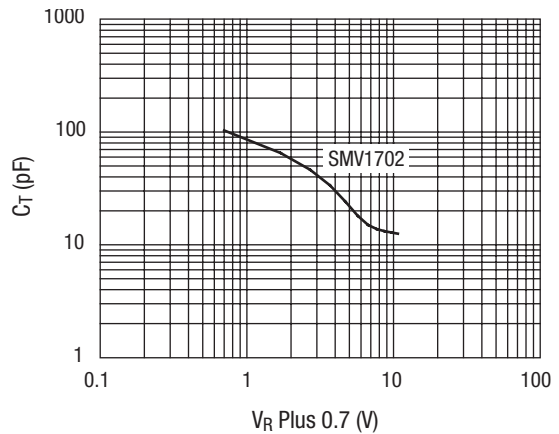
#### Typical Performance Characteristics



| Part Number   | Min. $V_R$<br>$I_R = 10 \mu A$ (V) | Typ. $C_T$<br>$V_R = 1 V$<br>(pF) | Typ. $C_T$<br>$V_R = 4 V$<br>(pF) | Typ. $C_T$<br>$V_R = 8 V$<br>(pF) | Min. $C_T$<br>(Ratio) | Capacitance<br>Ratio Range (V) | Max. $R_S$<br>( $\Omega$ ) |
|---------------|------------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------|--------------------------------|----------------------------|
| SMV1702-011LF | 10                                 | 65.1                              | 24.2                              | 13.21                             | 3.6                   | 0.1 to 4                       | 1.25                       |

|   |
|---|
|  |
| <b>Single<br/>SOD-323<br/>Green™</b>  |
| SMV1702-011LF<br>Marking: HJ  |

#### Typical Performance Characteristics






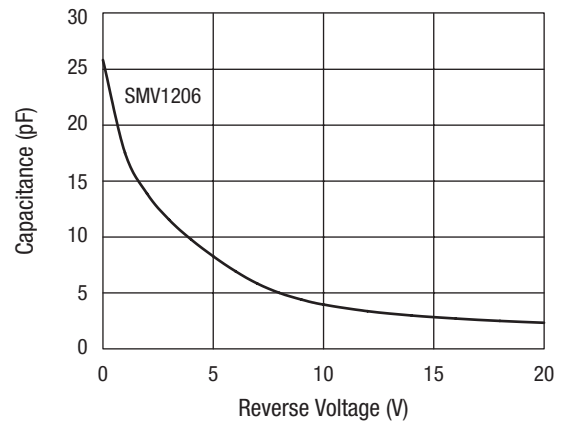
## Plastic Surface Mount (SMT) Hyperabrupt Varactor Diodes—Low Frequency to 6 GHz

### Large Bandwidth Silicon Hyperabrupt Varactor Diodes (Continued)

| Part Number   | Min. $V_B$<br>$I_R = 10 \mu A$ (V) | Typ. $C_T$<br>$V_R = 3 V$<br>(pF) | Typ. $C_T$<br>$V_R = 20 V$<br>(pF) | Min. $C_T$<br>(Ratio) |
|---------------|------------------------------------|-----------------------------------|------------------------------------|-----------------------|
| SMV1206-079LF | 22                                 | 11.55                             | 2.34                               | 2 to 20               |

|   |
|---|
|  |
| <b>Single<br/>SC-79<br/>Green™</b>  |
| SMV1206-079LF<br>Marking: Cathode   |

### Typical Performance Characteristics



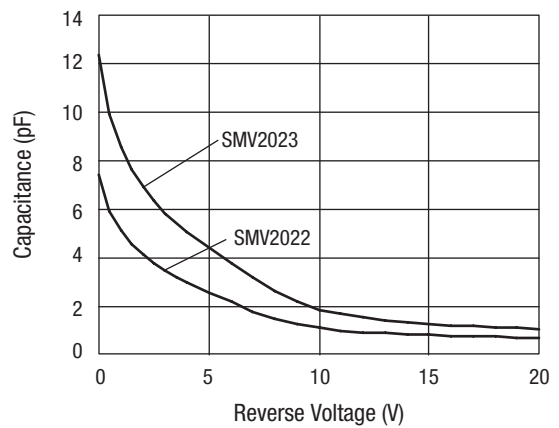
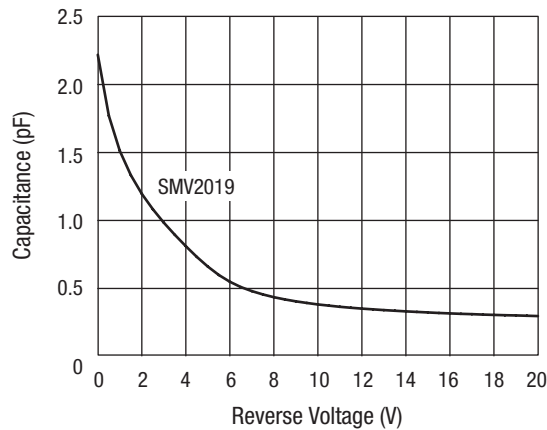
## Plastic Surface Mount (SMT) Hyperabrupt Varactor Diodes—Low Frequency to 6 GHz

### Large Bandwidth Silicon Hyperabrupt Varactor Diodes (Continued)

| Part Number    | Min. $V_R$<br>$I_R = 10 \mu A$ (V) | Typ. $C_T$<br>$V_R = 1 V$<br>(pF) | Typ. $C_T$<br>$V_R = 4 V$<br>(pF) | Typ. $C_T$<br>$V_R = 8 V$<br>(pF) | Typ. $C_T$<br>$V_R = 12 V$<br>(pF) | Typ. $C_T$<br>$V_R = 20 V$<br>(pF) | Min. $C_T$<br>(Ratio) | Capacitance<br>Ratio Range<br>(V) |
|----------------|------------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|------------------------------------|------------------------------------|-----------------------|-----------------------------------|
| SMV2019 Series | 22                                 | 1.51                              | 0.81                              | 0.44                              | 0.35                               | 0.30                               | 2.3                   | 4 to 20                           |
| SMV2020 Series | 22                                 | 2.25                              | 1.36                              | 0.75                              | 0.48                               | 0.35                               | 2.8                   | 4 to 20                           |
| SMV2022 Series | 22                                 | 5.14                              | 3.01                              | 1.50                              | 0.96                               | 0.73                               | 3.0                   | 4 to 20                           |
| SMV2023 Series | 22                                 | 8.60                              | 5.09                              | 2.63                              | 1.54                               | 1.09                               | 4.2                   | 4 to 20                           |

| Single<br>SOT-23<br><i>Green™</i> | Common Cathode<br>SOT-23<br><i>Green™</i> | Single<br>SOD-323<br><i>Green™</i> | Single<br>SC-79<br><i>Green™</i>  | Single<br>0402<br><i>Green™</i> |
|-----------------------------------|---|------------------------------------|-----------------------------------|---------------------------------|
|                                   |   |                                    | SMV2019-079LF<br>Marking: Cathode | SMV2019-040LF<br>Marking: Z     |
|                                   |   |                                    | SMV2020-079LF<br>Marking: Cathode |                                 |
|                                   | SMV2022-004LF<br>Marking: DJ3             |                                    |                                   |                                 |
| SMV2023-001LF<br>Marking: DK1     | SMV2023-004LF<br>Marking: DK3             | SMV2023-011LF<br>Marking: DK1      |                                   |                                 |





### Typical Performance Characteristics



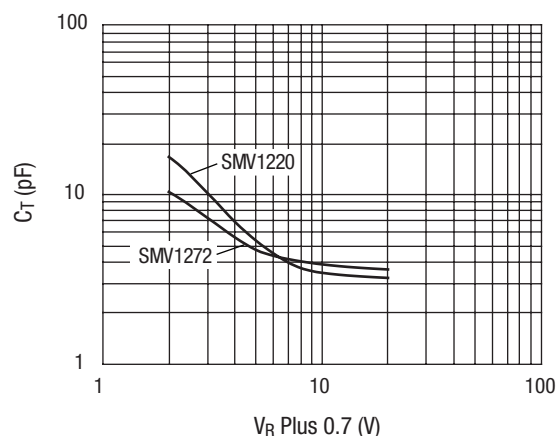
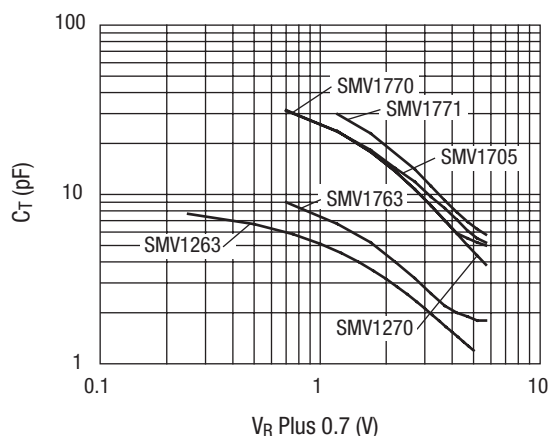
## Plastic Surface Mount (SMT) Hyperabrupt Varactor Diodes—Low Frequency to 6 GHz

### Large Bandwidth Silicon Hyperabrupt Varactor Diodes (Continued)

| Part Number    | Min. $V_R$<br>$I_R = 10 \mu\text{A}$ (V) | Typ. $C_T$<br>$V_R = 1 \text{ V}$<br>(pF) | Typ. $C_T$<br>$V_R = 4 \text{ V}$<br>(pF) | Min. $C_T$<br>(Ratio) | Capacitance Ratio<br>Range (V) | Max. $R_S$<br>( $\Omega$ ) |
|----------------|--|---|---|-----------------------|--------------------------------|----------------------------|
| SMV1220-079LF  | 20                                       | 4.00                                      | 6.92                                      | 3.0                   | 1 to 4                         | 0.65                       |
| SMV1263 Series | 20                                       | 5.11                                      | 1.54                                      | 2.3                   | 0.5 to 2.5                     | 1.2                        |
| SMV1270 Series | 20                                       | 17.81                                     | 5.00                                      | 2.3                   | 0.5 to 2.5                     | 0.7                        |
| SMV1272-079LF  | 15                                       | 16.21                                     | 5.60                                      | 2.8                   | 1 to 4                         | 0.5                        |
| SMV1705 Series | 12                                       | 18.30                                     | 6.10                                      | 2.8                   | 1 to 4                         | 0.32                       |
| SMV1763-079LF  | 10                                       | 5.20                                      | 1.90                                      | 2.3                   | 0.5 to 2.5                     | 0.7                        |
| SMV1770 Series | 12                                       | 17.80                                     | 5.50                                      | 2.3                   | 0.5 to 2.5                     | 0.5                        |
| SMV1771 Series | 12                                       | 22.90                                     | 6.90                                      | 2.3                   | 0.5 to 2.5                     | 0.5                        |

|  |  |  |  |
|---|---|--|---|
| <b>Common Cathode<br/>SOT-23<br/>Green™</b>                                       | <b>Common Cathode<br/>SC-70</b>   | <b>Single<br/>SC-79<br/>Green™</b>   | <b>Single<br/>0402<br/>Green™</b>   |
|   |   | SMV1220-079LF<br>Marking: Cathode  |   |
|   | SMV1263-074LF<br>Marking: EN3   | SMV1263-079LF<br>Marking: Cathode  | SMV1263-040LF<br>Marking: EN1   |
|   |   | SMV1270-079LF<br>Marking: Cathode  | SMV1270-040LF<br>Marking: HN1   |
|   |   | SMV1272-079LF<br>Marking: Cathode  |   |
| SMV1705-004LF<br>Marking: HY3   |   | SMV1705-079LF<br>Marking: Cathode  | SMV1705-040LF<br>Marking: 0   |
|   |   | SMV1763-079LF<br>Marking: Cathode  | SMV1763-040LF<br>Marking: L   |
|   |   | SMV1770-079LF<br>Marking: Cathode  | SMV1770-040LF<br>Marking: ED1   |
|   |   | SMV1771-079LF<br>Marking: Cathode  | SMV1771-040LF<br>Marking: EL1   |



### Typical Performance Characteristics



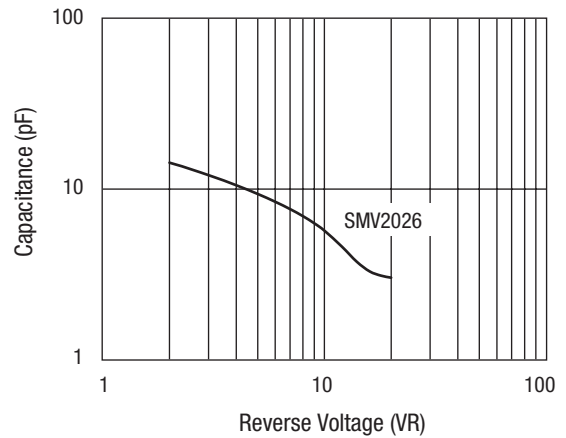
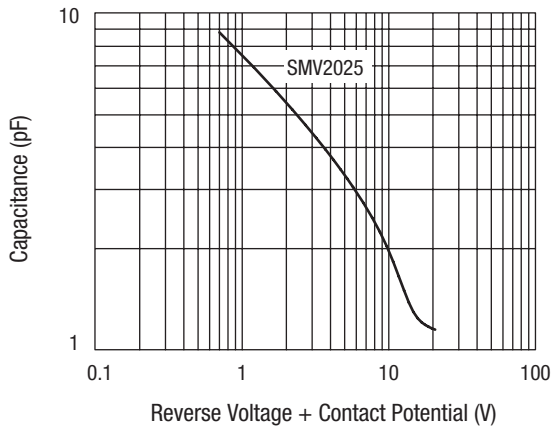
## Plastic Surface Mount (SMT) Hyperabrupt Varactor Diodes—Low Frequency to 6 GHz

### Large Bandwidth and Low Phase Noise Silicon Hyperabrupt Varactor Diodes

| Part Number    | Min. $V_B$<br>$I_R = 10 \mu A$ (V) | Typ. $C_T$<br>$V_R = 2 V$<br>(pF) | Typ. $C_T$<br>$V_R = 10 V$<br>(pF) | Typ. $C_T$<br>$V_R = 18 V$<br>(pF) | Min. $C_T$<br>(Ratio) | Capacitance Ratio<br>Range<br>(V) |
|----------------|------------------------------------|-----------------------------------|------------------------------------|------------------------------------|-----------------------|-----------------------------------|
| SMV2025 Series | 20                                 | 4.67                              | 1.83                               | 1.17                               | 2.2                   | 2 to 10                           |
| SMV2026 Series | 15                                 | 14.27                             | 5.69                               | 3.10                               | 2.0                   | 2 to 10                           |

|   |   |
|---|---|
|  |  |
| <b>Single<br/>SC-79<br/>Green™</b>  | <b>Single<br/>0402<br/>Green™</b>   |
| SMV2025-079LF<br>Marking: Cathode   | SMV2025-040LF<br>Marking: DK1   |
| SMV2026-079LF<br>Marking: Cathode   | SMV2026-040LF<br>Marking: EC1   |


### Typical Performance Characteristics



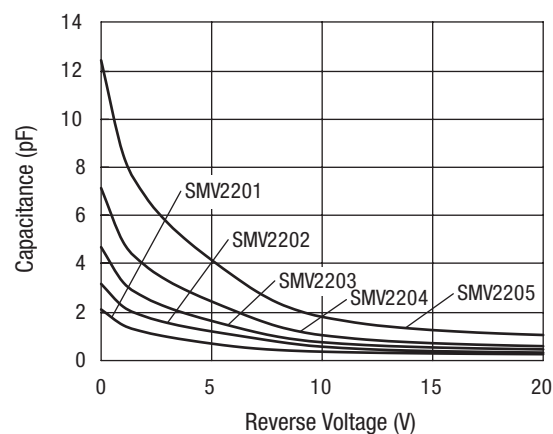
## Plastic Surface Mount (SMT) Hyperabrupt Varactor Diodes—Low Frequency to 6 GHz

### Large Bandwidth and Low Phase Noise Silicon Hyperabrupt Varactor Diodes

| Part Number   | Min. $V_B$<br>$I_R = 10 \mu A$ (V) | Typ. $C_T$<br>$V_R = 4 V$<br>(pF) | Typ. $C_T$<br>$V_R = 20 V$<br>(pF) | Q<br>$V_R = 4 V$<br>$f = 50 MHz$ |
|---------------|------------------------------------|-----------------------------------|------------------------------------|----------------------------------|
| SMV2201-040LF | 22                                 | 0.85                              | 0.25                               | 500                              |
| SMV2202-040LF | 22                                 | 1.35                              | 0.35                               | 500                              |
| SMV2203-040LF | 22                                 | 1.85                              | 0.45                               | 400                              |
| SMV2204-040LF | 22                                 | 2.85                              | 0.65                               | 400                              |
| SMV2205-040LF | 22                                 | 4.85                              | 1.00                               | 400                              |

|   |
|---|
|  |
| <b>Single<br/>0402<br/>Green™</b>   |
| SMV2201-040LF<br>Marking: DC1   |
| SMV2202-040LF<br>Marking: DD1   |
| SMV2203-040LF<br>Marking: DE1   |
| SMV2204-040LF<br>Marking: DF1   |
| SMV2205-040LF<br>Marking: DH1   |

### Typical Performance Characteristics



## Large Bandwidth Silicon Hyperabrupt Varactor Diode Chips—Low Frequency to 12 GHz

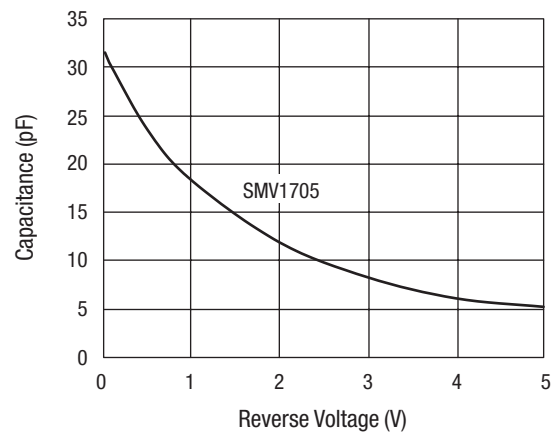
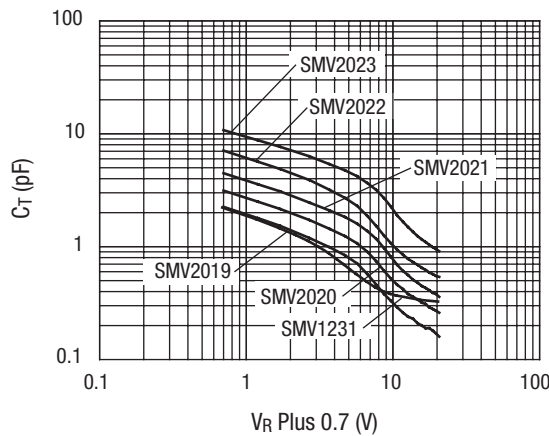
| Part Number | Die Size (mils) | Min. $V_R$<br>$I_R = 10 \mu A$<br>(V) | Typ. $C_J$<br>$V_R = 1 V$<br>(pF) | Typ. $C_J$<br>$V_R = 4 V$<br>(pF) | Typ. $C_J$<br>$V_R = 8 V$<br>(pF) | Typ. $C_J$<br>$V_R = 12 V$<br>(pF) | Typ. $C_J$<br>$V_R = 20 V$<br>(pF) | Min. Q<br>$V_R = 4 V$<br>@ 50 MHz | Typ. $R_S$<br>1000 MHz<br>( $\Omega$ ) |
|-------------|-----------------|---------------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|------------------------------------|------------------------------------|-----------------------------------|--|
| SMV1705-000 | 0.012 ± 0.002   | 12                                    | 18.3                              | 6.1                               | —                                 | —                                  | —                                  | —                                 | 0.32                                   |
| SMV2019-000 | 0.012 ± 0.002   | 22                                    | 1.53                              | 0.84                              | 0.38                              | 0.24                               | 0.16                               | 500                               | 4.8                                    |
| SMV2020-000 | 0.012 ± 0.002   | 22                                    | 2.16                              | 1.24                              | 0.61                              | 0.38                               | 0.26                               | 500                               | 4.1                                    |
| SMV2021-000 | 0.012 ± 0.002   | 22                                    | 3.09                              | 1.83                              | 0.97                              | 0.56                               | 0.36                               | 500                               | 2.8                                    |
| SMV2022-000 | 0.012 ± 0.002   | 22                                    | 4.88                              | 2.71                              | 1.25                              | 0.78                               | 0.54                               | 400                               | 2.2                                    |
| SMV2023-000 | 0.012 ± 0.002   | 22                                    | 7.67                              | 4.75                              | 2.68                              | 1.49                               | 0.91                               | 400                               | 1.4                                    |

## Hermetic Packaged Large Bandwidth Silicon Hyperabrupt Varactor Diodes— Low Frequency to 12 GHz

| Hermetic Stripline<br>240 | Hermetic Pill<br>203 | Hermetic Pill<br>219 | Hermetic Pill<br>210 |
|---------------------------|----------------------|----------------------|----------------------|
| SMV2019-240               | SMV2019-203          | SMV2019-219          | SMV2019-210          |
| SMV2020-240               | SMV2020-203          | SMV2020-219          | SMV2020-210          |
| SMV2021-240               | SMV2021-203          | SMV2021-219          | SMV2021-210          |
| SMV2022-240               | SMV2022-203          | SMV2022-219          | SMV2022-210          |
| SMV2023-240               | SMV2023-203          | SMV2023-219          | SMV2023-210          |

Epoxy and ceramic hermetic packaged diode products are available through Isolink (a wholly owned subsidiary of Skyworks Solutions, Inc.)

### Typical Performance Characteristics



## Wide Tuning Range (Hyperabrupt) Varactor Diodes—AEC-Q101 Qualified

| Part Number           | Package Type | $V_R$ Reverse Breakdown Voltage $I_r = 10 \mu A$ (V) Min. | Typ. $C_T$ Total Capacitance <sup>3</sup> $V_R = 1 V$ (pF) | Typ. $C_T$ Total Capacitance <sup>3</sup> $V_R = 4 V$ (pF) | Typ. $C_T$ Total Capacitance <sup>3</sup> $V_R = 8 V$ (pF) | Min. <sup>1</sup> Total Capacitance Ratio | Capacitance Ratio Range (V) | $R_s$ Series Resistance Max <sup>2</sup> ( $\Omega$ ) |
|-----------------------|--------------|---|--|--|--|---|-----------------------------|---|
| <b>SMVA1211-001LF</b> | SOT-23       | 12  | 98.60  | 19.40  | 10.50  | 5.0                                       | 1 to 4                      | 0.40  |
| <b>SMVA1248-079LF</b> | SC-79        | 15  | 12.33  | 1.71   | 1.30   | 10.8                                      | 0.3 to 4.7                  | 3.30  |
| <b>SMVA1253-079LF</b> | SC-79        | 15  | 37.07  | 4.86   | 3.28   | 11.0                                      | 0.3 to 4.7                  | 1.40  |
| <b>SMVA1470-004LF</b> | SOT-23       | 10  | 71.30  | 16.30  | 7.90   | 5.0                                       | 1 to 5                      | 0.80  |
| <b>SMVA1705-004LF</b> | SOT-23       | 12  | 18.30  | 6.10   | —  | 2.8                                       | 1 to 4                      | 0.32  |

**NEW** New products (indicated in blue, bold) are continually being introduced at Skyworks. For the latest information, please visit the new products section of our Web site at [www.skyworksinc.com](http://www.skyworksinc.com).

## FRONT-END MODULES

### RF Solutions

Designed with cost and space savings in mind, Skyworks' front-end modules (FEMs) combine the company's industry-leading power amplifier (PA), low noise amplifier (LNA), and switch functions into single low-cost, laminate-based multi-chip modules (MCMs). Key features of the transmit FEMs include multiband/multimode power amplifiers, current sensing power control, high-linearity transmit/receive switches, and all associated filtering, duplexing, and control functions. Further, the new module requires no external matching components, accelerating time-to-market.

Manufactured using Skyworks' proprietary hetero-junction bipolar transistor (HBT) power amplifier process and low-loss pseudomorphic high electron mobility transistor (pHEMT) switch technologies, FEMs deliver superior handset talk and standby time.



#### Front-end Modules Features:

- Multimode/Multiband (MMMB) power amplifiers
- High linearity Tx/Rx switches
- Single multi-chip module design
- Reduced handset design time
- Superior handset talk and standby times



### Front-end Modules for Cellular

#### WCDMA / CDMA Front-end Modules

Band 1 (Tx = 1920–1980 MHz) (Rx = 2110–2170 MHz)

| Part Number  | Description               | Typical PAE (%) | Typical Gain (dB) | Supply Voltage (V) | Package (mm)           |
|--|---------------------------|-----------------|-------------------|--------------------|------------------------|
|  SKY77433 | FEM for WCDMA/HSDPA/HSUPA | –               | –                 | 3.5–4.45           | 16-pin MCM 4 x 7 x 1.2 |
|  SKY77437 | FEM for WCDMA/HSDPA/HSUPA | 25              | 24                | 3.2–4.2            | 20-pin MCM 4 x 7 x 1.2 |

Band 5 & 6 (Tx = 824–849 MHz) (Rx = 869–894 MHz)

| Part Number  | Description               | Typical Gain (dB) | Supply Voltage (V) | Package (mm)           |
|--|---------------------------|-------------------|--------------------|------------------------|
| SKY77413   | FEM for WCDMA             | 25                | 3.2–4.2            | 22-pin MCM 5 x 8 x 1.5 |
|  SKY77425 | Tx FEM for CDMA           | 26                | 3.4–4.2            | 22-pin MCM 4 x 7 x 1.1 |
|  SKY77436 | FEM for WCDMA/HSDPA/HSUPA | –                 | 3.4–4.45           | 16-pin MCM 4 x 7 x 1.2 |

## Front-end Modules for Cellular

### EDGE Front-end Modules

| Part Number | Frequency (MHz) | Description  | Typical Output Power (dBm) GSM/EDGE | Typical PAE (%) GSM | Supply Voltage (V)              | Package (mm)                |
|-------------|-----------------|--|-------------------------------------|---------------------|---------------------------------|-----------------------------|
| SKY77521    |                 | Tx-Rx FEM for Quad-band GSM/GPRS/EDGE–Triple-band WCDMA Antenna Switch Support |                                     |                     | 3.0–4.6                         | 30-pin MCM<br>7 x 6 x 1.0   |
|             | 824–849         | GSM850   | 33.5                                | 40                  |                                 |                             |
|             | 880–915         | GSM900   | 33.5                                | 40                  |                                 |                             |
|             | 1710–1785       | DCS1800  | 31.0                                | 34                  |                                 |                             |
|             | 1850–1910       | PCS1900  | 31.0                                | 34                  |                                 |                             |
| SKY77526    |                 | Tx FEM for Quad-band GSM/EDGE  |                                     |                     | 2.9–4.8                         | 34-pin MCM<br>8 x 8 x 1.2   |
|             | 824–849         | GSM850   | 33.3                                | 41                  |                                 |                             |
|             | 880–915         | GSM900   | 33.3                                | 43                  |                                 |                             |
|             | 1710–1785       | DCS1800  | 33.5                                | 38                  |                                 |                             |
|             | 1850–1910       | PCS1900  | 34.5                                | 40                  |                                 |                             |
| SKY77527    |                 | Tx FEM for Quad-band GSM/EDGE  | –                                   | –                   | 2.9–4.4 (GSM)<br>3.0–4.4 (EDGE) | 34-pad MCM<br>8 x 6 x 1.12  |
|             | 824–849         | GSM850   |                                     |                     |                                 |                             |
|             | 880–915         | GSM900   |                                     |                     |                                 |                             |
|             | 1710–1785       | DCS1800  |                                     |                     |                                 |                             |
|             | 1850–1910       | PCS1900  |                                     |                     |                                 |                             |
| SKY77529    |                 | Tx FEM for Quad-band GSM/EDGE  | –                                   | –                   | 2.9–5.0 (GSM)<br>3.0–5.0 (EDGE) | 26-pad MCM<br>7.5 x 7 x 0.9 |
|             | 824–849         | GSM850   |                                     |                     |                                 |                             |
|             | 880–915         | GSM900   |                                     |                     |                                 |                             |
|             | 1710–1785       | DCS1800  |                                     |                     |                                 |                             |
|             | 1850–1910       | PCS1900  |                                     |                     |                                 |                             |
| SKY77544    |                 | Tx-Rx FEM for Quad-band GSM/GPRS/EDGE–Triple-band WCDMA Antenna Switch Support |                                     |                     | 3.0–4.6                         | 28-pad MCM<br>6 x 6 x 0.9   |
|             | 824–849         | GSM850   | 34.0                                | 41                  |                                 |                             |
|             | 880–915         | GSM900   | 34.0                                | 41                  |                                 |                             |
|             | 1710–1785       | DCS1800  | 40.0                                | 40                  |                                 |                             |
|             | 1850–1910       | PCS1900  | 40.0                                | 40                  |                                 |                             |
| SKY77546    |                 | Tx-Rx FEM for Dual-band GSM/GPRS/EDGE  |                                     |                     | 3.2–4.6 (GSM)<br>3.2–4.6 (EDGE) | 30-pad MCM<br>7 x 6 x 1     |
|             | 880–915         | GSM900   | 34.0/–                              | 45/18.5             |                                 |                             |
|             | 1710–1785       | DCS1800  | 24.0/–                              | 21/21               |                                 |                             |
| SKY77549    |                 | Tx-Rx FEM for Quad-band GSM/GPRS/EDGE–Quad-band WCDMA Antenna Switch Support   |                                     |                     | 3.0–4.6                         | 28-pad MCM<br>6 x 6 x 0.9   |
|             | 824–849         | GSM850   | 34.0                                | 41                  |                                 |                             |
|             | 880–915         | GSM900   | 34.0                                | 41                  |                                 |                             |
|             | 1710–1785       | DCS1800  | 31.2                                | 39                  |                                 |                             |
|             | 1850–1910       | PCS1900  | 31.2                                | 39                  |                                 |                             |
| SKY77558    |                 | Tx-Rx FEM for Quad-band GSM/GPRS/EDGE–6-band Antenna Switch Support            |                                     |                     | 3.0–4.8                         | 28-pad MCM<br>6 x 6 x 0.9   |
|             | 824–849         | GSM850   | 34.0                                | 47                  |                                 |                             |
|             | 880–915         | GSM900   | 34.0                                | 47                  |                                 |                             |
|             | 1710–1785       | DCS1800  | 34.0                                | 47                  |                                 |                             |
|             | 1850–1910       | PCS1900  | 34.0                                | 47                  |                                 |                             |
| SKY77570    |                 | Tx-Rx FEM for Quad-band GSM/GPRS/EDGE 6-band Antenna Switch Support            |                                     |                     | 3.0–4.8                         | 42-pad MCM<br>6 x 6 x 0.9   |
|             | 824–849         | GSM850   | TBD                                 | TBD                 |                                 |                             |
|             | 880–915         | GSM900   | TBD                                 | TBD                 |                                 |                             |
|             | 1710–1785       | DCS1800  | TBD                                 | TBD                 |                                 |                             |
|             | 1850–1910       | PCS1900  | TBD                                 | TBD                 |                                 |                             |
| SKY77573-12 |                 | Tx-Rx FEM for Quad-band GSM/GPRS/EDGE with 4-band Antenna Switch Support       |                                     |                     | 3.0–4.8                         | 42-pad MCM<br>6 x 6 x 0.9   |
|             | 824–849         | GSM850   | TBD                                 | TBD                 |                                 |                             |
|             | 880–915         | GSM900   | TBD                                 | TBD                 |                                 |                             |
|             | 1710–1785       | DCS1800  | TBD                                 | TBD                 |                                 |                             |
|             | 1850–1910       | PCS1900  | TBD                                 | TBD                 |                                 |                             |



## Front-end Modules for Cellular

### EDGE Front-end Modules (Continued)

| Part Number | Frequency (MHz) | Description  | Typical Output Power (dBm) GSM/EDGE | Typical PAE (%) GSM | Supply Voltage (V) | Package (mm)               |
|-------------|-----------------|--|-------------------------------------|---------------------|--------------------|----------------------------|
| SKY77573-21 |                 | Tx-Rx FEM for Quad-band GSM/GPRS/EDGE with 4-band Antenna Switch Support   |                                     |                     | 3.0–4.8            | 42-pad MCM<br>6 x 6 x 0.9  |
|             | 824–849         | GSM850   | TBD                                 | TBD                 |                    |                            |
|             | 880–915         | GSM900   | TBD                                 | TBD                 |                    |                            |
|             | 1710–1785       | DCS1800  | TBD                                 | TBD                 |                    |                            |
|             | 1850–1910       | PCS1900  | TBD                                 | TBD                 |                    |                            |
| SKY77573-31 |                 | Tx-Rx FEM for Quad-band GSM/GPRS/EDGE and TD-SCDMA with 4-band Antenna Switch Support                            |                                     |                     | 3.0–4.8            | 42-pad MCM<br>6 x 6 x 0.9  |
|             | 824–849         | GSM850   | TBD                                 | TBD                 |                    |                            |
|             | 880–915         | GSM900   | TBD                                 | TBD                 |                    |                            |
|             | 1710–1785       | DCS1800  | TBD                                 | TBD                 |                    |                            |
|             | 1850–1910       | PCS1900  | TBD                                 | TBD                 |                    |                            |
|             | 2010–2025       | TD-SCDMA Band 34   | TBD                                 | TBD                 |                    |                            |
|             | 1880–1920       | TD-SCDMA Band 39   | TBD                                 | TBD                 |                    |                            |
| SKY77577-11 |                 | Tx-Rx FEM for Quad-band GSM/GPRS/EDGE with 4-band Antenna Switch Support and HB PA Output for SGLTE Applications |                                     |                     | TBD                | 42-pad MCM<br>6 x 6 x 0.9  |
|             | 824–849         | GSM850   | TBD                                 | TBD                 |                    |                            |
|             | 880–915         | GSM900   | TBD                                 | TBD                 |                    |                            |
|             | 1710–1785       | DCS1800  | TBD                                 | TBD                 |                    |                            |
|             | 1850–1910       | PCS1900  | TBD                                 | TBD                 |                    |                            |
| SKY77590-11 |                 | Tx-Rx FEM for Quad-band GSM/GPRS/EDGE with Six Linear TRx Switch Ports   |                                     |                     | 3.0–4.6            | 28-pad MCM<br>6 x 6 x 0.85 |
|             | 824–849         | GSM850   | 34.0                                | 40/20               |                    |                            |
|             | 880–915         | GSM900   | 34.0                                | 40/20               |                    |                            |
|             | 1710–1785       | DCS1800  | 31.4                                | 35/22               |                    |                            |
|             | 1850–1910       | PCS1900  | 31.4                                | 35/22               |                    |                            |
| SKY77590-21 |                 | Tx-Rx FEM for Quad-band GSM/GPRS/EDGE with Six Linear TRx Switch Ports   |                                     |                     | 3.0–4.6            | 28-pad MCM<br>6 x 6 x 0.85 |
|             | 824–849         | GSM850   | 34.0                                | 40/20               |                    |                            |
|             | 880–915         | GSM900   | 34.0                                | 40/20               |                    |                            |
|             | 1710–1785       | DCS1800  | 31.4                                | 35/22               |                    |                            |
|             | 1850–1910       | PCS1900  | 31.4                                | 35/22               |                    |                            |

### GSM / GPRS Front-end Modules

| Part Number | Frequency (MHz) | Description                                      | Typical Output Power (dBm) GSM | Typical PAE (%) | Supply Voltage (V) | Package (mm)              |
|-------------|-----------------|--|--------------------------------|-----------------|--------------------|---------------------------|
| SKY77517    |                 | Tx-Rx iPAC™ FEM for Dual-band GSM/GPRS           |                                |                 | 2.7–4.8            | 20-pin MCM<br>6 x 8 x 1.1 |
|             | 824–849         | GSM850   | 33.7                           | 48              |                    |                           |
|             | 1850–1910       | PCS1900  | 32.0                           | 41              |                    |                           |
| SKY77552    |                 | Quad-band Tx/Dual-band Rx iPAC™ FEM for GSM/GPRS |                                |                 | 3.1–4.8            | 30-pin MCM<br>7 x 6 x 0.9 |
|             | 824–849         | GSM850   | 33.7                           | 43.5            |                    |                           |
|             | 880–915         | GSM900   | 33.7                           | 43.5            |                    |                           |
|             | 1710–1785       | DCS1800  | 32.0                           | 37.5            |                    |                           |
|             | 1850–1910       | PCS1900  | 32.0                           | 37.5            |                    |                           |

## Front-end Modules for Cellular

### GSM / GPRS Front-end Modules (Continued)

| Part Number     | Frequency (MHz) | Description  | Typical Output Power (dBm) GSM | Typical PAE (%) | Supply Voltage (V) | Package (mm)              |
|-----------------|-----------------|--|--------------------------------|-----------------|--------------------|---------------------------|
| SKY77554-21     |                 | Tx Quad-band/Rx Dual-band BIFET iPAC™ FEM for GSM/GPRS w/Dual WCDMA TRx Switch   |                                |                 | 3.1–4.8            | 28-pin MCM<br>6 x 6 x 0.9 |
|                 | 824–849         | GSM850   | 34.5                           | 42              |                    |                           |
|                 | 880–915         | GSM900   | 34.5                           | 42              |                    |                           |
|                 | 1710–1785       | DCS1800  | 32.5                           | 41              |                    |                           |
|                 | 1850–1910       | PCS1900  | 32.5                           | 42              |                    |                           |
| SKY77559        |                 | Tx Quad-band/Rx Dual-band BIFET iPAC™ FEM for GSM/GPRS w/Triple WCDMA TRx Switch |                                |                 | 3.1–4.8            | 28-pin MCM<br>6 x 6 x 0.9 |
|                 | 824–849         | GSM850   | 34.5                           | 42              |                    |                           |
|                 | 880–915         | GSM900   | 34.5                           | 42              |                    |                           |
|                 | 1710–1785       | DCS1800  | 32.5                           | 41              |                    |                           |
|                 | 1850–1910       | PCS1900  | 32.5                           | 42              |                    |                           |
| SKY77562        |                 | Tx-Rx FEM for Quad-band GSM/GPRS 3-band Antenna Switch Support                   |                                |                 | 3.0–4.8            | 28-pin MCM<br>6 x 6 x 0.9 |
|                 | 824–849         | GSM850   | 34.0                           | 47              |                    |                           |
|                 | 880–915         | GSM900   | 34.0                           | 47              |                    |                           |
|                 | 1710–1785       | DCS1800  | 31.2                           | 44              |                    |                           |
|                 | 1850–1910       | PCS1900  | 31.2                           | 44              |                    |                           |
| SKY77576-11     | 824–849         | Tx-Rx FEM for Quad-band GSM/GPRS 4-band Antenna Switch Support                   |                                |                 | TBD                | 42-pad MCM<br>6 x 6 x 0.9 |
|                 | 880–915         | GSM850   | TBD                            | TBD             |                    |                           |
|                 | 1710–1785       | GSM900   | TBD                            | TBD             |                    |                           |
|                 | 1850–1910       | DCS1800  | TBD                            | TBD             |                    |                           |
|                 |                 | PCS1900  | TBD                            | TBD             |                    |                           |
| SKY77580        |                 | Tx Quad-band/Rx Dual-band FEM for GSM/GPRS                                       |                                |                 | 3.1–4.3            | 28-pad MCM<br>6 x 6 x 0.9 |
|                 | 824–849         | GSM850   | 34.7                           | 44              |                    |                           |
|                 | 880–915         | GSM900   | 34.5                           | 45              |                    |                           |
|                 | 1710–1785       | DCS1800  | 32.7                           | 42              |                    |                           |
|                 | 1850–1910       | PCS1900  | 32.8                           | 39              |                    |                           |
| SKY77582        |                 | Tx Quad-band/Rx Dual-band FEM for GSM/GPRS                                       |                                |                 | 3.0–4.5            | 28-pad MCM<br>6 x 6 x 0.9 |
|                 | 824–849         | GSM850   | TBD                            | TBD             |                    |                           |
|                 | 880–915         | GSM900   | TBD                            | TBD             |                    |                           |
|                 | 1710–1785       | DCS1800  | TBD                            | TBD             |                    |                           |
|                 | 1850–1910       | PCS1900  | TBD                            | TBD             |                    |                           |
| SKY77584        |                 | Tx-Rx Quad-band FEM for GSM/GPRS with Four Linear TRx Switch Ports               |                                |                 | 3.1–4.3            | 28-pad MCM<br>6 x 6 x 0.9 |
|                 | 824–849         |  | 34.4                           | 42              |                    |                           |
|                 | 880–915         |  | 34.3                           | 45              |                    |                           |
|                 | 1710–1785       |  | 32.0                           | 39              |                    |                           |
|                 | 1850–1910       |  | 32.0                           | 39              |                    |                           |
| <b>SKY77585</b> |                 | Tx-Rx Quad-Band Front-End Module for GSM/GPRS w/Four Linear TRx Switch Ports     |                                |                 | 3.0–4.5            | 28-pad MCM<br>6 x 6 x 0.9 |
|                 | 824–849         | GSM850   | TBD                            | TBD             |                    |                           |
|                 | 880–915         | GSM900   | TBD                            | TBD             |                    |                           |
|                 | 1710–1785       | DCS1800  | TBD                            | TBD             |                    |                           |
|                 | 1850–1910       | PCS1900  | TBD                            | TBD             |                    |                           |
| SKY77589        |                 | Tx-Rx Quad-band FEM for GSM/GPRS with Six Linear TRx Switch Ports                |                                |                 | 3.1–4.3            | 28-pad MCM<br>6 x 6 x 0.9 |
|                 | 824–849         |  | 34.4                           | 42              |                    |                           |
|                 | 880–915         |  | 34.3                           | 45              |                    |                           |
|                 | 1710–1785       |  | 32.0                           | 39              |                    |                           |
|                 | 1850–1910       |  | 32.0                           | 39              |                    |                           |

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## Front-end Modules for Cellular

### LTE Front-end Modules

| Part Number | Frequency (MHz) | Description   | Typical Linear LTE Power (dBm) | Supply Voltage (V) | Package (mm)                  |
|-------------|-----------------|---|--------------------------------|--------------------|-------------------------------|
| SKY77455    | 1920-2170       | FEM for LTE/E-UTRA Band 1 (Tx 1920–1980 MHz), (Rx 2110–2170 MHz)    | 24.5                           | 3.0–4.6            | 16-pad MCM<br>4 x 7 x 1.1     |
| SKY77456    | 1710–2170       | FEM for LTE/E-UTRA Band 4/10 (Tx 1710–1770 MHz), (Rx 2110–2170 MHz) | 24.5                           | 3.0–4.6            | 16-pad MCM<br>4 x 7 x 0.5     |
| SKY77457    | 824–894         | FEM for LTE/E-UTRA Band 5 (Tx 824–849 MHz), (Rx 869–894 MHz)        | 24.5                           | 3.0–4.6            | 16-pad MCM<br>4 x 7 x 0.5     |
| SKY77458    | 880–960         | FEM for LTE/E-UTRA Band 8 (Tx 880–915 MHz), (Rx 925–960 MHz)        | 24.5                           | 3.0–4.6            | 16-pad MCM<br>4 x 7 x 1.1     |
| SKY77806    | TBD             | FEM for LTE Bands 12/17, 13   | TBD                            | TBD                | 34-pad MCM<br>4.6 x 5.2 x 0.8 |

### SkyOne® Modules

SkyOne® solutions leverage the SKY77619, Skyworks' high efficiency, multimode power amplifier module already in volume production with multiple customers. The highly flexible solution contains a common footprint that can be utilized by all of the world's carriers and in various regions. SkyOne® devices are compatible with all Qualcomm WCDMA/LTE smartphone platforms with general purpose input/output (GPIO) interface.

| Part Number | Band    | Frequency (MHz) | Package (mm)                   |
|-------------|---------|-----------------|--------------------------------|
| SKY78010    | 1       | 1920–1980       | 60-pad MCM<br>7.0 x 9.8 x 1.05 |
|             | 2       | 1850–1910       |                                |
|             | 4       | 1710–1755       |                                |
|             | 5       | 824–849         |                                |
|             | 8       | 880–915         |                                |
| SKY78011    | 1       | 1920–1980       | 60-pad MCM<br>7.0 x 9.8 x 1.05 |
|             | 2       | 1850–1910       |                                |
|             | 4       | 1710–1755       |                                |
|             | 5       | 824–849         |                                |
|             | 8       | 880–915         |                                |
| SKY78013    | GSM850  | 824–849         | 60-pad MCM<br>7.0 x 9.8 x 0.9  |
|             | GSM900  | 880–915         |                                |
|             | DCS1800 | 1710–1785       |                                |
|             | PCS1900 | 1850–1910       |                                |
|             | 1       | 1920–1980       |                                |
|             | 3       | 1710–1785       |                                |
|             | 5       | 824–849         |                                |
|             | 8       | 880–915         |                                |
|             | 20      | 832–862         |                                |

## Front-end Modules for Cellular





### SkyOne® Modules (Continued)

| Part Number        | Band         | Frequency (MHz) | Package (mm)                   |
|--------------------|--------------|-----------------|--------------------------------|
| SKY78015           | 1            | 1920–1980       | 60-pad MCM<br>7.0 x 9.8 x 1.05 |
|                    | 2            | 1850–1910       |                                |
|                    | 3            | 1710–1785       |                                |
|                    | 5            | 824–849         |                                |
|                    | 8            | 880–915         |                                |
|                    | 20           | 832–862         |                                |
| SKY78021           | GSM850       | 824–849         | 60-pad MCM<br>7.0 x 9.0 x 0.9  |
|                    | GSM900       | 880–915         |                                |
|                    | DCS1800      | 1710–1785       |                                |
|                    | PCS1900      | 1850–1910       |                                |
|                    | 1            | 1920–1980       |                                |
|                    | 2/25         | 1850–1915       |                                |
|                    | 3            | 1710–1785       |                                |
|                    | 3            | 1710–1755       |                                |
|                    | 5/18/19/26   | 814–849         |                                |
|                    | 8            | 880–915         |                                |
|                    | 20           | 832–862         |                                |
|                    | Rx only band | 717–728         |                                |
|                    | SKY78022     | GSM850          |                                |
| EGSM900            |              | 880–915         |                                |
| DCS1800            |              | 1710–1785       |                                |
| PCS1900            |              | 1850–1910       |                                |
| 1                  |              | 1920–1980       |                                |
| 3                  |              | 1710–1785       |                                |
| 25                 |              | 1850–1910       |                                |
| 5/18               |              | 824–849         |                                |
| 8                  |              | 880–915         |                                |
| 34                 |              | 2010–2025       |                                |
| 39                 |              | 1880–1920       |                                |
| SKY78025           |              | GSM850          | 824–849                        |
|                    | EGSM900      | 880–915         |                                |
|                    | DCS1800      | 1710–1785       |                                |
|                    | PCS1900      | 1850–1910       |                                |
|                    | 1            | 1920–1980       |                                |
|                    | 2            | 1850–1910       |                                |
|                    | 4            | 1710–1755       |                                |
|                    | 5            | 824–849         |                                |
| 8                  | 880–915      |                 |                                |
| SKY78026           | GSM850       | 824–849         | 60-pad MCM<br>8.0 x 9.0 x 0.9  |
|                    | EGSM900      | 880–915         |                                |
|                    | DCS1800      | 1710–1785       |                                |
|                    | PCS1900      | 1850–1910       |                                |
|                    | 1            | 1920–1980       |                                |
|                    | 2            | 1850–1910       |                                |
|                    | 5            | 824–849         |                                |
|                    | 8            | 880–915         |                                |
| 20                 | 832–862      |                 |                                |
| <b>SKY78027-12</b> | GSM850       | 824–849         | 60-pad MCM<br>8.0 x 9.0 x 0.9  |
|                    | EGSM900      | 880–915         |                                |
|                    | DCS1800      | 1710–1785       |                                |
|                    | PCS1900      | 1850–1910       |                                |
|                    | I            | 1920–1980       |                                |
|                    | II           | 1850–1910       |                                |
|                    | III          | 1710–1785       |                                |
|                    | V            | 824–849         |                                |
|                    | VIII         | 880–915         |                                |
|                    | XX           | 832–862         |                                |

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## Front-end Modules for Cellular




### TD-SCDMA Front-end Modules

| Part Number   | Frequency (MHz)   | Description   | Package (mm)              |
|---|-------------------|---|---------------------------|
|  SKY77570-12 |                   | Tx-Rx FEM for Quad-Band GSM/ GPRS/ EDGE with Six Linear TRx Switch Ports and Dual-Band TD-SCDMA | 42-pad MCM<br>6 x 6 x 0.9 |
|   | 824-849           | GSM850  |                           |
|   | 880-915           | GSM900  |                           |
|   | 1710-1785         | DCS1800   |                           |
|   | 1850-1910         | PCS1900   |                           |
|   | 824-849           | EDGE850   |                           |
|   | 880-915           | EDGE900   |                           |
|   | 1710-1785         | EDGE1800  |                           |
|   | 1850-1910         | EDGE1900  |                           |
|   | 2010-2025         | TD-SCDMA Bands 34   |                           |
| 1880-1920   | TD-SCDMA Bands 39 |   |                           |
|  SKY77590-51 |                   | Tx-Rx FEM for Quad-band GSM/ GPRS/EDGE with Six Linear TRx Switch Ports and Dual-band TD-SCDMA  | 28-pad MCM<br>6 x 6 x 0.9 |
|   | 824-849           | GSM850  |                           |
|   | 880-915           | GSM900  |                           |
|   | 1710-1785         | DCS1800   |                           |
|   | 1850-1910         | PCS1900   |                           |
|   | 880-915           | EDGE850   |                           |
|   | 880-915           | EDGE900   |                           |
|   | 1710-1785         | EDGE1800  |                           |
|   | 1850-1910         | EDGE1900  |                           |
|   | 2010-2025         | TD-SCDMA Band 34  |                           |
| 1880-1920   | TD-SCDMA Band 39  |   |                           |
|  SKY77590-61 |                   | Tx-Rx FEM for Quad-band GSM/GPRS/EDGE with Six Linear TRx Switch Ports and Dual-band TD-SCDMA   | 28-pad MCM<br>6 x 6 x 0.9 |
|   | 824-849           | GSM850  |                           |
|   | 880-915           | GSM900  |                           |
|   | 1710-1785         | DCS1800   |                           |
|   | 1850-1910         | PCS1900   |                           |
|   | 880-915           | EDGE850   |                           |
|   | 880-915           | EDGE900   |                           |
|   | 1710-1785         | EDGE1800  |                           |
|   | 1850-1910         | EDGE1900  |                           |
|   | 2010-2025         | TD-SCDMA Band 34  |                           |
| 1880-1920   | TD-SCDMA Band 39  |   |                           |
|  SKY77592  |                   | Tx-Rx FEM for Quad-band GSM/GPRS/EDGE with Six Linear TRx Switch Ports and Dual-band TD-SCDMA   | 28-pad MCM<br>6 x 6 x 0.9 |
|   | 824-849           | GSM850  |                           |
|   | 880-915           | GSM900  |                           |
|   | 1710-1785         | DCS1800   |                           |
|   | 1850-1910         | PCS1900   |                           |
|   | 824-849           | EDGE850   |                           |
|   | 880-915           | EDGE900   |                           |
|   | 1710-1785         | EDGE1800  |                           |
|   | 1850-1910         | EDGE1900  |                           |
|   | 2010-2025         | TD-SCDMA Band 34  |                           |
| 1880-1920   | TD-SCDMA Band 39  |   |                           |




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Front-end Modules for Cellular

TD-SCDMA Front-end Modules (Continued)

| Part Number   | Frequency (MHz)  | Description   | Package (mm)              |
|---|--|---|---------------------------|
|  SKY77593    | 824-849<br>880-915<br>1710-1785<br>1850-1910<br>824-849<br>880-915<br>1710-1785<br>1850-1910<br>2010-2025<br>1880-1920 | Tx-Rx FEM for Quad-band GSM/GPRS/EDGE with Four Linear TRx Switch Ports and Dual-band TD-SCDMA<br>GSM850<br>GSM900<br>DCS1800<br>PCS1900<br>EDGE850<br>EDGE900<br>EDGE1800<br>EDGE1900<br>TD-SCDMA Band 34<br>TD-SCDMA Band 39  | 28-pad MCM<br>6 x 6 x 0.9 |
|  SKY77594    | 824-849<br>880-915<br>1710-1785<br>1850-1910<br>824-849<br>880-915<br>1710-1785<br>1850-1910<br>2010-2025<br>1880-1920 | Tx-Rx FEM for Quad-band GSM/GPRS/EDGE with Two Rx Switch Ports and Dual-band TD-SCDMA<br>GSM850<br>GSM900<br>DCS1800<br>PCS1900<br>EDGE850<br>EDGE900<br>EDGE1800<br>EDGE1900<br>TD-SCDMA Band 34<br>TD-SCDMA Band 39   | 28-pad MCM<br>6 x 6 x 0.9 |
|  SKY77597-11 | 824-849<br>880-915<br>1710-1785<br>1850-1910<br>824-849<br>880-915<br>1710-1785<br>1850-1910<br>2010-2025<br>1880-1920 | Tx-Rx Front-End Module for Quad-Band GSM/GPRS/EDGE, and Dual-Band TD-SCDMA with Six Linear TRx Switch Ports, and High Band Power Amplifier Output for SVLTE Applications with SP2T Switch<br>GSM850<br>GSM900<br>DCS1800<br>PCS1900<br>EDGE850<br>EDGE900<br>EDGE1800<br>EDGE1900<br>TD-SCDMA Bands 34<br>TD-SCDMA Bands 39 | 28-pad MCM<br>6 x 6 x 0.9 |

Diversity Receive Modules

| Part Number   | Package (mm)            |
|---|-------------------------|
|  SKY13529-11 | 17-lead MCM 4 x 3 x 0.8 |
|  SKY13568-11 | 17-lead MCM 4 x 3 x 0.8 |
|  SKY13569-11 | 17-lead MCM 4 x 3 x 0.8 |

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## Front-end Modules for Cellular

### Antenna Switch Modules

#### High Throw Count (>4T) Switches / Antenna Switch Modules

Skyworks Solutions is pleased to offer a broad selection of high throw count antenna switch modules (ASMs) leveraging both GaAs and SOI technology to respond to all cellular standards specific requirements (GSM, GPRS, EDGE, WCDMA, TD-SCDMA, and LTE). Using either multi-chip module (MCM) or quad flat no-lead (QFN) packaging allows the integration of filtering functions such as Tx harmonic filters and ESD protection, and respond to a wide range of cellular front-end switching requirements such as antenna switching, Rx diversity switching or WCDMA band-mode switching. Any cellular RF front-end that requires high performance, reduced current consumption, and low insertion loss in a compact footprint would benefit from our portfolio of antenna switch module solutions.

| Part Number    | Description (Absorptive/ Reflective) | Frequency (GHz) | Typ. IL (dB) | Typ. Isol. (dB) | Typ. IMD3 (dBm) | Package (mm)                |
|----------------|--------------------------------------|-----------------|--------------|-----------------|-----------------|-----------------------------|
| SKY13362-389LF | SP10T (R)                            | 0.4–2.7         | 0.5–1.35     | 21–38           | -105            | 26-pin QFN 3.0 x 3.8 x 0.85 |
| SKY13364-389LF | SP10T (R)                            | 0.4–2.7         | 0.5–1.1      | 30              | -105            | 26-pin QFN 3.0 x 3.8 x 0.85 |
| SKY13404-466LF | SP10T (R)                            | 0.4–2.7         | 0.5–1.35     | 45–24           | -110            | 26-pin QFN 2.6 x 3.4 x 0.55 |
| SKY13406-389LF | SP10T (R)                            | 0.4–2.7         | 0.5–1.35     | 45–24           | -110            | 26-pin QFN 2.6 x 3.4 x 0.55 |
| SKY18106-455LF | SP8T (R)                             | 0.4–2.2         | 0.4–0.8      | 25              | -102            | 26-pin QFN 3.0 x 3.8 x 0.75 |
| SKY18108-11    | SP9T (R)                             | 0.4–2.7         | 0.8–0.9      | >35             | -110            | 20-pin MCM 3.2 x 3.5 x 0.9  |
| SKY13412-487LF | SP12T (R)                            | 0.4–2.7         | 0.4–1.1      | 35–23           | -110            | 30-pin QFN 3.0 x 3.8 x 0.75 |
| SKY18120-11    | SP9T (R)                             | 0.4–2.7         | 0.5–1.1      | 24–44           | -105            | 20-pin MCM 2.5 x 2.5 x 0.9  |

| Part Number    | Description (Absorptive/ Reflective) | Frequency (GHz) | Typ. IL (dB) | Typ. Isol. (dB) | Typ. IIP3 (dBm) | Typ. IP <sub>1</sub> dB | Package (mm)               |
|----------------|--------------------------------------|-----------------|--------------|-----------------|-----------------|-------------------------|----------------------------|
| SKY13418-485LF | SP8T (R)                             | 0.1–3.0         | 0.35–0.6     | 35–25           | 69              | 38                      | 14-pin QFN 2.0 x 2.0 x 0.5 |
| SKY13455-31    | SP12T (R)                            | 0.4–2.7         | 0.6–1.25     | 22–43           | –               | –                       | 22-pin MCM 3.2 x 2.5 x 0.8 |


## WiFi Connectivity

### 2.5 GHz Front-end Modules

| Part Number | Frequency (GHz) | 802.11 WLAN Standard | Antenna Ports | Architecture                           | Typ. Current @ V <sub>CC</sub> = 3.3 V (mA) | Typ. P <sub>OUT</sub> @ 2.5% EVM (dBm) | Typ. P <sub>OUT</sub> @ 3.0% EVM (dBm) | Typ. Tx Gain (dB) | Package (mm)              |
|-------------|-----------------|----------------------|---------------|--|---|--|--|-------------------|---------------------------|
| SE2521A60   | 2.4–2.5         | b<br>g               | 2             | 2.4 GHz WLAN Front End                 | 205<br>180                                  | –                                      | 23 (@ 2%)<br>18 (@ 2%)                 | 29<br>29          | 24-pin LGA<br>8 x 7 x 1.1 |
| SE2521A80   | 2.4–2.5         | b<br>g               | 2             | 2.4 GHz WLAN Front End                 | 300<br>275                                  | –                                      | 20<br>20                               | 30<br>30          | 24-pin LGA<br>8 x 7 x 1.2 |
| SE2564L     | 2.4–2.5         | b<br>g               | 2             | 2.4 GHz High Efficiency WLAN Front End | 160<br>130                                  | –                                      | 17<br>17                               | 27<br>27          | 24-pin QFN<br>3 x 4 x 0.9 |
| SE2603L     | 2.4–2.5         | b<br>g               | 2             | 2.4 GHz High Efficiency WLAN Front End | 180<br>145                                  | –                                      | 17<br>17                               | 27<br>27          | 24-pin QFN<br>3 x 4 x 0.9 |

## WiFi Connectivity

### 2.5 GHz Front-end Modules (Continued)

| Part Number  | Frequency (GHz) | 802.11 WLAN Standard | Antenna Ports | Architecture   | Typ. Current @ V <sub>CC</sub> = 3.3 V (mA) | Typ. P <sub>OUT</sub> @ 2.5% EVM (dBm) | Typ. P <sub>OUT</sub> @ 3.0% EVM (dBm) | Typ. Tx Gain (dB) | Package (mm)                   |
|--|-----------------|----------------------|---------------|--|---|--|--|-------------------|--------------------------------|
| SE2611T  | 2.4–2.5         | b<br>g               | 1             | 2.4 GHz High Efficiency WLAN/Bluetooth® Front End  | 215<br>185                                  | –                                      | 20 (@ 4%)<br>19 (@ 4%)                 | 27<br>27          | 20-pin QFN<br>3 x 3 x 0.6      |
| SE2613T  | 2.4–2.5         | b<br>g               | 1             | 2.4 GHz WLAN/Bluetooth® Front End  | 160<br>140                                  | –                                      | 20 (@ 4%)<br>17.5 (@ 4%)               | 26<br>26          | 16-pin QFN<br>3 x 3 x 0.6      |
| SE2614BT   | 2.4–2.5         | b<br>g               | 1             | 2.4 GHz High Efficiency WLAN Front End   | 190<br>160                                  | –                                      | 18<br>18                               | 30<br>30          | 20-pin QFN<br>3 x 3 x 0.6      |
| SE2620T  | 2.4–2.5         | b<br>g<br>n          | 1             | 802.11b/g/n WLAN FEM with Bluetooth Port   | 160<br>140<br>TBD                           | 20 (@ 3% EVM)<br>18 (@ 3% EVM)<br>TBD  | –                                      | 26                | 16-pin QFN<br>3 x 3 x 0.6      |
| SE2621L  | 2.4–2.5         | b<br>g<br>n          | 2             | 802.11b/g/n WLAN FEM with Diversity  | 160<br>130<br>130                           | –                                      | 19<br>17<br>17                         | 27                | 24-pin QFN<br>3 x 4 x 0.9      |
| SKY65249-11  | 2.4–2.5         | b<br>g               | 2             | One Single-band Tx/Rx Chain  | 210<br>180                                  | 21<br>18                               | –                                      | 26<br>26          | Laminate<br>4 x 4 x 0.9        |
| SKY65534-11  | 2.4–2.5         | b<br>g<br>n          | 1             | Integrated High-performance 2.4 GHz PA, Harmonic Filter, LNA with Bypass, and T/R Switch | 190<br>(@ 20 dBm)                           | 20<br>18                               | 19 (@ 3% EVM)                          | 26                | 16-pin QFN<br>2.5 x 2.5 x 0.45 |
| SKY85302-11  | 2.4–2.5         | b<br>g<br>n<br>ac    | 1             | 2.4 GHz, 256 QAM WLAN/Bluetooth® FEM   | 180<br>(@ 19 dBm @ 3.6 V)                   | –                                      | 19                                     | 26                | 16-pin QFN<br>2.5 x 2.5 x 0.45 |
| SKY85303-11  | 2.4–2.5         | b<br>g<br>n<br>ac    | 1             | 2.4 GHz, 256 QAM WLAN/Bluetooth® FEM   | 180<br>(@ 19 dBm @ 3.6 V)                   | –                                      | 19                                     | 26                | 16-pin QFN<br>2.5 x 2.5 x 0.45 |
|  <b>SKY85309-11</b> | 2.4–2.5         | 802.11ac             | 1             | WLAN Front-End Module  | TBD   | –                                      | TBD                                    | TBD               | 24-pin QFN<br>3 x 5 x 0.85     |

### 5 GHz Front-end Modules







| Part Number | Frequency (GHz) | 802.11 WLAN Standard | Antenna Ports | Architecture                               | Typ. Current @ V <sub>CC</sub> = 3.3 V (mA) | Typ. Current @ V <sub>CC</sub> = 5 V (mA) | Typ. P <sub>OUT</sub> @ 3.0% EVM (dBm) | Typ. Tx Gain (dB) | V <sub>CC</sub> (V) | Package (mm)              |
|-------------|-----------------|----------------------|---------------|--|---|---|--|-------------------|---------------------|---------------------------|
| SE5006L     | 4.9–5.85        | a                    | 1             | 5 GHz Front-end Module with Power Detector | 195   | –   | 17                                     | 31                | –                   | 16-pin QFN<br>3 x 3 x 0.9 |
| SE5007BT    | 4.9–5.85        | a<br>g<br>n          | 1             | 5 GHz Front-end Module with Power Detector | 195   | –   | 17                                     | 31                | –                   | 16-pin QFN<br>3 x 3 x 0.9 |
| SE5007T     | 4.9–5.85        | a                    | 1             | 5 GHz Front-end Module with Power Detector | 195   | –   | 17                                     | 30                | –                   | 16-pin QFN<br>3 x 3 x 0.6 |

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## WiFi Connectivity

## 5 GHz Front-end Modules (Continued)

| Part Number  | Frequency (GHz) | 802.11 WLAN Standard | Antenna Ports | Architecture  | Typ. Current @ V <sub>CC</sub> = 3.3 V (mA) | Typ. Current @ V <sub>CC</sub> = 5 V (mA) | Typ. P <sub>OUT</sub> @ 3.0% EVM (dBm)      | Typ. Tx Gain (dB) | V <sub>CC</sub> (V) | Package (mm)                   |
|--|-----------------|----------------------|---------------|---|---|---|---|-------------------|---------------------|--------------------------------|
| SE5012T  | 4.9–5.85        | a                    | 1             | 5 GHz Front-end Module with Power Detector  | 195   | -270                                      | 17<br>21                                    | TBD               | 3.3<br>5            | 16-pin QFN<br>3 x 3 x 0.6      |
| SKY65535-11  | 5.15–5.95       | a                    | 1             | Integrated High Performance 5 GHz PA with Harmonic Filter, LNA with Bypass, and SPDT Switch | 175<br>(@ 17.5 dBm)                         | –   | 17.5<br>(@ 3 EVM)                           | 29                | –                   | 16-pin QFN<br>2.5 x 2.5 x 0.45 |
|  SKY85601-11          | 4.9–5.9         | a/n                  | 1             | 5 GHz Front-end Module  | TBD   | –   | TBD   | TBD               | 3.0–3.6             | 16-pin QFN<br>2.5 x 2.5 x .045 |
| SKY85702-11  | 4.9–5.85        | n<br>ac              | 1             | 5 GHz Front-end Module  | 250<br>(@ 19 dBm<br>@ 3.6 V)                | –   | 18<br>(802.11n)<br>16 (1.8%<br>EVM, 11ac)   | 28                | 3.0–4.2             | 16-pin QFN<br>2.5 x 2.5 x .045 |
| SKY85703-11  | 5.15–5.85       | ac                   | 1             | 5 GHz Front-end Module  | TBD   | TBD                                       | TBD   | 28                | 3.0–3.6             | 16-pin QFN<br>3 x 3 x 0.55     |
|  SKY85706-11          | 5.15–5.85       | n<br>ac              | 1             | 5 GHz Front-end Module  | 220<br>(@ 15.5 dBm<br>@ 3.6 V)              | –   | 18<br>(802.11n)<br>15.5 (1.8%<br>EVM, 11ac) | 30                | 3.0–4.6             | 16-pin QFN<br>2.5 x 2.5 x .045 |
| SKY85707-21  | 4.9–5.85        | n<br>ac              | 1             | 5 GHz Front-end Module  | 240<br>(@ 17 dBm<br>@ 3.6 V)                | –   | 17<br>(802.11n)<br>15 (1.8%<br>EVM, 11ac)   | 28                | 3.2–4.6             | 16-pin QFN<br>2.5 x 2.5 x .040 |
|  SKY85709-11        | 4.9–5.25        | n<br>ac              | 1             | 5 GHz Front-end Module with Integrated PA, LNA with Bypass and SPDT                         | 260<br>(@ 19 dBm<br>@ 3.6 V)                | –   | 18<br>(802.11n)<br>16 (1.5%<br>EVM, 11ac)   | 30                | 3.0–4.8             | 16-pin QFN<br>2.5 x 2.5 x .045 |
|  <b>SKY85710-11</b> | 5.15–5.85       | 802.11ac             | 1             | WLAN Front-End Module   |   | TBD                                       |   | TBD               | 5                   | 24-pin QFN<br>3 x 5 x 0.85     |
|  <b>SKY85712-11</b> | 5.15–5.85       | 802.11ac             | 1             | 5 GHz WLAN Front-End Module   | 220<br>(11ac,<br>17 dBm)                    |   | 18<br>(3% EVM)                              | 27                | 3.3                 | 16-pin QFN<br>3.0 x 3.0 x 0.55 |
|  <b>SKY85712-21</b> | 5.15–5.85       | 802.11ac             | 1             | 5 GHz WLAN Front-End Module   |   | 275<br>(11ac,<br>19 dBm)                  | 20<br>(3% EVM)                              | 27                | 5                   | 16-pin QFN<br>3.0 x 3.0 x 0.55 |











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## WiFi Connectivity

### Dual-band Front-end Modules

| Part Number | Frequency (GHz)        | 802.11 WLAN Standard | Antenna Ports | Architecture                                 | Typ. Current @ V <sub>CC</sub> = 3.3 V (mA) | Typ. P <sub>OUT</sub> @ 2.5% EVM (dBm) | Typ. P <sub>OUT</sub> @ 3.0% EVM (dBm) | Typ. Tx Gain (dB) | Package (mm)              |
|-------------|------------------------|----------------------|---------------|--|---|--|--|-------------------|---------------------------|
| SE2547A     | 4.9–5.875<br>2.4–2.5   | a                    | 2             | Dual-band<br>802.11a/b/g/n<br>WLAN Front End | 170   | –                                      | 16.5                                   | 24                | 32-pin LGA<br>5 x 5 x 1   |
|             |                        | b                    |               |  | 250   |  | 21.0                                   | 26                |                           |
|             |                        | g                    |               |  | 170   |  | 18.0                                   | 26                |                           |
| SE2548A     | 4.9–5.875<br>2.4–2.5   | a                    | 1             | Dual-band<br>802.11a/b/g/n<br>WLAN Front End | 175   | –                                      | 16.5                                   | 24                | 32-pin LGA<br>5 x 5 x 1   |
|             |                        | b                    |               |  | 250   |  | 21.0                                   | 26                |                           |
|             |                        | g                    |               |  | 170   |  | 18.0                                   | 26                |                           |
| SE2577L     | 4.9–5.875<br>2.4–2.5   | a<br>b<br>g<br>n     | 1             | Dual Band<br>802.11a/b/g/n<br>WLAN Front End | –   | –                                      | –                                      | –                 | 20-pin QFN<br>3 x 3 x 0.9 |
| SE2593A20   | 4.9–5.85<br>2.4–2.5    | a                    | 1             | Dual-band 802.11n<br>WLAN Front End          | 180   | –                                      | 16.0                                   | 28                | 30-pin LGA<br>5 x 6 x 1   |
|             |                        | b                    |               |  | –   |  | 20.0                                   | 30                |                           |
|             |                        | g                    |               |  | 180   |  | 18.0                                   | 30                |                           |
| SE2594L     | 4.9–5.875<br>2.4–2.5   | a                    | 1             | Dual-band<br>802.11a/b/g/n<br>WLAN Front End | 220   | –                                      | 16.5                                   | 24                | 32-pin QFN<br>5 x 5 x 0.9 |
|             |                        | b                    |               |  | 180   |  | 21.0                                   | 27                |                           |
|             |                        | g                    |               |  | 150   |  | 18.0                                   | 27                |                           |
| SE2595L     | 4.9–5.85<br>2.4–2.485  | a                    | 1             | Dual-band 802.11n<br>WLAN Front End          | 230   | –                                      | 16.0                                   | 23                | 32-pin QFN<br>5 x 5 x 0.9 |
|             |                        | b                    |               |  | TBD   |  | 20.0                                   | 26                |                           |
|             |                        | g                    |               |  | 180   |  | 18.0                                   | 26                |                           |
| SE5501L     | 5.15–5.85<br>2.4–2.485 | a                    | 2             | Dual-band 802.11n<br>WLAN/BT Front End       | 190   | –                                      | 18.0                                   | 18                | 30-pin QFN<br>3 x 5 x 0.9 |
|             |                        | g                    |               |  | 130   |  | 20.0                                   | 22                |                           |
| SE5502L     | 4.9–5.875<br>2.4–2.5   | a                    | 1             | Dual-band<br>802.11a/b/g/n<br>WLAN Front End | 210   | –                                      | 16.0                                   | 26                | 24-pin QFN<br>4 x 4 x 0.9 |
|             |                        | b                    |               |  | 175   |  | 21.0                                   | 28                |                           |
|             |                        | g                    |               |  | 150   |  | 18.0                                   | 28                |                           |
| SE5503A     | 4.9–5.9<br>2.4–2.5     | a                    | 1             | Dual-band<br>802.11a/b/g/n<br>WLAN Front End | 220   | –                                      | 16.0                                   | 24                | 24-pin LGA<br>4 x 4 x 1.0 |
|             |                        | b                    |               |  | 190   |  | 21.0                                   | 27                |                           |
|             |                        | g                    |               |  | 150   |  | 18.0                                   | 27                |                           |
| SE5510T     | 4.9–5.9<br>2.4–2.5     | a                    | 2             | Dual-band 802.11n<br>WLAN/BT Front End       | 205   | –                                      | 18.0                                   | 26                | 28-pin QFN<br>3 x 4 x 0.6 |
|             |                        | g                    |               |  | 190   |  | 20.0                                   | 26                |                           |
| SE5511T     | 4.9–5.9<br>2.4–2.5     | a                    | 2             | Dual-band 802.11n<br>WLAN/BT Front End       | 205   | –                                      | 18.0                                   | 26                | 28-pin QFN<br>3 x 4 x 0.6 |
|             |                        | g                    |               |  | 190   |  | 20.0                                   | 26                |                           |
| SE5512L     | 4.9–5.85<br>2.4–2.5    | a                    | 1             | Dual-band<br>802.11a/b/g/n<br>WLAN Front End | 210   | –                                      | 16.0                                   | –                 | 24-pin QFN<br>4 x 4 x 0.9 |
|             |                        | b                    |               |  | 175   |  | 19.0                                   |                   |                           |
|             |                        | g                    |               |  | 150   |  | 18.0                                   |                   |                           |
| SE5516A     | 2.4–2.5<br>4.9–5.9     | a                    | 1             | 802.11a/g/n/ac<br>Wireless LAN<br>Front End  | 220   | 16                                     | –                                      | 25–30             | 24-pin LGA<br>4 x 4 x 1.0 |
|             |                        | b                    |               |  | 205   | 21                                     |  |                   |                           |
|             |                        | g                    |               |  | 185   | 18                                     |  |                   |                           |
|             |                        | n (2G)               |               |  | TBD   | 18 (@ 3.0% EVM)                        |  |                   |                           |
|             |                        | n (5G)               |               |  | TBD   | 16 (@ 3.0% EVM)                        |  |                   |                           |
|             |                        | ac (2G)              |               |  | 155   | 16 (@ 1.8% EVM)                        |  |                   |                           |
| ac (5G)     | 190                    | 13 (@ 1.8% EVM)      |               |  |   |  |  |                   |                           |
| SKY85803    | 2.4–2.5<br>4.9–5.9     | a                    | 1             | 802.11a/b/g/n/ac<br>WLAN Front End           | TBD   | TBD                                    | –                                      | TBD               | 24-pin LGA<br>4 x 4 x 1.0 |
|             |                        | b                    |               |  |   |  |  |                   |                           |
|             |                        | g                    |               |  |   |  |  |                   |                           |
|             |                        | n                    |               |  |   |  |  |                   |                           |
|             |                        | ac                   |               |  |   |  |  |                   |                           |

## Smart Energy—Connected Home and Automation 802.15.4, ISM, and ZigBee®

| Part Number   | RF Frequency (MHz) | Typ. Rx Insertion Loss (dB) | Typ. Rx Gain (dB) | Typ. Rx NF (dB) | Tx Gain (dB) | Typ. Saturated Output Power (dBm) | Supply Voltage (V) | Package (mm)               |
|---|--------------------|-----------------------------|-------------------|-----------------|--------------|-----------------------------------|--------------------|----------------------------|
| SE2431L   | 2400–2500          | 2.0                         | 12.5              | 2.0             | 23.0         | 24.0                              | 2.0–3.6            | 24-pin QFN<br>3 x 4 x 0.9  |
| SE2432L   | 2400–2500          | 3.0                         | 11.5              | 2.0             | 22.0         | 24.0                              | 2.0–3.6            | 24-pin QFN<br>3 x 4 x 0.9  |
| SE2435L   | 860–930            | 2.0                         | 16.0              | 2.0             | 28.0         | 31.5                              | 2.0–4.8            | 24-pin QFN<br>4 x 4 x 0.9  |
| SE2436L   | 2400–2500          | 3.0                         | 11.5              | 2.5             | 28.0         | 27.0                              | 2.0–4.8            | 24-pin QFN<br>4 x 4 x 0.9  |
| SE2438T   | 2400–2500          | 3.5                         | 10.5              | 3.5             | 16.0         | 16.0                              | 2.0–3.6            | 20-pin QFN<br>3 x 3 x 0.55 |
| SE2442L   | 902–928            | 0.7                         | -0.7              | 0.7             | 28.0         | 31.5                              | 2.0–4.8            | 24-pin QFN<br>4 x 4 x 0.9  |
|  SKY65313-21   | 860–900            | –                           | 16.1              | 1.9             | 20.5         | 30.5                              | 3.3                | 28-pin MCM<br>6 x 6 x 0.9  |
| SKY65326-11   | 380–500            | 0.5                         | –                 | –               | 34.0         | 30.7                              | 3.6                | 12-pin MCM<br>8 x 8 x 1.35 |
| SKY65336-11   | 2400–2500          | –                           | 10.5              | 2.0             | 17/7         | 20/10                             | 3                  | 28-pin MCM<br>8 x 8 x 1.3  |
| SKY65337-11   | 2400–2500          | 1.6                         | –                 | –               | 17/7         | 20.1/10.5                         | 3                  | 28-pin MCM<br>8 x 8 x 1.3  |
| SKY65338-21   | 450–470            | 0.6                         | –                 | –               | 32.0         | 27.0                              | 3.6                | 12-pin MCM<br>8 x 8 x 1.35 |
| SKY65342-11   | 450–470            | 0.6                         | –                 | –               | 34.6         | 29.1                              | 3.6                | 12-pin MCM<br>8 x 8 x 1.35 |
| SKY65343-11   | 2400–2500          | 1.6                         | –                 | –               | 17.0         | 20.0                              | 3.3                | 20-pin MCM<br>6 x 6 x 1.3  |
| SKY65344-21   | 2400–2500          | –                           | 10.0              | 2.2             | 17.0         | 20.0                              | 3.3                | 20-pin MCM<br>6 x 6 x 1.3  |
| SKY65352-11   | 2400–2500          | –                           | 8.2               | 2.2             | 17.0         | 20.0                              | 3.3                | 20-pin MCM<br>6 x 6 x 1.3  |
|  SKY65364-11 | 890–960            | 0.9                         | 15.0              | 1.7             | 22.0         | 30.5                              | 3.0–3.8            | 28-pin MCM<br>6 x 6 x 0.9  |
|  SKY65366-11 | 400–500            | 0.3                         | 22.5              | 1.5             | 22.0         | 30.2                              | 3.0–3.8            | 28-pin MCM<br>6 x 6 x 0.9  |
|  SKY65367-11 | 169–170            | 0.7                         | -0.7              | -0.7            | 35.0         | 30.0                              | 3.3                | 16-pin MCM<br>4 x 4 x 0.9  |
|  SKY65378-11 | 860–930            | -1.5                        | 17.0              | 2.0             | -1.5         | N/A                               | 2.0–4.8            | 24-pin QFN<br>4 x 4 x 0.9  |
|  SKY66100-11 | 169–170            | 0.4                         | -0.5              | –               | 30.0         | 24.0                              | 2.0–3.6            | 16-pin MCM<br>4 x 4 x 0.9  |
|  SKY66101-11 | 902–928            | –                           | 16                | 2.5             | 33           | 30                                | 2.0–4.8            | 36-pin MCM<br>6 x 6 x 0.9  |
|  SKY66104-11 | 1787–1930          | 0.7                         | –                 | –               | 29           | 25                                | 3.0–4.5            | 24-pin MCM<br>4 x 4 x 0.9  |
|  SKY66108    | 2400–2500          | 3.5                         | 10.5              | 3.5             | 16           | 16                                | 2.0–3–6            | 20-pin QFN<br>3 x 3 x 0.55 |
|  SKY66109-11 | 2400–2483          | –                           | 11.5              | 2.0             | 22           | 21                                | 2.0–3.6            | 20-pin MCM<br>3 x 4 x 0.9  |

### BDS / GPS / GNSS Front-end Modules


| Part Number | Frequency (MHz) | Test Frequency (MHz) | Description   | Gain (dB) | V <sub>DD</sub> (V) | IP <sub>1</sub> dB (dBm) | NF (dB) | Package (mm)                  |
|-------------|-----------------|----------------------|---|-----------|---------------------|--------------------------|---------|-------------------------------|
| SKY65702-11 | 1565–1606       | 1575                 | GPS/GNSS Pre-filter + LNA Front-end Module                | 13.5      | 2.85                | -5.6                     | 1.8     | 8-pin MCM<br>2.0 x 2.5 x 1.0  |
| SKY65704-22 | 1565–1606       | 1575                 | GPS/GNSS Pre-filter + LNA Front-end Module with B13 Notch | 14.0      | 1.8                 | -7                       | 2.5     | 10-pin MCM<br>2.8 x 2.5 x 0.7 |
| SKY65708-11 | 1565–1606       | 1575                 | GPS/GNSS Pre-filter + LNA Front-end Module with B13 Notch | 13.9      | 2.85                | -7                       | 1.95    | 6-pin MCM<br>1.7 x 2.3 x 0.7  |
| SKY65708-51 | 1565–1606       | 1575                 | GPS/GNSS Pre-filter + LNA Front-end Module                | 14.4      | 2.85                | -4.5                     | 1.75    | 6-pin MCM<br>1.7 x 2.3 x 0.8  |
| SKY65709-51 | 1565–1606       | 1575                 | GPS/GNSS Pre-filter + LNA Front-end Module                | 14.5      | 2.85                | -10                      | 2.0     | 6-pin MCM<br>1.7 x 2.3 x 0.7  |
| SKY65709-81 | 1561–1606       | 1575                 | BDS/GPS/GNSS Pre-filter + LNA Front-end Module            | 14.5      | 2.85                | -10                      | 1.9     | 6-pin MCM<br>1.7 x 2.3 x 0.7  |

### MIXERS

#### Single Channel Mixers

| Part Number    | RF Frequency (MHz) | IF Frequency (MHz) | Gain (dB) | IIP3 (dBm) | OIP3 (dBm) | IP <sub>1</sub> dB (dBm) | NF (dB) | Package (mm)            |
|----------------|--------------------|--------------------|-----------|------------|------------|--------------------------|---------|-------------------------|
| SKY42068-355LF | 400–1000           | 50–250             | 3.0       | 34.5       | 38.3       | 18.6                     | 10.0    | 20-pin QFN 5 x 5 x 0.9  |
| SKY73032       | 700–1000           | 40–300             | 9.5       | 27.0       | 36.5       | 13.3                     | 8.3     | 20-pin MCM 5 x 5 x 1.1  |
| SKY73033-11    | 1700–2200          | 40–300             | 8.9       | 24.0       | 32.9       | 13.5                     | 9.4     | 20-pin MCM 5 x 5 x 1.1  |
| SKY73035-11    | 2300–2700          | 50–500             | 7.6       | 25.0       | 32.6       | 13.5                     | 9.8     | 20-pin MCM 5 x 5 x 1.1  |
| SKY73049-350LF | 200–5000           | 50–500             | –         | 27.0       | –          | 7.0                      | 14.0    | 16-pin QFN 3 x 3 x 0.75 |
| SKY73070       | 700–1000           | 40–300             | 9.5       | 27.0       | 36.5       | 13.3                     | 8.3     | 20-pin MCM 5 x 5 x 1.1  |

## Diversity Downconverter Mixers

| Part Number  | RF Frequency (MHz) | IF Frequency (MHz) | Gain (dB) | IIP3 (dBm) | OIP3 (dBm) | IP <sub>1</sub> dB (dBm) | NF (dB) | Package (mm)            |
|--|--------------------|--------------------|-----------|------------|------------|--------------------------|---------|-------------------------|
| SKY73020-11  | 700–1000           | 50–250             | 7.0       | 27.0       | 34.0       | 16.5                     | 10.2    | 36-pin MCM 6 x 6 x 1.45 |
| SKY73021   | 1700–2200          | 50–500             | 8.6       | 23.5       | 32.1       | 12.3                     | 9.8     | 36-pin MCM 6 x 6 x 1.1  |
| SKY73022-11  | 700–1000           | 40–300             | 9.4       | 25.3       | 34.7       | 13.3                     | 9.0     | 36-pin MCM 6 x 6 x 1.1  |
| SKY73023-11  | 1700–2200          | 40–300             | 9.7       | 25.7       | 35.4       | 13.6                     | 9.9     | 36-pin MCM 6 x 6 x 1.1  |
| SKY73025-11  | 2300–2700          | 40–300             | 9.4       | 25.3       | 34.7       | 13.3                     | 9.0     | 36-pin MCM 6 x 6 x 1.1  |
|  SKY73075-21  | 2300–2400          | 50–500             | 8.9       | 25.3       | 34.2       | 13.3                     | 8.8     | 20-pin MCM 5 x 5 x 1.05 |
|  SKY73084-11  | 300–500            | 50–250             | 9.8       | 25.2       | 35.0       | 13.2                     | 9.4     | 36-pin MCM 6 x 6 x 1.1  |
|  SKY73085-11  | 390–500            | 40–250             | 9.3       | 24.9       | 35.2       | 12.9                     | 9.3     | 36-pin MCM 6 x 6 x 1.1  |
|  SKY73086     | 650–900            | 100–500            | 8.7       | 24.4       | 33.1       | 12.0                     | 11.0    | 36-pin MCM 6 x 6 x 1.1  |
|  SKY73087-11  | 700–1000           | 100–500            | 8.8       | 25.3       | 34.1       | 12.7                     | 10.7    | 36-pin MCM 6 x 6 x 1.05 |
|  SKY73089-11  | 1200–1700          | 50–500             | 9.3       | 26.8       | 36.1       | 13.9                     | 9.3     | 36-pin MCM 6 x 6 x 1.1  |
|  SKY73090-21  | 1700–2200          | 50–500             | 8.7       | 24.2       | 32.8       | 13.3                     | 9.4     | 36-pin MCM 6 x 6 x 1.05 |
|  SKY73420-11  | 650–950            | 150–400            | 8.1       | 25.6       | 33.7       | 13.0                     | 9.3     | 36-pin QFN 6 x 6 x 0.85 |
|  SKY73421-11  | 1400–2000          | 150–320            | 9.0       | 29.5       | 38.5       | 12.6                     | 9.0     | 36-pin QFN 6 x 6 x 0.85 |
|  SKY73422-11 | 1700–2200          | 100–400            | 9.0       | 28.0       | 37.0       | 13.0                     | 8.9     | 36-pin QFN 6 x 6 x 0.85 |

## Upconversion / Downconversion Mixers

| Part Number    | IF Frequency (MHz) | RF Frequency (MHz) | IIP3 (dBm) | IP <sub>1</sub> dB (dBm) | NF (dB) | Package (mm)            |
|----------------|--------------------|--------------------|------------|--------------------------|---------|-------------------------|
| SKY73049-350LF | 50–500             | 200–5000           | 27.0       | 7.0                      | 14.0    | 16-pin QFN 3 x 3 x 0.75 |
| SKY73062-11    | 50–300             | 700–1000           | 32.6       | 20.0                     | 7.5     | 20-pin MCM 5 x 5 x 1.05 |
| SKY73063       | 100–200            | 1700–2100          | 30.7       | 19.0                     | 6.8     | 20-pin MCM 5 x 5 x 1.05 |
| SKY73069-11    | 50–300             | 700–1000           | 31.5       | 20.9                     | 6.8     | 20-pin MCM 5 x 5 x 1.05 |

## MODULATORS / DEMODULATORS

### Broadband Direct Quadrature Modulators

| Part Number    | RF Frequency Range (MHz) | Broadband Noise Floor (dBm/Hz) | Package (mm)        |
|----------------|--------------------------|--------------------------------|---------------------|
| SKY73077-459LF | 1500–2700                | -158                           | QFN 24L 4 x 4 x 0.9 |
| SKY73078-459LF | 500–1500                 | -158                           | QFN 24L 4 x 4 x 0.9 |
| SKY73092-459LF | 400–6000                 | -161                           | QFN 24L 4 x 4 x 0.9 |

### Broadband Direct Quadrature Demodulator

| Part Number | RF Input Frequency Range (MHz) | IF Input Frequency Range (MHz) | Voltage (V) | IIP2 (dBm)   | IIP3 (dBm)   | Voltage Conversion Gain (dB) | Package (mm)              |
|-------------|--------------------------------|--------------------------------|-------------|--------------|--------------|------------------------------|---------------------------|
| SKY73012    | 400–3900                       | DC–250                         | 3.0         | 60 @ 900 MHz | 29 @ 900 MHz | 1 @ 900 MHz                  | 32-pin RFLGA<br>5 x 5 x 1 |

### Mixer Modules with Built-in Voltage Controlled Oscillators (VCOs)

| Part Number | Operating Frequency (MHz) | IF Frequency (MHz) | Architecture | Power Down | Built-In LO Drivers | Built-In PLL/VCO | Conversion Gain | IIP3 (dBm) | V <sub>CC</sub> (V) | NF (dB) | Package (mm)                |
|-------------|---------------------------|--------------------|--------------|------------|---------------------|------------------|-----------------|------------|---------------------|---------|-----------------------------|
| SKY73208-11 | 350–5000                  | 50–500             | Single       | Yes        | Yes                 | Integer-N        | 6               | 26         | 5                   | 14      | 36-pin MCM<br>6 x 6 x 1.35  |
| SKY73212-11 | 1700–2000                 | 40–300             | Diversity    | Yes        | Yes                 | Integer-N        | 9               | 24         | 5                   | 11      | 44-pin MCM<br>10 x 6 x 1.05 |

## OPTOCOUPERS AND OPTOISOLATORS



Isolink, Inc., a subsidiary of Skyworks Solutions, Inc., is the leading supplier of high performance and high quality optoelectronic radiation tolerant components worldwide. Isolink's mission is to provide products and services to the high-reliability, military, aerospace, hybrid, industrial, medical, and telecommunications markets. The company specializes in the manufacture of high-performance miniature hybrids and hermetically sealed devices. Isolink pioneered the miniaturization of some of the most advanced optoelectronic components. Our expertise in optoelectronic components enables us to make products of high quality, achieving high isolation voltages. A hallmark of Isolink's products is high common mode rejection and radiation tolerance for high demand environments.

Isolink is committed to providing excellent products and services to its customers, and to serving as an extension of the customer's engineering and manufacturing resources. Isolink strives for a customer/vendor relationship aimed at optimizing product performance, quality, and cost. We meet and exceed customer expectations, and are committed to delivering excellence.

Isolink works with customers from program inception to the final implementation of the most demanding design and application challenges. We are proud to provide innovative products and custom solutions with uncompromising quality and on-time delivery.

Founded by veterans in the optoelectronics industry, Isolink is headquartered in Milpitas, California.

For more information, or for customer support, please visit the Isolink Web site at [www.isolink.com](http://www.isolink.com)

**PLLs / SYNTHESIZERS / VCOs**

**High Performance VCOs / Synthesizers**

| Part Number | RF Output Frequency Range (MHz) | Output Power (dBm) | Phase Noise @ 200 kHz (dBc/Hz) | Phase Noise @ 800 kHz (dBc/Hz) | Phase Settling Time (µs) | Current Consumption (mA) | Supply Voltage (V) | Package (mm)                  |
|-------------|---------------------------------|--------------------|--------------------------------|--------------------------------|--------------------------|--------------------------|--------------------|-------------------------------|
| SKY73100    | 865–960                         | -0.3               | -125                           | -147                           | 340                      | 110                      | 5.0                | 38-pin MCM<br>9 x 12 x 1.7    |
| SKY73101-11 | 1930–1990                       | -10.0              | -112                           | -139                           | 300                      | 120                      | 5.0                | 38-pin MCM<br>9 x 12 x 1.7    |
| SKY73103-11 | 1460–1665                       | -10.8              | -126                           | -143                           | 300                      | 114                      | 5.0                | 38-pin MCM<br>9 x 12 x 1.7    |
| SKY73112-11 | 750–850                         | 0                  | -128                           | -151                           | 300                      | 110                      | 5.0                | 38-pin MCM<br>9 x 12 x 1.7    |
| SKY73120    | 890–960                         | 0                  | -124                           | -144                           | –                        | 26                       | 3.0                | 28-pin MCM<br>6 x 6 x 0.9     |
| SKY73121-11 | 1805–1890                       | -10.0              | -126                           | -142                           | 227                      | 114                      | 5.0                | 38-pin MCM<br>9 x 12 x 1.7    |
| SKY73126-31 | 160–165                         | 10.0               | -141.9                         | -153.1                         | 5000 Max.                | 72                       | 5.0                | 16-pin MCM<br>11.4 x 15 x 2.7 |
| SKY73134-11 | 350–6000                        | –                  | -108 @ 2.7 GHz                 | -134 @ 2.7 GHz                 | –                        | 120                      | 3.3                | 32-pin RFLGA<br>5 x 5 x 1     |

**Single Fractional-N Synthesizer**

| Part Number    | Main Synthesizer Frequency (MHz) | Main Synthesizer Phase Noise (dBc/Hz) | Supply Voltage (V) | Package (mm)           |
|----------------|----------------------------------|---------------------------------------|--------------------|------------------------|
| SKY72310-362LF | 100–2100                         | -91 @ 1800 MHz                        | 2.7–3.3            | 24-pin QFN 4 x 4 x 0.9 |

**Dual Fractional-N Synthesizers**

| Part Number  | Main Synthesizer Frequency (MHz) | Auxiliary Synthesizer Frequency (MHz) | Main Synthesizer Phase Noise (dBc/Hz) | Supply Voltage (V) | Package (mm)                    |
|--------------|----------------------------------|---------------------------------------|---------------------------------------|--------------------|---------------------------------|
| SKY72300-21  | 100–2100                         | 100–500                               | -91 @ 1800 MHz                        | 2.7–3.3            | 28-pin EP-TSSOP 9.7 x 6.4 x 1.1 |
| SKY72300-362 | 100–2100                         | 100–500                               | -91 @ 1800 MHz                        | 2.7–3.3            | 24-pin QFN 4 x 4 x 0.9          |
| SKY72301-22  | 100–1000                         | 100–500                               | -96 @ 950 MHz                         | 2.7–3.3            | 28-pin EP-TSSOP 9.7 x 6.4 x 1.1 |
| SKY74038-21  | 100–2600                         | 1–800                                 | -85 @ 2500 MHz                        | 2.6–3.6            | 20-pin TSSOP 6.5 x 4.4 x 1.1    |



## POWER MANAGEMENT

In January 2012, Skyworks completed its acquisition of Advanced Analogic Technologies, Inc. (AATI), an analog semiconductor company focused on enabling energy-efficient devices for consumer electronics, computing, and communications markets. This acquisition expands Skyworks' portfolio with highly complementary analog semiconductor products including battery chargers, DC/DC converters, voltage regulators, and LED drivers. It also enables Skyworks to further capitalize on its strong smartphone, tablet, set-top box, and infrastructure positions with an expanded and differentiated product portfolio while accelerating entry into new vertical markets.

Skyworks is committed to developing and delivering products of unprecedented integration that improves our customers' performance in the increasingly connected wireless world.

### Audio

| Part Number | Number of Channels | Output Power (W) | Half Power THD+N @ 1 kHz (%) (kHz) | Min. Load ( $\Omega$ ) | Typ. IQ per Channel (mA) | I <sub>SD</sub> ( $\mu$ A) | PSRR (dB) | V <sub>IN</sub> (V) | Package (mm)  |
|-------------|--------------------|------------------|------------------------------------|------------------------|--------------------------|----------------------------|-----------|---------------------|---|
| AAT5101     | N/A                | N/A              | N/A                                | N/A                    | N/A                      | N/A                        | -60       | -0.3–28             | —   |
| AAT5102     | 2                  | 2.5              | 0.03%                              | 4                      | 4.28                     | 0.1                        | -60       | 2.5–5.5             | WLCSP-16 16L 1.645 x 1.645 x 0.595, QFN3316 16L 3 x 3 x 0.9 |

### Battery Chargers

#### Charging FET

| Part Number | BV <sub>DSS</sub> (V) | Configuration | Max. I <sub>D</sub> (A) | P <sub>D</sub> (W) | R <sub>DS(ON)</sub> @ V <sub>GS</sub> = -2.5 V (m $\Omega$ ) | R <sub>DS(ON)</sub> @ V <sub>GS</sub> = -4.5 V (m $\Omega$ ) | Typical Gate Charge Q <sub>G</sub> (nC) | Package (mm)            |
|-------------|-----------------------|---------------|-------------------------|--------------------|--|--|---|-------------------------|
| AAT4681     | -20                   | Single P      | $\pm$ 7.0               | 2                  | N/A  | 18   | -13.6                                   | TDFN33 10L 3 x 3 x 0.75 |

#### Linear Chargers

| Part Number | Number of Cells | Max. Protected V <sub>IN</sub> (V) | Max. Charging V <sub>IN</sub> (V) | Max. Charge Current (mA) | Number of Input Channels | Dynamic Power Mgmt | Automatic Charge Reduction | Active Digital Thermal Loop Control | Charge Rate Control | Package (mm)          |
|-------------|-----------------|------------------------------------|-----------------------------------|--------------------------|--------------------------|--------------------|----------------------------|-------------------------------------|---------------------|-----------------------|
| AAT3663     | 1/2             | N/A                                | 13.20                             | 1000                     | USB or AC Adaptor        | No                 | No                         | Yes                                 | External Resistor   | TDFN 14L 3 x 3 x 0.75 |
| AAT3670     | 1               | N/A                                | 5.50                              | 1600                     | USB and AC Adaptor       | Yes                | Yes                        | Yes                                 | External Resistor   | QFN 24L 4 x 4 x 0.90  |
| AAT3672     | 1               | N/A                                | 6.50                              | 1600                     | USB or AC Adaptor        | Yes                | Yes                        | Yes                                 | External Resistor   | TDFN 14L 3 x 3 x 0.75 |
| AAT3673     | 1               | N/A                                | 6.50                              | 1600                     | USB or AC Adaptor        | Yes                | Yes                        | Yes                                 | External Resistor   | TDFN 16L 4 x 4 x 0.8  |


## Battery Chargers

### Linear Chargers (Continued)





| Part Number | Number of Cells | Max. Protected $V_{IN}$ (V) | Max. Charging $V_{IN}$ (V) | Max. Charge Current (mA) | Number of Input Channels | Dynamic Power Mgmt | Automatic Charge Reduction | Active Digital Thermal Loop Control | Charge Rate Control | Package (mm)   |
|-------------|-----------------|-----------------------------|----------------------------|--------------------------|--------------------------|--------------------|----------------------------|-------------------------------------|---------------------|--|
| AAT3681     | 1               | N/A                         | 7.50                       | 300                      | USB or AC Adaptor        | No                 | No                         | No                                  | External Resistor   | SC70JW 8L 2.0 x 2.1 x 1.05   |
| AAT3681A    | 1               | N/A                         | 7.50                       | 500                      | USB or AC Adaptor        | No                 | No                         | No                                  | External Resistor   | SC70JW 8L 2.2 x 2.0 x 1.05   |
| AAT3682     | 1               | N/A                         | 6.00                       | 1000                     | AC Adaptor               | No                 | No                         | No                                  | External Resistor   | QFN44 16L 4 x 4 x 0.93   |
| AAT3683     | 1               | N/A                         | 7.50                       | 1000                     | USB or AC Adaptor        | No                 | No                         | Yes                                 | External Resistor   | STDFN 10L 2.2 x 2.2 x 0.55 (AAT3683-2), QFN33 16L 3 x 3 x 0.93 (AAT3683-4) |
| AAT3685     | 1               | N/A                         | 5.50                       | 1000                     | USB or AC Adaptor        | No                 | Yes                        | No                                  | External Resistors  | TDFN 12L 3 x 3 x 0.75  |
| AAT3686     | 1               | N/A                         | 5.50                       | 1500                     | USB and AC Adaptor       | No                 | Yes                        | Yes                                 | External Resistors  | TDFN34 16L 3 x 4 x 0.75  |
| AAT3687     | 1               | N/A                         | 5.50                       | 1500                     | USB or AC Adaptor        | No                 | Yes                        | No                                  | External Resistor   | TDFN 12L 3 x 3 x 0.75  |
| AAT3688     | 1               | N/A                         | 5.50                       | 500                      | USB or AC Adaptor        | No                 | Yes                        | No                                  | External Resistor   | TDFN 12L 3 x 3 x 0.75  |
| AAT3689     | 1               | N/A                         | 5.50                       | 1000                     | USB and AC Adaptor       | No                 | No                         | No                                  | External Resistor   | TDFN 12L 3 x 3 x 0.75  |
| AAT3690     | 1               | N/A                         | 5.50                       | 1000                     | USB and AC Adaptor       | No                 | Yes                        | Yes                                 | External Resistor   | TDFN 12L 3 x 3 x 0.75  |
| AAT3691     | 1               | 28                          | 6.75                       | 1600                     | USB or AC Adaptor        | No                 | Yes                        | Yes                                 | External Resistors  | TDFN 12L 3 x 3 x 0.75  |
| AAT3692     | 1               | 28                          | 7.20                       | 1600                     | USB or AC Adaptor        | No                 | Yes                        | Yes                                 | External Resistors  | TDFN 16L 3 x 4 x 0.75  |
| AAT3693     | 1               | N/A                         | 7.50                       | 1600                     | USB or AC Adaptor        | No                 | No                         | Yes                                 | External Resistors  | TDFN 10L 2.2 x 2.2 x 0.75  |
| AAT3696     | 1               | 28                          | 6.80                       | 1600                     | USB or AC Adaptor        | No                 | No                         | No                                  | External Resistors  | TDFN33 12L 3 x 3 x 0.75  |
| AAT3697     | 1               | N/A                         | 5.50                       | 2000                     | USB or AC Adaptor        | No                 | Yes                        | Yes                                 | External Resistor   | TDFN 12L 3 x 3 x 0.75  |
| AAT3698     | 1               | 28                          | 7.00                       | 1600                     | USB or AC Adaptor        | No                 | No                         | Yes                                 | External Resistor   | TDFN33 14L 3 x 3 x 0.75  |
| AAT3783     | 1               | 28                          | 7.50                       | 1000                     | USB or AC Adaptor        | No                 | No                         | Yes                                 | External Resistor   | TDFN 16L 3 x 4 x 0.75  |

## Battery Chargers

### Switching Chargers

| Part Number   | Number of Cells | Max. Protected $V_{IN}$ (V) | Max. Charging $V_{IN}$ (V) | Max. Charge Current (mA) | Number of Input Channels | Dynamic Power Mgmt. | Automatic Charge Reduction | Active Digital Thermal Loop Control | Charge Rate Control | Max. Switching Frequency (kHz) | Package (mm)             |
|---|-----------------|-----------------------------|----------------------------|--------------------------|--------------------------|---------------------|----------------------------|-------------------------------------|---------------------|--------------------------------|--------------------------|
|  AAT3620 | 1               | N/A                         | 6                          | 2000                     | USB or AC Adaptor        | No                  | No                         | No                                  | External Resistor   | 1500                           | TDFN 14L<br>3 x 3 x 0.75 |

### Supercap Chargers

| Part Number   | Number of Channels | Enable | Fault Flag | $I_{LIM}$  | Typ. $I_Q$ ( $\mu$ A) | Typ. $R_{DS(ON)}$ (m $\Omega$ ) | $V_{IN}$ (V) | Package (mm)                  |
|---|--------------------|--------|------------|------------|-----------------------|---------------------------------|--------------|-------------------------------|
|  AAT4620 | 1                  | Yes    | Yes        | Adj 1.2 A  | 40                    | 65                              | 3.0–5.5      | TSOPJW 12L<br>3 x 2.85 x 1.02 |
|  AAT4621 | 1                  | Yes    | Yes        | Adj 1.2 A  | 40                    | 65                              | 3.0–5.5      | TDFN 14L<br>3 x 3 x 0.75      |
|  AAT4710 | 1                  | No     | RDY        | 0.75–1.2 A | 70                    | 50                              | 2.5–5.5      | TDFN 16L<br>3 x 4 x 0.75      |
|  AAT4712 | 1                  | Yes    | POK; RDY   | 0.15–2.4 A | 70                    | 50                              | 2.5–5.5      | TDFN34 16L<br>3 x 4 x 0.75    |

## Voltage Regulation

### DC/DC Converters (Switching Regulators)

#### Step Up Converters

| Part Number | Min. $V_{IN}$ (V) | Max. $V_{IN}$ (V) | Min. $V_{OUT}$ (V) | Max. $V_{OUT}$ (V) | $I_{OUT}$ (mA) | $f_{osc}$ (kHz) | Typ. $I_Q$ ( $\mu$ A) | Package (mm)  |
|-------------|-------------------|-------------------|--------------------|--------------------|----------------|-----------------|-----------------------|---|
| AAT1210     | 2.7               | 5.50              | $V_{IN}$           | 18.0               | 900            | 2000            | 250                   | TDFN34 16L 3 x 4 x 0.75                               |
| AAT1217     | 0.5               | $V_{OUT}$         | 2.5                | 5.5                | 600            | 1200            | 300                   | TSOT-23 6L 2.9 x 2.8 x 1<br>SOT23 6L 2.85 x 2.8 x 1.2 |
| AAT1218     | 0.5               | 6.00              | 2.5                | 5.5                | 1000           | 1200            | 300                   | TDFN33 12L 3 x 3 x 0.75                               |
| AAT1219     | 2.4               | $V_{OUT} + 0.25$  | 3.0                | 5.0                | 2000<br>1200   | 1200            | 58                    | TDFN33 12L 3 x 3 x 0.75                               |
| AAT1230     | 2.7               | 5.50              | 18                 | 18.0               | 100            | 2000            | 40                    | TSOPJW 12L 3 x 2.85 x 1.02<br>TDFN34 16L 4 x 3 x 0.75 |
| AAT1232     | 2.7               | 5.50              | N/A                | 24.0               | 100            | 2000            | 40                    | TSOPJW 12L 3 x 2.85 x 1.02<br>TDFN34 16L 4 x 3 x 0.75 |
| AAT1275     | 2.7               | 5.00              | $V_{IN}$           | 5.5                | 500            | 2000            | 100                   | TSOPJW 12L 3 x 2.85 x 1.02<br>TDFN34 16L 4 x 3 x 0.75 |
| AAT1275A    | 2.7               | $V_{OUT}$         | $V_{IN}$           | 5.5                | 500            | 2000            | 100                   | TSOPJW 12L 3 x 2.85 x 1.02<br>TDFN34 16L 4 x 3 x 0.75 |
| AAT1276     | 2.7               | 5.00              | $V_{IN}$           | 5.5                | 500            | 2000            | 100                   | TSOPJW 12L 3 x 2.85 x 1.02<br>TDFN34 16L 4 x 3 x 0.75 |
| AAT2215     | 2.4               | 5.25              | 3.0                | 5.5                | 3000           | 600             | 55                    | TDFN33 12L 3 x 3 x 0.75                               |
| AAT2404     | 10.8              | 24.00             | $V_{IN} + 3$       | 100                | 5000           | 400             | 1000                  | TQFN34-24L 3 x 4 x 0.75                               |
| AAT3125     | 2.7               | 5.50              | 4.6                | 5.25               | 100            | 750             | 60                    | QFN44 16L 4 x 4 x 0.93                                |

#### Step Down Converters

| Part Number | Min. $V_{IN}$ (V) | Max. $V_{IN}$ (V) | Min. $V_{OUT}$ (V) | Max. $V_{OUT}$ (V) | $I_{OUT}$ (mA) | $f_{osc}$ (kHz) | Typ. $I_Q$ ( $\mu$ A) | Package (mm)   |
|-------------|-------------------|-------------------|--------------------|--------------------|----------------|-----------------|-----------------------|--|
| AAT1106     | 2.5               | 5.5               | 0.6                | $V_{IN}$           | 600            | 1500            | 270                   | TSOT23 5L 2.8 x 2.9 x 0.95                               |
| AAT1110     | 2.7               | 5.5               | 0.6                | $V_{IN}$           | 800            | 1400            | 27                    | SC70JW-8 2 x 2.1 x 1.1                                   |
| AAT1112     | 2.7               | 5.5               | 0.6                | $V_{IN}$           | 1500           | 1400            | 42                    | TDFN33 12L 3 x 3 x 0.75<br>TSOPJW 12L 3 x 2.85 x 1       |
| AAT1120     | 2.7               | 5.5               | 0.6                | $V_{IN}$           | 500            | 1500            | 30                    | STDFN 8L 2 x 2 x 0.55                                    |
| AAT1121     | 2.7               | 5.5               | 0.6                | $V_{IN}$           | 250            | 1500            | 30                    | TDFN 8L 2 x 2 x 0.85<br>STDFN22 8L 2 x 2 x 0.55          |
| AAT1123     | 2.7               | 5.5               | 0.6                | 0.6                | 600            | 1000            | 25                    | SC70JW 8L 2 x 2.1 x 1.1                                  |
| AAT1126     | 2.7               | 5.5               | 0.6                | 0.6                | 600            | 1000            | 25                    | SOT-23 5L 2.85 x 2.8 x 1.2                               |
| AAT1130     | 2.7               | 5.5               | 0.6                | 1.8                | 400            | 2500            | 60                    | SC70JW 10L 2 x 2.2 x 1.1                                 |
| AAT1138     | 2.5               | 5.5               | 0.6                | $V_{IN}$           | 2000           | 1200            | 300                   | TDFN 16L 3 x 4 x 0.75                                    |
| AAT1141     | 2.7               | 5.5               | 0.6                | $V_{IN}$           | 600            | 2000            | 35                    | SOT-23 5L 2.85 x 2.8 x 1.2<br>TSOT23 5L 2.9 x 2.8 x 0.95 |
| AAT1142     | 2.7               | 5.5               | 0.6                | 2.0                | 800            | 2200            | 35                    | TSOPJW 12L 3 x 2.85 x 1<br>TDFN33 12L 3 x 3 x 0.75       |
| AAT1143     | 2.7               | 5.5               | 0.6                | 0.6                | 400            | 1000            | 25                    | SC70JW 8L 2 x 2.1 x 1.1                                  |

## Voltage Regulation

### DC/DC Converters (Switching Regulators)

#### Step Down Converters (Continued)

| Part Number | Min. $V_{IN}$ (V) | Max. $V_{IN}$ (V) | Min. $V_{OUT}$ (V) | Max. $V_{OUT}$ (V) | $I_{OUT}$ (mA)  | $f_{osc}$ (kHz) | Typ. $I_Q$ ( $\mu$ A) | Package (mm)   |
|-------------|-------------------|-------------------|--------------------|--------------------|-----------------|-----------------|-----------------------|--|
| AAT1145     | 2.5               | 5.5               | 0.6                | $V_{IN}$           | 1500            | 1500            | 300                   | TDFN33 10L 3 x 3 x 0.75                                    |
| AAT1146     | 2.7               | 5.5               | 0.6                | $V_{IN}$           | 400             | 1400            | 27                    | SC70JW-8 2.0 x 2.1 x 1.1<br>SOT-23 5L 2.85 x 2.8 x 1.2     |
| AAT1147     | 2.7               | 5.5               | 0.6                | $V_{IN}$           | 400             | 1400            | 160                   | –  |
| AAT1149     | 2.7               | 5.5               | 1.000              | $V_{IN}$           | 400             | 3000            | 45                    | SC70JW 8L 2 x 2.1 x 1.05<br>WLCSP 5L 1.235 x 0.91 x 0.58   |
| AAT1149A    | 2.2               | 5.5               | 1.875              | 1.875              | 400             | 2200            | 3000                  | WLCSP 5L 1.235 x 0.91 x 0.58                               |
| AAT1149B    | 2.2               | 5.5               | 1.800              | 1.800              | 400             | 2200            | 45                    | WLCSP 5L 1.235 x 0.91 x 0.58                               |
| AAT1150     | 2.7               | 5.5               | 1.000              | 4.200              | 1000            | 1000            | 160                   | MSOP 8L 4.9 x 3 x 0.95                                     |
| AAT1151     | 2.7               | 5.5               | 1.000              | 4.200              | 700             | 850             | 210                   | MSOP 8L 4.9 x 3 x 0.95<br>QFN33 16L 3 x 3 x 0.9            |
| AAT1153     | 2.5               | 5.5               | 0.600              | $V_{IN}$           | 2000            | 1200            | 300                   | TDFN33 10L 3 x 3 x 0.75                                    |
| AAT1154     | 2.7               | 5.5               | 1.000              | 4.200              | 3000            | 1000            | 630                   | SOP 8L 4.9 x 6 x 1.55                                      |
| AAT1155     | 2.7               | 5.5               | 1.000              | 4.200              | 2500            | 1000            | 630                   | MSOP 8L 4.9 x 3 x 0.95                                     |
| AAT1157     | 2.7               | 5.5               | 0.800              | 0.800              | 1200            | 1000            | 160                   | QFN33 16L 3 x 3 x 0.85                                     |
| AAT1160     | 4.0               | 13.2              | 0.600              | $V_{IN}$           | 3000            | 800             | 150                   | TDFN34 16L 3 x 4 x 0.75                                    |
| AAT1161     | 4.0               | 13.3              | 0.600              | $V_{IN}$           | 3000            | 800             | 150                   | TDFN33 14L 3 x 3 x 0.75                                    |
| AAT1162     | 4.0               | 13.4              | 0.600              | $V_{IN}$           | 1500            | 800             | 150                   | TDFN34 16L 3 x 4 x 0.75                                    |
| AAT1171     | 2.7               | 5.5               | 0.600              | 3.600              | 600             | 2000            | 420                   | TDFN33 12L 3 x 3 x 0.75<br>WLCSP 12L 2.235 x 1.535 x 0.645 |
| AAT1184     | 6.0               | 24.0              | 1.500              | 5.500              | 2500            | 490             | 600                   | TSOPJW 12L 3 x 2.85 x 1                                    |
| AAT1185     | 6.0               | 24.0              | 1.500              | 5.500              | 1000            | 490             | 1000                  | TSOPJW 14L 2.85 x 3.05 x 1.05                              |
| AAT1189     | 6.0               | 24.0              | 1.500              | 5.500              | 2500            | 490             | 600                   | TDFN34 16L 3 x 4 x 0.85                                    |
| AAT2113B    | 2.7               | 5.5               | 1.000              | 2.500              | 1500            | 3300            | 55                    | FTDFN22 8L 2 x 2 x 0.75                                    |
| AAT2114A    | 2.7               | 5.5               | 1.000              | $V_{IN}$           | 2500            | 3000            | 70                    | QFN33 16L 3 x 3 x 0.90                                     |
| AAT2120     | 2.7               | 5.5               | 0.600              | $V_{IN}$           | 500             | 1800            | 45                    | STDFN22 8L 2 x 2 x 0.55                                    |
| AAT2138     | 2.7               | 5.5               | 3.000              | $V_{IN}$           | 2500            | 2800            | 90                    | TDFN 14L 3 x 3 x 0.75                                      |
| AAT2146     | 2.7               | 5.5               | 0.6                | $V_{IN}$           | 600             | 2000            | 37                    | SC70JW 8L 2.0 x 2.1 x 1.05                                 |
| AAT2146W    | 2.7               | 5.5               | 0.6                | $V_{IN}$           | 600             | 2000            | 37                    | –  |
| AAT2148     | 2.7               | 5.5               | 0.600              | $V_{IN}$           | 1000            | 2000            | 37                    | QFN33 16L 3 x 3 x 0.85                                     |
| AAT2153     | 2.7               | 5.5               | 0.600              | $V_{IN}$           | 2500            | 1400            | 42                    | QFN33 16L 3 x 3 x 0.85                                     |
| AAT2158     | 2.4               | 5.5               | 0.600              | $V_{IN}$           | 1500            | 1400            | 42                    | QFN33 16L 3 x 3 x 0.90                                     |
| AAT2500     | 2.7               | 5.5               | 0.6                | $V_{IN}$           | 400; LDO<br>300 | 1000            | 25; LDO 70            | TDFN33 12L 3 x 3 x 0.75                                    |
| AAT2500M    | 2.7               | 5.5               | 0.6                | $V_{IN}$           | 400; LDO<br>300 | 1800            | 130                   | TSOPJW 12L 3 x 2.85 x 1.02                                 |
| AAT2503     | 2.7               | 5.5               | 0.6                | $V_{IN}$           | 800; LDO<br>300 | 2000            | 85                    | QFN34 20L 3 x 4 x 0.93                                     |
| AAT2504     | 2.7               | 5.5               | 0.6                | $V_{IN}$           | 800; LDO<br>300 | 2000            | 80                    | QFN34 20L 3 x 4 x 0.925                                    |

## Voltage Regulation














## DC/DC Converters (Switching Regulators)

## Step Down Converters (Continued)

| Part Number | Min. $V_{IN}$ (V) | Max. $V_{IN}$ (V) | Min. $V_{OUT}$ (V) | Max. $V_{OUT}$ (V)                        | $I_{OUT}$ (mA)     | $f_{osc}$ (kHz) | Typ. $I_Q$ ( $\mu$ A) | Package (mm)  |
|-------------|-------------------|-------------------|--------------------|---|--------------------|-----------------|-----------------------|---|
| AAT2505     | 2.7               | 5.5               | 0.6                | $V_{IN}$                                  | 600; LDO 300       | 1400            | 27; LDO 70            | TDFN33 12L 3 x 3 x 0.75   |
| AAT2506     | 2.7               | 5.5               | 0.6                | $V_{IN}$                                  | 600; LDO 300       | 1000            | 25; LDO 70            | TDFN33 12L 3 x 3 x 0.75   |
| AAT2510     | 2.7               | 5.5               | 0.60               | $V_{IN}$                                  | 400/ch             | 1000            | 25/ch                 | TDFN33 12L 3 x 3 x 0.75   |
| AAT2511     | 2.7               | 5.5               | 0.60               | $V_{IN}$                                  | 600/ch             | 1000            | 25/ch                 | TDFN33 12L 3 x 3 x 0.75   |
| AAT2512     | 2.7               | 5.5               | 0.60               | $V_{IN}$                                  | 400/ch             | 1400            | 27/ch                 | TDFN33 12L 3 x 3 x 0.75   |
| AAT2513     | 2.7               | 5.5               | 0.60               | $V_{IN}$                                  | 600/ch             | 1700            | 60                    | QFN33 16L 3 x 3 x 0.85  |
| AAT2514     | 2.5               | 5.5               | 0.60               | $V_{IN}$                                  | 600/ch             | 1500            | 500                   | TDFN33 10L 3 x 3 x 0.75   |
| AAT2515     | 2.7               | 5.5               | 0.60               | $V_{IN}$                                  | 600/ch             | 1400            | 27                    | TDFN33 12L 3 x 3 x 0.75   |
| AAT2522     | 2.7               | 5.5               | 0.60               | $V_{IN}$                                  | 3000/ch            | 1400            | 90                    | TDFN34 16L 3 x 4 x 0.85   |
| AAT2687     | 6.0               | 24.0              | 1.50               | 5.5                                       | 4500; LDO 600      | 490             | 600                   | TQFN45 24L 4 x 5 x 0.75   |
| AAT2688     | 6.0               | 24.0              | 0.80               | 5.5                                       | 4500; LDO 600      | 490             | 600                   | TQFN45 24L 4 x 5 x 0.75   |
| AAT2689     | 6.0               | 24.0              | 1.50               | 5.5                                       | 2500; LDO 600      | 490             | 600                   | TDFN34 16L 3 x 4 x 0.75   |
| AAT2713     | 2.7               | 5.5               | 0.60               | $V_{IN}$                                  | 600/ch             | 1700            | 70                    | QFN33 16L 3 x 3 x 0.85  |
| AAT2749     | 2.3               | 5.5               | 1.80               | 1.0                                       | 600; LDO 300       | 3000            | 100                   | WLCSP 9L 1.35 x 1.36 x 0.50 (205 $\mu$ m bump in 400 $\mu$ m pitch) |
| AAT2782     | 2.7               | 5.5               | 0.60               | $V_{IN}$                                  | 1200; 600; 400     | 1300            | N/A                   | TDFN34 16L 3 x 4 x 0.85   |
| AAT2783     | 2.7               | 5.5               | 0.60               | $V_{IN}$                                  | 1000; 400; LDO 400 | 1300            | N/A                   | TDFN34 16L 3 x 4 x 0.85   |
| AAT2784     | 2.7               | 5.5               | 0.60               | $V_{IN}$                                  | 1500; 300          | 1800            | 45–50                 | TDFN34 16L 3 x 4 x 0.85   |
| AAT2785     | 2.7               | 5.5               | 0.60               | $V_{IN}$                                  | 1500; 600          | 1800            | 45–50                 | TDFN34 16L 3 x 4 x 0.85   |
| AAT2786     | 2.5               | 5.5               | 0.60               | $V_{IN}$                                  | 1500; LDO 150      | 1500            | 40                    | TDFN34 16L 3 x 4 x 0.85   |
| AAT2789     | 2.7               | 5.5               | 0.60               | $V_{IN}$                                  | 1700; 800          | 1400            | 42                    | TDFN34 16L 3 x 4 x 0.85   |
| AAT3183     | 2.7               | 5.5               | 1.34               | 1.5                                       | 300                | 2000            | 35                    | SC70JW 8L 2 x 2.1 x 1.1   |
| SKY87000-11 | 2.7               | 5.5               | 0.40               | 4.25                                      | 2500               | 2000            | 135                   | WLCSP 9B 1.42 x 1.49  |
| SKY87000-13 | 2.7               | 5.5               | 0.40               | 4.25                                      | 2000               | 2000            | 135                   | WLCSP 9B 1.42 x 1.49  |
| SKY87201-11 | 2.7               | 5.5               | 0.60               | $V_{IN}$                                  | 600                | 2000            | 37                    | STDFN 8L 2.0 x 2.1 x 1.05   |
| SKY87202    | 2.7               | 6.0               | 0.60               | 3.3                                       | 3500               | 1200            | 40                    | QFN12L 2.0 x 2.0 x 0.85   |
| SKY87222    | 2.8               | 5.0               | 0.6                | 1.8 ( $V_{OUT1}$ ),<br>3.3 ( $V_{OUT2}$ ) | 500/1500           | 1200            | 80                    | QFN-17L 2.0 x 2.5 x 0.55  |
| SKY87250    | 2.7               | 5.5               | 0.60               | $V_{IN}$                                  | 400                | 2000            | 40                    | DLN 8L 2.4 x 2.4 x 0.9  |
| SKY87608    | 4.5               | 28.0              | 0.90               | $0.8 \times V_{IN}$                       | 3000               | 450             | 1600                  | SOP 8L 4.54 x 6 x 1.75  |
| SKY87609    | 4.5               | 28.0              | 0.90               | $0.8 \times V_{IN}$                       | 6000               | 450             | 1600                  | TSOPJW-12L 2.85 x 3.0 x 1.0   |

## Voltage Regulation

### Low Drop-Out (LDO) Linear Regulators

| Part Number   | Accuracy (%) | Typ. Dropout (mV) | Max. I <sub>OUT</sub> (mA) | Typ. I <sub>Q</sub> (μA) | Power Good  | Shutdown | V <sub>IN</sub> (V)   | V <sub>OUT</sub> (V) | V <sub>REF</sub> Bypass | Package (mm)  |
|---|--------------|-------------------|----------------------------|--------------------------|-------------|----------|-----------------------|----------------------|-------------------------|---|
|  AAT3200 | ±2.0         | 200               | 150                        | 20                       | No          | No       | V <sub>OUT</sub> -5.5 | Fixed 2–3.5          | No                      | SC59 3L 2.85 x 2.80 x 1.20                                  |
|  AAT3215 | ±1.5         | 140               | 150                        | 95                       | No          | Yes      | V <sub>OUT</sub> -5.5 | Fixed 2.5–3.3        | Yes                     | SOT-23 5L 2.85 x 2.80 x 1.20                                |
|  AAT3218 | ±1.5         | 200               | 150                        | 70                       | No          | Yes      | V <sub>OUT</sub> -5.5 | Fixed 1.2–3.5        | Yes                     | SOT-23 5L 2.85 x 2.80 x 1.20,<br>SC70JW 8L 2.2 x 2.0 x 1.05 |
|  AAT3220 | ±2.0         | 180               | 150                        | 1.1                      | No          | No       | V <sub>OUT</sub> -5.5 | Fixed 1.8–3.3        | No                      | SC59 3L 2.85 x 2.80 x 1.20                                  |
|  AAT3221 | ±2.0         | 200               | 150                        | 1.1                      | No          | Yes      | V <sub>OUT</sub> -5.5 | Fixed 1.6–3.5        | No                      | SOT-23 5L 2.85 x 2.80 x 1.20,<br>SC70JW 8L 2.2 x 2.0 x 1.05 |
|  AAT3222 | ±2.0         | 200               | 150                        | 1.1                      | No          | Yes      | V <sub>OUT</sub> -5.5 | Fixed 1.6–3.5        | No                      | SOT-23 5L 2.85 x 2.80 x 1.20                                |
|  AAT3223 | ±2.0         | 190               | 250                        | 1.1                      | Yes         | Yes      | V <sub>OUT</sub> -5.5 | Fixed 2.8–3.3        | No                      | SOT-23 6L 2.85 x 2.80 x 1.20                                |
|  AAT3236 | ±1.5         | 300               | 300                        | 100                      | No          | Yes      | V <sub>OUT</sub> -5.5 | Fixed 2.5–3.6        | Yes                     | SOT-23 5L 2.85 x 2.80 x 1.20,<br>SC70JW 8L 2.2 x 2.0 x 1.05 |
|  AAT3237 | ±1.5         | 400               | 300                        | 70                       | Yes         | Yes      | V <sub>OUT</sub> -5.5 | Fixed 1.2–3.5        | No                      | SOT-23 6L 2.85 x 2.80 x 1.20,<br>SC70JW 8L 2.2 x 2.0 x 1.05 |
|  AAT3238 | ±1.5         | 400               | 300                        | 70                       | No          | Yes      | V <sub>OUT</sub> -5.5 | Fixed 1.2–3.5        | Yes                     | SOT-23 6L 2.85 x 2.80 x 1.20,<br>SC70JW 8L 2.2 x 2.0 x 1.05 |
|  AAT3242 | ±1.5         | 400               | 300, 150                   | 70                       | Yes         | Yes      | V <sub>OUT</sub> -5.5 | Fixed 1.5–3.5        | No                      | TSOPJW 12L 3 x 2.85 x 1.02,<br>TDFN33 12L 3 x 3 x 0.75      |
|  AAT3244 | ±1.5         | 200               | 300                        | 85                       | Yes         | Yes      | 1.8–5.5               | 0.6–3.6              | No                      | TSOPJW 12L 3 x 2.85 x 1.02                                  |
|  AAT3258 | ±2.0         | 400               | 300                        | 71                       | μP<br>Reset | Yes      | V <sub>OUT</sub> -5.5 | Fixed 1.2–3.5        | Yes                     | TSOPJW 8L 3 x 2.85 x 1.01                                   |

## Display and Lighting

### LED Camera Flash Drivers

#### Charge Pump™ Camera LED Flash Drivers

| Part Number | Flash I <sub>OUT</sub> Total (mA) | Movie Mode I <sub>OUT</sub> Total (mA) | LED Channels | Min. V <sub>IN</sub> | Max. V <sub>IN</sub> | Max. V <sub>OUT</sub> | Peak Efficiency (%) | Interface              | Typ. I <sub>Q</sub> (μA) | Max. Shutdown Current (μA) | Package (mm)              |
|-------------|-----------------------------------|--|--------------|----------------------|----------------------|-----------------------|---------------------|------------------------|--------------------------|----------------------------|---------------------------|
| AAT3175     | 300                               | N/A                                    | 4            | 2.7                  | 5.5                  | N/A                   | 95                  | S <sup>2</sup> Cwire™  | 300                      | 1                          | TDFN33 12L 3 x 3 x 0.75   |
| AAT3112     | 500                               | 200                                    | 2            | 2.7                  | 5.0                  | 5.0                   | 85                  | Enable                 | 26                       | 1                          | QFN33 16L 3 x 3 x 0.85    |
| AAT3176     | 500                               | 100                                    | 1            | 2.7                  | 5.5                  | 5.5                   | 93                  | S <sup>2</sup> Cwire™  | 500                      | 1                          | TDFN 10L 2.2 x 2.2 x 0.75 |
| AAT3176A    | 500                               | 100                                    | 1            | 2.7                  | 5.5                  | 5.5                   | 93                  | S <sup>2</sup> Cwire™  | 500                      | 1                          | TDFN 10L 2.2 x 2.2 x 0.75 |
| AAT3170     | 600                               | 200                                    | 2            | 2.7                  | 5.5                  | 4.9                   | 90                  | AS <sup>2</sup> Cwire™ | 300                      | 1                          | TDFN33 12L 3 x 3 x 0.75   |
| AAT3172     | 600                               | 100                                    | 2            | 2.7                  | 5.5                  | 4.9                   | 93                  | AS <sup>2</sup> Cwire™ | 300                      | 1                          | TDFN33 12L 3 x 3 x 0.75   |
| AAT3171     | 800                               | 200                                    | 1            | 2.7                  | 5.5                  | N/A                   | 92                  | S <sup>2</sup> Cwire™  | 300                      | 1                          | TDFN33 12L 3 x 3 x 0.75   |
| AAT3174     | 800                               | 200                                    | 1            | 2.7                  | 5.5                  | N/A                   | 92                  | S <sup>2</sup> Cwire™  | 300                      | 1                          | TDFN33 12L 3 x 3 x 0.75   |
| AAT3177     | 800                               | 200                                    | 1            | 2.7                  | 5.5                  | N/A                   | 91                  | S <sup>2</sup> Cwire™  | 300                      | 1                          | TDFN 12L 3 x 3 x 0.75     |
| AAT3177A    | 800                               | 200                                    | 1            | 2.7                  | 5.5                  | N/A                   | 91                  | S <sup>2</sup> Cwire™  | N/A                      | 1                          | TDFN33 12L 3 x 3 x 0.75   |













#### Serial Boost Camera LED Flash Drivers

| Part Number | Flash I <sub>OUT</sub> Total (mA) | Movie Mode I <sub>OUT</sub> Total (mA) | LED Channels | Min. V <sub>IN</sub> | Max. V <sub>IN</sub> | Max. V <sub>OUT</sub> | Peak Efficiency (%) | Interface              | Typ. I <sub>Q</sub> (μA) | Max. Shutdown Current (μA) | Package (mm)                                   |
|-------------|-----------------------------------|--|--------------|----------------------|----------------------|-----------------------|---------------------|------------------------|--------------------------|----------------------------|--|
| AAT1270     | 1000                              | 137                                    | 2            | 2.7                  | 5.5                  | 5.5                   | 85                  | S <sup>2</sup> Cwire™  | 230                      | 1                          | STDFN33 14L 3 x 3 x 0.55                       |
| AAT1271     | 1500                              | 206                                    | 2            | 2.7                  | 5.5                  | 5.5                   | 85                  | AS <sup>2</sup> Cwire™ | 230                      | 1                          | TDFN33 14L 3 x 3 x 0.75                        |
| AAT1272     | 1500                              | 206                                    | 2            | 2.7                  | 5.5                  | 5.5                   | 85                  | I <sup>2</sup> C       | 230                      | 1                          | TDFN 14L 3 x 3 x 0.75                          |
| AAT1274     | 1500                              | 206                                    | 1            | 2.7                  | 5.5                  | 5.5                   | 88                  | AS <sup>2</sup> Cwire™ | 230                      | 1                          | TDFN33 14L 3 x 3 x 0.75                        |
| AAT1277     | 1500                              | 100                                    | 2            | 2.7                  | 5.5                  | 5.5                   | 85                  | Enable                 | 230                      | 1                          | WLCSP-18                                       |
| AAT1278     | 1500                              | 206                                    | 1            | 2.7                  | 5.5                  | 5.5                   | 88                  | AS <sup>2</sup> Cwire™ | 230                      | 1                          | WLCSP 12 2.235 x 1.535 x 0.63                  |
| AAT1282     | 2000                              | 274                                    | 2            | 2.7                  | 5.5                  | N/A                   | 80                  | I <sup>2</sup> C       | 570                      | 1                          | TDFN33 14L 3 x 3 x 0.75                        |
| AAT1290     | 1500                              | 206                                    | 1            | 2.7                  | 5.5                  | 5.5                   | 85                  | AS <sup>2</sup> Cwire™ | 230                      | 1                          | TDFN33 14L 3 x 3 x 0.75                        |
| SKY81279    | 1500                              | 143                                    | 1            | 2.7                  | 5.5                  | 5.5                   | 88                  | AS <sup>2</sup> Cwire™ | 230                      | 1                          | TDFN23 14L 2 x 3 x 0.75                        |
| SKY81290    | 1500                              | 143                                    | 1            | 2.7                  | 5.5                  | 5.5                   | 88                  | AS <sup>2</sup> Cwire™ | 230                      | 1                          | TDFN 14L 3 x 3 x 0.75<br>TDFN 14L 3 x 2 x 0.75 |
| SKY81292    | 1800                              | 200                                    | 1            | 2.5                  | 5.5                  | 5.5                   | 90                  | I <sup>2</sup> C       | 75                       | 1                          | WLCSP 16B 2 x 2 x 0.445                        |
| SKY81296    | 2400                              | 250                                    | 2            | 2.5                  | 5.5                  | 5.5                   | 93                  | I <sup>2</sup> C       | 1                        | 1                          | WLCSP 20B 1.75 x 2.3 x 0.4                     |








## Display and Lighting

### Large Screen LCD LED Backlight with SPI Bus or SLIBus™ Digital Interface

| Part Number   | Number of LEDs | LED Channels | LED(s) per/Ch    | Current Accuracy (%) | Current Matching (%) | Max. I <sub>OUT</sub> per/Ch (mA) | Interface | DOT Correction (Bits) | Grey Scale (Bits) | Channel Phase Delay (Bits) | Min. V <sub>IN</sub> (V) | Max. V <sub>IN</sub> (V) | Package (mm)  |
|---|----------------|--------------|------------------|----------------------|----------------------|-----------------------------------|-----------|-----------------------|-------------------|----------------------------|--------------------------|--------------------------|---|
|  AAT2400 <sup>1</sup>    | 160            | 16           | 10               | ±2.5                 | ±2.0                 | 100                               | SPI       | 8                     | 12                | 12                         | 10.8                     | 28                       | TQFN 36L<br>5 x 5 x 0.75                            |
|  AAT2401                 | 160            | 16           | 10               | ±2.5                 | ±2.0                 | 100                               | SPI       | 8                     | 12                | 12                         | 10.8                     | 28                       | TQFN 36L<br>5 x 5 x 0.75                            |
|  AAT2402M <sup>1</sup>   | 160            | 16           | 10               | ±2.5                 | ±2.0                 | 100                               | SPI       | 8                     | 12                | 12                         | 10.8                     | 28                       | TQFN 36L<br>5 x 5 x 0.75                            |
|  AAT2402S                | 160            | 16           | 10               | ±2.5                 | ±2.0                 | 100                               | SPI       | 8                     | 12                | 12                         | 10.8                     | 28                       | TQFN 36L<br>5 x 5 x 0.75                            |
|  AAT2403A                | 160            | 16           | 10               | ±1.5                 | ±2.0                 | 100                               | SPI       | 8                     | 12                | 12                         | 10.8                     | 28                       | TQFN 42L<br>5 x 6 x 0.8<br>TQFN 48L<br>7 x 7 x 0.8  |
|  AAT2428                 | 160            | 16           | 10               | ±1.5                 | ±2.0                 | 100                               | SPI       | 8                     | 12                | 12                         | 10.8                     | 28                       | TQFN 48L<br>7 x 7 x 0.8                             |
|  AAT2430A                | 720            | 16           | <45 <sup>4</sup> | ±1.5                 | ±1.5                 | 250                               | SPI       | 8                     | 12                | 12                         | 10.8                     | 32                       | LQFP 64L<br>14 x 14 x 1.6<br>QFN 64L<br>9 x 9 x 0.9 |
|  AAT2430A-1 <sup>2</sup> | 720            | 16           | <45 <sup>4</sup> | ±1.5                 | ±1.5                 | 250                               | SPI       | 8                     | 12                | 12                         | 10.8                     | 28                       | LQFP 64L<br>14 x 14 x 1.6<br>QFN 64L<br>9 x 9 x 0.9 |
|  AAT2430B              | 720            | 16           | <45 <sup>4</sup> | ±1.5                 | ±1.5                 | 250                               | SPI       | 8                     | 12                | 12                         | 10.8                     | 32                       | LQFP 64L<br>14 x 14 x 1.6<br>QFN 64L<br>9 x 9 x 0.9 |
|  AAT2430C              | 720            | 16           | <45 <sup>4</sup> | ±1.5                 | ±1.5                 | 250                               | SPI       | 8                     | 12                | 12                         | 10.8                     | 32                       | LQFP 64L<br>14 x 14 x 1.6<br>QFN 64L<br>9 x 9 x 0.9 |
|  AAT2469 <sup>3</sup>  | N/A            | 16           | N/A              | N/A                  | N/A                  | 250                               | SPI       | 8                     | 12                | 12                         | 4.5                      | 5.5                      | SOP 16L<br>10 x 6.2 x 1.7                           |
|  AAT2499               | 90             | 2            | <45 <sup>4</sup> | ±1.5                 | ±2.0                 | 300                               | SLI       | V <sub>REF</sub>      | 12                | 12                         | 4.5                      | 5.5                      | SOP-EP 16L<br>10 x 6.2 x 1.7                        |


## Display and Lighting

### Mid to Large Screen LCD LED Backlight with PWM Interface

| Part Number   | Number of LEDs | LED Channels | LED(s) per/Ch | Current Accuracy (%) | Current Matching (%) | Max. I <sub>OUT</sub> per/Ch (mA) | Interface | Peak Efficiency (%) | Min. V <sub>IN</sub> (V) | Max. V <sub>IN</sub> (V) | Package (mm)                |
|---|----------------|--------------|---------------|----------------------|----------------------|-----------------------------------|-----------|---------------------|--------------------------|--------------------------|-----------------------------|
|  AAT1405 | 44             | 4            | 11            | ±2                   | ±2                   | 30                                | PWM       | 92                  | 4.5                      | 26                       | TQFN34 24L<br>3 x 4 x 0.75  |
|  AAT1407 | 66             | 6            | 11            | ±2                   | ±2                   | 30                                | PWM       | 92                  | 4.5                      | 26                       | TQFN34 24L<br>3 x 4 x 0.75  |
|  AAT1409 | 88             | 8            | 11            | ±2                   | ±2                   | 45                                | PWM       | 92                  | 4.5                      | 26                       | TQFN34 24L<br>3 x 4 x 0.75  |
|  AAT1451 | 48             | 4            | 12            | ±2                   | ±2                   | 30                                | PWM       | 93                  | 5.0                      | 26                       | TDFN 16L<br>3 x 4 x 0.75    |
|  AAT2405 | N/A            | 6            | N/A           | ±1.5                 | ±1.5                 | 250                               | PWM       | N/A                 | 4.5                      | 28                       | E-LQFP 44L<br>10 x 10 x 1.6 |

1 Actual number dependent on external MOSFET used.

### Current Sense MOSFET with Cascode Clamp Protection

| Part Number   | Number of Channels | Cascode Clamp BV <sub>DSS</sub> (V) | Cascode Clamp r <sub>DS(ON)</sub> (Ω) | Current Sink BV <sub>DSS</sub> (V) | Current Sink r <sub>DS(ON)</sub> (Ω) | Max. I <sub>OUT</sub> per/Ch (mA) | Temp Sense Diode V <sub>F</sub> (V) | Temp Sense Diode Coefficient (mV/°C) | Package (mm)                 |
|---|--------------------|-------------------------------------|---------------------------------------|------------------------------------|--------------------------------------|-----------------------------------|-------------------------------------|--------------------------------------|------------------------------|
|  AAT2491 | 2                  | 150                                 | 5                                     | 14                                 | 1.5                                  | 240                               | 3.08                                | 5.44                                 | SOP-EP 16L<br>10 x 6.2 x 1.7 |

## Display and Lighting

### Lighting Management Units

| Part Number | Backlight LEDs | Max. Backlight I <sub>OUT</sub> per Channel (mA) | Flash LED Channel(s) | Max. Flash I <sub>OUT</sub> per/ Ch (mA) | Max. Movie Mode I <sub>OUT</sub> per/ Ch (mA) | LDO Output(s) | Min.–Max. V <sub>OUT</sub> | LDO Accuracy (%) | LDO Load Current (mA) | Min.–Max. V <sub>IN</sub> | Interface               | Package (mm)                     |
|-------------|----------------|--|----------------------|--|---|---------------|----------------------------|------------------|-----------------------|---------------------------|-------------------------|----------------------------------|
| AAT2803     | 6              | 30.0   | 1                    | 300                                      | 120   | N/A           | N/A                        | N/A              | N/A                   | 2.7–5.5                   | AS <sup>2</sup> Cwire™  | QFN44 24L<br>4 x 4 x 0.90        |
| AAT2842     | 4              | 30.0   | 4                    | 150                                      | 48  | 2             | 1.2–V <sub>IN</sub>        | ±2.5             | 200                   | 2.7–5.5                   | S <sup>2</sup> Cwire™   | TQFN44 28L<br>4 x 4 x 0.75       |
| AAT2845     | 4              | 20.0   | 0                    | N/A                                      | N/A   | 2             | 1.2–2.8                    | ±2.5             | 200                   | 2.7–5.5                   | S <sup>2</sup> Cwire™   | TQFN34 20L<br>3 x 4 x 0.75       |
| AAT2845A    | 4              | 20.0   | 0                    | N/A                                      | N/A   | 2             | 1.17–1.23                  | ±2.5             | 200                   | 2.7–5.5                   | S <sup>2</sup> Cwire™   | TQFN34 20L<br>3 x 4 x 0.75       |
| AAT2846     | 6              | 30.0   | 2                    | 300                                      | N/A   | 2             | 1.2–V <sub>BAT</sub>       | ±2.5%            | 200                   | 2.7–5.5                   | AS <sup>2</sup> Cwire™  | TQFN44 28L<br>4 x 4 x 0.75       |
| AAT2847     | 4              | 20.0   | 0                    | N/A                                      | N/A   | 2             | 1.2–2.8                    | ±2.5             | 200                   | 2.7–5.5                   | AS <sup>2</sup> Cwire™  | TQFN34 20L<br>3 x 4 x 0.75       |
| AAT2848     | 4              | 30.0   | 2                    | 300                                      | 100   | N/A           | N/A                        | N/A              | N/A                   | 2.7–5.5                   | S <sup>2</sup> Cwire™   | TQFN33 20L<br>3 x 3 x 0.75       |
| AAT2856     | 6              | 30.0   | 0                    | N/A                                      | N/A   | 2             | 1.2–V <sub>BAT</sub>       | ±2.5%            | 200                   | 2.7–5.5                   | AS <sup>2</sup> Cwire™  | TQFN44 28L<br>4 x 4 x 0.75       |
| AAT2861     | 6              | 31.0   | 2                    | 300                                      | 120   | 3             | 1.2–3.3                    | ±1.5             | 300                   | 2.7–5.5                   | AS <sup>2</sup> Cwire™  | TQFN34 24L<br>3 x 4 x 0.75       |
| AAT2862     | 8              | 30.0   | 0                    | N/A                                      | N/A   | 4             | 1.2–3.3                    | ±1.5             | 200                   | 2.7–5.5                   | I <sup>2</sup> C        | TQFN34 24L<br>3 x 4 x 0.75       |
| AAT2863     | 6              | 30.0   | 0                    | N/A                                      | N/A   | 4             | 1.2–3.3                    | ±1.5             | 300                   | 2.7–5.5                   | I <sup>2</sup> C<br>PWM | TQFN34 24L<br>3 x 4 x 0.75       |
| AAT2866     | 7              | 31.0   | 2                    | 300                                      | 60  | 3             | 1.2–3.3                    | N/A              | 300                   | 2.7–5.5                   | I <sup>2</sup> C        | TQFN34 24L<br>3 x 4 x 0.75       |
| AAT2868     | 4              | 31.0   | N/A                  | N/A                                      | N/A   | 2             | 1.2–3.0                    | ±3.0             | 150                   | 2.7–5.5                   | AS <sup>2</sup> Cwire™  | TQFN 18L<br>3 x 2.2 x 0.75       |
| AAT2869     | 4              | 31.0   | N/A                  | N/A                                      | N/A   | 2             | 1.2–3.0                    | ±3.0             | 150                   | 2.7–5.5                   | AS <sup>2</sup> Cwire™  | TQFN 18L<br>3 x 2.2 x 0.75       |
| AAT2870     | 8              | 27.9   | 0                    | N/A                                      | N/A   | 4             | 1.2–3.3                    | ±2.0             | 300                   | 2.7–5.5                   | I <sup>2</sup> C        | 30-ball CSP<br>3.1 x 2.6 x 0.695 |
| AAT2893     | 10             | N/A  | 0                    | 28.6                                     | N/A   | 4             | 1.2–3.3                    | ±2.0             | 300                   | 2.7–5.5                   | N/A                     | 20-ball CSP<br>2 x 2.5 x 0.695   |

## Display and Lighting

### Panel Power

| Part Number | Min. $V_{IN}$ | Max. $V_{IN}$ | Regulated Outputs (Number) | Max. $V_{POS}$ | Max. $V_{NEG}$ | $V_{REF}$ | Max. $I_{OUT}$ (mA) | Max. Switching Frequency (kHz) | Typ. $I_Q$ ( $\mu A$ ) | Max. Shutdown Current ( $\mu A$ ) | Topology              | Package (mm)                                       |
|-------------|---------------|---------------|----------------------------|----------------|----------------|-----------|---------------------|--------------------------------|------------------------|-----------------------------------|-----------------------|--|
| AAT1230     | 2.7           | 5.5           | 1                          | 18             | N/A            | N/A       | 100                 | 2000                           | 40                     | 1                                 | Inductive             | TDFN34 16L 3 x 4 x 0.85, TSOPJW 12L 3 x 2.85 x 1   |
| AAT1232     | 2.7           | 5.5           | 1                          | 24             | N/A            | N/A       | 100                 | 2000                           | 40                     | 1                                 | Inductive             | TDFN34 16L 3 x 4 x 0.85, TSOPJW 12L 3 x 2.85 x 1   |
| AAT2822     | 2.7           | 5.5           | 4                          | 30             | -30            | N/A       | 20                  | 1300                           | 1100                   | 1                                 | Inductive Charge Pump | TQFN44 24L 4 x 4 x 0.75                            |
| AAT2823     | 2.7           | 5.5           | 4                          | 30             | -30            | N/A       | 20                  | 1300                           | 1100                   | 1                                 | Inductive Charge Pump | TQFN44 24L 4 x 4 x 0.75                            |
| AAT3190     | 2.7           | 5.5           | 2                          | 25             | -25            | 1.2       | 30                  | 1000                           | 400                    | 1                                 | Charge Pump           | MSOP 8L 4.9 x 3 x 0.95, TSOPJW 12L 3 x 2.85 x 1.02 |

### RGB LED Controllers

| Part Number | Description                     | Number of Channels | Enable                | RGB Control | Low Side Switches | Typ. $I_Q$ ( $\mu A$ ) | $V_{IN}$ (V) | Package (mm)               |
|-------------|---------------------------------|--------------------|-----------------------|-------------|-------------------|------------------------|--------------|----------------------------|
| AAT4295     | 3 Channel Single RGB Controller | 3                  | S <sup>2</sup> Cwire™ | Single      | 3                 | 3                      | 1.8–5.5      | SC70JW 8L 2.2 x 2.0 x 1.05 |
| AAT4297     | 6 Channel Dual RGB Controller   | 6                  | S <sup>2</sup> Cwire™ | Dual        | 6                 | 3                      | 1.8–5.5      | TSOPJW 12L 3 x 2.85 x 1.02 |

### RGB LED Drivers

| Part Number | Min. $V_{IN}$ | Max. $V_{IN}$ | Number of RGB LED(s) | Number of Built-in Patterns | Color Space | Max. Switching Frequency (kHz) | Interface              | Peak Efficiency (%) | Current Accuracy (%) | Max. $I_{OUT}$ per Channel (mA) | Typ. $I_Q$ ( $\mu A$ ) | Package (mm)                  |
|-------------|---------------|---------------|----------------------|-----------------------------|-------------|--------------------------------|------------------------|---------------------|----------------------|---------------------------------|------------------------|-------------------------------|
| AAT3128     | 2.7           | 5.5           | 2                    | 16                          | 64          | 1000                           | S <sup>2</sup> Cwire™  | 93                  | ±5                   | 60                              | 3                      | TSOPJW 14L 3.05 x 2.85 x 1.05 |
| AAT3129     | 2.7           | 5.5           | 1                    | 0                           | 4096        | 1000                           | AS <sup>2</sup> Cwire™ | 93                  | ±5                   | 180                             | 1                      | TSOPJW 12L 3 x 2.85 x 1       |

## Display and Lighting

### White LED Drivers

#### Serial Boost White LED Backlight Drivers

| Part Number | Number of LEDs | LED Channels | LED(s) per/Ch | Min. V <sub>IN</sub> | Max. V <sub>IN</sub> | Interface                              | Peak Eff. (%) | Current Accuracy (%) | Current Matching (%) | Max. I <sub>OUT</sub> per/Ch (mA) | Typ. I <sub>Q</sub> (μA) | Package (mm)                      |
|-------------|----------------|--------------|---------------|----------------------|----------------------|--|---------------|----------------------|----------------------|-----------------------------------|--------------------------|-----------------------------------|
| AAT1231     | 12             | 1            | 6             | 2.7                  | 5.5                  | S <sup>2</sup> Cwire™                  | 82            | ±6                   | N/A                  | 50                                | 40                       | TSOPJW 12L<br>3 x 2.85 x 1        |
| AAT1235     | 30             | 5            | 6             | 2.7                  | 5.5                  | AS <sup>2</sup> Cwire™                 | 85            | ±10                  | ±2                   | 30                                | 300                      | TDFN 16L<br>3 x 4 x 0.85          |
| AAT1236     | 30             | 5            | 6             | 2.7                  | 5.5                  | I <sup>2</sup> C                       | 85            | ±10                  | ±2                   | 30                                | 300                      | TDFN 16L<br>3 x 4 x 0.85          |
| AAT1239-1   | 10             | 1            | 10            | 2.7                  | 5.5                  | S <sup>2</sup> Cwire™                  | 85            | ±3.5                 | N/A                  | 30                                | 70                       | TSOPJW 12L<br>3 x 2.85 x 1        |
| AAT1401     | 6              | 1            | 6             | 2.7                  | 5.5                  | S <sup>2</sup> Cwire™,<br>Filtered PWM | 85            | ±10                  | N/A                  | 31                                | 0.43                     | WLCSP 10L<br>1.545 x 1.145 x 0.65 |
| AAT1402     | 8              | 1            | 8             | 2.7                  | 5.5                  | S <sup>2</sup> Cwire™,<br>Filtered PWM | 83            | ±10                  | N/A                  | 31                                | 0.43                     | WLCSP 10L<br>1.545 x 1.145 x 0.65 |
| AAT1403     | 10             | 1            | 10            | 2.7                  | 5.5                  | S <sup>2</sup> Cwire™,<br>Filtered PWM | 81            | ±10                  | N/A                  | 31                                | 0.43                     | WLCSP 10L<br>1.545 x 1.145 x 0.65 |
| AAT1410     | 4              | 1            | 4             | 2.7                  | 5.5                  | S <sup>2</sup> Cwire™,<br>Direct PWM,  | 86            | ±10                  | N/A                  | 31                                | 0.43                     | WLCSP 10L<br>1.545 x 1.145 x 0.65 |
| AHK1421     | 6              | 1            | 6             | 2.7                  | 5.5                  | S <sup>2</sup> Cwire™                  | 86            | ±5                   | N/A                  | 31                                | 600                      | SOT-23 6L<br>2.9 x 2.8 x 1        |
| SKY81452-13 | 48             | 6            | 8             | 2.5                  | 5.5                  | I <sup>2</sup> C, DPWM,<br>FPWM        | 93%           | ±2%                  | ±2%                  | 60                                | 4                        | WLCSP-25<br>2.44 x 2.44 x 0.73    |
| SKY81453-13 | 48             | 6            | 8             | 2.5                  | 5.5                  | I <sup>2</sup> C, FPWM                 | 93%           | ±2%                  | ±2%                  | 60                                | 4                        | WLCSP-25<br>2.44 x 2.44 x 0.73    |

## Display and Lighting

### White LED Drivers

#### Charge Pump Based White LED Backlight Drivers

| Part Number | Number of LEDs | LED Channels | LED(s) per/Ch | Min. V <sub>IN</sub> | Max. V <sub>IN</sub> | Interface              | Peak Efficiency (%) | Current Accuracy (%) | Current Matching (%) | Max. I <sub>OUT</sub> per/Ch (mA) | Typ. I <sub>Q</sub> (µA) | Package (mm)  |
|-------------|----------------|--------------|---------------|----------------------|----------------------|------------------------|---------------------|----------------------|----------------------|-----------------------------------|--------------------------|---|
| AAT3103-1   | 3              | 3            | 1             | 2.7                  | 5.5                  | S <sup>2</sup> Cwire™  | 90                  | ±10                  | ±3                   | 30                                | 1900                     | –   |
| AAT3103-2   | 3              | 3            | 1             | 2.7                  | 5.5                  | S <sup>2</sup> Cwire™  | 90                  | ±10                  | ±3                   | 30                                | 1900                     | –   |
| AAT3103-4   | 3              | 3            | 1             | 2.7                  | 5.5                  | PWM                    | 90                  | ±10                  | ±3                   | 30                                | 1900                     | SC70JW 10L 2.2 x 2 x 1.1                                  |
| AAT3104-1   | 4              | 4            | 1             | 2.7                  | 5.5                  | S <sup>2</sup> Cwire™  | 83                  | ±10                  | ±3                   | 31                                | 6000                     | SC70JW 10L 2.2 x 2 x 1.1                                  |
| AAT3104-2   | 4              | 4            | 1             | 2.7                  | 5.5                  | S <sup>2</sup> Cwire™  | 83                  | ±10                  | ±3                   | 31                                | 6000                     | SC70JW 10L 2.2 x 2 x 1.1                                  |
| AAT3105     | 4              | 4            | 1             | 2.7                  | 5.5                  | PWM                    | 87                  | ±10                  | ±3                   | 30                                | 3000                     | SC70JW 10L 2.2 x 2 x 1.1                                  |
| AAT3110     | 1              | 1            | 1             | 2.7                  | 5.0                  | Enable                 | 92                  | N/A                  | N/A                  | 100                               | 13                       | SOT-23 6L 2.85 x 2.8 x 1.2<br>SC70JW 8L 2 x 2.1 x 1.1     |
| AAT3111     | 1              | 1            | 1             | 1.8                  | 3.6                  | Enable                 | 90                  | N/A                  | N/A                  | 100                               | 20                       | SOT-23 6L 2.85 x 2.8 x 1.1<br>SC70JW 8L 2 x 2.1 x 1.05    |
| AAT3113     | 4              | 4            | 1             | 2.7                  | 5.5                  | S <sup>2</sup> Cwire™  | 93                  | ±10                  | ±0.3                 | 20                                | 1000                     | TSOPJW 12L 3 x 2.85 x 1                                   |
| AAT3114     | 6              | 6            | 1             | 2.7                  | 5.5                  | S <sup>2</sup> Cwire™  | 93                  | ±10                  | ±0.3                 | 20                                | 1000                     | QFN44 16L 4 x 4 x 0.9                                     |
| AAT3119     | 1              | 1            | 1             | 2.7                  | 5.5                  | Enable                 | 91                  | N/A                  | N/A                  | 250                               | 2000                     | SC70JW 8L 2 x 2.1 x 1.1                                   |
| AAT3120     | 3              | 3            | 1             | 2.7                  | 5.5                  | S <sup>2</sup> Cwire™  | 86                  | ±10                  | ±0.5                 | 20                                | 1800                     | TSOPJW 12L 3 x 2.85 x 1                                   |
| AAT3121     | 6              | 1            | 6             | 2.7                  | 5.5                  | S <sup>2</sup> Cwire™  | 93                  | ±10                  | N/A                  | 132                               | 1800                     | TSOPJW 12L 3 x 2.85 x 1                                   |
| AAT3122     | 6              | 1            | 6             | 2.7                  | 5.5                  | S <sup>2</sup> Cwire™  | 93                  | ±10                  | N/A                  | 132                               | 1800                     | TSOPJW 12L 3 x 2.85 x 1                                   |
| AAT3123     | 4              | 4            | 1             | 2.7                  | 5.5                  | S <sup>2</sup> Cwire™  | 93                  | ±10                  | ±0.5                 | 20                                | 1800                     | TSOPJW 14L<br>3.05 x 2.85 x 1.05                          |
| AAT3124     | 6              | 6            | 1             | 2.7                  | 5.5                  | S <sup>2</sup> Cwire™  | 93                  | ±10                  | ±0.5                 | 20                                | 1800                     | QFN44 16L 4 x 4 x 0.9<br>TSOPJW 14L<br>3.05 x 2.85 x 1.05 |
| AAT3131     | 4              | 4            | 1             | 2.7                  | 5.5                  | S <sup>2</sup> Cwire™  | 93                  | ±10                  | ±0.5                 | 30                                | 1800                     | TSOPJW 12L 3 x 2.85 x 1                                   |
| AAT3132     | 4              | 4            | 1             | 2.7                  | 5.5                  | S <sup>2</sup> Cwire™  | 93                  | ±10                  | ±0.5                 | 30                                | 1800                     | TSOPJW 12L 3 x 2.85 x 1                                   |
| AAT3134     | 6              | 6            | 1             | 2.7                  | 5.5                  | S <sup>2</sup> Cwire™  | 93                  | ±10                  | ±0.5                 | 20                                | 1800                     | QFN 16L 3 x 3 x 0.9                                       |
| AAT3140     | 4              | 4            | 1             | 2.7                  | 5.5                  | S <sup>2</sup> Cwire™  | 93                  | ±10                  | ±0.5                 | 30                                | 550                      | TSOPJW 12L 3 x 2.85 x 1                                   |
| AAT3141     | 4              | 4            | 1             | 2.7                  | 5.5                  | AS <sup>2</sup> Cwire™ | 93                  | ±10                  | ±0.5                 | 30                                | 550                      | TSOPJW 12L 3 x 2.85 x 1                                   |
| AAT3142     | 3              | 3            | 1             | 2.7                  | 5.5                  | S <sup>2</sup> Cwire™  | 93                  | ±10                  | ±0.5                 | 30                                | 550                      | TSOPJW 12L 3 x 2.85 x 1                                   |
| AAT3143     | 4              | 4            | 1             | 2.7                  | 5.5                  | PWM                    | 93                  | ±10                  | ±0.5                 | 20                                | 550                      | TSOPJW 12L 3 x 2.85 x 1                                   |
| AAT3150     | 4              | 4            | 1             | 2.7                  | 5.5                  | AS <sup>2</sup> Cwire™ | 97                  | ±10                  | ±0.5                 | 30                                | 50                       | TDFN 12L 3 x 3 x 0.75                                     |
| AAT3151     | 4              | 4            | 1             | 2.7                  | 5.5                  | AS <sup>2</sup> Cwire™ | 97                  | ±10                  | ±0.5                 | 30                                | 50                       | STDFN33-12 TDFN33-12                                      |
| AAT3151B    | 4              | 4            | 1             | 2.7                  | 5.5                  | AS <sup>2</sup> Cwire™ | 97                  | ±10                  | ±0.5                 | 30                                | 50                       | TDFN33 12L 3 x 3 x 0.75                                   |
| AAT3152     | 4              | 4            | 1             | 2.7                  | 5.5                  | S <sup>2</sup> Cwire™  | 93                  | ±10                  | ±0.5                 | 20                                | 50                       | TDFN33 12L 3 x 3 x 0.75                                   |
| AAT3155     | 4              | 4            | 1             | 2.7                  | 5.5                  | S <sup>2</sup> Cwire™  | 97                  | ±10                  | ±0.5                 | 20                                | 50                       | TSOPJW 12L 3 x 2.85 x 1                                   |

## Display and Lighting

### White LED Drivers

#### Charge Pump Based White LED Backlight Drivers (Continued)

| Part Number | Number of LEDs | LED Channels | LED(s) per/Ch | Min. V <sub>IN</sub> | Max. V <sub>IN</sub> | Interface              | Peak Efficiency (%) | Current Accuracy (%) | Current Matching (%) | Max. I <sub>OUT</sub> per/Ch (mA) | Typ. I <sub>Q</sub> (μA) | Package (mm)   |
|-------------|----------------|--------------|---------------|----------------------|----------------------|------------------------|---------------------|----------------------|----------------------|-----------------------------------|--------------------------|--|
| AAT3156     | 6              | 6            | 1             | 2.7                  | 5.5                  | AS <sup>2</sup> Cwire™ | 93                  | ±10                  | ±0.5                 | 30                                | 50                       | QFN44 16L 4 x 4 x 0.9  |
| AAT3157     | 3              | 3            | 1             | 2.7                  | 5.5                  | S <sup>2</sup> Cwire™  | 97                  | ±10                  | ±0.5                 | 20                                | 50                       | TSOPJW 12L 3 x 2.85 x 1  |
| AAT3158     | 4              | 4            | 1             | 2.7                  | 5.5                  | S <sup>2</sup> Cwire™  | 93                  | ±10                  | ±0.5                 | 20                                | 50                       | TSOPJW 12L 3 x 2.85 x 1  |
| AAT3159     | 4              | 4            | 1             | 2.7                  | 5.5                  | S <sup>2</sup> Cwire™  | 93                  | ±10                  | ±0.5                 | 40                                | 50                       | TSOPJW 14L<br>3.05 x 2.85 x 1.05   |
| AAT3164     | 6              | 6            | 1             | 2.7                  | 5.5                  | S <sup>2</sup> Cwire™  | 94                  | ±7                   | ±0.5                 | 30                                | 70                       | TDFN34 16L 3 x 4 x 0.75  |
| AAT3166     | 4              | 4            | 1             | 2.7                  | 5.5                  | S <sup>2</sup> Cwire™  | 94                  | ±10                  | ±0.5                 | 27                                | 50                       | TDFN33 12L 3 x 3 x 0.75  |
| AAT3167     | 5              | 5            | 1             | 2.7                  | 5.5                  | S <sup>2</sup> Cwire™  | 94                  | ±10                  | ±0.5                 | 27                                | 50                       | STDFN33 14L 3 x 3 x 0.55<br>QFN44 16L 4 x 4 x 0.9  |
| AAT3169     | 6              | 6            | 1             | 2.7                  | 5.5                  | AS <sup>2</sup> Cwire™ | 94                  | ±10                  | ±0.5                 | 30                                | 65                       | QFN44 16L 4 x 4 x 0.9<br>STDFN33 14L 3 x 3 x 0.55<br>TDFN33 14L 3 x 3 x 0.75<br>TSOPJW 14L<br>3.05 x 2.85 x 1.05 |
| AAT3192-1   | 2              | 2            | 1             | 2.7                  | 5.5                  | S <sup>2</sup> Cwire™  | 91                  | ±10                  | ±3                   | 30                                | 2500                     | SC70JW-10 10L 2.2 x 2 x 1.1  |
| AAT3193-1   | 3              | 3            | 1             | 2.7                  | 5.5                  | S <sup>2</sup> Cwire™  | 91                  | ±10                  | ±3                   | 30                                | 600                      | SC70JW 10L 2.2 x 2 x 1.1   |
| AAT3193-4   | 3              | 3            | 1             | 2.7                  | 5.5                  | PWM                    | 91                  | ±10                  | ±3                   | 30                                | 600                      | SC70JW 10L 2.2 x 2 x 1.1   |
| AAT3194     | 4              | 4            | 1             | 2.7                  | 5.5                  | S <sup>2</sup> Cwire™  | 93                  | ±20                  | ±0.3                 | 20                                | 3000                     | TSOPJW 12L 3 x 2.85 x 1  |
| AAT3195     | 4              | 4            | 1             | 2.7                  | 5.5                  | S <sup>2</sup> Cwire™  | 91                  | ±10                  | ±3                   | 30                                | 600                      | SC70JW 10L 2.2 x 2 x 1.1   |
| AAT3340     | 4              | 4            | 1             | 2.7                  | 5.5                  | S <sup>2</sup> Cwire™  | 86                  | ±10                  | ±3                   | 20                                | 1800                     | TSOPJW 12L 3 x 2.85 x 1<br>TDFN33 3 x 3 x 0.75   |
| AAT3351     | 4              | 4            | 1             | 2.7                  | 5.5                  | S <sup>2</sup> Cwire™  | 88                  | ±10                  | ±3                   | 30                                | 2000                     | TSOPJW 14L<br>2.85 x 3.05 x 1.05<br>TDFN33 12L 3 x 3 x 0.75  |
| AAT3369-1   | 6              | 6            | 1             | 2.7                  | 5.5                  | S <sup>2</sup> Cwire™  | 91                  | ±10                  | ±5                   | 21                                | 500                      | TQFN3x2.2 18L<br>3 x 2.2 x 0.75  |
















## Display and Lighting

### White LED Drivers

#### Linear White LED Backlight Drivers








| Part Number | Number of LEDs | LED Channels | LED(s) per/Ch | Min. V <sub>IN</sub> | Max. V <sub>IN</sub> | Interface             | Peak Efficiency (%) | Current Accuracy (%) | Current Matching (%) | Max. I <sub>OUT</sub> per/Ch (mA) | Typ. I <sub>Q</sub> (μA) | Package (mm)   |
|-------------|----------------|--------------|---------------|----------------------|----------------------|-----------------------|---------------------|----------------------|----------------------|-----------------------------------|--------------------------|--|
| AHK3292     | 2              | 2            | 1             | 2.7                  | 5.5                  | S <sup>2</sup> Cwire™ | 98                  | ±10                  | ±3                   | 30.2                              | 1800                     | SOT-23 6L<br>2.85 x 2.8 x 1.2                                  |
| AHK3293     | 3              | 3            | 1             | 2.7                  | 5.5                  | S <sup>2</sup> Cwire™ | 98                  | ±10                  | ±3                   | 30.2                              | 1800                     | SOT-23 6L<br>2.85 x 2.8 x 1.2                                  |
| AHK3294     | 4              | 4            | 1             | 2.7                  | 5.5                  | S <sup>2</sup> Cwire™ | 98                  | ±10                  | ±3                   | 30.2                              | 2500                     | SC70JW 8L<br>2 x 2.1 x 1.1                                     |
| AHK3296     | 6              | 6            | 1             | 2.7                  | 5.5                  | S <sup>2</sup> Cwire™ | 98                  | ±10                  | ±3                   | 20.6                              | 2500                     | SC70JW 10L<br>2.0 x 2.2 x 0.55<br>TDFN 10L<br>2.2 x 2.2 x 0.75 |

## Multi-function Power Management Integrated Circuit (PMIC / PMU)





| Part Number  | Number of LDO Reg. | Min. V <sub>IN</sub> (V) | Max. Reg V <sub>IN</sub> (V) | Max. Charger V <sub>IN</sub> (V) | Max. Charge Current (mA) | Max. Single/Ch Output Current (mA) | Min. Single/Ch Output Voltage (V) | Max. Step-Up Output Voltage (V) | Output Voltages Control      | Operating Frequency (kHz) | Package (mm)                     |
|--|--------------------|--------------------------|------------------------------|----------------------------------|--------------------------|------------------------------------|-----------------------------------|---------------------------------|------------------------------|---------------------------|----------------------------------|
|  AAT2550  | 0                  | 2.7                      | 5.5                          | 5.5                              | 1000                     | 600                                | 0.6                               | V <sub>IN</sub>                 | External Resistors           | 1400                      | QFN44 24L 4 x 4 x 0.93           |
|  AAT2552  | 1                  | 2.7                      | 5.5                          | 7.5                              | 500                      | 300                                | 0.6                               | V <sub>IN</sub>                 | External Resistors           | 1500                      | TDFN34 16L 3 x 4 x 0.75          |
|  AAT2554  | 1                  | 2.7                      | 5.5                          | 6.5                              | 500                      | 300                                | 0.6                               | V <sub>IN</sub>                 | External Resistors/<br>Fixed | 1500                      | TDFN34 16L 3 x 4 x 0.75          |
|  AAT2556  | 0                  | 2.7                      | 5.5                          | 6.5                              | 500                      | 250                                | 0.6                               | V <sub>IN</sub>                 | External Resistors           | 1500                      | TDFN33 12L 3 x 3 x 0.75          |
|  AAT2557  | 1                  | 2.7                      | 5.5                          | 6.5                              | 500                      | 300                                | N/A                               | V <sub>IN</sub>                 | Fixed                        | N/A                       | TSOPJW 14L<br>3.05 x 2.85 x 1.02 |
|  AAT2601  | 5                  | 4.5                      | 6.0                          | 6.0                              | 1440                     | 300                                | 1.8                               | N/A                             | Fixed                        | 1500                      | TQFN55 36L 5 x 5 x 0.8           |
|  AAT2601A | 5                  | 4.5                      | 6.0                          | 6.0                              | 1440                     | 300                                | 1.8                               | N/A                             | Fixed                        | 1500                      | TQFN55 36L 5 x 5 x 0.8           |
|  AAT2601B | 5                  | 4.5                      | 6.0                          | 6.0                              | 1440                     | 300                                | 1.8                               | N/A                             | Fixed                        | 1500                      | TQFN55 36L 5 x 5 x 0.8           |
|  AAT2603  | 4                  | 2.7                      | 5.5                          | 6.0                              | N/A                      | 1200                               | 0.6                               | V <sub>IN</sub>                 | External Resistors           | 1500                      | TQFN44 28L 4 x 4 x 0.75          |
|  AAT2605  | 5                  | 2.7                      | 5.5                          | N/A                              | N/A                      | 300                                | 0.6                               | N/A                             | Fixed                        | N/A                       | TDFN33 14L 3 x 3 x 0.75          |
|  AAT2606  | 6                  | 2.7                      | 5.5                          | N/A                              | N/A                      | 300                                | 0.6                               | N/A                             | Fixed                        | N/A                       | TDFN33 14L 3 x 3 x 0.75          |
|  AAT2608  | 8                  | 2.7                      | 5.5                          | N/A                              | N/A                      | 800                                | 0.6                               | N/A                             | Fixed                        | 1500                      | TQFN44 28L 4 x 4 x 0.75          |
|  AAT2608A | 8                  | 2.7                      | 5.5                          | N/A                              | N/A                      | N/A                                | 0.6                               | N/A                             | Fixed                        | 1500                      | TQFN44 28L 4 x 4 x 0.75          |
|  AAT2610  | 0                  | 1.6                      | 5.5                          | N/A                              | N/A                      | 1500                               | 0.6                               | 30                              | External Resistors           | 1500                      | TQFN55 40L 5 x 5 x 0.75          |
|  AAT2612  | 3                  | 2.5                      | 5.5                          | N/A                              | N/A                      | 600/300                            | 1.0/1.8                           | N/A                             | Enables                      | 1500                      | TQFN33 20L 3 x 3 x 0.75          |



## Multi-function Power Management Integrated Circuit (PMIC / PMU) (Continued)

| Part Number  | Number of LDO Reg. | Min. $V_{IN}$ (V) | Max. Reg $V_{IN}$ (V) | Max. Charger $V_{IN}$ (V) | Max. Charge Current (mA) | Max. Single/Ch Output Current (mA) | Min. Single/Ch Output Voltage (V) | Max. Step-Up Output Voltage (V) | Output Voltages Control              | Operating Frequency (kHz) | Package (mm)   |
|--|--------------------|-------------------|-----------------------|---------------------------|--------------------------|------------------------------------|-----------------------------------|---------------------------------|--------------------------------------|---------------------------|--|
|  AAT2614  | 1                  | 2.5               | 5.5                   | N/A                       | N/A                      | 600/300                            | 1.0/1.8                           | N/A                             | Fixed                                | 2000                      | TQFN33 20L 3 x 3 x 0.75 or 16-bump CSP-0.4 1.65 x 1.65 |
|  AAT2630  | 8                  | 3.0               | 5.5                   | N/A                       | N/A                      | 500                                | 1.375                             | N/A                             | Fixed                                | 1920                      | WLCSP 49B 3.0 x 3.0 x 0.65                             |
|  AAT3601  | 5                  | 4.5               | 6.0                   | 6.0                       | 1440                     | 300                                | 1.24                              | N/A                             | Fixed                                | 1500                      | TQFN 36L 5 x 5 x 0.8                                   |
|  AAT3603  | 5                  | 4.5               | 6.0                   | 6.0                       | 1440                     | 300                                | 1.8                               | N/A                             | I <sup>2</sup> C/Fixed               | 1500                      | TQFN 36L 5 x 5 x 0.8                                   |
|  AAT3603A | 5                  | 4.5               | 6.0                   | 6.0                       | 1440                     | 300                                | 1.8                               | N/A                             | I <sup>2</sup> C/Fixed               | 1500                      | TQFN 36L 5 x 5 x 0.8                                   |
|  AAT3604B | 1                  | 2.7               | 4.5                   | 6.5                       | 100                      | 25                                 | 0.6                               | 27                              | Enables                              | 1600                      | QFN44 24L 4 x 4 x 0.9                                  |
|  AAT3608  | 5                  | 2.7               | N/A                   | 5.5                       | 1200                     | 800/800/<br>300/80/<br>80/50/50    | 0.6                               | N/A                             | I <sup>2</sup> C<br>Enables/<br>GPIO | 1500                      | TQFN 40L 5 x 5 x 0.75                                  |





## Power Half Bridges

| Part Number   | Break Before Make Time (ns) | Max. $I_{OUT}$ (mA) | Logic Input | Typ. $R_{DS(ON)}$ (m $\Omega$ ) High Side Switch | Typ. $R_{DS(ON)}$ (m $\Omega$ ) Low Side Switch | $V_{IN}$ (V) | Package (mm)   |
|---|-----------------------------|---------------------|-------------|--|---|--------------|--|
|  AAT4900 | 5                           | 1000                | Yes         | 130  | 105   | 2.7–5.5      | SOT-23 5L 2.85 x 2.80 x 1.20, SC70JW 8L 2.0 x 2.1 x 1.05 |
|  AAT4901 | 5                           | 700                 | Yes         | 220  | 160   | 2.0–5.5      | SC70JW 8L 2.0 x 2.1 x 1.05                               |
|  AAT4902 | 100                         | 400                 | Yes         | 350  | 350   | 2.5–5.5      | CSP 9L 1.2 x 1.2 x 0.62                                  |
|  AAT4910 | 50                          | N/A                 | Yes         | 3000   | 1700  | 4.5–28       | SC70JW 8L 2.2 x 2.0 x 1.05                               |

## Port Protection and Power Distribution

### Current Limited Load Switches



















#### Multiple Input High Side Switches—Current Limiters

| Part Number   | Number of Channels | Enable | Fault Flag | $I_{LIM}$ | Typ. $I_Q$ ( $\mu$ A) | Typ. $R_{DS(ON)}$ (m $\Omega$ ) | Shutdown | $V_{IN}$ (V) | Package (mm)               |
|---|--------------------|--------|------------|-----------|-----------------------|---------------------------------|----------|--------------|----------------------------|
|  AAT4650 | 2                  | No     | Yes        | Fixed 1 A | 15                    | 80                              | Yes      | 2.7–5.5      | SOP 8L 4.9 x 6.0 x 1.55    |
|  AAT4670 | 2                  | No     | Yes        | Fixed 1 A | 18                    | 95                              | Yes      | 2.2–5.5      | SOP 8L 4.9 x 6.0 x 1.55    |
|  AAT4672 | 2                  | Yes    | Yes        | 2 A       | 10                    | 120                             | No       | 2.5–6.0      | TSOPJW 12L 3 x 1.85 x 1.02 |
|  AAT4674 | 2                  | Yes    | No         | 2 A       | 10                    | 120                             | No       | 2.5–6.0      | TSOPJW 12L 3 x 1.85 x 1.02 |

## Port Protection and Power Distribution







### Current Limited Load Switches

#### Single Input Side Switches—Current Limiters






| Part Number   | Number of Channels | Enable | Fault Flag | $I_{LIM}$                    | Typ. $I_Q$ ( $\mu A$ ) | Typ. $R_{DS(ON)}$ ( $m\Omega$ ) | $V_{IN}$ (V) | Package (mm)   |
|---|--------------------|--------|------------|------------------------------|------------------------|---------------------------------|--------------|--|
|  AAT4601             | 1                  | Yes    | Yes        | Adj. 1.8 A                   | 12                     | 70                              | 2.7–5.5      | SOP 8L 4.9 x 6.0 x 1.55  |
|  AAT4601A            | 1                  | Yes    | Yes        | Adj. 1.8 A                   | 12                     | 70                              | 2.7–5.5      | SOP 8L 4.9 x 6.0 x 1.55,<br>MSOP 8L 4.9 x 3.0 x 0.95   |
|  AAT4608             | 1                  | No     | No         | Adj. 1 A                     | 15                     | 160                             | 2.7–5.5      | SOT-23 5L 2.85 x 2.80 x 1.20   |
|  AAT4610             | 1                  | Yes    | No         | Adj. 1 A                     | 15                     | 160                             | 2.7–5.5      | SOT-23 5L 2.85 x 2.80 x 1.20   |
|  AAT4610A            | 1                  | Yes    | No         | Adj. 1 A                     | 9                      | 145                             | 2.4–5.5      | SOT-23 5L 2.85 x 2.80 x 1.20,<br>SC70JW 8L 2.0 x 2.1 x 1.05                                  |
|  AAT4610B            | 1                  | Yes    | No         | Adj. 1 A                     | 9                      | 145                             | 2.4–5.5      | SOT-23 5L 2.85 x 2.80 x 1.20,<br>SC70JW 8L 2.0 x 2.1 x 1.05                                  |
|  AAT4611             | 1                  | Yes    | No         | Adj. 1 A                     | 15                     | 160                             | 2.7–5.5      | SOT-23 5L 2.85 x 2.80 x 1.20   |
|  AAT4614             | 1                  | Yes    | Yes        | Adj. 1.6 A                   | 10                     | 160                             | 2.4–5.5      | SC70JW 8L 2.0 x 2.1 x 1.05,<br>SOT-23 6L 2.85 x 2.80 x 1.20,<br>SOT-23 5L 2.85 x 2.80 x 1.20 |
|  AAT4616             | 1                  | Yes    | Yes        | 300 mA to 1.6 A              | 10                     | 130                             | 2.4–5.5      | SOT-23 5L 2.85 x 2.80 x 1.20,<br>TDFN22-8 2 x 2 x 0.75                                       |
|  AAT4616A            | 1                  | Yes    | Yes        | 300 mA to 1.6 A              | 10                     | 130                             | 2.4–5.5      | TDFN22 6L 2 x 2 x 0.75   |
|  AAT4618             | 1                  | Yes    | Yes        | Fixed 400 mA,<br>500 mA, 1 A | 10                     | 125                             | 2.4–5.5      | SOT-23 5L 2.85 x 2.80 x 1.20,<br>SC70JW 8L 2.0 x 2.1 x 1.05                                  |
|  AAT4620           | 1                  | Yes    | Yes        | Adj. to 1.2 A                | 40                     | 65                              | 3.0–5.5      | TSOPJW 12L 3 x 2.85 x 1.02   |
|  AAT4621           | 1                  | Yes    | Yes        | Adj. 1.2 A                   | 40                     | 65                              | 3.0–5.5      | TDFN 14L 3 x 3 x 0.75  |
|  AAT4625           | 1                  | Yes    | Yes        | Fixed 1 A,<br>1.5 A, 2 A     | 16                     | 60                              | 2.7–5.5      | SOP 8L 4.9 x 6.0 x 1.55,<br>MSOP 8L 4.9 x 3.0 x 0.95   |
|  AAT4626           | 2                  | Yes    | Yes        | Fixed 750 mA,<br>1 A, 1.5 A  | 20                     | 90                              | 2.7–5.5      | SOP 8L 4.9 x 6.0 x 1.55  |
|  AAT4631/AAT4631-1 | 1                  | Yes    | Yes        | 500 mA to 3.1 A              | 10                     | 90                              | 2.4–5.5      | TDFN2222-10<br>2.2 x 2.2 x 0.75  |
|  AAT4644           | 4                  | No     | No         | Fixed 600 mA,<br>1 A, 1.5 A  | 20                     | 100                             | 2.7–5.5      | TSSOP 8L 3.0 x 6.4 x 1.2,<br>SOP 8L 4.9 x 6.0 x 1.55   |
|  AAT4702           | 1                  | Yes    | Yes        | 150 mA, 1 A                  | 15                     | 220                             | 2.4–5.5      | FTDFN22 8L 2 x 2 x 0.75  |

## Port Protection and Power Distribution

### I/O Expander Serial Controlled Load Switches









| Part Number  | Number of Channels | Enable                 | Turn On Rise Time (T <sub>R</sub> ) | Typ. R <sub>DS(ON)</sub> (mΩ) | Typ. I <sub>Q</sub> (μA) | V <sub>IN</sub> (V) | Package (mm)   |
|--|--------------------|------------------------|-------------------------------------|-------------------------------|--------------------------|---------------------|--|
|  AAT4290  | 5                  | S <sup>2</sup> Cwire™  | 0.27 μs                             | 1100                          | 4.5                      | 1.8–5.5             | SC70JW 8L 2.0 x 2.1 x 1.05                                 |
|  AAT4290A | 5                  | S <sup>2</sup> Cwire™  | 0.27 μs                             | 1100                          | 4.5                      | 1.8–5.5             | SC70JW 8L 2.0 x 2.1 x 1.05                                 |
|  AAT4291  | 3                  | S <sup>2</sup> Cwire™  | 0.27 μs                             | 1100                          | 4.5                      | 1.8–5.5             | SC70JW 8L 2.0 x 2.1 x 1.05                                 |
|  AAT4292  | 7                  | AS <sup>2</sup> Cwire™ | 0.27 μs                             | 1100                          | 6.3                      | 1.8–5.5             | SC70JW 10L 2.2 x 2.0 x 0.55                                |
|  AAT4296  | 5                  | S <sup>2</sup> Cwire™  | 1.6 μs                              | Pch 2.5, Nch 1.9              | 3.0                      | 1.8–5.5             | SC70JW 8L 2.0 x 2.1 x 1.05                                 |
|  AAT4298  | 6                  | S <sup>2</sup> Cwire™  | 1.6 μs                              | Pch 2.5, Nch 1.9              | 3.0                      | 1.8–5.5             | SC70JW 10L 2.2 x 2.0 x 0.55,<br>TSOPJW 12L 3 x 2.85 x 1.02 |

### Over Voltage Protection








| Part Number  | Number of Channels | Enable | Fault Flag | I <sub>LIM</sub> | Typ. I <sub>Q</sub> (μA) | Typ. R <sub>DS(ON)</sub> (mΩ) | V <sub>IN</sub> (V) | Package (mm)               |
|--|--------------------|--------|------------|------------------|--------------------------|-------------------------------|---------------------|----------------------------|
|  AAT4684    | 1                  | Yes    | Yes        | 1.8 A            | 30                       | 100                           | 3.0–14              | TSOPJW 12L 3 x 2.85 x 1.02 |
|  AAT4685    | 1                  | Yes    | Yes        | 1.9 A            | 600                      | 120                           | 3.0–28              | TDFN33 12L 3 x 3 x 0.75    |
|  AAT4686    | 1                  | Yes    | Yes        | N/A              | 30                       | N/A                           | 3.0–14              | SC70JW 8L 2 x 2.1 x 1.05   |
|  AAT4687    | 1                  | Yes    | Yes        | N/A              | 30                       | 130                           | 3.0–14              | SC70JW 10L 2 x 2 x 1.1     |
|  AAT4687-1 | 1                  | Yes    | Yes        | N/A              | 45                       | 120                           | 2.2–14              | SC70JW 10L 2 x 2 x 1.1     |

## Port Protection and Power Distribution

### Slew Rate Controlled

| Part Number  | Description                           | Number of Channels | Enable | Turn On Rise Time (T <sub>R</sub> ) | Typ. R <sub>DS(ON)</sub> (mΩ) | Typ. I <sub>Q</sub> (μA) | V <sub>IN</sub> (V) | Package (mm)   |
|--|---------------------------------------|--------------------|--------|-------------------------------------|-------------------------------|--------------------------|---------------------|--|
|  AAT4250  | Slew Rate Controlled Load Switch      | 1                  | Yes    | 1.5 ms                              | 120                           | 2.000                    | 1.8–5.5             | SOT-23 5L (SOT25) 2.85 x 2.8 x 1.2, SC70JW 8L 2 x 2.1 x 1.05 |
|  AAT4252A | Dual Slew Rate Controlled Load Switch | 2                  | Yes    | 1.0 ms, 0.5 μs, 100 μs              | 87                            | 0.500                    | 1.5–6.5             | TSOPJW 12L 3 x 2.85 x 1.02                                   |
|  AAT4280  | Slew Rate Controlled Load Switch      | 1                  | Yes    | 0.5 μs, 0.1 ms, 1.0 ms              | 80                            | 2.500                    | 1.8–5.5             | SOT-23 6L 2.85 x 2.8 x 1.2, SC70JW 8L 2.2 x 2 x 1.05         |
|  AAT4280A | Slew Rate Controlled Load Switch      | 1                  | Yes    | 0.5 μs, 0.1 ms, 1.0 ms              | 80                            | 0.025                    | 1.5–5.5             | SOT-23 6L 2.85 x 2.8 x 1.2, SC70JW 8L 2.2 x 2 x 1.05         |
|  AAT4282A | Dual Slew Rate Controlled Load Switch | 2                  | Yes    | 0.5 μs, 0.1 ms, 1.0 ms              | 60                            | 1.000                    | 1.5–6.5             | FTDFN22-8 2 x 2 x 0.75, SC70JW 8L 2.2 x 2 x 1.05             |
|  AAT4282B | –                                     | 2                  | Yes    | 0.065 ms, 0.75 ms                   | 67                            | 0.040                    | 1.5–6.5             | TDFN22-8, 2 x 2 x 0.75                                       |
|  AAT4285  | 12 V Slew Rate Controlled Load Switch | 1                  | Yes    | 0.1 ms                              | 240                           | 25.000                   | 3.0–13.2            | SC70JW 8L 2.2 x 2 x 1.05                                     |
|  SKY84632 | –                                     | 1                  | Yes    | 2 ms                                | 40                            | 9.000                    | 1.5–5.5             | CSP-6 1 x 1 x 0.625  |

## Supervisors / Monitors, Voltage Detectors—Microprocessors

| Part Number   | Accuracy (%) | Manual Reset | Output: Active Low, Open Drain | Output: Push-Pull Active High | Output: Push-Pull Active Low | Typ. I <sub>Q</sub> (μA) | Threshold (V) | V <sub>IN</sub> (V) | Watchdog Timer | Package (mm)                |
|---|--------------|--------------|--------------------------------|-------------------------------|------------------------------|--------------------------|---------------|---------------------|----------------|-----------------------------|
|  AAT3510 | ±1.5         | Yes          | No                             | No                            | Yes                          | 5.00                     | 2.6–5.0       | 1.0–5.5             | Yes            | SOT-23 5L 2.85 x 2.8 x 1.2  |
|  AAT3515 | ±1.5         | Yes          | No                             | Yes                           | Yes                          | 5.00                     | 2.6–5.0       | 1.0–5.5             | No             | SOT-23 5L 2.85 x 2.8 x 1.2  |
|  AAT3517 | ±1.5         | Yes          | Yes                            | No                            | Yes                          | 5.00                     | 2.6–5.0       | 1.0–5.5             | Yes            | SOT-23 5L 2.85 x 2.8 x 1.2  |
|  AAT3518 | ±1.5         | No           | Yes                            | No                            | No                           | 5.00                     | 2.6–5.0       | 1.0–5.5             | Yes            | SOT-23 5L 2.85 x 2.8 x 1.2  |
|  AAT3522 | ±1.5         | No           | No                             | No                            | Yes                          | 0.85                     | 2.2–4.6       | 1.2–5.5             | No             | SOT23 3L 2.92 x 2.37 x 0.96 |
|  AAT3524 | ±1.5         | No           | Yes                            | No                            | Yes                          | 0.85                     | 2.2–4.6       | 1.2–5.5             | No             | SOT23 3L 2.92 x 2.37 x 0.96 |
|  AAT3532 | ±2.6         | Yes          | Yes                            | Yes                           | No                           | 23.00                    | 4.5, 4.75     | 4.5–5.5             | Yes            | SOP 8L 4.9 x 6 x 1.55       |

## RF PASSIVES

### MIS Silicon Chip Capacitors

Skyworks Solutions' metal-insulator-semiconductor (MIS) chip capacitors are available in a wide range of capacitance values and die sizes for chip-and-wire circuits requiring DC blocking, RF bypassing, or as tuning elements in filters, oscillators, and matching networks.

The capacitors have a dielectric composed of thermally-grown silicon dioxide over which a layer of silicon nitride is deposited. This two-layer dielectric produces a very a low temperature coefficient of capacitance, very high insulation resistance, outstanding long-term stability, and excellent reliability. The temperature coefficient of capacitance is less than 50 ppm/°C, and the capacitors are suitable for operation from -65 °C to 200 °C. Skyworks' MIS chip capacitors offer very high Q.

Wafers can be supplied on expanded film frame for automatic pick-and-place manufacturing. To reduce cost, chips can be supplied packaged in vials with sample electrical testing. Packaging in waffle packs with 100 percent electrical test and visual inspection is available, if required.

| Part Number | Capacitance Value (pF) ±20% | Die Size (mils) |
|-------------|-----------------------------|-----------------|
| SC00080912  | 0.8                         | 12 x 12         |
| SC00120912  | 1.2                         | 12 x 12         |
| SC00180912  | 1.8                         | 12 x 12         |
| SC00260912  | 2.6                         | 12 x 12         |
| SC00380912  | 3.8                         | 12 x 12         |
| SC00560912  | 5.6                         | 12 x 12         |
| SC00680912  | 6.8                         | 12 x 12         |
| SC00820710  | 8.2                         | 10 x 10         |
| SC00821518  | 8.2                         | 18 x 18         |
| SC01000710  | 10                          | 10 x 10         |
| SC01000912  | 10                          | 12 x 12         |
| SC01001518  | 10                          | 18 x 18         |
| SC01500912  | 15                          | 12 x 12         |
| SC01501518  | 15                          | 18 x 18         |
| SC02201518  | 22                          | 18 x 18         |
| SC03301518  | 33                          | 18 x 18         |
| SC04701518  | 47                          | 18 x 18         |
| SC06801518  | 68                          | 18 x 18         |
| SC10002430  | 100                         | 30 x 30         |
| SC33303440  | 333                         | 40 x 40         |
| SC50004450  | 500                         | 50 x 50         |
| SC99906068  | 1000                        | 68 x 68         |

## Couplers

Skyworks' wideband directional couplers come in low profile SOT-6 surface mount packages and address diverse markets such as WLAN, wireless infrastructure, test & measurement, distortion cancellation, RFID readers, and other RF/microwave applications. These products offer excellent insertion loss, very good directivity, high isolation, and low input/out VSWR.

Skyworks also offers a broad selection of monolithic hybrid couplers in surface mount packages for diverse markets such as WLAN, wireless infrastructure, automotive, test & measurement, energy management, and other RF/microwave applications. These couplers are utilized for generation of quadrature signals as found in balanced signal chains, I/Q modulators, I/Q demodulators, analog phase shifters, analog variable attenuators, and more. Their low insertion loss, excellent phase, and amplitude balance produce outstanding system performance.

These product solutions leverage the extensive design knowledge, technical leadership, manufacturing expertise, and superior quality of Skyworks.

### Directional Couplers

| Part Number | Frequency (GHz) | Typ. Insertion Loss (dB) | Typ. Isolation (dB) | Typ. Input VSWR | Typ. Output VSWR | Typ. Coupling (dB) | Typ. Coupled Port VSWR | Package (mm)                  |
|-------------|-----------------|--------------------------|---------------------|-----------------|------------------|--------------------|------------------------|-------------------------------|
| DC08-73LF   | 0.81–0.96       | 0.45                     | 22                  | 1.05:1          | 1.05:1           | 15.0               | 1.2:1                  | SOT-23 6L<br>2.8 x 2.9 x 1.18 |
| DC09-73LF   | 0.81–0.96       | 0.20                     | 30                  | 1.1:1           | 1.1:1            | 19.8               | 1.1:1                  | SOT-23 6L<br>2.8 x 2.9 x 1.18 |
| DC16-73LF   | 1.42–1.99       | 0.30                     | 24                  | 1.1:1           | 1.1:1            | 15.0               | 1.1:1                  | SOT-23 6L<br>2.8 x 2.9 x 1.18 |
| DC18-73LF   | 1.71–1.99       | 0.20                     | 38                  | 1.1:1           | 1.1:1            | 18.8               | 1.2:1                  | SOT-23 6L<br>2.8 x 2.9 x 1.18 |
| DC25-73LF   | 2.30–2.60       | 0.20                     | 33                  | 1.1:1           | 1.1:1            | 17.2               | 1.3:1                  | SOT-23 6L<br>2.8 x 2.9 x 1.18 |

## Detectors

Skyworks' directional detectors incorporate innovative directional technology along with our advanced Schottky diode technology to produce a wide bandwidth, wide power range detector circuit with excellent directivity, and low insertion loss that is easily temperature compensated with a single differential amplifier. This product is well-suited for use in radio infrastructure transmitter automatic level control systems, power amplifier monitors, and many other applications.

### Directional Detectors

| Part Number | Frequency (GHz) | Typ. Insertion Loss (dB) | Directivity (dB) | Typ. Input VSWR | Typ. Output VSWR | Directed Output Voltage (dBm)        | Package (mm)               |
|-------------|-----------------|--------------------------|------------------|-----------------|------------------|--------------------------------------|----------------------------|
| DD02-999LF  | 0.65–3.0        | 0.2                      | 2                | 1.1:1           | 1.1:1            | 80 mV @ 900 MHz<br>160 mV @ 1800 MHz | SC-88 6L<br>2.1 x 2 x 0.95 |

## Fixed Attenuator Pads
















Skyworks Solutions is pleased to now offer two fixed attenuator pad options for radar, test & measurement, high frequency transceivers, and other high performance microwave applications up to 40 GHz. The next generation ATN3590 series offers enhanced RF power handling and attenuation flexibility. The unique ATN3590 die design eliminates the need for RF ground bonds enabling greatly improved return loss and attenuation flatness across multi-octave bandwidths.

These two product solutions, available in die form, leverage Skyworks' extensive design knowledge, technical leadership, manufacturing expertise, and superior quality.

The ATN3590 and ATN3580 attenuator families are optimized for surface mounting on co-planar waveguide or microstrip printed circuit boards. Bond wires or ribbons are used to connect the input and output ports of the attenuators to the external circuit transmission lines. Connection to ground is accomplished by through-die vias to the die backside metallization on the ATN3590 family and bond wires or ribbons on the ATN3580 family.

The dice are attached using eutectic solder or conductive epoxy and can operate over a temperature range of -65 °C to 150 °C.

### ATN3580 Fixed Attenuator Pads

| Part Number  | Nominal Attenuation (dB) | Attenuation Tolerance @ DC (dB) | Attenuation Flatness |                   |                 | Return Loss     |                   |                 |
|--|--------------------------|---------------------------------|----------------------|-------------------|-----------------|-----------------|-------------------|-----------------|
|  |                          |                                 | 0.1–12 GHz (dB)      | 0.1–26.5 GHz (dB) | 0.1–40 GHz (dB) | 0.1–12 GHz (dB) | 0.1–26.5 GHz (dB) | 0.1–40 GHz (dB) |
|  ATN3580-01   | 1                        | ±0.15                           | 0.2                  | 0.4               | 0.6             | 23              | 18                | 15              |
|  ATN3580-02   | 2                        | ±0.15                           | 0.2                  | 0.4               | 0.6             | 23              | 18                | 15              |
|  ATN3580-03   | 3                        | ±0.25                           | 0.2                  | 0.4               | 0.6             | 23              | 18                | 15              |
|  ATN3580-04   | 4                        | ±0.25                           | 0.2                  | 0.4               | 0.6             | 23              | 18                | 15              |
|  ATN3580-05 | 5                        | ±0.25                           | 0.3                  | 0.5               | 0.8             | 23              | 18                | 15              |
|  ATN3580-06 | 6                        | ±0.25                           | 0.3                  | 0.5               | 0.8             | 23              | 18                | 15              |
|  ATN3580-07 | 7                        | ±0.25                           | 0.3                  | 0.5               | 0.8             | 23              | 18                | 15              |
|  ATN3580-08 | 8                        | ±0.35                           | 0.3                  | 0.5               | 0.8             | 23              | 18                | 15              |
|  ATN3580-09 | 9                        | ±0.35                           | 0.3                  | 0.5               | 0.8             | 23              | 18                | 15              |
|  ATN3580-10 | 10                       | ±0.35                           | 0.4                  | 0.6               | 1.0             | 23              | 18                | 15              |
|  ATN3580-12 | 12                       | ±0.50                           | 0.4                  | 0.6               | 1.0             | 23              | 18                | 15              |
|  ATN3580-15 | 15                       | ±0.50                           | 0.4                  | 0.6               | 1.0             | 23              | 18                | 15              |
|  ATN3580-20 | 20                       | ±1.10                           | 0.4                  | 0.6               | 1.0             | 23              | 18                | 15              |
|  ATN3580-30 | 30                       | ±1.60                           | 0.6                  | 1.0               | 2.0             | 23              | 18                | 15              |
|  ATN3580-40 | 40                       | ±1.60                           | 1.0                  | 2.0               | 4.0             | 23              | 18                | 15              |
















## Fixed Attenuator Pads

The ATN3590 family of fixed resistive attenuators are integrated circuits comprising thin film resistors and through-die vias that provide excellent attenuation flatness from low frequency to 40 GHz or higher. These attenuators are available from 0 to 30 dB.

The ATN3590 attenuator family is optimized for surface mounting on co-planar waveguide or microstrip printed circuit boards. Bond wires or ribbons are used to connect the input and output ports of the attenuators to the external circuit transmission lines. Connection to ground is accomplished by through-die vias to the die backside metallization.

The dice are attached using eutectic solder or conductive epoxy and can operate over a temperature range of -65 °C to 150 °C.

### ATN3590 Fixed Attenuator Pads


| Part Number  | Nominal Attenuation (dB) | Attenuation Tolerance @ DC (dB) | Attenuation Flatness |                |                |                | Return Loss    |                |                |                |
|--|--------------------------|---------------------------------|----------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
|  |                          |                                 | DC–12 GHz (dB)       | 12–26 GHz (dB) | 26–33 GHz (dB) | 33–40 GHz (dB) | DC–12 GHz (dB) | 12–26 GHz (dB) | 26–33 GHz (dB) | 33–40 GHz (dB) |
|  ATN3590-00   | 0                        | 0.25                            | ±0.15                | ±0.15          | ±0.20          | ±0.20          | 28             | 24             | 20             | 16             |
|  ATN3590-01   | 1                        | ±0.20                           | ±0.15                | ±0.15          | ±0.20          | ±0.20          | 28             | 24             | 20             | 16             |
|  ATN3590-02   | 2                        | ±0.20                           | ±0.15                | ±0.15          | ±0.20          | ±0.20          | 28             | 24             | 20             | 16             |
|  ATN3590-03   | 3                        | ±0.20                           | ±0.15                | ±0.15          | ±0.20          | ±0.20          | 28             | 24             | 20             | 16             |
|  ATN3590-04   | 4                        | ±0.20                           | ±0.15                | ±0.15          | ±0.20          | ±0.20          | 28             | 24             | 20             | 16             |
|  ATN3590-05   | 5                        | ±0.20                           | ±0.15                | ±0.15          | ±0.20          | ±0.20          | 28             | 24             | 20             | 16             |
|  ATN3590-06  | 6                        | ±0.40                           | ±0.15                | ±0.15          | ±0.20          | ±0.20          | 28             | 24             | 20             | 16             |
|  ATN3590-07 | 7                        | ±0.40                           | ±0.15                | ±0.15          | ±0.20          | ±0.20          | 28             | 24             | 20             | 16             |
|  ATN3590-08 | 8                        | ±0.40                           | ±0.15                | ±0.15          | ±0.20          | ±0.20          | 28             | 24             | 20             | 16             |
|  ATN3590-09 | 9                        | ±0.40                           | ±0.20                | ±0.20          | ±0.25          | ±0.30          | 28             | 24             | 20             | 16             |
|  ATN3590-10 | 10                       | ±0.40                           | ±0.20                | ±0.20          | ±0.25          | ±0.50          | 28             | 24             | 20             | 16             |
|  ATN3590-12 | 12                       | ±0.40                           | ±0.20                | ±0.20          | ±0.30          | ±0.50          | 28             | 24             | 20             | 16             |
|  ATN3590-15 | 15                       | ±0.40                           | ±0.20                | ±0.20          | ±0.50          | ±0.75          | 28             | 24             | 20             | 16             |
|  ATN3590-20 | 20                       | ±1.0                            | ±0.20                | ±0.20          | ±0.75          | ±1.0           | 28             | 24             | 20             | 16             |
|  ATN3590-30 | 30                       | ±1.0                            | ±0.20                | ±0.25          | ±0.75          | ±2.5           | 28             | 24             | 20             | 16             |



## Power Dividers / Combiners

Skyworks Solutions offers a broad selection of monolithic 2-way and 4-way power divider/combiners in surface mount packages for diverse markets such as WLAN, wireless infrastructure, automotive, test and measurement, energy management, and other RF/microwave applications. These divider/combiners are utilized to equally split signals into in-phase signals as found in balanced signal chains, local oscillator distribution networks, and more. Conversely, they can also be used to combine two or four signals while providing excellent isolation between the individual signal sources. Their low insertion loss, excellent phase, and amplitude balance produce outstanding system performance. The solutions we offer leverage the extensive design knowledge, technical leadership, manufacturing expertise, and superior quality of Skyworks.

### Power Dividers—2 Way

| Part Number  | Frequency (GHz) | Typ. Insertion Loss Less 3 dB Split | Typ. Isolation (dB) | Typ. Input VSWR | Typ. Output VSWR | Amplitude Balance (dB) | Typ. Phase Balance (Deg.) | Total Max. Power w/2.0:1 All Ports | Package (mm)                   |
|--|-----------------|-------------------------------------|---------------------|-----------------|------------------|------------------------|---------------------------|------------------------------------|--------------------------------|
| PD09-73LF  | 0.81–0.96       | 0.40                                | 25                  | 1.2:1           | 1.3:1            | ±0.1                   | ±1                        | 1.5 W                              | SOT-23 6L<br>2.8 x 2.9 x 1.18  |
| PD15-73LF  | 1.42–1.66       | 0.40                                | 23                  | 1.2:1           | 1.2:1            | ±0.1                   | ±1                        | 1.5 W                              | SOT-23 6L<br>2.8 x 2.9 x 1.18  |
| PD16-73LF  | 1.42–1.66       | 0.40                                | 23                  | 1.2:1           | 1.2:1            | ±0.1                   | ±1                        | 1.5 W                              | SOT-23 6L<br>2.8 x 2.9 x 1.18  |
| PD18-73LF  | 1.71–1.99       | 0.40                                | 23                  | 1.3:1           | 1.2:1            | ±0.1                   | ±1                        | 1.5 W                              | SOT-23 6L<br>2.8 x 2.9 x 1.18  |
| PD19-73LF  | 1.71–1.99       | 0.55                                | 25                  | 1.3:1           | 1.2:1            | ±0.1                   | ±1                        | 1.5 W                              | SOT-23 6L<br>2.8 x 2.9 x 1.18  |
| PD22-73LF  | 2.10–2.30       | 0.55                                | 18                  | 1.5:1           | 1.1:1            | ±0.1                   | ±1                        | 1.5 W                              | SOT-23 6L<br>2.8 x 2.9 x 1.18  |
|  SKY16406-381LF | 2.20–2.80       | 0.30                                | 28                  | 1.2:1           | 1.2:1            | ±0.1                   | ±1                        | 2.0 W                              | 6-pin DFN,<br>1.5 x 2.0 x 0.75 |

## Power Dividers / Combiners

### Power Dividers—4 Way

| Part Number | Frequency (GHz) | Typ. Insertion Loss Less 6 dB Split | Typ. Isolation (dB) | Typ. Input VSWR | Typ. Output VSWR | Amplitude Balance (dB) | Typ. Phase Balance (Deg.) | Total Max. Power w/2.0:1 All Ports | Package (mm)              |
|-------------|-----------------|-------------------------------------|---------------------|-----------------|------------------|------------------------|---------------------------|------------------------------------|---------------------------|
| PD4W09-12LF | 0.81–0.96       | 1.3                                 | 23                  | 1.2:1           | 1.2:1            | ±0.4                   | ±6                        | 1.5 W                              | SOIC 8L<br>6 x 4.9 x 1.6  |
| PD4W09-59LF | 0.81–0.96       | 1.3                                 | 23                  | 1.2:1           | 1.2:1            | ±0.4                   | ±6                        | 1.5 W                              | MSOP 8L<br>4.9 x 3 x 0.96 |
| PD4W18-12LF | 1.71–1.99       | 0.7                                 | 25                  | 1.6:1           | 1.2:1            | ±0.3                   | ±5                        | 1.5 W                              | SOIC 8L<br>6 x 4.9 x 1.6  |
| PD4W18-59LF | 1.71–1.99       | 0.7                                 | 25                  | 1.3:1           | 1.3:1            | ±0.3                   | ±5                        | 1.5 W                              | MSOP 8L<br>4.9 x 3 x 0.96 |

### Phase Shifter

| Part Number | Frequency (MHz) | Description                      | Max. Insertion Loss (dB) | Min. Phase Shift (Deg.) | Min. IP3 (dBm) | Control Voltage Range (V) | Package (mm)           |
|-------------|-----------------|----------------------------------|--------------------------|-------------------------|----------------|---------------------------|------------------------|
| PS088-315   | 700–1100        | Voltage Controlled Phase Shifter | 2.8                      | 85                      | 33             | 0–12                      | MCM<br>4.9 x 3.2 x 1.0 |

## SWITCHES

Skyworks Solutions is pleased to offer a broad selection of GaAs switches for diverse markets such as WLAN, handset, wireless infrastructure, SatCom (LNB/DBS-CATV), automotive, test & measurement, energy management, and other microwave applications. Skyworks' switches are available in many different configurations including broadband, high power, high isolation, low insertion loss, reflective, and non-reflective. Our lead (Pb)-free, RoHS-compliant and Green™ high quality products are available for applications including antenna transmit/receive (T/R) switches for use in cellular handsets and WLAN systems, synthesizer switches for infrastructure needs, and many other high volume, high performance requirements. These switch product solutions leverage the extensive design knowledge, technical leadership, manufacturing expertise, and superior quality of Skyworks.

### Select General Purpose RF Switches

#### Select Switches Available from Stock for Prototype or High Volume Production

Our select switches portfolio includes the most popular, broad-market GaAs SPST, SPDT, SP3T, SP4T, and DPDT products readily available to ship from stock. These devices provide excellent performance and value while utilizing Skyworks' proven technology for high reliability. The select switches are used in a wide variety of systems, including cellular telephone handsets and base stations, WLAN front-end modules, RF microwave test instruments, satellite TV receivers, and more. All pHEMT switches are broadband by design and require DC blocking capacitors for positive voltage operation. Select switches have been fully characterized for low-frequency applications, covering the UHF and VHF ranges.

#### Tx/Rx WLAN/Bluetooth® (802.11a/b/g/n)

| Part Number    | Description | Frequency (GHz) | Insertion Loss (dB) | Isolation (dB) | Input IP3 (dBm) | Input P <sub>1</sub> dB (dBm) |
|----------------|-------------|-----------------|---------------------|----------------|-----------------|-------------------------------|
| AS179-92LF     | SPDT (R)    | 0.02–3.0        | 0.40                | 23.0           | 43              | 30                            |
| SKY13351-378LF | SPDT (R)    | 0.02–6.0        | 0.35                | 24.0           | 50              | 30 (0.5 dB)                   |
| AS193-73LF     | SPDT (R)    | 0.10–2.5        | 0.55                | 17.0           | 55              | 37                            |
| SKY13348-374LF | SPDT (A)    | 0.50–6.0        | 0.6–1.0             | 27–24          | 57              | 37                            |
| SKY13370-374LF | SPDT (A)    | 0.50–6.0        | 0.7–1.15            | 31–24          | 55              | 39                            |
| SKY13317-373LF | SP3T (R)    | 0.02–6.0        | 0.60                | 25.0           | 50              | 29                            |
| SKY13385-460LF | SP3T (R)    | 0.10–3.5        | 0.5–0.6             | 39–25          | 57              | 33                            |
| SKY13322-375LF | SP4T (R)    | 0.02–6.0        | 0.60                | 26.0           | 51              | 30                            |
| SKY13318-321LF | DPDT (R)    | 0.10–6.0        | 0.95                | 22.0           | 57              | 34                            |
| SKY13355-374LF | DPDT (R)    | 0.10–6.0        | 0.60                | 23.5           | 55              | 33                            |
| SKY13381-374LF | DPDT (R)    | 0.10–6.0        | 0.60                | 22.0           | 62              | 38                            |

## Select General Purpose RF Switches

### Select Switches Available from Stock for Prototype or High Volume Production

Smart Energy, Broadband, Cellular Infrastructure, Test & Measurement, Military (COTS)

| Part Number    | Description | Frequency (GHz) | Insertion Loss (dB) | Isolation (dB) | Input IP3 (dBm) | Input P <sub>1</sub> dB (dBm) |
|----------------|-------------|-----------------|---------------------|----------------|-----------------|-------------------------------|
| SKY13270-92LF  | SPDT (R)    | 0.02–2.5        | 0.3–0.55            | 30–17          | 56              | 38                            |
| SKY13286-359LF | SPDT (A)    | 0.10–6.0        | 0.8–1.50            | 62–42          | 46              | 30                            |
| SKY13298-360LF | SPDT (R)    | 3.00–8.0        | 0.7–0.90            | 25–22          | 47              | 26                            |
| AS204-80LF     | SP4T (A)    | LF–3.5          | 0.4–0.90            | 45–25          | 40              | 26                            |

### DBS/LNB 4 x 2 Matrix Switch

| Part Number    | Description | Frequency (GHz) | Insertion Loss (dB) | Isolation (dB) | Input P <sub>1</sub> dB (dBm) |
|----------------|-------------|-----------------|---------------------|----------------|-------------------------------|
| SKY13272-340LF | LNB/DBS (A) | 0.25–2.15       | 7.5–8.5             | 40–31          | 15                            |

### UHF/VHF (48–1000 MHz)

| Part Number    | Description | Insertion Loss<br>f = 48 MHz<br>(dB) | Isolation<br>f = 48 MHz<br>(dB) | Input P <sub>1</sub> dB<br>f = 48 MHz<br>(dBm) | Insertion Loss<br>f = 1 GHz<br>(dB) | Isolation<br>f = 1 GHz<br>(dB) | Input P <sub>1</sub> dB<br>f = 1 GHz<br>(dBm) |
|----------------|-------------|--------------------------------------|---------------------------------|--|-------------------------------------|--------------------------------|---|
| AS179-92LF     | SPDT (R)    | 0.15                                 | 56                              | 29   | 0.30                                | 25                             | 34  |
| SKY13351-378LF | SPDT (R)    | 0.20                                 | 55                              | 28   | 0.35                                | 24                             | 30 (0.5 dB)                                   |
| SKY13299-321LF | SPDT (R)    | 0.30                                 | 42                              | 38.5 (0.1 dB)                                  | 0.40                                | 29                             | 38.5 (0.1 dB)                                 |
| SKY13290-313LF | SPDT (R)    | 0.30                                 | 44                              | 39.8 (0.8 dB)                                  | 0.45                                | 23                             | 40.5 (0.1 dB)                                 |
| SKY13317-373LF | SP3T (R)    | 0.30                                 | 49                              | 26   | 0.45                                | 27                             | 29  |
| SKY13322-375LF | SP4T (R)    | 0.30                                 | 49                              | 26   | 0.60                                | 28                             | 30  |
| SKY14151-350LF | SP4T (R)    | 0.30                                 | 54                              | 41   | 0.45                                | 24                             | 38 (0.1 dB)                                   |

## SPST RF Switches

| Part Number    | Description<br>(Absorptive/<br>Reflective) | Frequency<br>(GHz) | Typ. IL<br>(dB) | Typ. Isol.<br>(dB) | Typ. IIP3<br>(dBm) | Typ. IP <sub>1</sub> dB<br>(dBm) | Package<br>(mm)       |
|----------------|--|--------------------|-----------------|--------------------|--------------------|----------------------------------|-----------------------|
| SKY13316-12LF  | SPST (A)                                   | LF–2.5             | 0.5–0.75        | 59–30              | 46                 | 24                               | SOIC 8L 6 x 4.9 x 1.6 |
| SKY13347-360LF | SPST (A)                                   | 0.5–3.0            | 0.6–0.80        | 45–30              | 40                 | 31                               | DFN 8L 2 x 2 x 0.75   |

## SPDT (SP2T) RF Switches

| Part Number  | Description (Absorptive/ Reflective) | Frequency (GHz) | Typ. IL (dB) | Typ. Isol. (dB) | Typ. IIP3 (dBm) | Typ. IP <sub>1</sub> (dBm) | Package (mm)               |
|--|--------------------------------------|-----------------|--------------|-----------------|-----------------|----------------------------|----------------------------|
| AS177-86LF   | SPDT (R)                             | LF-3.0          | 0.70-0.90    | 55-40           | 41              | 21                         | MSOP 10L 2 x 2 x 0.9       |
|  AS179-000        | SPDT (R)                             | 0.2-3.0         | 0.30-0.35    | 25-22           | 48              | 30                         | Chip                       |
|  AS179-92LF       | SPDT (R)                             | 0.02-3.0        | 0.30-0.40    | 25-23           | 43              | 30                         | SC-88 6L 2.1 x 2 x 0.95    |
| AS183-92LF   | SPDT (R)                             | LF-2.5          | 0.30-0.55    | 20-13           | 48              | 30                         | SC-88 6L 2.1 x 2 x 0.95    |
| AS186-302LF  | SPDT (A)                             | LF-4.0          | 0.80-1.00    | 55-40           | 27              | 17                         | MSOP 8L 4.9 x 3 x 0.96     |
|  AS193-000        | SPDT (R)                             | 0.1-2.5         | 0.30-0.55    | 30-17           | 55              | 37                         | Chip                       |
| AS193-73LF   | SPDT (R)                             | 0.1-2.5         | 0.30-0.55    | 30-17           | 55              | 37                         | SOT-23 6L 2.8 x 2.9 x 1.18 |
| AS211-334  | SPDT (R)                             | 0.1-4.0         | 0.30-0.60    | 26-22           | 50              | 34                         | LGA-6 1.5 x 1.2 x 0.8      |
| AS213-92LF   | SPDT (R)                             | 0.1-3.0         | 0.30-0.50    | 27-19           | 40              | 27                         | SC-88 6L 2.1 x 2 x 0.95    |
| AS215-92LF   | SPDT (R)                             | 0.5-3.0         | 0.50-0.75    | 28-20           | 40              | 20                         | SC-88 6L 2.1 x 2 x 0.95    |
| AS222-92LF   | SPDT (R)                             | 0.1-3.0         | 0.35-0.50    | 27-18           | 44              | 20                         | SC-88 6L 2.1 x 2 x 0.95    |
| AS225-313LF  | SPDT (R)                             | 0.1-6.0         | 0.50-0.60    | 21-20           | 52              | 30                         | QFN 6L 2 x 3 x 1           |
|  SKY13268-344LF   | SPDT (R)                             | 0.3-3.0         | 0.30-0.40    | 25-23           | 43              | 30                         | SOT-666 1.65 x 1.65 x 0.6  |
|  SKY13270-92LF    | SPDT (R)                             | 0.02-2.5        | 0.30-0.55    | 30-17           | 56              | 38                         | SC-88 6L 2.1 x 2 x 0.95    |
|  SKY13274-349LF  | SPDT (A/R)                           | 0.5-6.0         | 0.50-0.80    | 25-17           | 46              | 25                         | QFN 8L 2 x 2 x 0.9         |
|  SKY13276-334   | SPDT (R)                             | 0.1-6.0         | 0.60-0.70    | 21-20           | 53              | 30                         | LGA 6L 1.5 x 1.2 x 0.8     |
|  SKY13278-313LF | SPDT (R)                             | 0.1-2.5         | 0.40-0.55    | 32-18           | 62              | 40                         | QFN 6L 2 x 3 x 1           |
| SKY13286-359LF   | SPDT (A)                             | 0.1-6.0         | 0.80-1.50    | 62-42           | 46              | 30                         | QFN 16L 4 x 4 x 0.9        |
|  SKY13290-000   | SPDT (R)                             | 0.02-2.5        | 0.40-0.55    | 26-18           | 63              | 40                         | Chip                       |
|  SKY13290-099   | SPDT (R)                             | 0.02-2.5        | 0.40-0.55    | 26-18           | 63              | 40                         | Chip on Film Frame         |
|  SKY13290-313LF | SPDT (R)                             | 0.02-2.5        | 0.40-0.55    | 26-18           | 63              | 40                         | QFN 6L 2 x 3 x 1           |
|  SKY13298-360LF | SPDT (R)                             | 3.0-8.0         | 0.70-0.90    | 25-22           | 47              | 26                         | QFN 8L 2 x 2 x 0.9         |
| SKY13299-321LF   | SPDT (R)                             | 0.02-5.0        | 0.30-0.75    | 30-22           | 57              | 39                         | QFN 12L 3 x 3 x 0.75       |
|  SKY13306-313LF | SPDT (R)                             | 0.1-6.0         | 0.40-0.55    | 26-18           | 53              | 35                         | QFN 6L 2 x 3 x 1           |
|  SKY13314-374LF | SPDT (R)                             | 0.1-6.0         | 0.45-0.60    | 22-21           | 47              | 31                         | QFN 6L 1.5 x 1.5 x 0.45    |
|  SKY13319-374LF | SPDT (R)                             | 0.1-3.0         | 0.35-0.60    | 25-17           | 60              | 36                         | QFN 6L 1.5 x 1.5 x 0.45    |
|  SKY13320-374LF | SPDT (R)                             | 0.1-6.0         | 0.40-0.60    | 28-24           | 52              | 34                         | QFN 6L 1.5 x 1.5 x 0.45    |
|  SKY13321-360LF | SPDT (R)                             | 0.1-3.0         | 0.40-0.60    | 26-16           | 62              | 39                         | QFN 8L 2 x 2 x 0.9         |
|  SKY13323-378LF | SPDT (R)                             | 0.1-3.0         | 0.20-0.50    | 27-24           | 50              | 27                         | QFN 6L 1 x 1 x 0.45        |
|  SKY13330-397LF | SPDT (R)                             | 0.1-6.0         | 0.30-0.55    | 35-16           | 55              | 39                         | QFN 12L 2 x 2 x 0.55       |
|  SKY13335-381LF | SPDT (R)                             | 0.1-6.0         | 0.20-0.60    | 27-24           | 48              | 29                         | QFN 6L 1.5 x 2 x 0.45      |

**SPDT (SP2T) RF Switches (Continued)**

| Part Number    | Description (Absorptive/ Reflective) | Frequency (GHz) | Typ. IL (dB) | Typ. Isol. (dB) | Typ. IIP3 (dBm) | Typ. IP <sub>1</sub> (dBm) | Package (mm)                     |
|----------------|--------------------------------------|-----------------|--------------|-----------------|-----------------|----------------------------|----------------------------------|
| SKY13344-378LF | SPDT (R)                             | 2.0–6.0         | 0.35–0.60    | 27–22           | 50              | 27                         | QFN 6L 1 x 1 x 0.45              |
| SKY13348-374LF | SPDT (A)                             | 0.5–6.0         | 0.60–1.00    | 27–24           | 57              | 37                         | DFN 6L 1.5 x 1.5 x 0.45          |
| SKY13350-385LF | SPDT (R)                             | 0.8–6.0         | 0.35–0.60    | 18–20           | 50              | 33                         | QFN 6L 1 x 1 x 0.45              |
| SKY13351-378LF | SPDT (R)                             | 0.02–6.0        | 0.35–0.50    | 24–26           | 50              | 30                         | QFN 6L 1 x 1 x 0.45              |
| SKY13366-378LF | SPDT (R)                             | 2.0–6.0         | 0.35–0.50    | 24–26           | 50              | 30                         | QFN 6L 1 x 1 x 0.45              |
| SKY13370-374LF | SPDT (A)                             | 0.5–6.0         | 0.70–1.15    | 31–24           | 55              | 39                         | DFN 6L 1.5 x 1.5 x 0.45          |
| SKY13372-467LF | SP2T (A)                             | 0.1–6.0         | 0.80–1.70    | 42–65           | 45              | 26                         | QFN 16L 4 x 4 x 0.9              |
| SKY13374-397LF | SPDT (R)                             | 0.03–6.0        | 0.35–0.80    | 22–34           | 68              | 39                         | QFN 12L 2 x 2 x 0.55             |
| SKY13377-313LF | SPDT (A)                             | 0.5–6.0         | 0.70–1.20    | 31–24           | 62              | 39                         | DFN 6L 2 x 3 x 0.9               |
| SKY13405-490LF | SPDT (R)                             | 1.0–3.0         | 0.35–0.50    | 37–27           | 68              | 38                         | QFN 12L 2 x 2 x 0.55             |
| SKY13431-374LF | SPDT (A)                             | 0.5–6.0         | 0.50–0.80    | 25–20           | 58              | 36                         | DFN 6L 1.5 x 1.5 x 0.45          |
| SKY13446-374LF | SPDT (R)                             | 0.1–6.0         | 0.50–0.80    | 38–30           | 50              | 33                         | QFN 6L 1.5 x 1.5 x 0.45          |
| SKY13448-001   | SPDT (R)                             | 0.1–3.0         | 0.35–0.50    | 25–32           | IMD3, -110      | 40                         | 8-bump WLCSP<br>1.1 x 1.1 x 0.36 |
| SKY13453-385LF | SPDT (R)                             | 0.01–6.0        | 0.40–0.70    | 27–15           | 57              | 33                         | QFN 6L 1 x 1 x 0.45              |
| SKY13472-460LF | SPDT (R)                             | 0.1–6.0         | 0.35–0.80    | 22–40           | 70              | 39                         | QFN 12L 2 x 2 x 0.55             |
| SKYA21001      | SPDT (R)                             | 0.02–3.0        | 0.30–0.40    | 23–25           | 43              | 30                         | SC70 2 x 1.25 x 0.9              |
| SKYA21012      | SPDT (R)                             | 0.02–6.0        | 0.35–0.50    | 24–26           | 50              | 30                         | DFN 6L 1 x 1 x 0.5               |
| SKYA21013      | SPDT (R)                             | 0.1–6.0         | 0.35–0.80    | 22–34           | 68              | 39                         | QFN 12L 2 x 2 x 0.55             |

**High Power SPDT and SPST PIN Diode Switches**

| Part Number    | Description (Absorptive/ Reflective) | Frequency (GHz) | Typ. IL (dB) | Typ. Isol. (dB) | Typ. IIP3 (dBm) | Max. CW Power (dBm) | Package (mm)        |
|----------------|--------------------------------------|-----------------|--------------|-----------------|-----------------|---------------------|---------------------|
| SKY12207-306LF | SPDT (R)                             | 0.9–4.0         | 0.3–0.6      | 28–41           | 78              | 50                  | QFN 16L 4 x 4 x 0.9 |
| SKY12207-478LF | SPDT (R)                             | 0.9–4.0         | 0.3–0.4      | 30–42           | 78              | 50                  | QFN 16L 4 x 4 x 1.5 |
| SKY12208-306LF | SPDT (R)                             | 0.02–2.7        | 0.2–0.5      | 33–45           | 70              | 50                  | QFN 16L 4 x 4 x 0.9 |
| SKY12208-478LF | SPDT (R)                             | 0.02–2.7        | 0.2–0.5      | 33–50           | 70              | 50                  | QFN 16L 4 x 4 x 1.5 |
| SKY12209-478LF | SPDT (R)                             | 0.9–4.0         | 0.4–0.6      | 35–46           | 76              | 40                  | QFN 16L 4 x 4 x 1.5 |
| SKY12210-478LF | SPDT (R)                             | 0.9–4.0         | 0.3–0.6      | 25–50           | 78              | 100                 | QFN 16L 4 x 4 x 1.5 |
| SKY12211-478LF | SPDT (R)                             | 0.05–2.7        | 0.2–0.5      | 32–49           | 73              | 40                  | QFN 16L 4 x 4 x 1.5 |
| SKY12212-478LF | SPDT (R)                             | 0.05–2.7        | 0.2–0.5      | 29–50           | 67              | 100                 | QFN 16L 4 x 4 x 1.5 |
| SKY12213-478LF | SPST (R)                             | 0.5–6.0         | 0.5–1.0      | 20–34           | 72              | 150                 | QFN 16L 4 x 4 x 1.5 |
| SKY12215-478LF | SPDT (R)                             | 0.9–4.0         | 0.3–0.5      | 31–43           | 71              | 125                 | QFN 16L 4 x 4 x 1.5 |








## SP3T RF Switches

| Part Number    | Description (Absorptive/ Reflective) | Frequency (GHz) | Typ. IL (dB) | Typ. Isol. (dB) | Typ. IIP3 (dBm) | Typ. IP <sub>1</sub> dB (dBm) | Package (mm)            |
|----------------|--------------------------------------|-----------------|--------------|-----------------|-----------------|-------------------------------|-------------------------|
| AS227-000      | SP3T (R)                             | 0.2–2.0         | 0.45–0.70    | 32–20           | 63              | 37                            | Chip                    |
| AS227-099LF    | SP3T (R)                             | 0.2–2.0         | 0.45–0.70    | 32–20           | 63              | 37                            | Wafer                   |
| SKY13309-370LF | SP3T (R)                             | 0.1–3.0         | 0.50–0.60    | 26–25           | 45              | 29                            | QFN 8L 2 x 2 x 0.55     |
| SKY13317-373LF | SP3T (R)                             | 0.02–6.0        | 0.40–0.80    | 27–55           | 50              | 29                            | QFN 8L 1.5 x 1.5 x 0.45 |
| SKY13345-368LF | SP3T (R)                             | 0.1–3.5         | 0.50–0.60    | 39–25           | 55              | 34                            | QFN 12L 2 x 2 x 0.5     |
| SKY13346-368LF | SP3T (R)                             | 0.5–2.5         | 0.40–0.50    | 28–25           | 47              | 30                            | QFN 8L 2 x 2 x 0.9      |
| SKY13373-460LF | SP3T (R)                             | 0.1–3.5         | 0.35–0.50    | 40–30           | 55              | 39                            | QFN 12L 2 x 2 x 0.55    |
| SKY13385-460LF | SP3T (R)                             | 0.1–3.5         | 0.50–0.60    | 39–25           | 57              | 33                            | QFN 12L 2 x 2 x 0.5     |
| SKY13386-000   | SP3T (R)                             | 0.1–4.0         | 0.50–0.80    | 30–22           | 54              | 30                            | Bumped Die–200 µm Pitch |
| SKY13398-000   | SP3T (R)                             | 0.02–6.0        | 0.55–1.50    | 27–15           | 50              | 33                            | Die 0.65 x 0.45 x 0.127 |
| SKY13408-465LF | SP3T (A)                             | 1.0–6.0         | 0.80–1.30    | 24–28           | 54              | 34                            | QFN 12L 2 x 2 x 0.55    |
| SKYA21002      | SP3T (R)                             | 0.1–3.0         | 0.50–0.60    | 25              | 45              | 29                            | 8-pin DFN 2 x 2 x 0.55  |


## SP4T RF Switches

| Part Number    | Description (Absorptive/ Reflective) | Frequency (GHz) | Typ. IL (dB) | Typ. Isol. (dB) | Typ. IIP3 (dBm) | Typ. IP <sub>1</sub> dB (dBm) | Package (mm)           |
|----------------|--------------------------------------|-----------------|--------------|-----------------|-----------------|-------------------------------|------------------------|
| AS192-000      | SP4T (R)                             | 0.10–2.5        | 0.90–1.10    | 34–21           | 55              | 37                            | Chip                   |
| AS204-80LF     | SP4T (A)                             | LF–3.5          | 0.40–0.90    | 45–25           | 40              | 26                            | SSOP 16L 6 x 4.9 x 1.6 |
| AS221-000      | SP4T (R)                             | 0.10–2.5        | 0.60–1.10    | 34–22           | 55              | 38                            | Chip                   |
| AS221-306LF    | SP4T (R)                             | 0.10–2.5        | 0.60–1.10    | 34–22           | 55              | 38                            | QFN 16L 4 x 4 x 0.9    |
| SKY13296-340LF | SP4T (A)                             | 0.02–2.5        | 0.40–0.70    | 40–26           | 40              | 18                            | QFN 20L 4 x 4 x 0.75   |
| SKY13322-375LF | SP4T (R)                             | 0.02–6.0        | 0.45–2.00    | 28–18           | 51              | 30                            | QFN 10L 2 x 3 x 0.45   |
| SKY13380-350LF | SP4T (R)                             | 0.02–3.0        | 0.50–0.60    | 28–21           | 65              | 39                            | QFN 12L 3 x 3 x 0.75   |
| SKY13384-350LF | SP4T (A)                             | 0.02–4.0        | 0.60–1.20    | 50–36           | 51              | 30                            | QFN 16L 3 x 3 x 0.75   |
| SKY13388-465LF | SP4T (R)                             | 0.10–2.7        | 0.50–0.65    | 31–21           | 65              | 36                            | QFN 12L 3 x 3 x 0.55   |
| SKY13392-359LF | SP4T (A)                             | 0.02–4.0        | 0.90–1.50    | 60–46           | 47              | 30                            | QFN 16L 4 x 4 x 0.9    |
| SKY14151-350LF | SP4T (R)                             | 0.02–2.5        | 0.40–0.50    | 29–23           | 60              | 39                            | QFN 16L 3 x 3 x 0.75   |

**DPDT Antenna Diversity Switches**

| Part Number  | Description (Absorptive/ Reflective) | Frequency (GHz) | Typ. IL (dB) | Typ. Isol. (dB) | Typ. IIP3 (dBm) | Typ. IP <sub>1</sub> dB (dBm) | Package (mm)           |
|--|--------------------------------------|-----------------|--------------|-----------------|-----------------|-------------------------------|------------------------|
|  AS218-000      | DPDT (R)                             | 0.1–6.0         | 1.60–1.40    | 19              | 54              | 33                            | Chip                   |
| AS236-321LF  | DPDT (R)                             | LF–6.0          | 0.95–1.15    | 22–15           | 56              | 34                            | QFN 12L 3 x 3 x 0.75   |
| SKY13267-321LF   | DPDT (R)                             | LF–6.0          | 0.70–0.90    | 32–20           | 49              | 30                            | QFN 12L 3 x 3 x 0.75   |
| SKY13318-321LF   | DPDT (R)                             | 0.1–6.0         | 0.95–1.15    | 22–15           | 57              | 34                            | QFN 12L 3 x 3 x 0.75   |
|  SKY13355-374LF | DPDT (R)                             | 0.1–6.0         | 0.50–0.95    | 31–15           | 55              | 33                            | DFN 6L 1.5 x 1.5 x 0.5 |
|  SKY13381-374LF | DPDT (R)                             | 0.1–6.0         | 0.50–1.40    | 31–14           | 62              | 38                            | DFN 6L 1.5 x 1.5 x 0.5 |
|  SKY13395-397LF | DPDT (R)                             | 0.1–4.0         | 0.50–1.00    | 27–17           | 62              | 38                            | QFN 12L 2 x 2 x 0.5    |
|  SKY13396-397LF | DPDT (R)                             | 0.1–3.0         | 0.30–0.50    | 31–18           | 58              | 38                            | QFN-12L 2 x 2 x 0.55   |
|  SKY13411-374LF | DPDT (R)                             | 0.1–6.0         | 0.50–0.90    | 26–14           | 50              | 31                            | DFN 6L 1.5 x 1.5 x 0.5 |
|  SKY13438-374LF | DPDT (R)                             | 0.1–6.0         | 0.5–1.2      | 34–25           | 54              | 31                            | DFN 6L 1.5 x 1.5 x 0.5 |

**Ultra Linear (SVLTE) Switches**

| Part Number  | Description (Absorptive/ Reflective) | Frequency (GHz) | Typ. IL (dB) | Typ. Isol. (dB) | Typ. IIP3 (dBm) | Typ. IP <sub>1</sub> dB (dBm) | Package (mm)         |
|--|--------------------------------------|-----------------|--------------|-----------------|-----------------|-------------------------------|----------------------|
|  SKY13405-490LF | SPDT (R)                             | 0.1–3.0         | 0.35–0.50    | 37–27           | 68              | 38                            | QFN 12L 2 x 2 x 0.55 |



## Dual Pole (xT) RF Switches

| Part Number    | Description (Absorptive/ Reflective) | Frequency (GHz) | Typ. IL (dB) | Typ. Isol. (dB) | Typ. IIP3 (dBm) | Typ. IP <sub>1</sub> dB (dBm) | Package (mm)             |
|----------------|--------------------------------------|-----------------|--------------|-----------------|-----------------|-------------------------------|--------------------------|
| SKY13354-368LF | DPxDT                                | 0.1–3.0         | 0.4–0.55     | 29–32           | 55              | 28                            | QFN 12L 2 x 2 x 0.55     |
| SKY13399-468LF | DPx3T                                | 0.7–2.7         | 0.3–0.45     | 27–21           | 55              | 37                            | QFN 18L 2 x 2 x 0.45     |
| SKY13421-486LF | DPxDT                                | 0.1–3.0         | 0.3–0.45     | 26–18           | 55              | 24                            | QFN 14L 1.6 x 1.6 x 0.55 |

## High Throw Count (>4T) Switches / Antenna Switch Modules (ASMs) (GPIO and MIPI<sup>®</sup> RFFE)

















### High Throw Count Switches (Band Distribution, Linear Tx / Rx, Rx Diversity, General Purpose Signal Routing)


| Part Number       | Description (Absorptive/ Reflective) | Frequency (GHz) | Typ. IL (dB) | Typ. Isol. (dB) | Typ. IIP3 (dBm) | Typ. IP <sub>1</sub> dB (dBm) | Package (mm)                           |
|-------------------|--------------------------------------|-----------------|--------------|-----------------|-----------------|-------------------------------|--|
| AS195-306LF       | SP5T (R)                             | 0.1–2.0         | 0.5–1.00     | 35–23           | 55              | 37.0                          | QFN 16L 4 x 4 x 0.9                    |
| SKY13358-388LF    | SP5T (R)                             | 0.1–3.0         | 0.5–1.00     | 30–21           | –               | 37.5                          | DFN 16L 2.3 x 2.3 x 0.45               |
| SKY13397-388LF    | DP5T (R)                             | 0.1–3.0         | 0.35         | 29              | –               | 37.0                          | QFN 16L 2.3 x 2.3 x 0.05               |
| SKY13414-485LF    | SP4T (R)                             | 0.1–3.0         | 0.35–0.55    | 35–25           | 69              | 39.0                          | QFN 14L 2 x 2 x 0.5                    |
| SKY13415-485LF    | SP5T (R)                             | 0.1–3.0         | 0.35–0.55    | 35–25           | 69              | 39.0                          | QFN 14L 2 x 2 x 0.5                    |
| SKY13416-485LF    | SP6T (R)                             | 0.1–3.0         | 0.35–0.55    | 35–25           | 69              | 39.0                          | QFN 14L 2 x 2 x 0.5                    |
| SKY13417-485LF    | SP7T (R)                             | 0.1–3.0         | 0.35–0.65    | 35–20           | 69              | 38.0                          | QFN 14L 2 x 2 x 0.5                    |
| SKY13418-485LF    | SP8T (R)                             | 0.1–3.0         | 0.35–0.65    | 35–20           | 69              | 38.0                          | QFN 14L 2 x 2 x 0.5                    |
| SKY13434-002      | DP5T (R)                             | 0.1–6.0         | 0.6–1.00     | 24–30           | 28–30           | –                             | Wire Bond Die<br>0.5 x 0.875 x 0.127   |
| SKY13442-553LF    | SP10T (R)                            | 0.4–2.7         | 0.35–0.90    | 45–27           | –               | 39                            | 20-pin QFN 2.5 x 2.5 x 0.75            |
| SKY13445-000      | DP5T (R)                             | 2.4–5.9         | 0.7–1.1      | 24–20           | –               | 31                            | Wire bond die<br>0.806 x 0.496 x 0.127 |
| SKY13445-368LF    | DP5T (R)                             | 2.4–5.9         | 0.7–1.1      | 24–20           | –               | 31                            | 12-pin QFN 2 x 2 x 0.55                |
| SKY13473-569LF    | SP10T (R)                            | 0.4–2.7         | 0.45–0.8     | 37–27           | –               | –                             | 20-pin QFN 2.4 x 2.4 x 0.75            |
| SKY13473-12-569LF | SP10T (R)                            | 0.4–2.7         | 0.45–0.8     | 37–27           | –               | –                             | 20-pin QFN 2.4 x 2.4 x 0.75            |
| SKY13477-001A     | 3P4T (R)                             | 2.3–2.7         | 0.35–0.66    | 30              | –               | –                             | WLCSP 15-bump<br>1.942 x 1.142 x 0.420 |
| SKY13526-485LF    | SP6T (R)                             | 0.4–2.7         | 0.4–0.7      | 34–23           | –               | –                             | 14-pin QFN 2 x 2 x 0.55                |

## High Throw Count (>4T) Switches / Antenna Switch Modules (ASMs)

### Antenna Switch Modules

Skyworks Solutions is pleased to offer a broad selection of high throw count antenna switch modules (ASMs) leveraging both GaAs and SOI technology to respond to all cellular standards specific requirements (GSM, GPRS, EDGE, WCDMA, TD-SCDMA, and LTE). Using either multi-chip module (MCM) or quad flat no-lead (QFN) packaging allows the integration of filtering functions such as Tx harmonic filters and ESD protection, and respond to a wide range of cellular front-end switching requirements such as antenna switching, Rx diversity switching, or WCDMA band mode switching. Any cellular RF front-end that requires high performance, reduced current consumption, and low insertion loss in a compact footprint would benefit from our portfolio of antenna switch module solutions.

| Part Number  | Description (Absorptive/ Reflective) | Frequency (GHz) | Typ. IL (dB) | Typ. Isol. (dB) | Typ. IMD3 (dBm) | Package (mm)                |
|--|--------------------------------------|-----------------|--------------|-----------------|-----------------|-----------------------------|
|  SKY13362-389LF   | SP10T (R)                            | 0.4–2.7         | 0.5–1.35     | 21–38           | -105            | QFN 26L 3 x 3.8 x 0.85      |
|  SKY13364-389LF   | SP10T (R)                            | 0.4–2.7         | 0.5–1.10     | 30              | -105            | QFN 26L 3 x 3.8 x 0.85      |
|  SKY13404-466LF   | SP10T (R)                            | 0.4–2.7         | 0.5–1.35     | 45–24           | -110            | QFN 26L 2.6 x 3.4 x 0.55    |
|  SKY13406-389LF   | SP10T (R)                            | 0.4–2.7         | 0.5–1.35     | 45–24           | -110            | QFN 26L 2.6 x 3.4 x 0.55    |
|  SKY13412-487LF   | SP12T (R)                            | 0.4–2.7         | 0.4–1.10     | 35–23           | -110            | QFN 30L 3 x 3.8 x 0.75      |
|  SKY13413-488LF   | SP12T (R)                            | 0.4–2.7         | 0.4–1.10     | 35–23           | –               | 26-pin QFN 2.6 x 3.4 x 0.55 |
|  SKY13437-11      | SP12T (R)                            | 0.4–2.7         | 0.55–1.35    | 22–44.5         | –               | 22-pin MCM 3.2 x 2.5 x 0.8  |
|  SKY13441         | SP10T (R)                            | 0.4–2.7         | 0.5–1.35     | 45–31           | –               | 20-pin MCM 3.2 x 2.5 x 0.8  |
|  SKY13454       | SP12T (R)                            | 0.4–2.7         | 0.5–1.20     | 23–43           | –               | 22-pin MCM 3.2 x 2.5 x 0.8  |
|  SKY13488       | SP12T (R)                            | 0.4–3.8         | 0.7-1.25     | 35–20           | –               | 20-pin MCM 2.5 x 2.5 x 0.8  |
|  SKY13491-21    | SP14T (R)                            | 0.4–3.8         | 0.6-1.25     | 35–20           | –               | 22-pin MCM 2.5 x 2.9 x 0.8  |
|  SKY13492       | SP16T                                | 0.7–2.7         | TBD          | TBD             | TBD             | 22-pin MCM 2.5 x 3.3 x 0.8  |
|  SKY13498       | SP10T (R)                            | 0.4–3.8         | 0.7-1.25     | 35–20           | –               | 20-pin MCM 2.5 x 2.5 x 0.8  |
|  SKY18106-455LF | SP8T (R)                             | 0.4–2.2         | 0.4–0.80     | 25              | -102            | QFN 26L 3 x 3.8 x 0.75      |
|  SKY18108-11    | SP9T (R)                             | 0.4–2.7         | 0.8–0.90     | >35             | -110            | 20-pin MCM 3.2 x 3.5 x 0.9  |
|  SKY18120-11    | SP9T (R)                             | 0.4–2.7         | 0.5–11.00    | 24–44           | -105            | 20-pin MCM 2.5 x 2.5 x 0.9  |

| Part Number   | Description (Absorptive/ Reflective) | Frequency (GHz) | Typ. IL (dB) | Typ. Isol. (dB) | Typ. IIP3 (dBm) | Typ. IP <sub>1</sub> dB (dBm) | Package (mm)               |
|---|--------------------------------------|-----------------|--------------|-----------------|-----------------|-------------------------------|----------------------------|
|  SKY13455-31 | SP12T (R)                            | 0.4-2.7         | 0.6-1.25     | 22-43           | –               | –                             | 22-pin MCM 3.2 x 2.5 x 0.8 |

## Carrier Aggregation Switches

| Part Number | Description                             | Main or Diversity Function | Number of Low Band Ports | Number of High Band Ports | DC Control | Package (mm)               |
|-------------|---|----------------------------|--------------------------|---------------------------|------------|----------------------------|
| SKY13456-11 | SP7T + SP7T Carrier Aggregation Switch  | Main                       | 7                        | 7                         | MIPI®      | 26-pin MCM 2.8 x 3.2 x 0.8 |
| SKY13484    | SP5T + SP7T Carrier Aggregation Switch  | Diversity                  | 5                        | 7                         | MIPI®      | 22-pin MCM 2.5 x 2.9 x 0.8 |
| SKY13530    | SP6T + SP4T Carrier Aggregation Switch  | Main                       | 4                        | 6                         | dMIPI®     | 22-pin MCM 2.4 x 2.8 x 1.0 |
| SKY13532    | SP8T + SP6T Carrier Aggregation Switch  | Main                       | 6                        | 8                         | dMIPI®     | 24-pin MCM 2.8 x 2.8 x 1.0 |
| SKY13535    | SP12T + SP9T Carrier Aggregation Switch | Main                       | 9                        | 12                        | dMIPI®     | 28-pin MCM 3.6 x 2.8 x 1.0 |

## Antenna Tuning Switches

| Part Number  | Configuration | Number of RF Ports | Peak RF Voltage (V) | R <sub>ON</sub> (Ω) | C <sub>OFF</sub> (fF) | Capacitance Range (pF) | DC Control | Package (mm)                       |
|--------------|---------------|--------------------|---------------------|---------------------|-----------------------|------------------------|------------|------------------------------------|
| SKY19001-001 | SPST          | 2                  | 40                  | 1                   | 400                   | N/A                    | GPIO       | 10-bump WLCSF<br>1.2 x 1.6 x 0.606 |

## LNB / DBS Matrix Switches

| Part Number    | Description (Absorptive/ Reflective) | Frequency (GHz) | Typ. IL (dB) | Typ. Isol. (dB) | Typ. IP <sub>1</sub> dB (dBm) | Package (mm)         |
|----------------|--------------------------------------|-----------------|--------------|-----------------|-------------------------------|----------------------|
| SKY13272-340LF | LNB/DBS (A)                          | 0.25–2.15       | 7.5–8.5      | 40–31           | 15                            | QFN 20L 4 x 4 x 0.75 |
| SKY13292-365LF | LNB/DBS (A)                          | 0.25–2.15       | 7.5–9.0      | 40–30           | 15                            | QFN 20L 4 x 4 x 0.75 |
| SKY13293-340LF | LNB/DBS (A)                          | 0.25–2.15       | 8.0–9.0      | 57–45           | 15                            | QFN 20L 4 x 4 x 0.75 |
| SKY13327-365LF | LNB/DBS (A)                          | 0.25–2.15       | 8.0–9.0      | 37–41           | 15                            | QFN 20L 4 x 4 x 0.75 |
| SKY13369-365LF | LNB/DBS (A)                          | 0.25–2.15       | 8.0–9.0      | 37–41           | 15                            | QFN 20L 4 x 4 x 0.75 |
| SKY13410-365LF | LNB/DBS (A)                          | 0.25–2.15       | 7.5–9.0      | 30–40           | 12                            | QFN 20L 4 x 4 x 0.75 |
| SKY13419-365LF | LNB/DBS (A)                          | 0.25–2.15       | 7.1–8.5      | 43–38           | 12                            | QFN 20L 4 x 4 x 0.75 |

## TECHNICAL CERAMICS



### Ceramic Coaxial Resonators\*

Skyworks Solutions, through Trans-Tech, its industry-leading ceramic products division, designs and manufactures a complete line of RF and microwave components for commercial markets. With over 50 years of experience, we offer a complete line of high quality, low cost ceramic-based components for a number of RF and microwave markets including wireless communications, infrastructure, military, cable television, broadband access, circuit miniaturization, technical powder, and ingots. Our tightly controlled processes, from raw materials to forming, firing, finishing, assembly and test, produce the highest quality and the most consistently reproducible components available today for both low and high volume requirements. Our product portfolio includes dielectric resonators and coaxial transmission line elements for DRO and VCO applications, ceramic band pass filters, ferrite, and garnet material for circulators/isolators.



Skyworks' Green™ products are compliant to all applicable materials legislation and are halogen-free. For additional information, refer to Skyworks' Definition of Green™, document number SQ04-0074.

### Recommended Frequencies 1000 Series ( $\epsilon_r = 10.5 \pm 0.5$ , $T_F = 0 \pm 10$ )

| Type                            | Profile | Recommended Range f (MHz) | Nominal Length (in.) $\pm 0.030$ in. | Nominal Length Range (in.) | Characteristic Impedance ( $\Omega$ ) |
|---------------------------------|---------|---------------------------|--------------------------------------|----------------------------|---------------------------------------|
| $\lambda/4$ Quarter Wave Length | HP      | 1150–800                  | $L = 911/f_0$ (MHz)                  | 0.506–0.792                | 25.3                                  |
|                                 | EP      | 1150–2500                 |                                      | 0.364–0.792                | 22.5                                  |
|                                 | SP      | 1150–3100                 |                                      | 0.294–0.792                | 18.3                                  |
|                                 | LS      | 1150–4600                 |                                      | 0.198–0.792                | 18.4                                  |
|                                 | LP      | 1150–4100                 |                                      | 0.222–0.792                | 27.4                                  |
|                                 | MP      | 1150–5100                 |                                      | 0.179–0.792                | 25.7                                  |
|                                 | SM      | 1150–5100                 |                                      | 0.179–0.792                | 18.4                                  |
| $\lambda/2$ Half Wave Length    | HP      | 2300–3400                 | $L = 1821/f_0$ (MHz)                 | 0.536–0.792                | 25.3                                  |
|                                 | EP      | 2300–5000                 |                                      | 0.364–0.792                | 22.5                                  |
|                                 | SP      | 2300–6000                 |                                      | 0.304–0.792                | 18.3                                  |
|                                 | LS      | 2300–6000                 |                                      | 0.304–0.792                | 18.4                                  |
|                                 | LP      | 2300–6000                 |                                      | 0.304–0.792                | 27.4                                  |
|                                 | MP      | 2300–6000                 |                                      | 0.304–0.792                | 25.7                                  |
|                                 | SM      | 2300–6000                 |                                      | 0.304–0.792                | 18.4                                  |

### Recommended Frequencies 2000 Series ( $\epsilon_r = 20.6 \pm 1$ , $T_F = 0 \pm 10$ )

| Type                            | Profile | Recommended Range f (MHz) | Nominal Length (in.) $\pm 0.030$ in. | Nominal Length Range (in.) | Characteristic Impedance ( $\Omega$ ) |
|---------------------------------|---------|---------------------------|--------------------------------------|----------------------------|---------------------------------------|
| $\lambda/4$ Quarter Wave Length | HP      | 800–1200                  | $L = 650/f_0$ (MHz)                  | 0.542–0.813                | 18.1                                  |
|                                 | EP      | 800–1700                  |                                      | 0.382–0.813                | 16.1                                  |
|                                 | SP      | 800–2200                  |                                      | 0.296–0.813                | 13.1                                  |
|                                 | LS      | 800–3200                  |                                      | 0.203–0.813                | 13.1                                  |
|                                 | LP      | 800–2900                  |                                      | 0.224–0.813                | 19.6                                  |
|                                 | MP      | 800–3600                  |                                      | 0.181–0.813                | 18.4                                  |
|                                 | SM      | 800–3600                  |                                      | 0.181–0.813                | 13.1                                  |
| $\lambda/2$ Half Wave Length    | HP      | 1600–2500                 | $L = 1300/f_0$ (MHz)                 | 0.520–0.813                | 18.1                                  |
|                                 | EP      | 1600–3500                 |                                      | 0.372–0.813                | 16.1                                  |
|                                 | SP      | 1600–4500                 |                                      | 0.289–0.813                | 13.1                                  |
|                                 | LS      | 1600–6000                 |                                      | 0.217–0.813                | 13.1                                  |
|                                 | LP      | 1600–6000                 |                                      | 0.217–0.813                | 19.6                                  |
|                                 | MP      | 1600–6000                 |                                      | 0.217–0.813                | 18.4                                  |
|                                 | SM      | 1600–6000                 |                                      | 0.217–0.813                | 13.1                                  |

\*These products are produced by Trans-Tech (a wholly owned subsidiary of Skyworks Solutions, Inc.)

## Ceramic Coaxial Resonators

### Recommended Frequencies 8800 Series ( $\epsilon_r = 39 \pm 1.5$ , $T_F = 4 \pm 2$ )

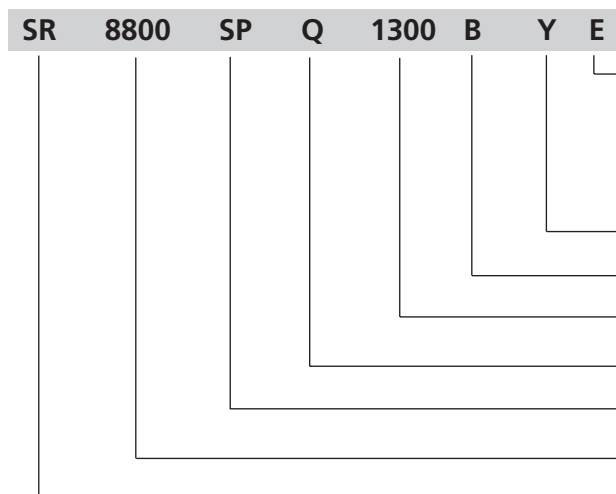
| Type                            | Profile | Recommended Range f (MHz) | Nominal Length (in.) $\pm 0.030$ in. | Nominal Length Range (in.) | Characteristic Impedance ( $\Omega$ ) |
|---------------------------------|---------|---------------------------|--------------------------------------|----------------------------|---------------------------------------|
| $\lambda/4$ Quarter Wave Length | HP      | 600–900                   | $L = 472/f_0$ (MHz)                  | 0.525–0.787                | 13.1                                  |
|                                 | EP      | 600–1200                  |                                      | 0.394–0.787                | 11.7                                  |
|                                 | SP      | 600–1600                  |                                      | 0.295–0.787                | 9.5                                   |
|                                 | LS      | 600–2300                  |                                      | 0.205–0.787                | 9.5                                   |
|                                 | LP      | 600–2100                  |                                      | 0.225–0.787                | 14.2                                  |
|                                 | MP      | 600–2600                  |                                      | 0.182–0.787                | 13.3                                  |
|                                 | SM      | 600–2600                  |                                      | 0.182–0.787                | 9.5                                   |
| $\lambda/2$ Half Wave Length    | HP      | 1200–1900                 | $L = 945/f_0$ (MHz)                  | 0.497–0.787                | 13.1                                  |
|                                 | EP      | 1200–2500                 |                                      | 0.378–0.787                | 11.7                                  |
|                                 | SP      | 1200–3200                 |                                      | 0.295–0.787                | 9.5                                   |
|                                 | LS      | 1200–4700                 |                                      | 0.201–0.787                | 9.5                                   |
|                                 | LP      | 1200–4300                 |                                      | 0.220–0.787                | 14.2                                  |
|                                 | MP      | 1200–5200                 |                                      | 0.182–0.787                | 13.3                                  |
|                                 | SM      | 1200–5200                 |                                      | 0.182–0.787                | 9.5                                   |

### Recommended Frequencies 9000 Series ( $\epsilon_r = 90 \pm 3$ , $T_F = 0 \pm 10$ )

| Type                            | Profile | Recommended Range f (MHz) | Nominal Length (in.) $\pm 0.030$ in. | Nominal Length Range (in.) | Characteristic Impedance ( $\Omega$ ) |
|---------------------------------|---------|---------------------------|--------------------------------------|----------------------------|---------------------------------------|
| $\lambda/4$ Quarter Wave Length | HP      | 400–600                   | $L = 311/f_0$ (MHz)                  | 0.518–0.778                | 8.6                                   |
|                                 | EP      | 300–800                   |                                      | 0.389–1.037                | 7.7                                   |
|                                 | SP      | 300–1000                  |                                      | 0.311–1.037                | 6.3                                   |
|                                 | LS      | 300–1500                  |                                      | 0.207–1.037                | 6.3                                   |
|                                 | LP      | 300–1400                  |                                      | 0.222–1.037                | 9.4                                   |
|                                 | MP      | 400–1700                  |                                      | 0.183–0.778                | 8.8                                   |
|                                 | SM      | 400–1700                  |                                      | 0.183–0.778                | 6.3                                   |
| $\lambda/2$ Half Wave Length    | HP      | 800–1200                  | $L = 622/f_0$ (MHz)                  | 0.518–0.778                | 8.6                                   |
|                                 | EP      | 800–1700                  |                                      | 0.366–0.778                | 7.7                                   |
|                                 | SP      | 800–2100                  |                                      | 0.296–0.778                | 6.3                                   |
|                                 | LS      | 800–3100                  |                                      | 0.201–0.778                | 6.3                                   |
|                                 | LP      | 800–2800                  |                                      | 0.222–0.778                | 9.4                                   |
|                                 | MP      | 800–3400                  |                                      | 0.183–0.778                | 8.8                                   |
|                                 | SM      | 800–3400                  |                                      | 0.183–0.778                | 6.3                                   |

## Coaxial Resonator Order Information

### An Order Example



Skyworks' Green™ products are compliant to all applicable materials legislation and are halogen-free. For additional information, refer to Skyworks' Definition of Green™, document number SQ04-0074.

Tab: Y = Yes, N = No

Frequency Tolerance: B = +1.0%, A = 0.5%

Resonant Frequency: State in MHz

Type: Q for  $\lambda/4$ , H for  $\lambda/2$

Profile: HP, EP, SP, LP, LS, MP, SM

Material: 8800, 9000, 1000, 2000

Product Code: SR - square coaxial resonator

## Ceramic Coaxial Inductors\*

Skyworks' coaxial inductors are most frequently used in the resonant circuit of voltage-controlled oscillators (VCOs), where a varactor provides the tuning capability. The designer is usually confronted with trade-offs between high Q for best phase noise and component size versus circuit board real estate. An algorithm for selecting the correct Skyworks' part follows. In addition, Skyworks' COAX Program can provide valuable assistance for determining the correct Skyworks part. Application notes and references give example circuits, basic principles, and some helpful hints.

While there is no physical distinction between a coaxial resonator and a coaxial inductor, the selection of an inductor for a VCO begins by first knowing (from analysis or experiment) the equivalent inductance that the active circuit, including the varactor, must see. In general, the VCO active circuit loads the "resonator", lowering the resonator's self-resonant frequency (SRF). The situation is analogous to externally capacitively loading a discrete parallel resonant L-C circuit.


While there is an approximate equivalent L-C circuit for the coaxial resonator close to resonance, this model has limited application.

The coaxial resonators and inductors are more accurately modeled as a transmission line. Our application notes and references delve further into this topic.

Values of inductance that can be achieved depend upon the separation between the VCO frequency and the SRF of the coaxial line element. Values less than 1 nH are not practical, since the metal connection tab itself has an equivalent inductance of this order.

Equivalent inductances in the range of 3–20 nH have been popular among designers of VCOs for wireless equipment.

Call for availability, utilize the Inductor Selection Guide, use the COAX Program, or refer to the application notes for assistance with ordering the correct part.

 Skyworks' Green™ products are compliant to all applicable materials legislation and are halogen-free. For additional information, refer to *Skyworks' Definition of Green™*, document number SQ04-0074.

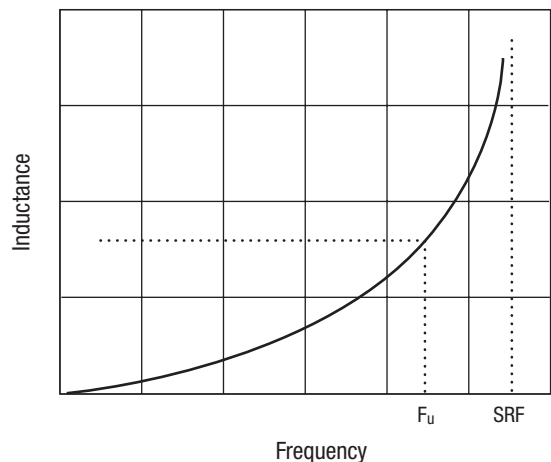


Figure 1. Frequency of Use vs. Inductance

## Coaxial Inductor Order Information

### An Order Example

SI 8800 LP Q 0450 Y 6.3 E

Skyworks' Green™ products are compliant to all applicable materials legislation and are halogen-free. For additional information, refer to *Skyworks' Definition of Green™*, document number SQ04-0074.

**Inductance:** (see Figure 1) Available in 0.01 nH increments

**Tab:** Y = Yes, N = No

**Frequency of Use (Fu):** (see Figure 1 for definition)

**Type:** Q for  $\lambda/4$  standard

**Profile:** HP, EP, SP, LP, LS, MP, SM

**Material:** 1000, 2000, 8800, 9000

**Product Code:** SI - square coaxial inductor

\*These products are produced by Trans-Tech (a wholly owned subsidiary of Skyworks Solutions, Inc.)

## Ceramic Coaxial Inductors

### Coax Line Properties vs. Profile and Material

| Profile | 1000   | 2000   | 8800   | 9000  | Tab Inductors |
|---------|--------|--------|--------|-------|---------------|
| HP      | 25.3 Ω | 18.1 Ω | 13.1 Ω | 8.6 Ω | 1.8 nH        |
| EP      | 22.5 Ω | 16.1 Ω | 11.7 Ω | 7.7 Ω | 1.0 nH        |
| SP      | 18.3 Ω | 13.1 Ω | 9.5 Ω  | 6.3 Ω | 1.0 nH        |
| LS      | 18.4 Ω | 13.1 Ω | 9.5 Ω  | 6.3 Ω | 0.9 nH        |
| LP      | 27.4 Ω | 19.6 Ω | 14.2 Ω | 9.4 Ω | 1.0 nH        |
| SP      | 25.7 Ω | 18.4 Ω | 13.3 Ω | 8.8 Ω | 0.6 nH        |
| SM      | 18.4 Ω | 13.1 Ω | 9.5 Ω  | 6.3 Ω | 0.6 nH        |

### Wavelength ( $\lambda_g$ ) in Dielectric

| Material | $\epsilon_r$ | Wavelength Formula for $\lambda_g$ (inches) |
|----------|--------------|---|
| 1000     | 10.5 ± 0.5   | 3642/ $f_0$                                 |
| 2000     | 20.6 ± 1.0   | 2601/ $f_0$                                 |
| 8800     | 39.0 ± 1.5   | 1890/ $f_0$                                 |
| 9000     | 90.0 ± 3.0   | 1244/ $f_0$                                 |

Figure 2.

### Inductor Selection Guide

- 1) Select one of Skyworks' four dielectric materials.
- 2) Determine the VCO's operating frequency ( $f_{VCO}$ ).
- 3) Determine the desired inductance or circuit impedance ( $Z_{in}$ ).  
Note: Convert inductances to impedances by using:  
 $Z_{in} = 2 * \xi * f_{VCO} * L_{in} \Omega$ .
- 4) Calculate the effect of the tab. Tab inductances are given in Figure 9. Use the formula ( $Z_{in} = 2 * \xi * f_{VCO} * L_{tab} \Omega$ ) to convert the tab inductances to impedances.
- 5) Determine the input impedance by subtracting the effect of the tab using:  $Z_{input} = Z_{in} - Z_{tab}$ .
- 6) Calculate the wavelength ( $\lambda_g$ ) of the part in the dielectric (see Figure 2 for appropriate formula).
- 7) Determine the characteristic impedance ( $Z_0$ ) of the part (see Figure 3).
- 8) Calculate the physical length of the part using the formula:  $1 = (\lambda_g / 2 * \xi) \tan^{-1} (Z_{input} / Z_0)$  inches.
- 9) Determine the SRF of this part using:  
 $SRF = (\lambda_g * f_{VCO}) / (4 * 1)$  MHz.
- 10) Check the recommended frequency chart for the appropriate material to ensure a valid part.

### Measurement Description of Q, $f_0$ , and L

Evaluation of Q (quality factor) and  $f_0$  (resonant frequency) of coaxial components is made with a one-port reflection measurement on a network analyzer. The probe is moved into the inner diameter (ID) of the device until the input resistance of the device matches the terminal resistance of the network analyzer. This is indicated by a 50 Ω circle on the Smith Chart display and is known as "critical" coupling. The point on this circle where the response is purely resistive (capacitance reactance equals inductive reactance) is the point of resonance and will be defined by a complex impedance of  $Z = 50 + j \Omega$ . The Q is computed by observing the frequency span between VSWR-2.616 ( $Z = 50 \pm j50 \Omega$ ) on either side of  $f_0$ . The Q is defined as  $f_0 / \Delta f$ .

The inductance parameter (L) is measured with an APC-7 mm connector mounted flush with a conducting plane and a full one-port calibration (open, short, broadband 50 Ω load) is performed. The inductor is then clamped into place with the tab touching the inner conductor and the metallized body touching the grounding plane. The inductance (L) is measured at the frequency of use. The impedance vector on the Smith Chart of an ANA gives the necessary information where  $Z = R + jwL$ .

### Characteristic Impedance

As shown in Figure 3, the characteristic impedance ( $Z_0$ ) of the coaxial TEM mode components is a function of the profile dimensions and the dielectric constant of the material.  $Z_0$  is reduced over its air line value by the square root of the dielectric constant of the material. At one-eighth wavelength, the short-circuit line exhibits an inductive reactance while the open-circuit line exhibits a capacitive reactance equal in magnitude to  $Z_0$ .

$$Z_0 = \text{characteristic impedance} = \frac{60}{\sqrt{\epsilon_r}} \ln \left( 1.079 \frac{W}{d} \right)$$

where:

w = width of resonator

d = diameter of inner conductor

$\epsilon_r$  = dielectric constant

| Profile | 1000   | 2000   | 8800   | 9000  |
|---------|--------|--------|--------|-------|
| HP      | 25.3 Ω | 18.1 Ω | 13.1 Ω | 8.6 Ω |
| EP      | 22.5 Ω | 16.1 Ω | 11.7 Ω | 7.7 Ω |
| SP      | 18.3 Ω | 13.1 Ω | 9.5 Ω  | 6.3 Ω |
| LS      | 18.4 Ω | 13.1 Ω | 9.5 Ω  | 6.3 Ω |
| LP      | 27.4 Ω | 19.6 Ω | 14.2 Ω | 9.4 Ω |
| MP      | 25.7 Ω | 18.4 Ω | 13.3 Ω | 8.8 Ω |
| SM      | 18.4 Ω | 13.1 Ω | 9.5 Ω  | 6.3 Ω |

Figure 3.

## Ceramic Coaxial Inductors

### Soldering Conditions

Skyworks' coaxial components are compatible with standard surface mount reflow and wave soldering methods. The HP profile components may require mechanical support mounting because of the larger size. Consult the factory for details.

Use silver-bearing solder such as SN62 (62Sn-36Pb-2Ag). Skyworks' tabs are pretinned to improve solderability. Additional attaching methods include hot air gun, infrared source, soldering iron, hot plate, vapor phase, and others. The coaxial component body is a ceramic and subject to thermal shock if heated or cooled too rapidly. Figure 4 is the recommended soldering profile, not to exceed 230 °C for a duration of about 10 seconds. Repeatable results can be best achieved with air cooling only, not quenching.

Figure 5 indicates the maximum tolerance of the component planarity with respect to the datum plane.

#### Equation (1) Input Impedance $f_0$

$$Z_{input} = fZ_0 \tan\left(\frac{2f_0}{4SRF}\right)$$

where:  $f_0$  = use frequency

#### Equation (2) Resonant Frequency

$$l = \frac{c}{4SRF\sqrt{\epsilon_r}}$$

where:  $c$  = speed of light  $\epsilon_r =$  39.08800 material  
 90.09000 material  
 10.51000 material  
 20.62000 material

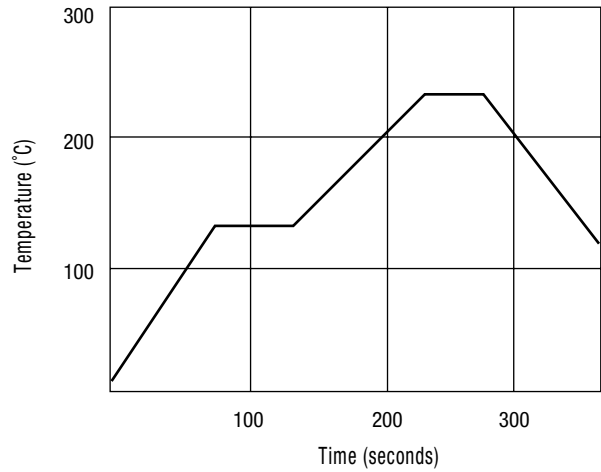


Figure 4. Soldering Profile

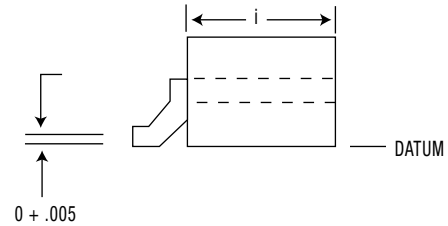


Figure 5. Surface Mount Tolerance for Components with Tabs

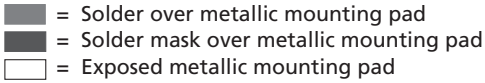


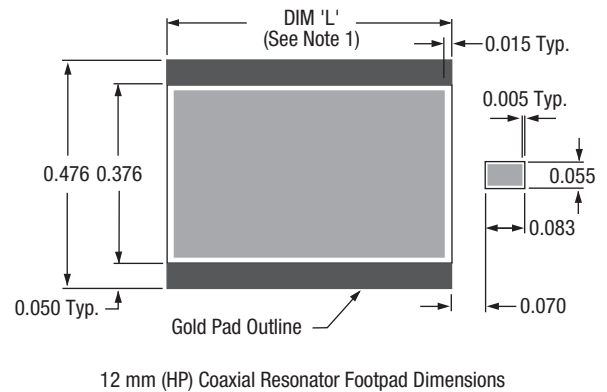
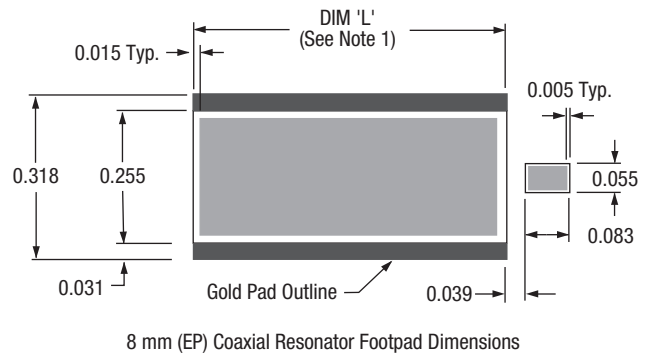
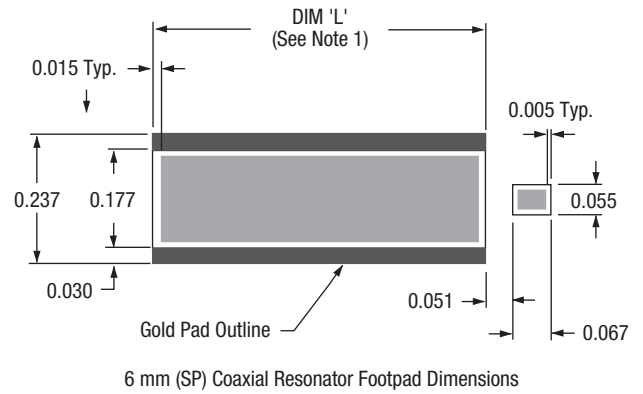
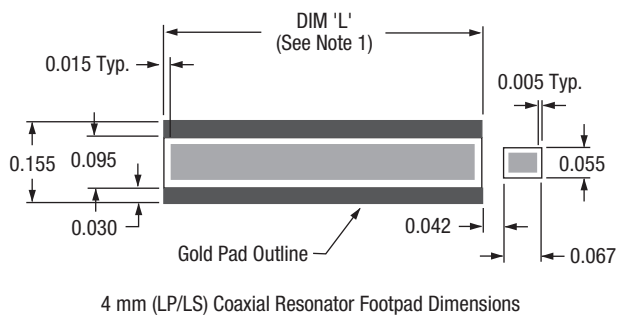
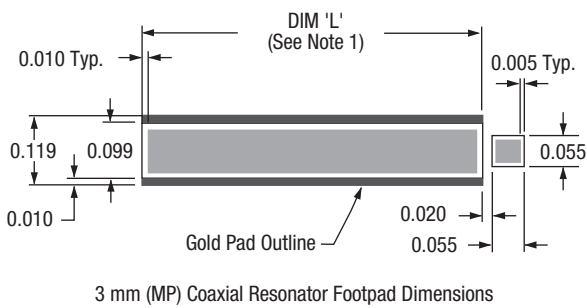
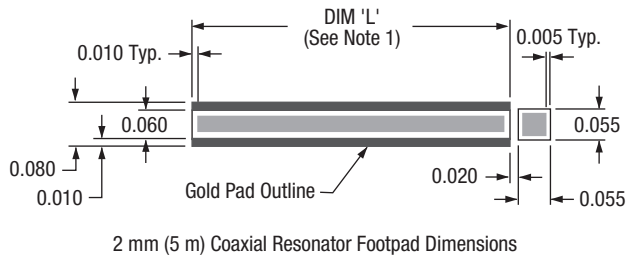
## Ceramic Coaxial Inductors

### Packaging

Tape and reel packaging is available. Consult the factory for details.

Notes: 1. Dimension "L" is length which depends on frequency.

Key:  




## Standard Filters / Diplexers\*

This list contains Skyworks' most popular filter and diplexer designs. A variety of footprints and configurations are available for application-specific needs. Please contact the factory or your local representative with your specifications or for more information on any of these

designs. Skyworks maintains a list of over 700 active filters and diplexers. We welcome every opportunity to assist in the selection or creation of a filter or diplexer that will meet your specifications.

### CATV

| Part Number         | Filter Type | Size/Poles  | Center Frequency (MHz) | Bandwidth (MHz) | Insertion Loss (dB) | Package |
|---------------------|-------------|-------------|------------------------|-----------------|---------------------|---------|
| TT3P2-1068P0-3507   | Band Pass   | 3 mm/2 pole | 1068                   | 35              | 0.7                 | PCB SMT |
| TT4P2-1013P2-2020   | Band Pass   | 4 mm/2 pole | 1013                   | 20              | 2.0                 | PCB SMT |
| TT4P2-1082.5P2-0720 | Band Pass   | 4 mm/2 pole | 1082.5                 | 07              | 2.0                 | PCB SMT |
| TT4P2-1082P2-0620   | Band Pass   | 4 mm/2 pole | 1082                   | 06              | 2.0                 | PCB SMT |
| TT4P2-1090P2-0610   | Band Pass   | 4 mm/2 pole | 1090                   | 06              | 1.0                 | PCB SMT |
| TT4P3-1030P2-1535   | Band Pass   | 4 mm/3 pole | 1030                   | 15              | 3.5                 | PCB SMT |
| TT4P3-1067P2-4420   | Band Pass   | 4 mm/3 pole | 1067                   | 44              | 2.0                 | PCB SMT |
| TT6P4-1080P4-7015   | Band Pass   | 6 mm/4 pole | 1080                   | 70              | 1.5                 | PCB SMT |
| TT6P4-1090P2-1036   | Band Pass   | 6 mm/4 pole | 1090                   | 10              | 3.6                 | PCB SMT |

### WCS

| Part Number        | Filter Type | Size/Poles  | Center Frequency (MHz) | Bandwidth (MHz) | Insertion Loss (dB) | Package |
|--------------------|-------------|-------------|------------------------|-----------------|---------------------|---------|
| TT6P6-0750P0-5017  | Band Pass   | 6 mm/6 pole | 0750                   | 50              | 1.7                 | PCB SMT |
| TT6P5-0765P0-11225 | Band Pass   | 6 mm/5 pole | 0765                   | 112             | 2.5                 | PCB SMT |
| TT6P2-0770T-1215   | Band Pass   | 6 mm/2 pole | 0770                   | 12              | 1.5                 | PCB SMT |
| TT6P3-0770T-1225   | Band Pass   | 6 mm/3 pole | 0770                   | 12              | 2.5                 | PCB SMT |
| TT6P3-0770T-2020   | Band Pass   | 6 mm/3 pole | 0770                   | 20              | 2.0                 | PCB SMT |

### MDS

| Part Number       | Filter Type | Size/Poles  | Center Frequency (MHz) | Bandwidth (MHz) | Insertion Loss (dB) | Package |
|-------------------|-------------|-------------|------------------------|-----------------|---------------------|---------|
| TT4P3-2120P2-6020 | Band Pass   | 4 mm/3 pole | 2120                   | 60              | 2.0                 | PCB SMT |
| TT4P6-2122P0-2835 | Band Pass   | 4 mm/6 pole | 2122                   | 28              | 3.5                 | PCB SMT |
| TT6P4-2158P2-1422 | Band Pass   | 6 mm/4 pole | 2158                   | 14              | 2.2                 | PCB SMT |
| TT6P6-2500P3-3635 | Band Pass   | 6 mm/6 pole | 2500                   | 36              | 3.5                 | PCB SMT |

\*These products are produced by Trans-Tech (a wholly owned subsidiary of Skyworks Solutions, Inc.)

## Standard Filters / Diplexers\*

### ISM

| Part Number       | Filter Type | Size/Poles  | Center Frequency (MHz) | Bandwidth (MHz) | Insertion Loss (dB) | Package |
|-------------------|-------------|-------------|------------------------|-----------------|---------------------|---------|
| TT4P2-0915P2-2620 | Band Pass   | 4 mm/2 pole | 0915                   | 26              | 2.0                 | PCB SMT |
| TT6P2-0902F-2518  | Band Pass   | 6 mm/2 pole | 0902                   | 25              | 1.8                 | PCB SMT |
| TT6P2-0915T-2518  | Band Pass   | 6 mm/2 pole | 0915                   | 25              | 1.8                 | PCB SMT |
| TT6P3-0902T-2520  | Band Pass   | 6 mm/3 pole | 0902                   | 25              | 2.0                 | PCB SMT |
| TT6P3-0915T-2520  | Band Pass   | 6 mm/3 pole | 0915                   | 25              | 2.0                 | PCB SMT |
| TT6P3-0917F-1425  | Band Pass   | 6 mm/3 pole | 0917                   | 14              | 2.5                 | PCB SMT |
| TT3P3-2400P1-1030 | Band Pass   | 3 mm/3 pole | 2400                   | 10              | 3.0                 | PCB SMT |
| TT3P3-2450P1-1445 | Band Pass   | 3 mm/3 pole | 2450                   | 14              | 4.5                 | PCB SMT |
| TT6P3-2467P0-3330 | Band Pass   | 6 mm/3 pole | 2467                   | 33              | 3.0                 | PCB SMT |

### Cell, PCS, DCS, UMTS

| Part Number         | Filter Type | Size/Poles   | Center Frequency (MHz) | Bandwidth (MHz) | Insertion Loss (dB) | Package |
|---------------------|-------------|--------------|------------------------|-----------------|---------------------|---------|
| TT3P2-1880P0-6010   | Band Pass   | 3 mm/2 pole  | 1880                   | 60              | 1.0                 | PCB SMT |
| TT3P3-0881.5P2-2530 | Band Pass   | 3 mm/3 pole  | 0881.5                 | 25              | 3.0                 | PCB SMT |
| TT3P3-1880P0-6022   | Band Pass   | 3 mm/3 pole  | 1880                   | 60              | 2.2                 | PCB SMT |
| TT3P3-1960P0-6022   | Band Pass   | 3 mm/3 pole  | 1960                   | 60              | 2.2                 | PCB SMT |
| TT3P3-1960P2-6030   | Band Pass   | 3 mm/3 pole  | 1960                   | 60              | 3.0                 | PCB SMT |
| TT3P4-0836.5P2-2525 | Band Pass   | 3 mm/4 pole  | 0836.5                 | 25              | 2.5                 | PCB SMT |
| TT3P4-0881.5P2-2525 | Band Pass   | 3 mm/4 pole  | 0881.5                 | 25              | 2.5                 | PCB SMT |
| TT3P4-1880P2-6020   | Band Pass   | 3 mm/4 pole  | 1880                   | 60              | 2.0                 | PCB SMT |
| TT3P4-1880P2-6030   | Band Pass   | 3 mm/4 pole  | 1880                   | 60              | 3.0                 | PCB SMT |
| TT4P3-0863P0-0585   | Band Pass   | 4 mm/3 pole  | 0863                   | 05              | 8.5                 | PCB SMT |
| TT4P3-2180P1-2540   | Band Pass   | 4 mm/3 pole  | 2180                   | 25              | 4.0                 | PCB SMT |
| TT4P4-1880P0-6216   | Band Pass   | 4 mm/4 pole  | 1880                   | 62              | 1.6                 | PCB SMT |
| TT4P4-1960P0-6216   | Band Pass   | 4 mm/4 pole  | 1960                   | 62              | 1.6                 | PCB SMT |
| TT4P5-2240P2-1032   | Band Pass   | 4 mm/5 pole  | 2240                   | 10              | 3.2                 | PCB SMT |
| TT4P6-0860.5P0-1937 | Band Pass   | 4 mm/6 pole  | 0860.5                 | 19              | 3.7                 | PCB SMT |
| TT6P3-0836T-2520    | Band Pass   | 6 mm/3 pole  | 0836                   | 25              | 2.0                 | PCB SMT |
| TT6P3-0860P3-2020   | Band Pass   | 6 mm/3 pole  | 0860                   | 20              | 2.0                 | PCB SMT |
| TT6P3-0860T-2020    | Band Pass   | 6 mm/3 pole  | 0860                   | 20              | 2.0                 | PCB SMT |
| TT6P3-0881F-2520    | Band Pass   | 6 mm/3 pole  | 0881                   | 25              | 2.0                 | PCB SMT |
| TT6P5-1960P0-6025   | Band Pass   | 6 mm/5 pole  | 1960                   | 60              | 2.5                 | PCB SMT |
| TT6P5-2280P1-7032   | Band Pass   | 6 mm/5 pole  | 2280                   | 70              | 3.2                 | PCB SMT |
| TT6P6-1900P3-8035   | Band Pass   | 6 mm/6 pole  | 1900                   | 80              | 3.5                 | PCB SMT |
| TT6P3-2140P2-6011   | Band Pass   | 6 mm/3 pole  | 2140                   | 60              | 1.1                 | PCB SMT |
| TT6P10-R1950-T2140  | Diplexer    | 6 mm/10 pole | 1950                   | –               | –                   | PCB SMT |

\*These products are produced by Trans-Tech (a wholly owned subsidiary of Skyworks Solutions, Inc.)

## Standard Filters / Diplexers\*

### GPS

| Part Number            | Filter Type | Size/Poles  | Center Frequency (MHz) | Bandwidth (MHz) | Insertion Loss (dB) | Package |
|------------------------|-------------|-------------|------------------------|-----------------|---------------------|---------|
| TT4P4-R1227.6-T1575.42 | Diplexer    | 4 mm/4 pole | 1227.6                 | -               | -                   | PCB SMT |
| TT4P3-1227.6P1-2030    | Band Pass   | 4 mm/3 pole | 1227.6                 | 20              | 3.0                 | PCB SMT |
| TT4P3-1575.42P2-2040   | Band Pass   | 4 mm/3 pole | 1575.42                | 20              | 4.0                 | PCB SMT |
| TT3P3-1227.6P1-1030    | Band Pass   | 3 mm/3 pole | 1227.6                 | 10              | 3.0                 | PCB SMT |
| TT3P3-1575.42P2-1030   | Band Pass   | 3 mm/3 pole | 1575.42                | 10              | 3.0                 | PCB SMT |

### Other

| Part Number          | Filter Type | Size/Poles  | Center Frequency (MHz) | Bandwidth (MHz) | Insertion Loss (dB) | Package |
|----------------------|-------------|-------------|------------------------|-----------------|---------------------|---------|
| TT3P4-2513P2-5055    | Band Pass   | 3 mm/4 pole | 2513                   | 50              | 5.5                 | PCB SMT |
| TT3P5-3687P1-7466    | Band Pass   | 3 mm/5 pole | 3687                   | 74              | 6.6                 | PCB SMT |
| TT4P3-3417P2-0220    | Band Pass   | 4 mm/3 pole | 3417                   | 02              | 2.0                 | PCB SMT |
| TT4P5-1090P0-1050    | Band Pass   | 4 mm/5 pole | 1090                   | 10              | 5.0                 | PCB SMT |
| TT6P5-0810P3-5030    | Band Pass   | 6 mm/5 pole | 0810                   | 50              | 3.0                 | PCB SMT |
| TT6P4-0509P7-0148    | Band Pass   | 6 mm/4 pole | 0509                   | 01              | 4.8                 | PCB SMT |
| TT4P4-1000P2-1030    | Band Pass   | 4 mm/4 pole | 1000                   | 10              | 3.0                 | PCB SMT |
| TT6P3-0826.5P3-0520  | Band Pass   | 6 mm/3 pole | 0826.5                 | 05              | 2.0                 | PCB SMT |
| TT6P3-0827P3-0620    | Band Pass   | 6 mm/3 pole | 0825                   | 06              | 2.0                 | PCB SMT |
| TT6P6-1000P5-8530    | Band Pass   | 6 mm/6 pole | 1000                   | 85              | 3.0                 | PCB SMT |
| TT6P6-0545P6-3022    | Band Pass   | 6 mm/6 pole | 0545                   | 30              | 2.2                 | PCB SMT |
| TT4P3-3500P2-10020   | Band Pass   | 4 mm/3 pole | 3500                   | 100             | 2.0                 | PCB SMT |
| TT6P6-0889P3-4029    | Band Pass   | 6 mm/6 pole | 0889                   | 40              | 2.9                 | PCB SMT |
| TT6P4-0722P4-4817    | Band Pass   | 6 mm/4 pole | 0722                   | 48              | 1.7                 | PCB SMT |
| TT3P3-1088P2-9015    | Band Pass   | 3 mm/3 pole | 1088                   | 90              | 1.5                 | PCB SMT |
| TT6P3-0740P3-2020    | Band Pass   | 6 mm/3 pole | 0740                   | 20              | 2.0                 | PCB SMT |
| TT6P5-1950P3-6040    | Band Pass   | 6 mm/5 pole | 1950                   | 60              | 4.0                 | PCB SMT |
| TT3P4-0917P2-4524    | Band Pass   | 3 mm/4 pole | 0917                   | 45              | 2.4                 | PCB SMT |
| TT6P3-1090P2-1029    | Band Pass   | 6 mm/3 pole | 1090                   | 10              | 2.9                 | PCB SMT |
| TT6P4-0770P0-1240    | Band Pass   | 6 mm/4 pole | 0770                   | 12              | 4.0                 | PCB SMT |
| TT6P3-1030P2-1029    | Band Pass   | 6 mm/3 pole | 1030                   | 10              | 2.9                 | PCB SMT |
| TT6P5-0881.5P0-2530  | Band Pass   | 6 mm/5 pole | 0881.5                 | 25              | 3.0                 | PCB SMT |
| TT6P3-0730P3-1213    | Band Pass   | 6 mm/3 pole | 0730                   | 12              | 1.3                 | PCB SMT |
| TT6P3-0445.25T-0145  | Band Pass   | 6 mm/3 pole | 0445.25                | 01              | 4.5                 | PCB SMT |
| TT4P3-2400P1-20015   | Band Pass   | 4 mm/3 pole | 2400                   | 200             | 1.5                 | PCB SMT |
| TT6P3-1080P2-0650    | Band Pass   | 6 mm/3 pole | 1080                   | 06              | 5.0                 | PCB SMT |
| TT6P3-0745.3P3-1920  | Band Pass   | 6 mm/3 pole | 0745.3                 | 19              | 2.0                 | PCB SMT |
| TT6P4-0435P0-3019-NS | Band Pass   | 6 mm/4 pole | 0435                   | 30              | 1.9                 | PCB SMT |
| TT3P4-0895.5P2-3926  | Band Pass   | 3 mm/4 pole | 0895.5                 | 39              | 2.6                 | PCB SMT |

\*These products are produced by Trans-Tech (a wholly owned subsidiary of Skyworks Solutions, Inc.)

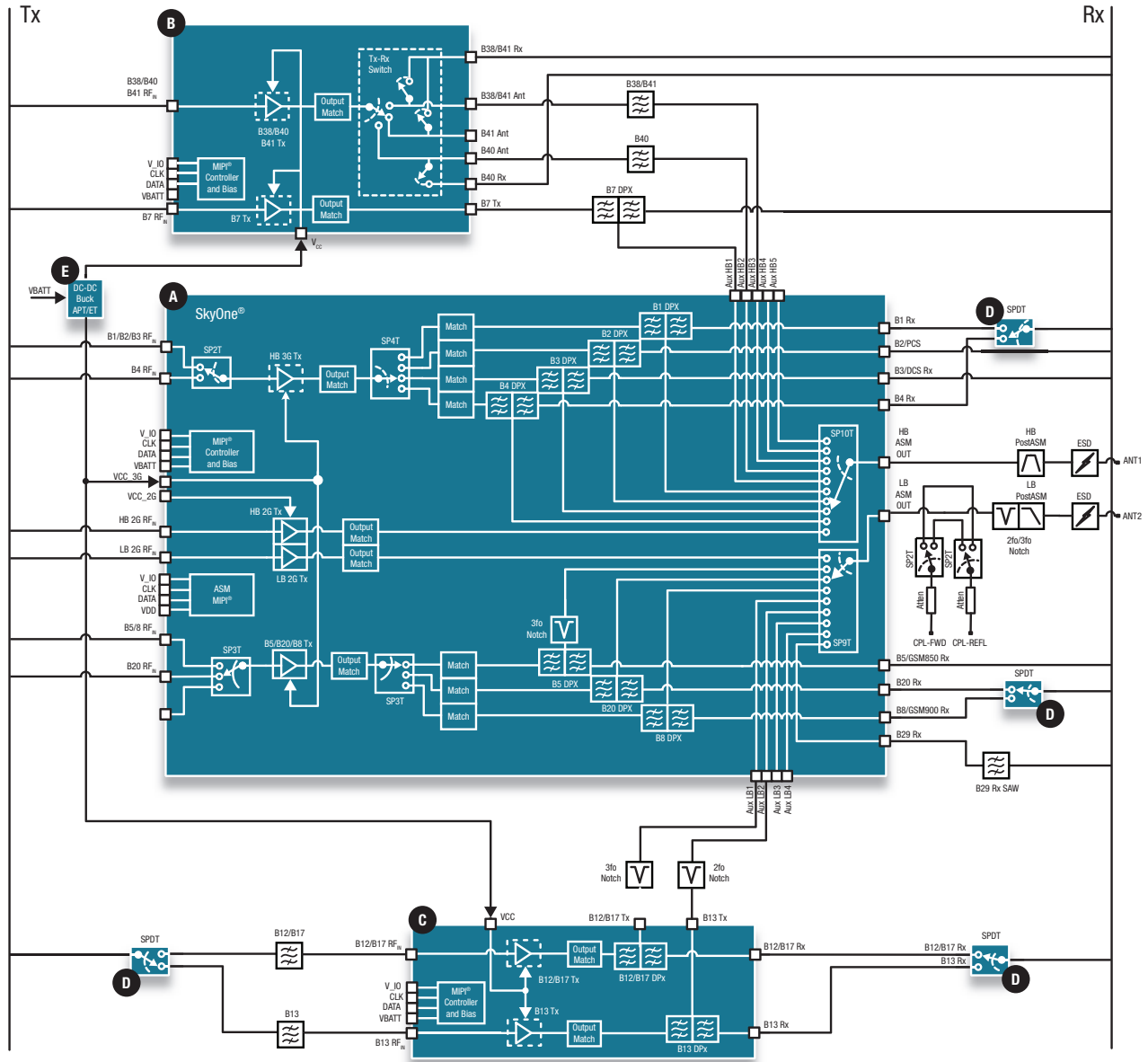
## Reference Material

|  |            |  |            |
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# BLOCK DIAGRAMS

Smartphone, Handset and Tablet

SkyOne®



**SkyOne® Front-end Modules**

- A** SKY78010 SKY78021
- SKY78011 SKY78022
- SKY78013 SKY78025
- SKY78015 SKY78026

**Power Amplifier Modules**

- B** SKY77807
- SKY77771
- SKY77772
- SKY77773

**Front-end Module**

- C** SKY77806

**SP2T Switch**

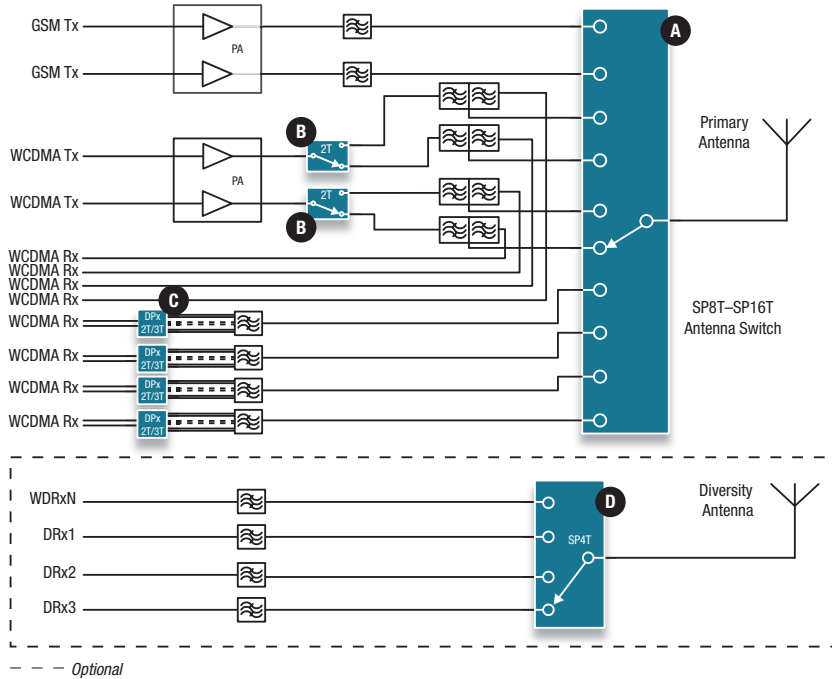
- D** SKY13476-001

**Power Management**

- E** Step-down Converter
- SKY87000-13

### Smartphone, Handset and Tablet

#### Smartphone Using Discrete Switches or Antenna Switch Modules (ASMs)



**Primary Antenna Switches**

- A** SKY13404-466LF SKY13454
- SKY13406-389LF SKY13455
- SKY13412-487LF SKY13488
- SKY13413-488LF SKY13491-21
- SKY13437 SKY13492
- SKY13441 SKY13498

**WCDMA Distribution (Mode/Band) Switches**

- B** SKY13405-490LF
- SKY13448-001
- SKY13449-001
- SKY13489-001

**Rx Differential Switches**

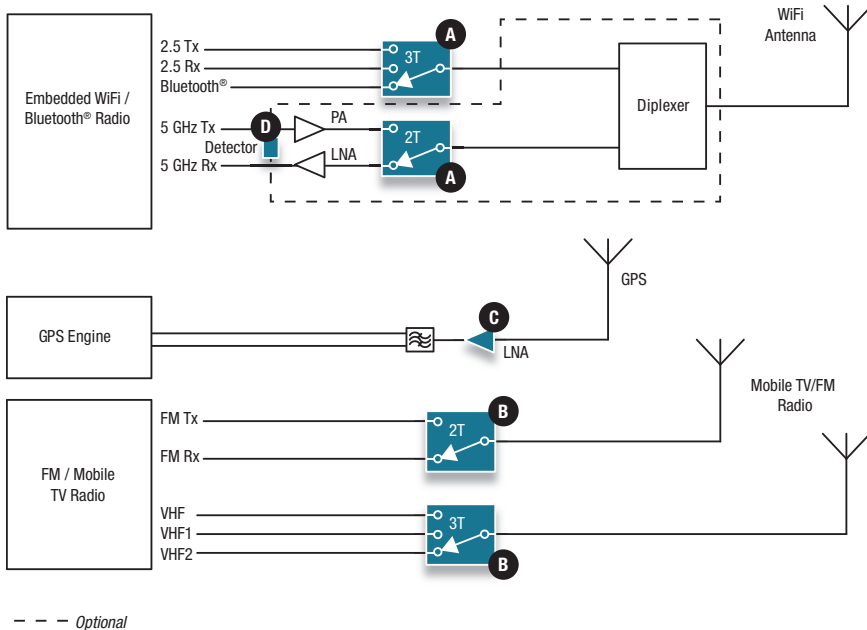
- C** SKY13354-368LF
- SKY13399-468LF
- SKY13421-486LF

**Diversity Antenna Switches**

- D** SKY13414-485LF
- SKY13415-485LF
- SKY13416-485LF
- SKY13417-485LF
- SKY13418-485LF
- SKY13473
- SKY13521
- SKY13525
- SKY13526-485LF

### Smartphone, Handset and Tablet

#### Embedded Connectivity in Handsets



**Mobile Connectivity— Embedded WiFi**

- A** SKY13309-370LF SKY13383-002
- SKY13317-373LF SKY13385-460LF
- SKY13323-378LF SKY13386-002
- SKY13345-368LF SKY13399-468LF
- SKY13348-374LF SKY13408-465LF
- SKY13350-385LF SKY13411-374LF
- SKY13351-378LF SKY13421-486LF
- SKY13353-337LF SKY13431-374LF
- SKY13355-374LF SKY13445-368LF
- SKY13366-378LF SKY13446-374LF
- SKY13370-374LF SKY13453-385LF
- SKY13377-313LF SKY13527-002
- SKY13381-374LF

**Mobile Connectivity— Mobile TV**

- B** SKY13317-373LF
- SKY13322-375LF
- SKY13323-378LF
- SKY13350-385LF
- SKY13351-378LF

**GPS LNA/LNA Module**

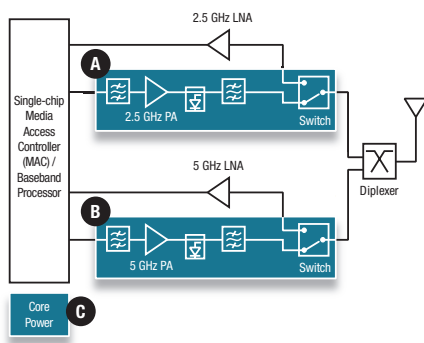
- C** SKY65601-477LF SKY65704-61
- SKY65602-477LF SKY65708-11
- SKY65605-11 SKY65709-81
- SKY65611-11 SKY65713-11
- SKY65704-22 SKY65717-11

**Detector**

- D** SMS7630-061

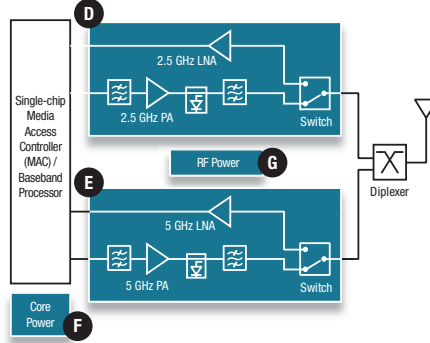
WiFi Connectivity

802.11a/b/g/n/ac Single-band WiFi Front-end Modules (FEMs)



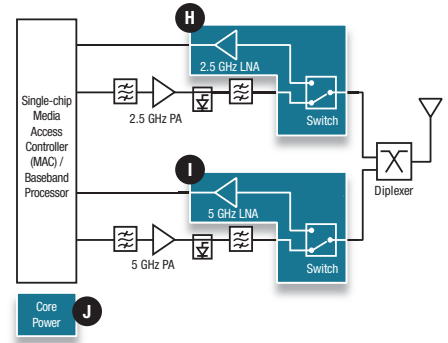
- 2.5 GHz FEM**  
**A** SE2614BT
- 5 GHz FEMs**  
**B** SE5006L  
 SE5021L

- Core Power**  
**C** AAT2113B  
 AAT2114A



- 2.5 GHz FEM**  
**D** SE2620T  
 SKY85300
- 5 GHz FEMs**  
**E** SE5007T  
 SE5007BT  
 SE5012T  
 SE5012BT  
 SKY85703-11

- Core Power**  
**F** AAT2113B  
 AAT2114A
- RF Power**  
**G** SKY87201  
 AAT2114A

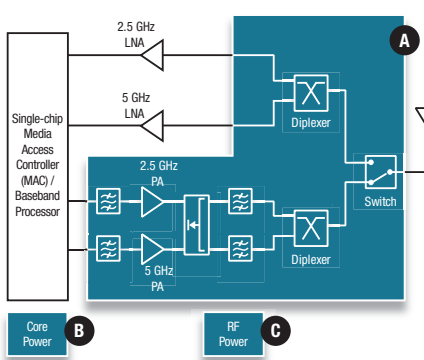


- 2.5 GHz FEM**  
**H** SE2601T
- 5 GHz FEM**  
**I** SE5008L  
 SKY85601-11

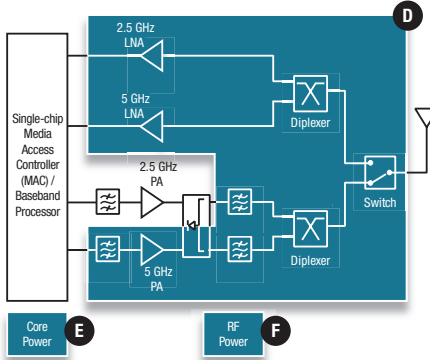
- Core Power**  
**J** AAT2113B  
 AAT2114A

WiFi Connectivity

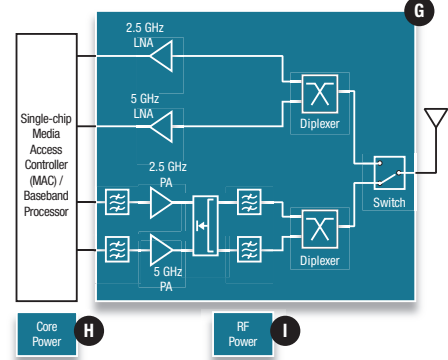
802.11a/b/g/n/ac Dual-band WiFi Front-end Modules (FEMs)



- Dual-band FEMs**  
**A** SE2548A  
 SE2594L  
 SE5503A
- Core Power**  
**B** AAT2113B  
 AAT2114A
- RF Power**  
**C** SKY87201  
 AAT2114A



- Dual-band FEM**  
**D** SE2578L
- Core Power**  
**E** AAT2113B  
 AAT2114A
- RF Power**  
**F** SKY87201  
 AAT2114A

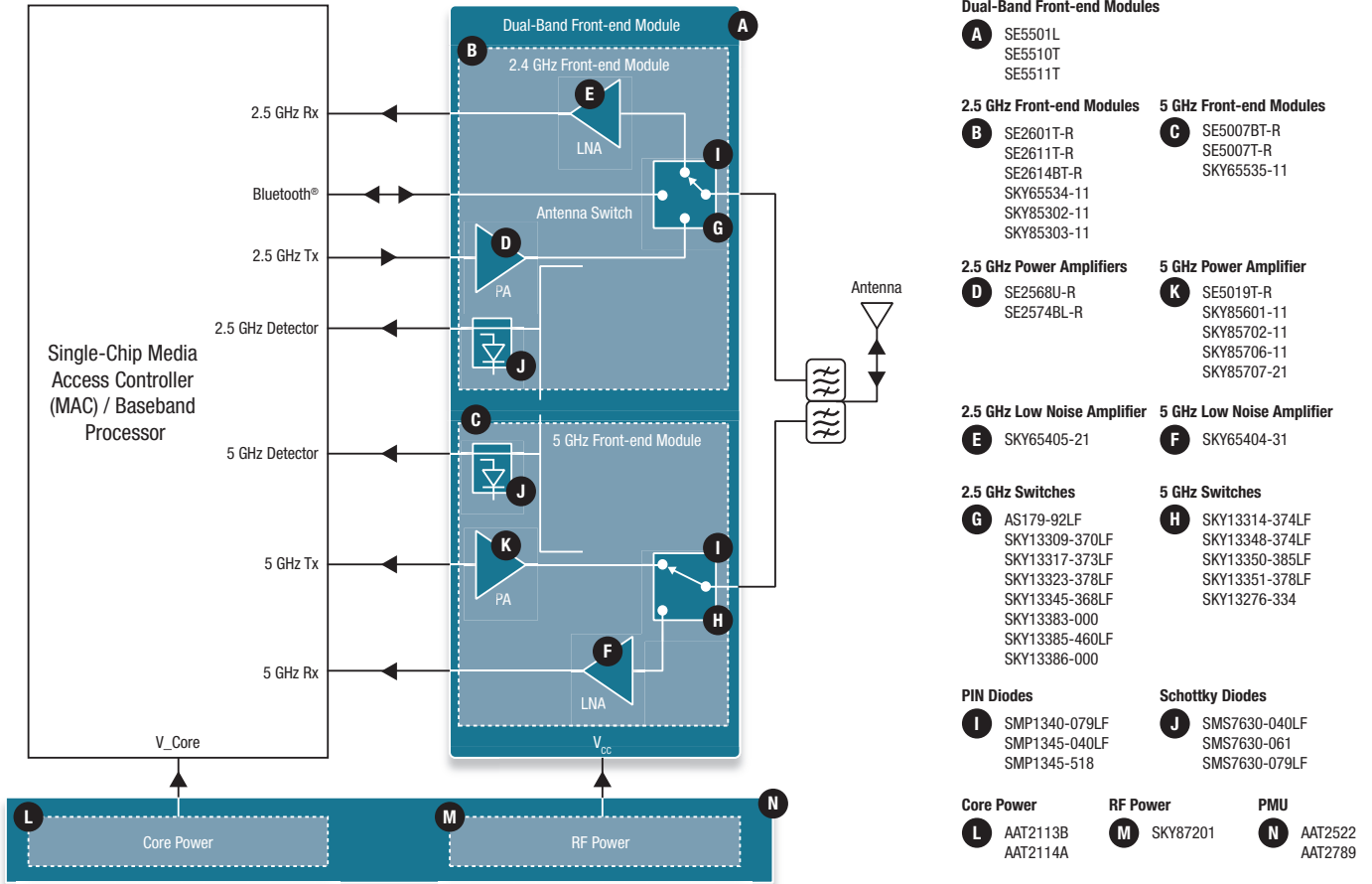


- Dual-band FEMs**  
**G** SE2595L  
 SE5502L  
 SE5512L  
 SE5515A  
 SE5516A
- Core Power**  
**H** AAT2113B  
 AAT2114A
- RF Power**  
**I** SKY87201  
 AAT2114A



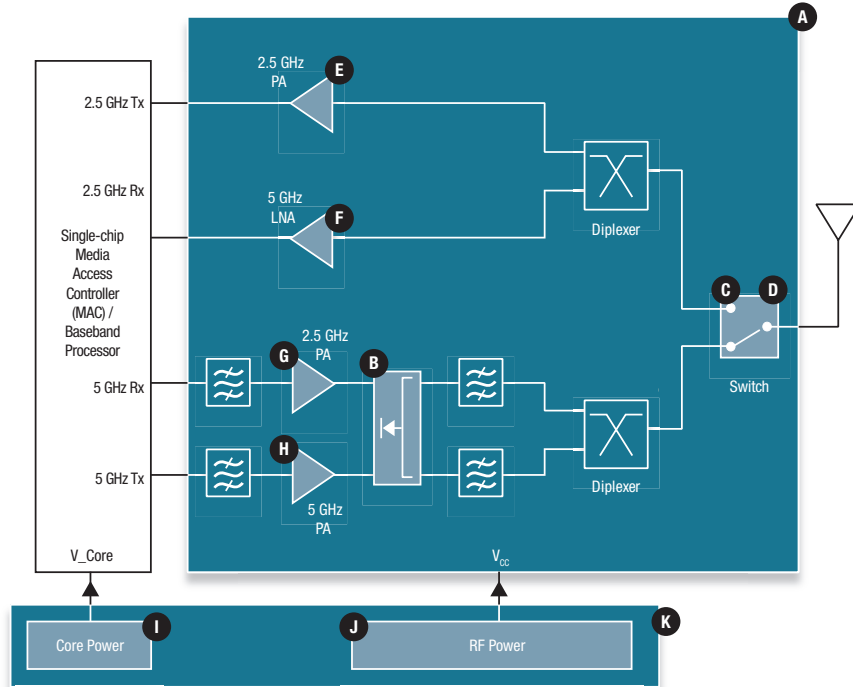
WiFi Connectivity

802.11ab/g/n/ac Dual-band WiFi and Bluetooth® Front-end Components—Handset and Tablet



WiFi Connectivity

802.11a/b/g/n/ac Dual-band WiFi Front-end Components—Computing



Dual-band Front-end Modules

- A** SE2595L  
SE5502L  
SE5512L  
SE5515A  
SE5516A

Schottky Diodes

- B** SMS7630-061  
SMS7630-040LF  
SMS7630-079LF

2.5 GHz Switches

- C** AS179-92LF  
SKY13309-370LF  
SKY13317-373LF  
SKY13323-378LF  
SKY13345-368LF  
SKY13383-000  
SKY13385-460LF  
SKY13386-000

5 GHz Switches

- SKY13314-374LF  
SKY13348-374LF  
SKY13350-385LF  
SKY13351-378LF  
SKY13276-334

PIN Diodes

- D** SMP1340-079LF  
SMP1345-040LF  
SMP1345-518

2.5 GHz Low Noise Amplifier

- E** SKY65405-21

2.5 GHz Power Amplifiers

- G** SE2568U-R  
SE2574L-R

5 GHz Low Noise Amplifier

- F** SKY65404-31

5 GHz Power Amplifier

- H** SE5019T-R

Core Power

- I** AAT2113B  
AAT2114A

RF Power

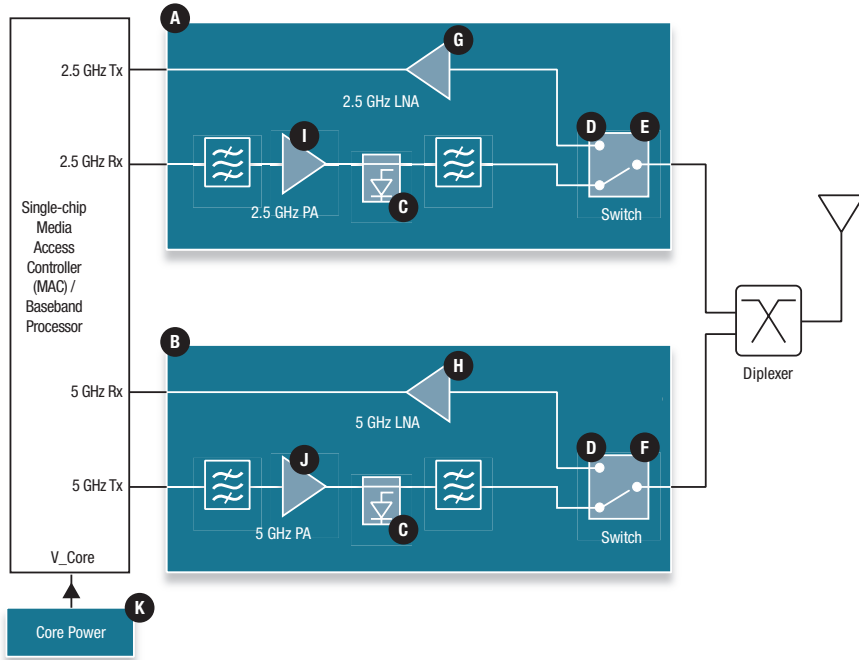
- J** SKY87201  
AAT2114A

PMU

- K** AAT2522  
AAT2789

WiFi Connectivity

802.11a/b/g/n/ac Single-band WiFi Front-end Components—Networking



2.5 GHz Front-end Module

- A** SE2620T  
SKY85300

5 GHz Front-end Modules

- B** SE5007T  
SE5007BT  
SE5012T  
SE5012BT  
SKY85703-11

Schottky Diodes

- C** SMS7630-061  
SMS7630-040LF  
SMS7630-079LF

PIN Diodes

- D** SMP1340-079LF  
SMP1345-040LF  
SMP1345-518

2.5 GHz Switches

- E** AS179-92LF  
SKY13323-378LF  
SKY13411-374LF  
SKY13355-374LF  
SKY13370-374LF

5 GHz Switches

- F** SKY13314-374LF  
SKY13348-374LF  
SKY13350-385LF  
SKY13351-378LF

2.5 GHz Low Noise Amplifier

- G** SKY65405-21

5 GHz Low Noise Amplifier

- H** SKY65404-31

2.5 GHz Power Amplifiers

- I** SE2568U-R  
SE2574L-R  
SKY65900-11

5 GHz Power Amplifier

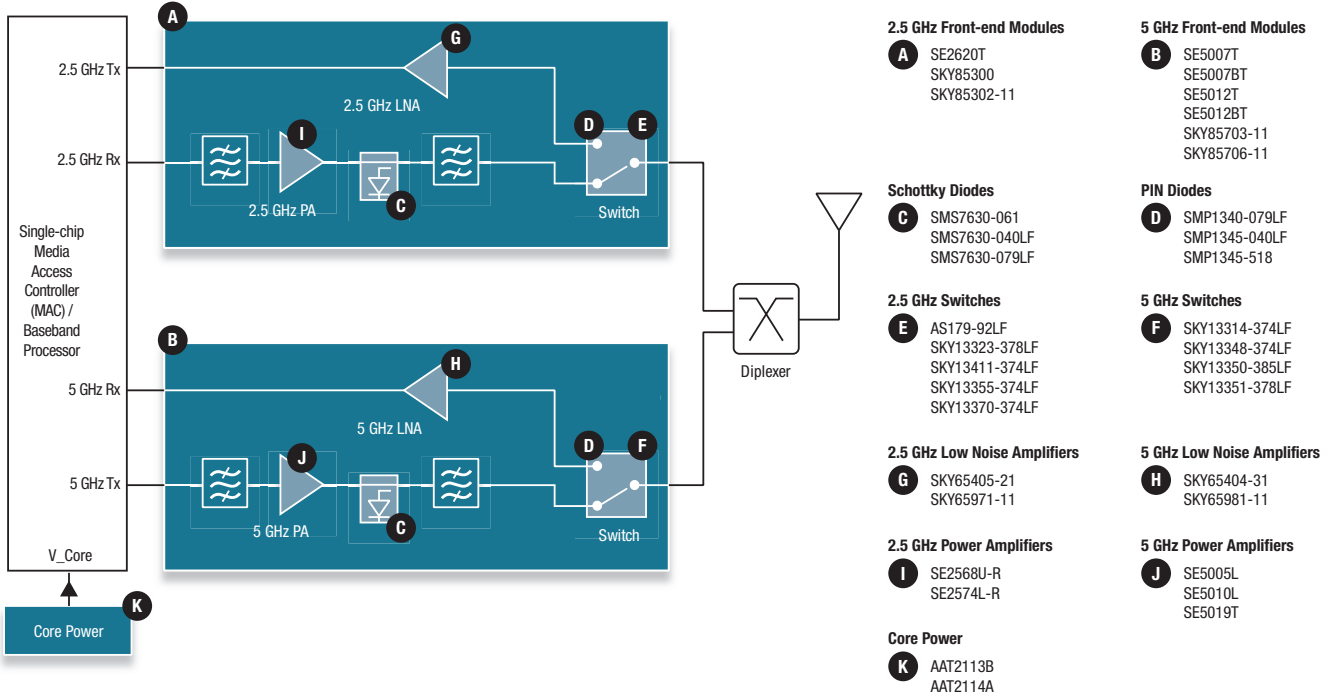
- J** SE5003L1-R  
SE5019T-R  
SKY85402-11

Core Power

- K** AAT2113B  
AAT2114A

WiFi Connectivity

802.11a/b/g/n/ac Single-band WiFi Front-end Components—Home Entertainment



Infrastructure

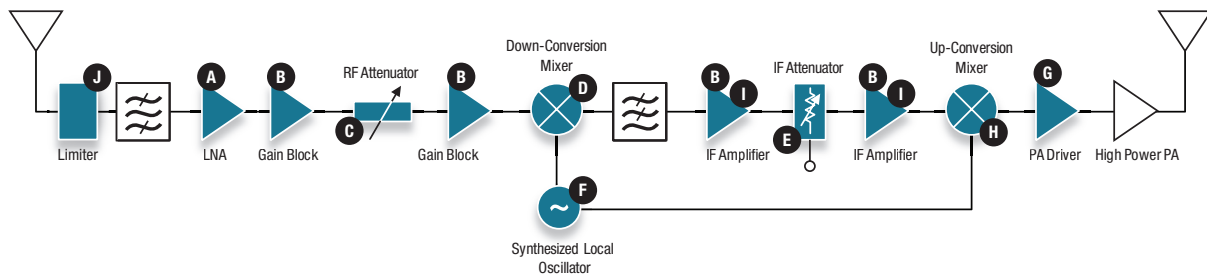
2G, 3G Base Station Repeater

Down-Link/Up-Link

RF Frequency Band: GSM, DCS, PCS, TD-SCDMA, WCDMA

800 MHz, 900 MHz, 1800/1900 MHz, LTE 2.1 GHz, 2.3–2.4 GHz

IF Frequency: 50~250 MHz

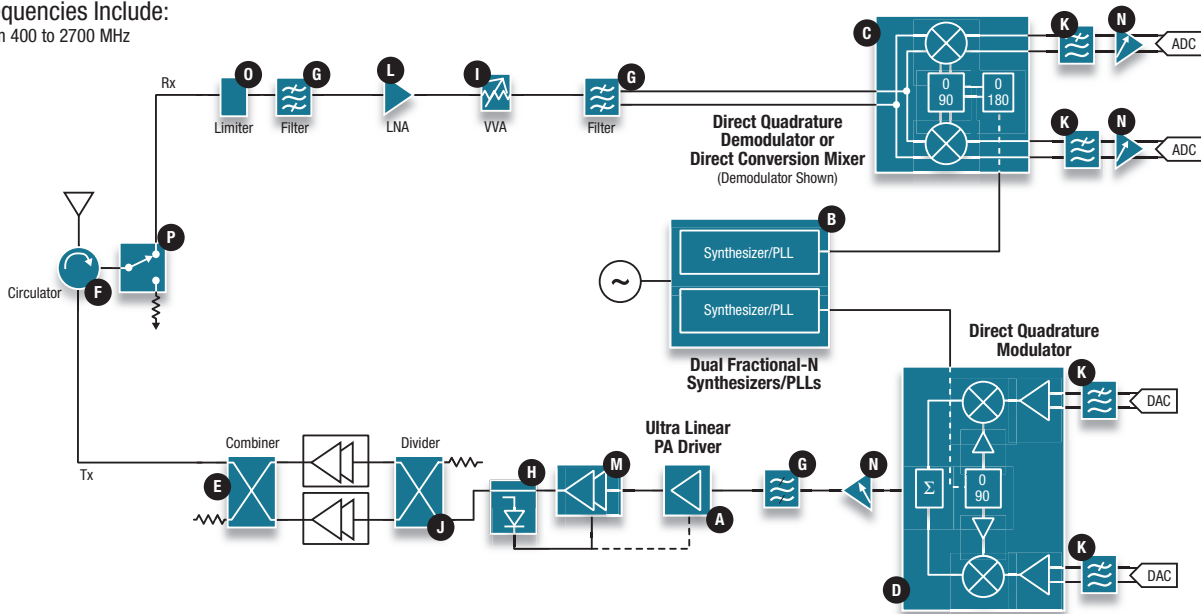


| Loise Noise Amplifiers  | General Purpose Amplifiers   | RF Attenuators   | Down-Conversion Mixers   | PLLs/VCOs/Synthesizers  | PA Drivers  | Up-Conversion Mixers   |
|---|--|--|--|---|---|--|
| <b>A</b> SKY65050-372LF<br>SKY65053-377LF<br>SKY65066-360LF<br>SKY67021-396LF<br>SKY67022-396LF<br>SKY67023-396LF<br>SKY67100-396LF<br>SKY67101-396LF<br>SKY67102-396LF<br>SKY67105-306LF<br>SKY67106-306LF<br>SKY67107-306LF<br>SKY67111-396LF<br>SKY67175-306LF | <b>B</b> SKY65013<br>SKY65014<br>SKY65015<br>SKY65016<br>SKY65017-70LF<br>SKY65161-70LF<br>SKY65162-70LF | <b>C</b> <b>Digital</b><br>SKY12329-350LF<br>SKY12339-350LF<br>SKY12340-364LF<br>SKY12343-364LF<br>SKY12345-362LF<br>SKY12347-362LF<br><b>Voltage Variable</b><br>AV101-12LF<br>SKY12228-12<br>SKY12233-11<br>SKY12235-11<br><b>PIN Diodes</b><br>SMP1304 Series<br>SMP1307 Series<br>SMP1352 Series | <b>D</b> SKY73032<br>SKY73033-11<br>SKY73035-11<br>SKY73062-11<br>SKY73063<br>SKY73069-11<br>SKY73070<br><b>IF Attenuators</b><br><b>E</b> <b>PIN Diodes</b><br>SMP1304 Series<br>SMP1307 Series<br>SMP1352 Series<br><b>Digital Attenuators</b><br>AA116-72LF<br>SKY12343-364LF<br>SKY12348-350LF<br>SKY12406-360LF | <b>F</b> SKY72300-362<br>SKY72310-362<br>SKY73100<br>SKY73101-11<br>SKY73103-11<br>SKY73112<br>SKY73120<br>SKY73121<br>SKY73134 | <b>G</b> SKY65009-70LF<br>SKY65038-70LF<br>SKY65045-70LF<br>SKY65080-70LF<br>SKY65112-84LF<br>SKY65113-84LF<br>SKY65120<br>SKY65124<br>SKY65126-21<br>SKY65127<br>SKY65162-70LF | <b>H</b> SKY73062-11<br>SKY73063<br>SKY73069-11<br><b>IF Amplifiers</b><br><b>I</b> SKY65013<br>SKY65014<br>SKY65015<br>SKY65016<br>SKY65017-70LF<br><b>Limiters</b><br><b>J</b> CLA46XX Series<br>SMP1330-085LF |

Infrastructure

Direct Conversion Base Station Transceiver

Frequencies Include:  
From 400 to 2700 MHz



PA Drivers

- A** SKY65009-70LF
- SKY65013-70LF
- SKY65014-70LF
- SKY65015-70LF
- SKY65016-70LF
- SKY65017-70LF
- SKY65112-84LF
- SKY65113-84LF
- SKY65162-70LF
- SKY67130-396LF

Synthesizers/PLLs

- B** SKY72310
- SKY73100
- SKY73101-11
- SKY73103
- SKY73112
- SKY73126-11
- SKY73134-11

Quadrature Demodulators

- C** SKY73009
- SKY73012

Direct Quadrature Modulators

- D** SKY73077-459LF
- SKY73078-459LF
- SKY73092-459LF

Hybrids

- E** HY12-12LF
- HY19-12LF
- HY22-73LF
- HY92-12LF

**F** Dielectric Resonators

**G** Ceramic Band Pass Filters

**H** Directional Detectors/Couplers

- DD02-999LF
- DC08-73LF
- DC09-73LF
- DC18-73LF
- DC25-73LF

VVAs/PIN Diodes

- I** AV101-12LF
- SKY12228-12
- SKY12233-11
- SKY12235-11
- SMP1304 Series
- SMP1307-011LF

Power Dividers

- J** PD09-73LF
- PD18-73LF
- PD19-73LF
- PD22-73LF

Programmable Filters

- K** SKY73201-364LF
- SKY73202-364LF

Low Noise Amplifiers

- L** SKY65045-70LF
- SKY65080
- SKY65373
- SKY67021-396LF
- SKY67022-396LF
- SKY67023-396LF
- SKY67012-396LF
- SKY67013-396LF
- SKY67014-396LF
- SKY67100-396LF
- SKY67101-396LF
- SKY67102-396LF
- SKY67111-396LF
- SKY67130-396LF
- SKY67150-396LF
- SKY67151-396LF
- SKY67153-396LF

High Gain PA Modules

- M** SKY65120
- SKY65124
- SKY65126
- SKY65127

Variable Gain Amplifiers

- N** SKY65185

Limiter Diodes

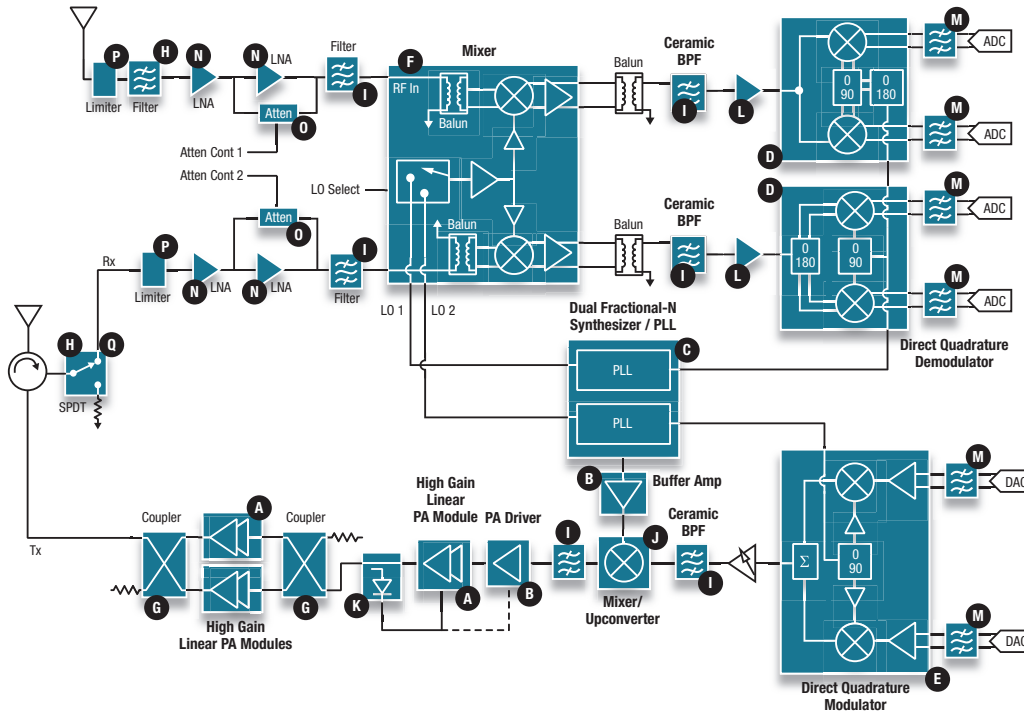
- O** CLA46XX Series
- SMP1330-085LF

High Power Fail Safe Switches

- P** SKY12207-478LF
- SKY12208-478LF
- SKY12210-478LF
- SKY12211-478LF
- SKY12212-478LF
- SKY12215-478LF

Infrastructure

Superheterodyne Base Station Transceiver



High Gain PA Modules

- A** SKY65120 SKY65126
- SKY65124 SKY65127

PA Drivers

- B** SKY65009-70LF SKY65016 SKY65162-70LF
- SKY65013 SKY65017-70LF SKY67130-396LF
- SKY65014 SKY65045-70LF
- SKY65015 SKY65080-70LF

Synthesizers/PLLs

- C** SKY72300-21 SKY73101 SKY73126
- SKY72310 SKY73103 SKY73134
- SKY73100 SKY73112

Direct Quadrature Demodulators

- D** SKY73009-11 SKY73012-11

Direct Quadrature Modulators

- E** SKY73077-459LF SKY73078-459LF SKY73092-459LF

Mixers

- F** SKY42068-355LF SKY73025 SKY73069
- SKY73020-11 (dual) SKY73032 (single) SKY73084
- SKY72301-11 SKY73033 (single) SKY73085
- SKY73022 SKY73062
- SKY73023 SKY73063

Hybrids

- G** HY17-12LF HY19-12LF HY92-12LF

**H** Dielectric Resonators **I** Ceramic Band Pass Filters

Schottky Diodes

- J** SMS3927-023LF SMS3928-023LF SMS3940-026LF

Directional Detectors/Couplers

- K** DC08-73LF DC09-73LF DD02-999LF

Gain Block Amplifiers

- L** SKY65013 SKY65015 SKY65017-70LF
- SKY65014 SKY65016 SKY67130-396LF

Programmable Filters

- M** SKY73201-364LF SKY73202-364LF

Low Noise Amplifiers

- N** SKY67021-396LF SKY67101-396LF SKY67150-396LF
- SKY67022-396LF SKY67102-396LF SKY67151-396LF
- SKY67023-396LF SKY67111-396LF SKY67153-396LF
- SKY67100-396LF

Digital Attenuators

- O** SKY12339-350LF SKY12343-364LF SKY12348-350LF
- SKY12340-364LF SKY12345-362LF

PIN Diodes

- SMP1304 Series SMP1307 Series SMP1352 Series

Limiters

- P** CLA460X Series
- SMP1330-085LF

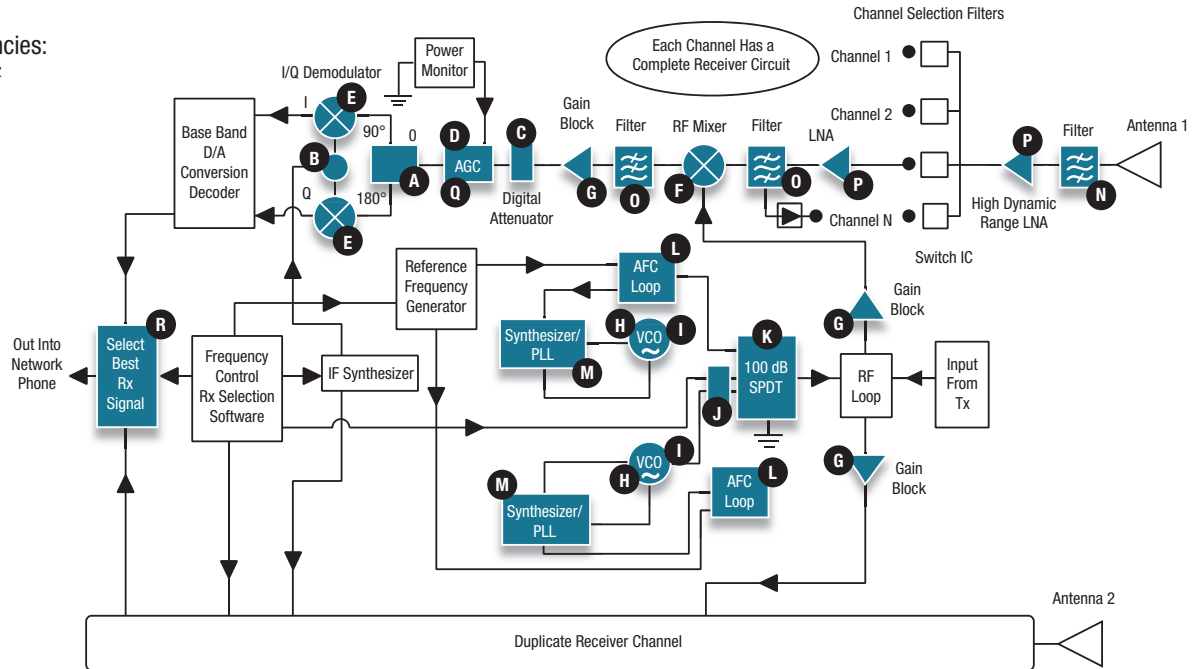
High Power T/R Switches

- Q** SKY12207-478LF
- SKY12208-478LF
- SKY12210-478LF
- SKY12212-478LF
- SKY12215-478LF

Infrastructure

Base Station Receiver System Using Antenna Diversity

Rx Frequencies:  
400–2700 MHz

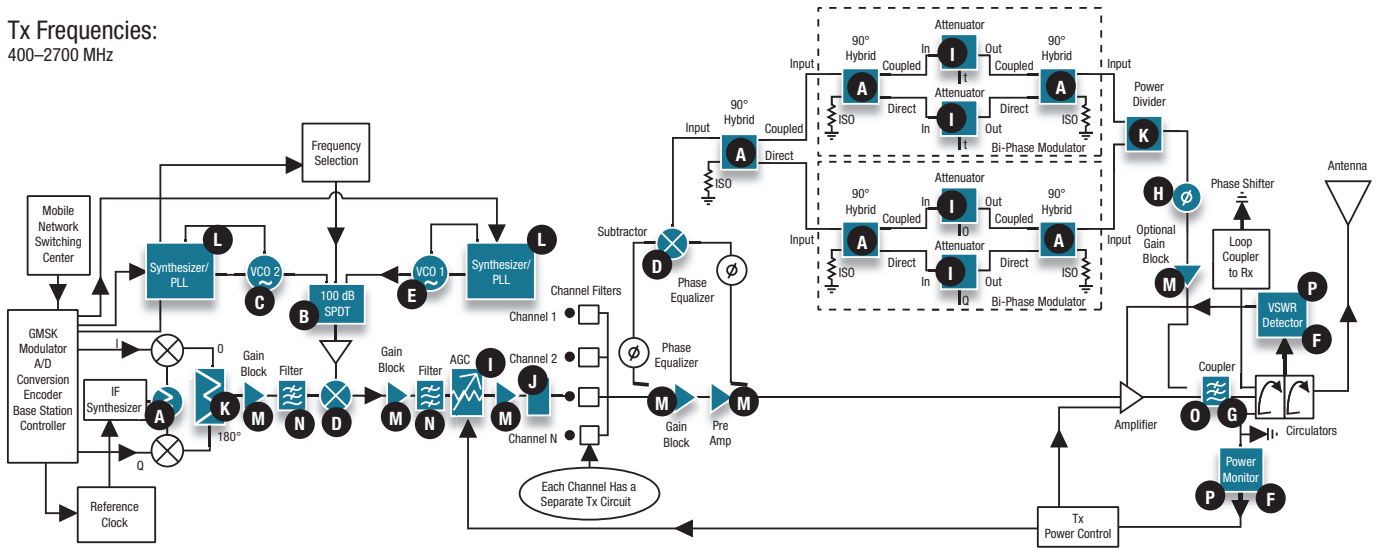


- |  |   |  |   |   |   |   |  |  |
|--|---|--|---|---|---|---|--|--|
| <p><b>Hybrids</b></p> <p><b>A</b> HY17-12LF<br/>HY19-12LF<br/>HY92-12LF</p> <p><b>Power Dividers</b></p> <p><b>B</b> PD09-73LF<br/>PD18-73LF</p> | <p><b>Digital Attenuators</b></p> <p><b>C</b> SKY12322-96LF<br/>SKY12324-73LF<br/>SKY12325-350LF<br/>SKY12328-350LF<br/>SKY12343-364LF<br/>SKY12345-362LF<br/>SKY12348-350LF<br/>SKY12406-360LF</p> <p><b>Digital Attenuators</b></p> <p><b>Q</b> SKY12329-350LF<br/>SKY12345-362LF</p> | <p><b>PIN Diodes</b></p> <p><b>D</b> SMP1304-001LF<br/>SMP1304-004LF<br/>SMP1307-001LF</p> <p><b>Mixers/Downconverters</b></p> <p><b>F</b> SKY42068 SKY73062-11<br/>SKY73020 SKY73063<br/>SKY73021 SKY73069<br/>SKY73022 SKY73420-11<br/>SKY73025-11 SKY73421-11<br/>SKY73032 SKY73422-11<br/>SKY73033 SMS3926-023LF</p> | <p><b>Quadrature Demodulators</b></p> <p><b>E</b> SKY73009<br/>SKY73012</p> <p><b>Mixers/Downconverters</b></p> <p><b>F</b> SKY42068 SKY73062-11<br/>SKY73020 SKY73063<br/>SKY73021 SKY73069<br/>SKY73022 SKY73420-11<br/>SKY73025-11 SKY73421-11<br/>SKY73032 SKY73422-11<br/>SKY73033 SMS3926-023LF</p> | <p><b>Gain Block Amplifiers</b></p> <p><b>G</b> SKY65009-70LF<br/>SKY65013<br/>SKY65014<br/>SKY65015<br/>SKY65016<br/>SKY65017-70LF<br/>SKY65045-70LF<br/>SKY65080-70LF<br/>SKY65081-70LF<br/>SKY65120<br/>SKY65124<br/>SKY65126-21<br/>SKY65127<br/>SKY65162-70LF<br/>SKY67130-396LF</p> | <p><b>VCO or Varactor Diodes</b></p> <p><b>H</b> SKY73120<br/>SMV1233-079LF</p> <p><b>I</b> SKY73120<br/>SMV1236-079LF</p> <p><b>Directional Couplers</b></p> <p><b>J</b> DC09-73LF<br/>DC18-73LF</p> <p><b>Switches</b></p> <p><b>K</b> SKY13286-359LF</p> <p><b>PIN Diodes</b></p> <p>APDxxxx</p> | <p><b>Schottky Diodes</b></p> <p><b>L</b> SMS7630-040LF<br/>SMS7630-061LF</p> <p><b>Synthesizers/PLLs</b></p> <p><b>M</b> SKY72300-21<br/>SKY72310-362LF<br/>SKY73100<br/>SKY73101-11<br/>SKY73103-11<br/>SKY73112-11<br/>SKY73134-11</p> | <p><b>N</b> Dielectric Resonators</p> <p><b>O</b> Ceramic Band Pass Filters</p> <p><b>Low Noise Amplifiers</b></p> <p><b>P</b> SKY65050-372LF<br/>SKY67021-396LF<br/>SKY67022-396LF<br/>SKY67023-396LF<br/>SKY67100-396LF<br/>SKY67101-396LF<br/>SKY67102-396LF<br/>SKY67151-396LF</p> | <p><b>SPDT (SP2T) RF Switches</b></p> <p><b>R</b> AS179-92LF<br/>SKY13323-378LF<br/>SKY13348-374LF<br/>SKY13350-385LF<br/>SKY13370-374LF<br/>SKY13377-313LF<br/>SKY13431-374LF<br/>SKY13446-374LF</p> <p><b>DPDT Antenna Diversity Switches</b></p> <p>SKY13411-374LF<br/>SKY13438-374LF</p> |
|--|---|--|---|---|---|---|--|--|

Infrastructure

Base Station Transmitter With Combining Amplifier

Tx Frequencies:  
400-2700 MHz



Hybrids

- A** HY17-12LF
- HY19-12LF
- HY22-73LF
- HY92-12LF

Switches

- B** SPST RF Switch SKY13347-360LF
- SPDT (SP2T) RF Switch SKY13286-359LF
- SP3T RF Switch SKY13408-465LF
- SP4T RF Switches SKY13384-350LF
- SKY13392-359LF
- PIN Diodes APDxxx SMP1302-011LF

Varactor Diodes

- C** SMV1233-079LF
- SMV1763-079LF
- E** SMV1236-079LF

Schottky Diodes and Mixers

- D** SKY73032
- SKY73033-11
- SKY73062-11
- SKY73063
- SKY73069-11
- SMS3926-023LF

Schottky Diode

- F** SMS3923-005LF

Directional Couplers

- G** DC09-73LF
- DC18-73LF
- DC25-73LF

Phase Shifter

- H** PS088-315

PIN Diodes

- I** SMP1304-001LF
- SMP1307-001LF

VV Attenuators

- AV101-12LF
- AV102-12LF
- AV111-12LF
- AV113-12LF

Digital Attenuators

- J** SKY12322-86LF
- SKY12324-73LF
- SKY12325-350LF
- SKY12328-350LF
- SKY12339-350LF
- SKY12343-364LF
- SKY12345-362LF
- SKY12347-362LF
- SKY12406-360LF

Power Dividers

- K** PD09-73LF
- PD18-73LF
- PD22-73LF

Synthesizers/PLLs

- L** SKY72300-21
- SKY73134

Amplifiers

- M** SKY65009-70LF
- SKY65013-70LF
- SKY65014-70LF
- SKY65015-70LF
- SKY65016-70LF
- SKY65017-70LF
- SKY65045-70LF
- SKY65080-70LF
- SKY65081-70LF
- SKY65120
- SKY65124
- SKY65126-21
- SKY65127
- SKY65162-70LF

Ceramic Band Pass Filters

- N** Ceramic Band Pass Filters

Ferrites

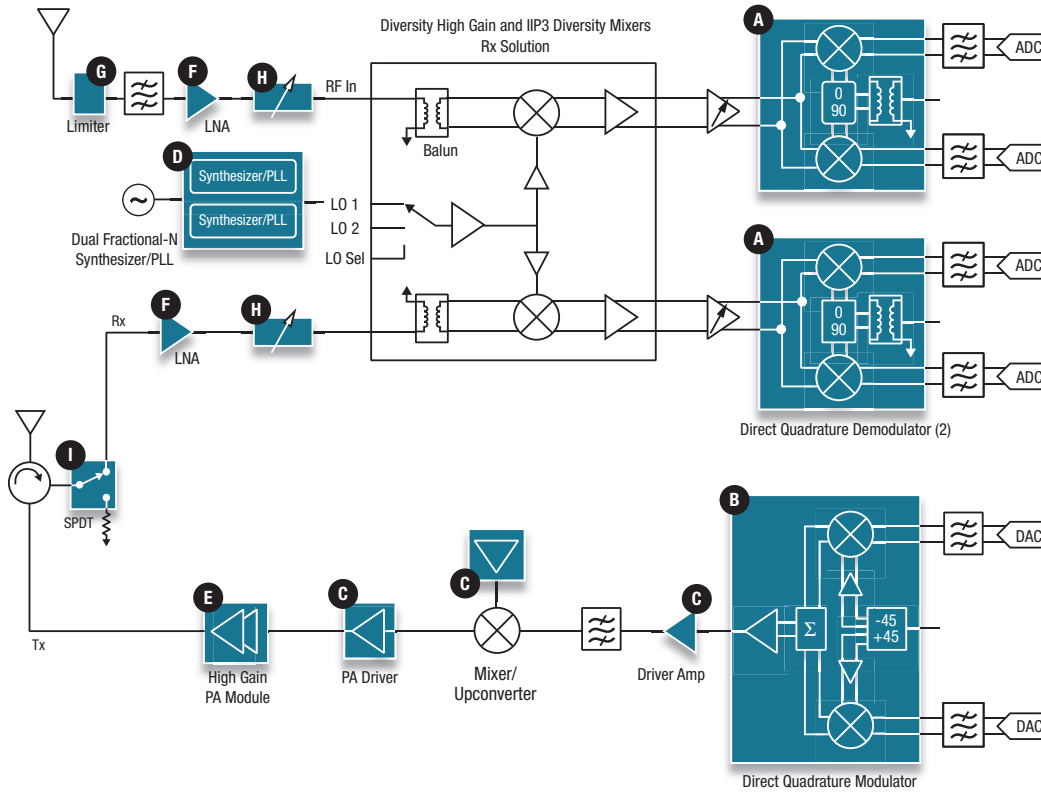
- O** Ferrites

Directional Detector

- P** DD02-999LF

Infrastructure

Transceiver



Direct Quadrature Demodulators

- A** SKY73009  
SKY73012

Direct Quadrature Modulators

- B** SKY73077-459LF  
SKY73078-459LF  
SKY73092-459LF

Amplifiers

- C** SKY65015 SKY65081-70LF  
SKY65016 SKY65095  
SKY65017-70LF SKY65162-70LF  
SKY65045-70LF SKY67130-396LF  
SKY65080-70LF

Synthesizer/PLLs

- D** SKY73100 SKY73112-11  
SKY73101-11 SKY73126-31  
SKY73103-11 SKY73134

High Gain PA Modules

- E** SKY65126-21 SKY66002-11  
SKY65127 SKY66008-11

Low Noise Amplifiers

- F** SKY65081-70LF SKY67102-396LF  
SKY67021-396LF SKY67111-396LF  
SKY67022-396LF SKY67150  
SKY67023-396LF SKY67151  
SKY67100-396LF SKY67153  
SKY67101-396LF

Limiter Diodes

- G** CLA46XX Series  
SMP1300-007LF

RF Attenuators

- H** Digital Voltage Variable  
SKY12329-350LF AV101-12LF  
SKY12339-350LF SKY12228-12  
SKY12340-364LF SKY12233-11  
SKY12343-364LF SKY12235-11  
SKY12345-362LF **PIN Diodes**  
SMP1304 Series  
SMP1307 Series  
SMP1352 Series

High Power T/R Switches

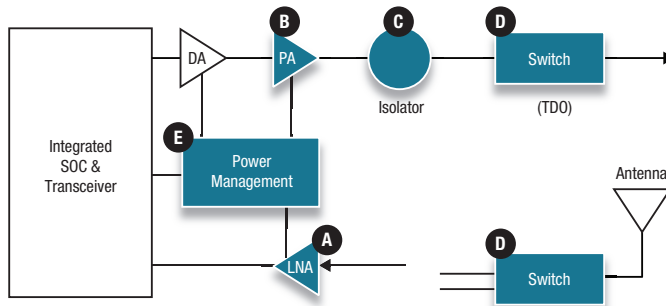
- I** SKY12207-306LF SKY12210-478LF  
SKY12207-478LF SKY12212-478LF  
SKY12208-478LF SKY12215-478LF



Infrastructure

Small Cell Basestation

<0.25 W, 0.25 W, 1 W, 5 W



Low Noise Amplifiers

- A** SKY67021-396LF
- SKY67022-396LF
- SKY67023-396LF
- SKY67150-396LF
- SKY67151-396LF
- SKY67153-396LF

**Low Noise Amplifier + Switch**  
 SKY65971  
 SKY65981

Power Amplifiers

- B** SKY66001-11
- SKY66002-11
- SKY66005-11
- SKY66008-11
- SKY66013-11

**High Linearity  
 2.4 GHz and 5 GHz**  
 SKY65900  
 SE5004L

Isolators

- C** SKYFR-000812
- SKYFR-000748

Switches

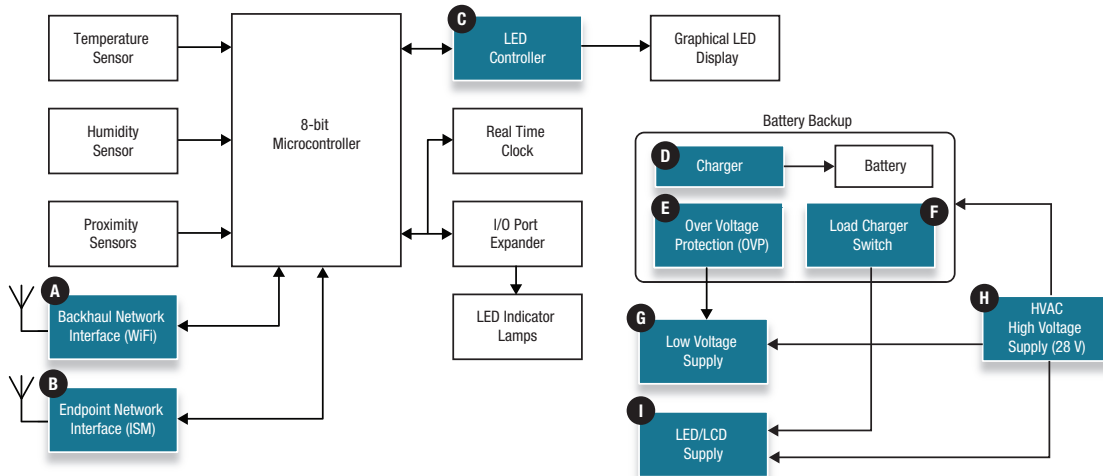
- D** SKY13374-397LF
- SKY13373-460LF
- SKY13380-350LF

Power Management

- E** **Step-Down Converter**
- SKY87608

Smart Energy

Thermostat



2.5 GHz Front-end Modules for WiFi Connectivity

- A** SKY85302-11
- SKY85303-11

Front-end Modules for ISM / Smart Energy

- B** SE2431L
- SE2432L
- SE2436L
- SE2438T
- SKY65378-11

LED Controller

- C** AAT1401

Over Voltage Protection

- E** AAT4684
- AAT4686
- AAT4687

Switching Charger

- D** AAT3620

Load Charger Switch Slew-rate Controlled Load Switches

- F** AAT4250
- AAT4280
- AAT4282A
- AAT4282B

Low Voltage Supply

- G** AAT2114
- AAT3221
- SKY87201

High Voltage Supply

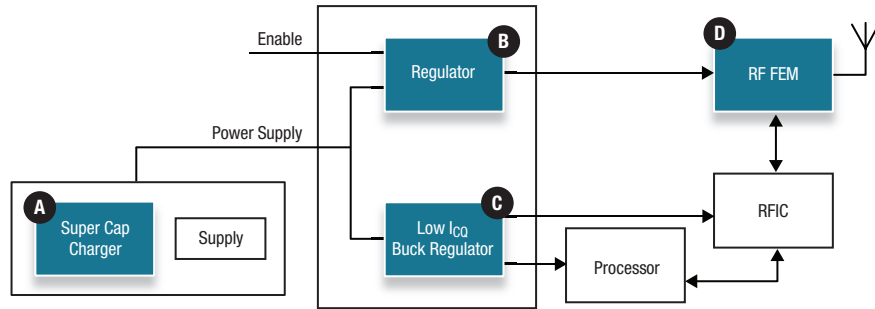
- H** SKY87608

LED/LCD Supply

- I** AAT1403
- SKY87201

Smart Energy

Smart Meter Communication Module (Simplified)



Supercap Chargers

- A** AAT4712

Current Limited Load Switches

- AAT4621

DC/DC Converters (Switching Regulators)  
Step Down Converters

- B** AAT1232  
AAT2138  
SKY87201

Step-Down Converter

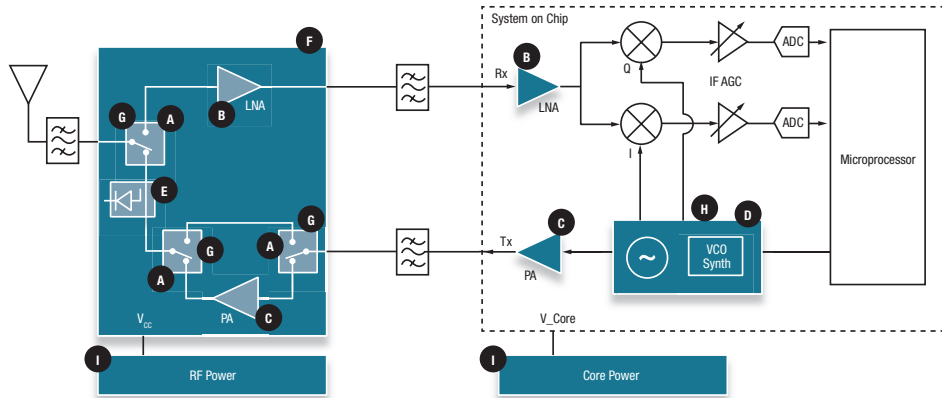
- C** SKY87201

Front-end Modules

- D** SE2435L-R  
SE2438T  
SE2442L-R  
SKY65313-21  
SKY65364-11  
SKY65367  
SKY65378  
SKY66100  
SKY66101  
SKY66108  
SKY66109-11

Smart Energy

Short Range Radio



Switches

- A** AS179-92LF  
AS193-73LF  
SKY13270-92LF  
SKY13299-321LF  
SKY13309-370LF  
SKY13318-321LF  
SKY13348-374LF  
SKY13370-374LF

PIN Diodes

- G** SMP1302-040LF  
SMP1302-079LF  
SMP1320-040LF  
SMP1320-079LF  
SMP1340-040LF  
SMP1340-079LF  
SMP1345-518

LNAs

- B** SKY65045-70LF  
SKY65047-360LF  
SKY67013-396LF

Power Drivers/Amplifiers

- C** SE2425U-R  
SE2433T-R  
SKY65006-348LF  
SKY65009-70LF  
SKY65045-70LF  
SKY65111-348LF  
SKY65116  
SKY65131  
SKY65132  
SKY65135  
SKY65146  
SKY65152  
SKY65162-70LF

Synthesizers/PLLs/VCOs

- D** SKY72300-21  
SKY72300-362  
SKY72301-22  
SKY72310-362  
SKY73120

Varactor Diodes

- H** SMV1142-011LF  
SMV1233-011LF  
SMV1235-040LF  
SMV1235-079LF  
SMV1236-004LF  
SMV1247-011LF  
SMV1247-040LF  
SMV1249-040LF  
SMV1249-079LF

Schottky Diodes

- E** SMS3926-023LF  
SMS3927-023LF  
SMS3928-023LF  
SMS7621-040LF  
SMS7621-060  
SMS7621-079LF  
SMS7630-040LF  
SMS7630-061  
SMS7630-079LF

SMV1251-001LF  
SMV1253-079LF  
SMV1255-011LF  
SMV1405-040LF  
SMV1405-079LF  
SMV1408-001LF  
SMV1413-079LF  
SMV1763-040LF  
SMV1763-079LF

Tx/Rx Front-end Modules

- F** SE2431L-R  
SE2432L-R  
SE2435L-R  
SE2436L-R  
SE2438T-R  
SE2442L-R  
SKY66101-11  
SKY66108  
SKY66109-11  
SKY65313-21  
SKY65342-11  
SKY65346-21  
SKY65364-11  
SKY65366-21  
SKY65367-11  
SKY66100-11

Battery Chargers

- I** Linear Chargers  
AAT3663  
AAT3681

Switching Charger

- AAT3620

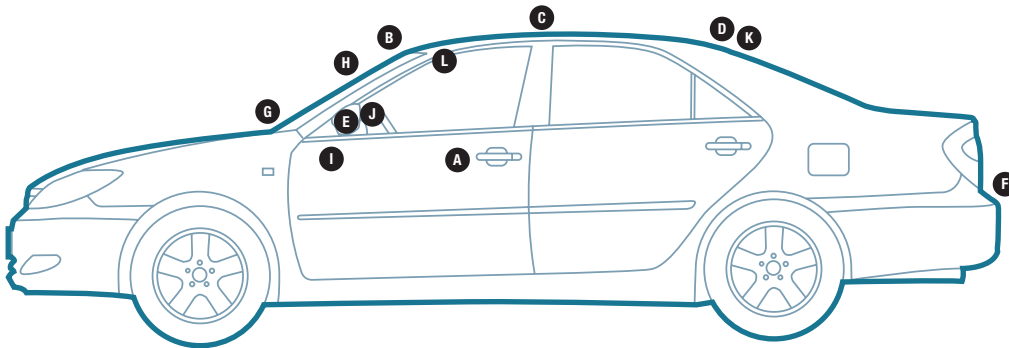
Super Capacitor Chargers

- AAT4621  
AAT4712

DC/DC Converters

- Step-Down Converters  
AAT2114A  
SKY87201

Automotive



**AEC-Q101 Qualified Products\***

|                |                |
|----------------|----------------|
| SMPA1302-079LF | SMSA7630-061   |
| SMPA1304-011LF | SMVA1200-999LF |
| SMPA1304-019LF | SMVA1211-001LF |
| SMPA1320-070LF | SMVA1248-079LF |
| SMPA3923-011LF | SMVA1253-079LF |
| SMSA3923-011LF | SMVA1400-611LF |
| SMSA7621-060   | SMVA1705-004LF |

\*Not all stresses listed within AEC-Q101 have been performed. Qualification report available upon request. Contact your sales representative for more information. For the full details of Skyworks Quality and Reliability on our products that can be designed into automotive applications, please view the "Skyworks Quality Standards for Automotive Customers" on our Web site.

**Keyless Entry**

- A PIN Diode**  
SMP1345-079LF
- Schottky Diode**  
SMS7630-040LF
- Switches**  
AS179-92LF  
AS211-334  
SKY13268-344LF  
SKY13314-374LF  
SKY13330-397LF

**Garage Door Openers, Remote Controls**

- B PIN Diodes**  
SMPA1302-004LF\*  
SMPA1320-079LF\*  
SMPA1322-004LF\*
- Schottky Diode**  
SMSA3923-011LF\*
- Varactor Diodes**  
SMV1413-001LF  
SMVA1705-004LF\*
- Switches**  
AS179-92LF  
SKY13309-370LF

**Infotainment**

- C Audio/Video/Displays**
- Varactor Diodes**  
SMV1212-079LF  
SMV1235-079LF  
SMV1255-004LF  
AS179-92LF  
SKY13330-397LF
- PIN Diode**  
SMP1320-011LF
- Detector Diode**  
SMS7630-061

- Power Management**
- Low Drop-out (LDO)**
- Linear Regulators**  
AAT3224  
AAT3221 / AAT3222
- Power Half Bridge**  
AAT1405
- Mid to Large Screen LCD LED Backlight with PWM Interface**  
AAT1405

- WiFi Connectivity 802.11a,b,g,n,ac,p**
- 5 GHz Power Amplifier**  
SE5004L
- 2.5 GHz Front-end Module**  
SE2614BT
- 5 GHz Front-end Module**  
SE5007BT
- Dual-band Front-end Module**  
SE5516A
- Switches**  
SKY13330-397LF  
SKY13370-374LF  
SKY13373-460LF  
SKY13351-378LF  
SKY13317-373LF  
SKY13309-370LF  
AS179-92LF
- Low Noise Amplifier**  
SKY65981-11

- D Satellite Radio**
- Switches**  
AS179-92LF  
AS211-344  
SKY13268-344LF  
SKY13314-374LF
- Varactor Diode**  
SMV1235-011LF
- Low Noise Amplifiers**  
SKY67175-306LF  
SKY65050-372LF  
SKY67107-306LF

- E Cruise Control/Navigation Systems**
- Schottky Diode**  
SMS7630-040LF
- PIN Diodes**  
SMPA1304-011LF  
SMPA1304-019LF
- Varactor Diodes**  
SMVA1211-001LF  
SMVA1248-079LF
- GPS Receiver IC**  
SE4150L

**Rear Collision Avoidance Sensors (24 and 77 GHz)**

- F Schottky Diodes**  
SMS7630-061  
SMS7621-060  
SMS7621-005LF  
SMS7621-040LF  
SMS7630-040LF
- Schottky Flip Chips**  
DMK2308-000  
DMK2790-000
- Step-down Converter**  
AAT2148
- Varactor Diode**  
SMV1253-011LF

**In-Dash Monitor, Direction System**

- G Varactor Diode**  
SMV1405-074LF
- H Toll Tag Transponder**
- Schottky Diode**  
SMS7630-006LF

**Airbags**

- I Switches**  
AS179-92LF  
AS211-334  
SKY13268-344LF

**Climate Control**

- J LNA**  
SKY67012-396LF
- Switch**  
AS213-92LF

**Intelligent Antenna**

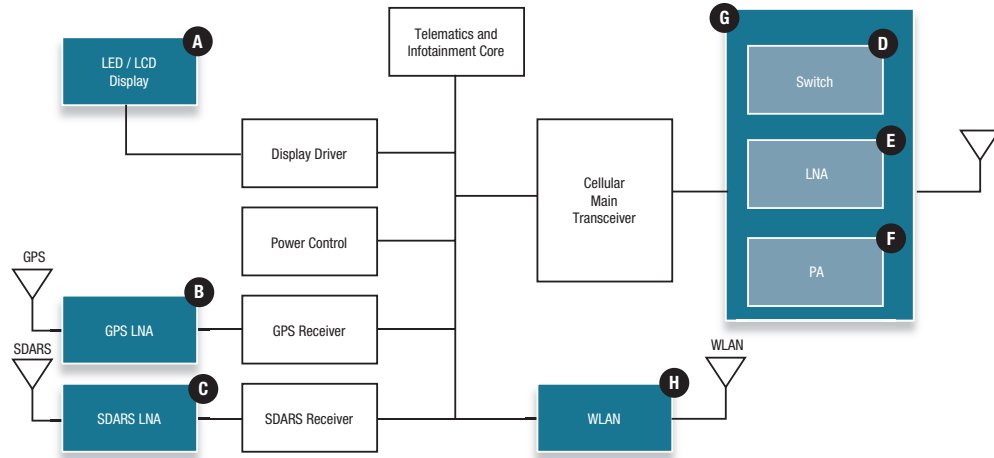
- K Switches**  
SKY13330-397LF  
AS179-92LF

**Telematics**

- L Power Amplifiers**  
SKY77619  
SKY77701  
SKY77702  
SKY77703  
SKY77704  
SKY77705  
SKY77736  
SKY77737
- Switches**  
AS172-73  
SKY13290-313LF  
SKY13414-485LF  
SKY13323-378LF  
SKY13321-360LF  
SKY13418-485LF

Automotive

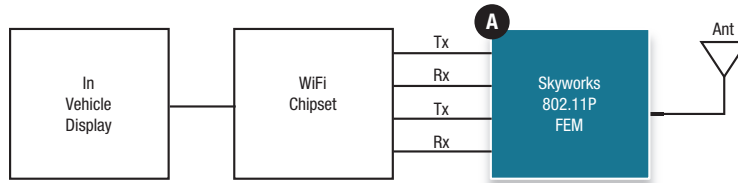
Telematics and Infotainment



- A** LCD Panel Power Supply SKY82830  
WLED Backlight Driver SKYA21004
- B** GPS Low Noise Amplifier SKY65902-21
- C** Low Noise Amplifiers SKY65151-396LF SKYA21007
- D** Switches SKY13421-486LF SKY13437-11 SKYA21003
- E** Low Noise Amplifier SKY65151-396LF
- F** Power Amplifier SKY77619-51
- G** Front-end Modules SKY78010 SKY78011
- H** WiFi Front-end Modules  
2.4 GHz SE2611T SE2601T  
5 GHz SE5007BT  
GPS Receiver SE4150L-R

Automotive

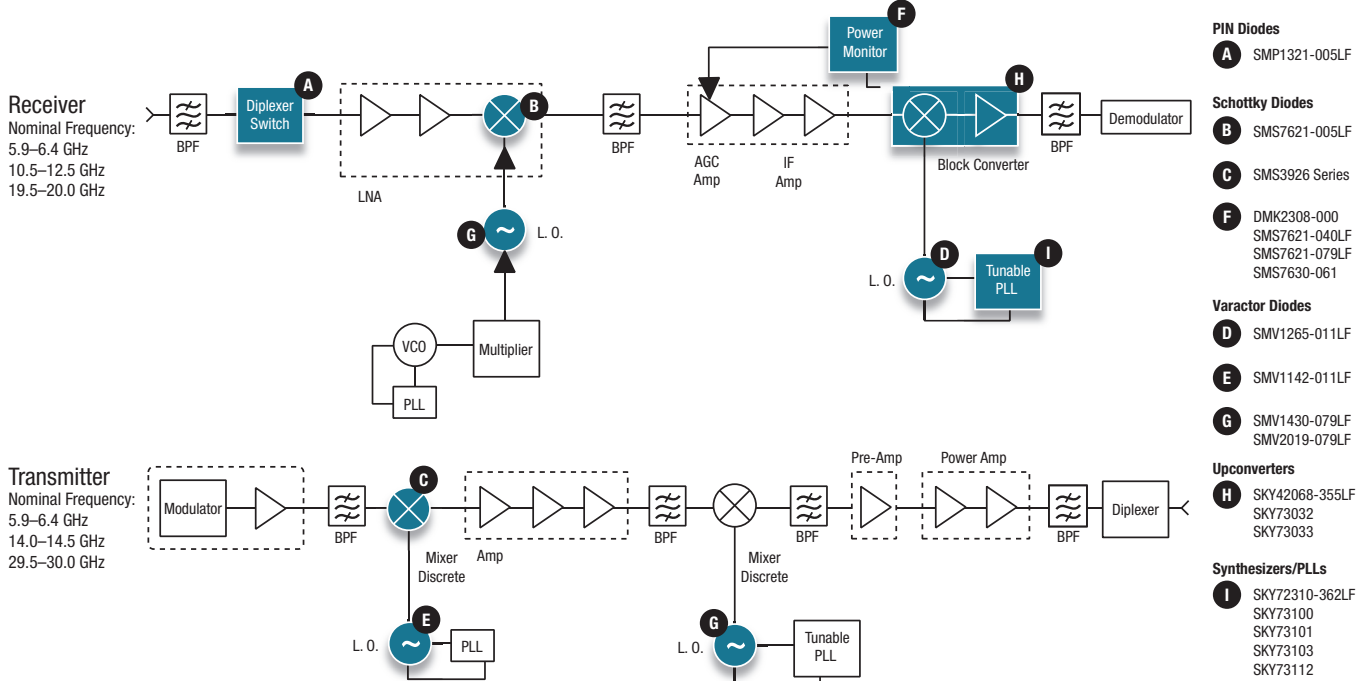
Car to Communications 802.11P



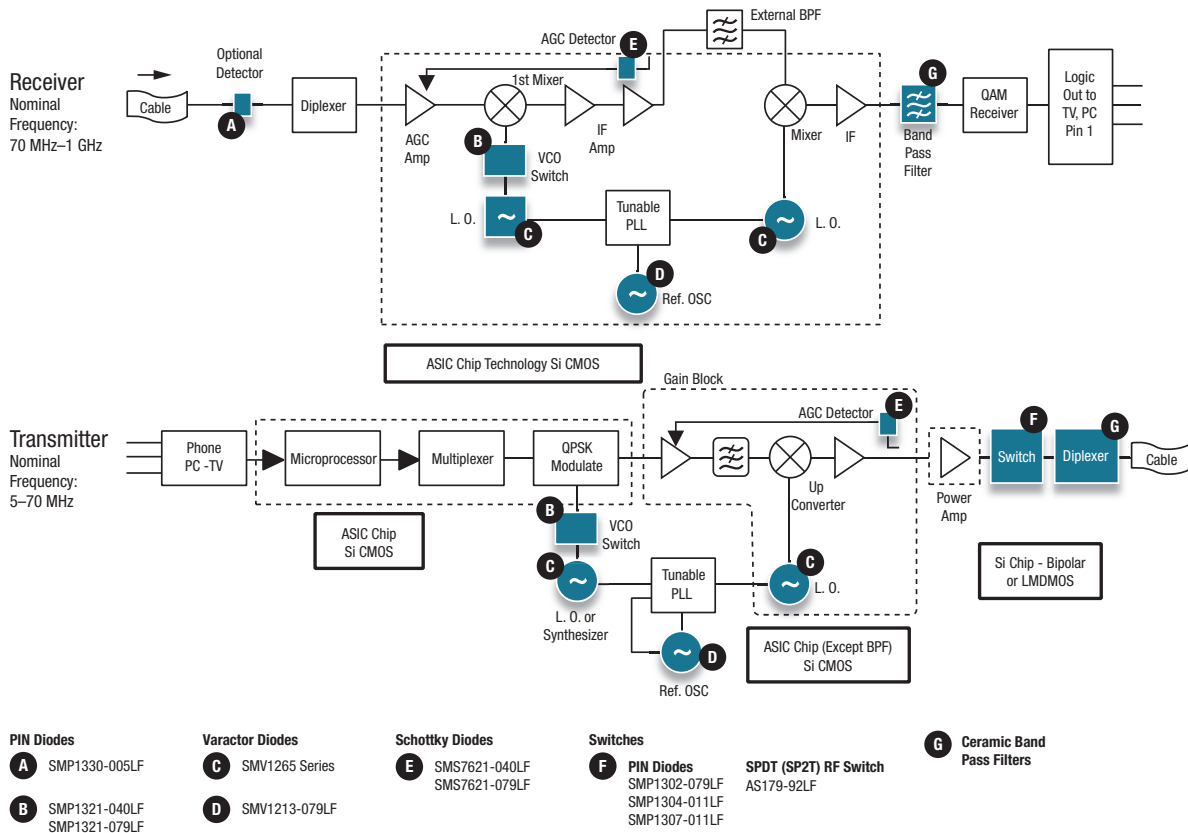
- A** 5 GHz Power Amplifiers SE5003L SE5004L SE5017L SKY85710  
Dual Band Front-End Module SE5517A

Broadband Access Systems

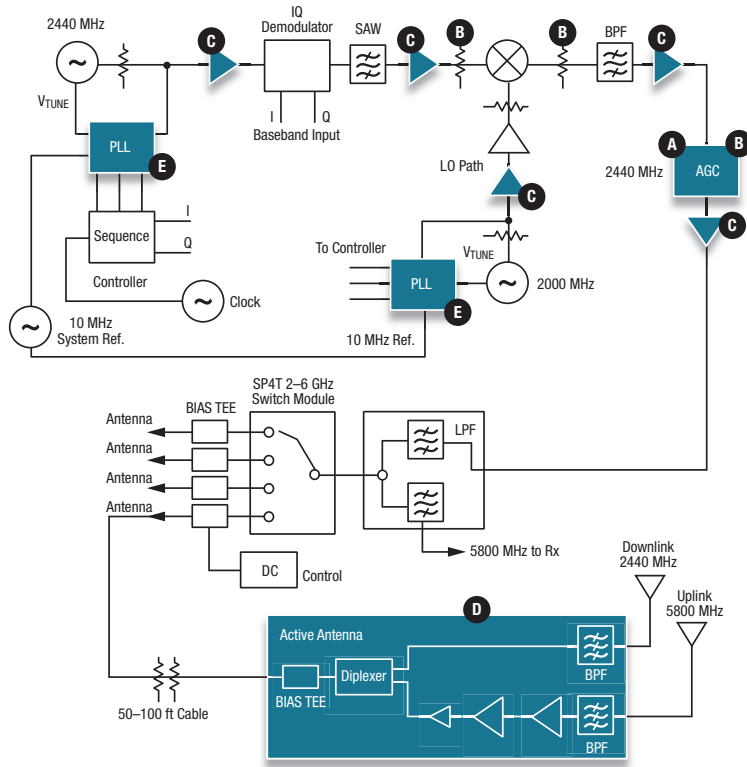
Satellite Systems



CATV Modem



Reader / Active Antennas / Transmitter, Full Duplex 2440



VV Attenuators

- A AV111-12LF
- AV113-12LF

PIN Diodes

- B SMP1304 Series
- SMP1307 Series

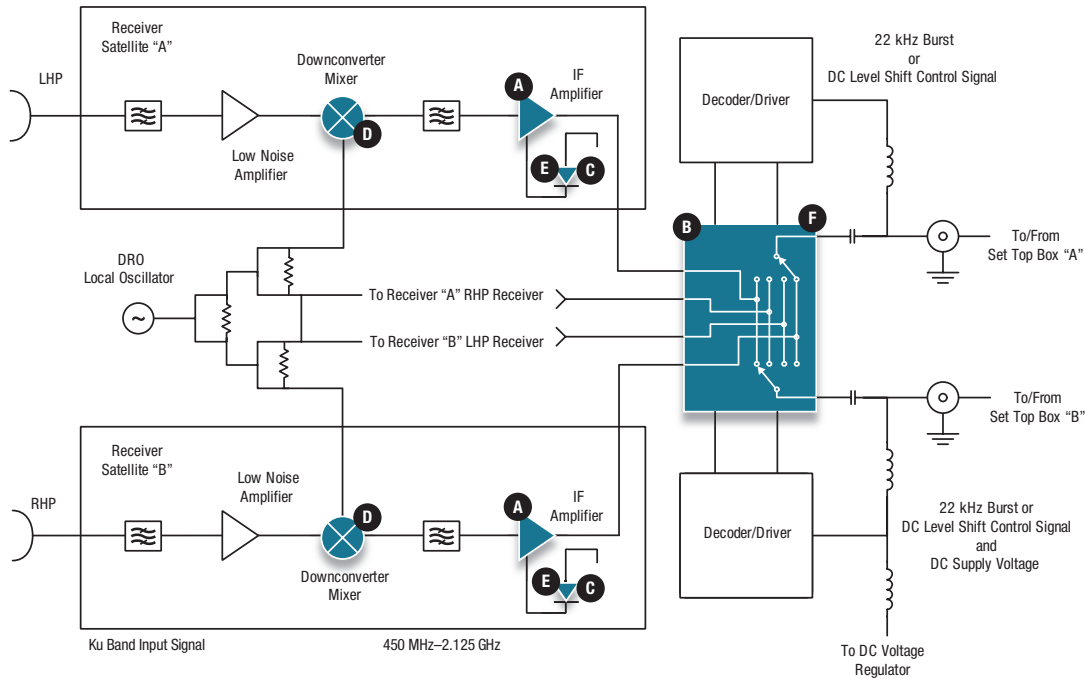
Amplifiers

- C SKY65013
- SKY65014
- SKY65015
- SKY65016
- SKY67014-396LF
- SKY67130-396LF
- D SKY65111-348LF
- SKY67014-396LF

Synthesizer/PLLs

- E SKY72300-21

Low Noise Block (LNB)



Amplifiers

- A SKY65013
- SKY65014
- SKY65015
- SKY65016
- SKY65017-70LF

Switches

- B SKY13272-340LF
- SKY13292-365LF
- SKY13293-340LF
- SKY13327-365LF
- SKY13369-365LF

- C SMS7621-006LF

Schottky Diodes

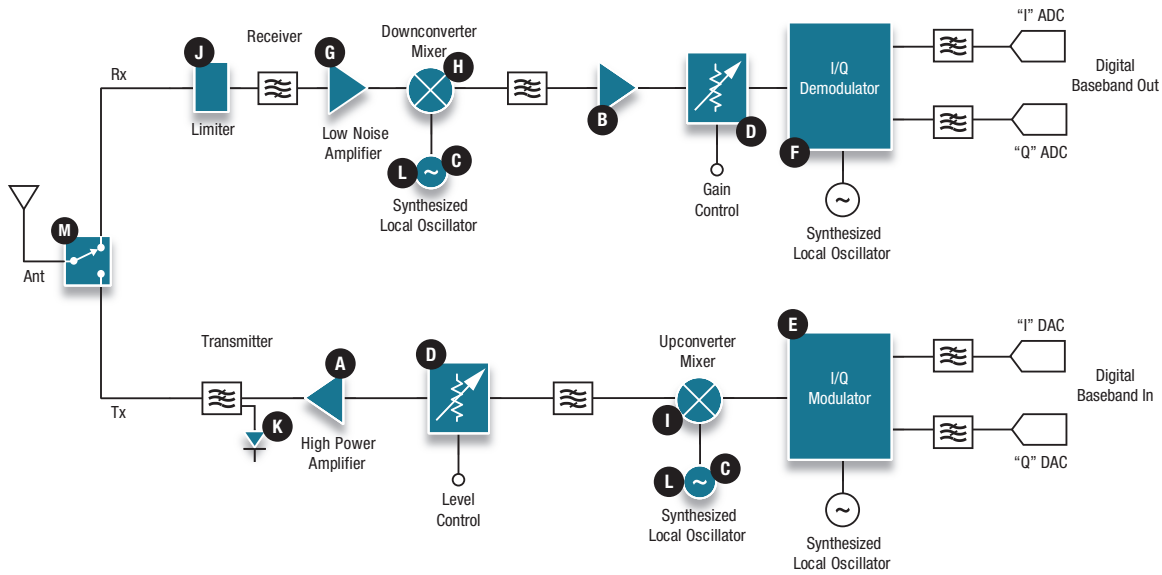
- D DMK2308-000
- DMK2790-000

- E SMS7621-060

PIN Diodes

- F SMP1321-005LF
- SMP1340-040LF
- SMP1340-079LF

Transceiver (Simplified)



**Amplifiers**

- A** SKY65095-360LF  
SKY65113-84LF
- B** SKY65013  
SKY65014  
SKY65015  
SKY65016  
SKY67130-396LF

**Synthesizers/PLLs**

- C** SKY73101-11  
SKY73126-31  
SKY73134-11

**RF Attenuators**

- D** **Digital**  
SKY12339-350LF  
SKY12340-364LF  
SKY12343-364LF  
SKY12345-362LF  
SKY12355-337LF
- Voltage Variable**  
AV101-12LF  
SKY12228-12LF  
SKY12233-11LF  
SKY12235-11
- PIN Diodes**  
SMP1304 Series  
SMP1307 Series  
SMP1352 Series

**Direct Quadrature Modulators**

- E** SKY73077-459LF  
SKY73078-459LF  
SKY73092-459LF

**Direct Quadrature Demodulators**

- F** SKY73009  
SKY73012

**Low Noise Amplifiers**

- G** SKY67021-396LF SKY67102-396LF  
SKY67022-396LF SKY67105-306LF  
SKY67023-396LF SKY67106-306LF  
SKY67012-396LF SKY67107-306LF  
SKY67013-396LF SKY67111-396LF  
SKY67014-396LF SKY67150-396LF  
SKY67100-396LF SKY67151-396LF  
SKY67101-396LF SKY67153-396LF

**Down-conversion Mixers**

- H** SKY73032-11  
SKY73033-11  
SKY73035-11  
SKY73021-11  
SKY73087-11  
SKY73090-21

**Up-conversion Mixers**

- I** SKY73062-11  
SKY73063  
SKY73069-11

**Limiter Diodes**

- J** CLA460X Series  
SMP1330-085LF

**Schottky Diodes**

- K** SMS3922 Series  
SMS7621-040LF  
SMS7630-040LF  
SMS7630-060  
SMS7630-061

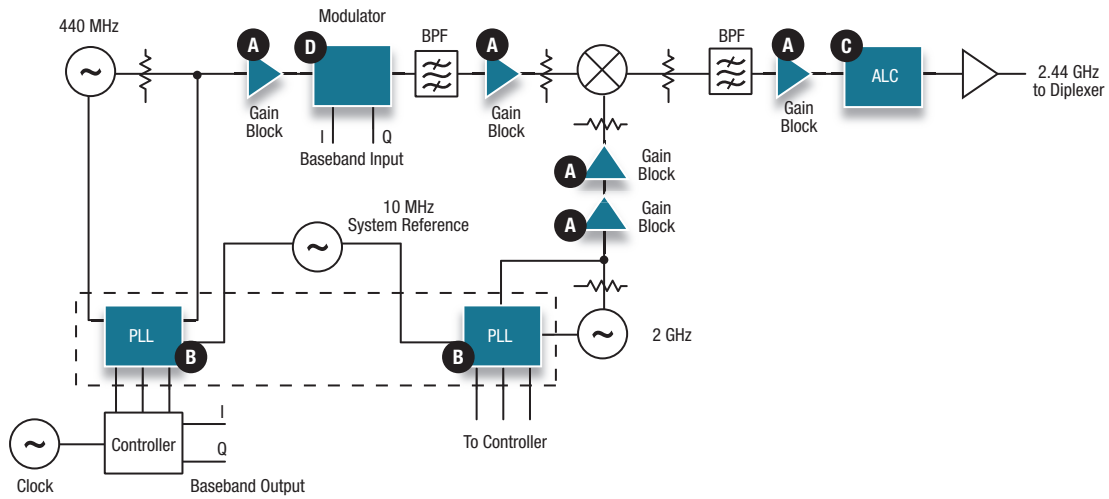
**Varactor Diodes**

- L** SMV121X Series  
SMV124X Series  
SMV125X Series  
SMV1263 Series  
SMV1763-079LF  
SMV1770-079LF  
SMV1771-079LF  
SMV2201-040LF

**High Power T/R Switches**

- M** SKY12207-478LF  
SKY12208-478LF  
SKY12210-478LF  
SKY13270-92LF  
SKY13290-313LF  
SKY13299-321LF  
SKY13306-313LF  
SKY13319-374LF  
SKY13320-374LF  
SKY13321-360LF

RF ID Transmitter



Amplifiers

- A** SKY65013
- SKY65014
- SKY65015
- SKY65016
- SKY67012-396LF
- SKY67013-396LF
- SKY67014-396LF
- SKY67130-396LF

Synthesizers/PLLs

- B** SKY72300-21
- SKY73100
- SKY73112

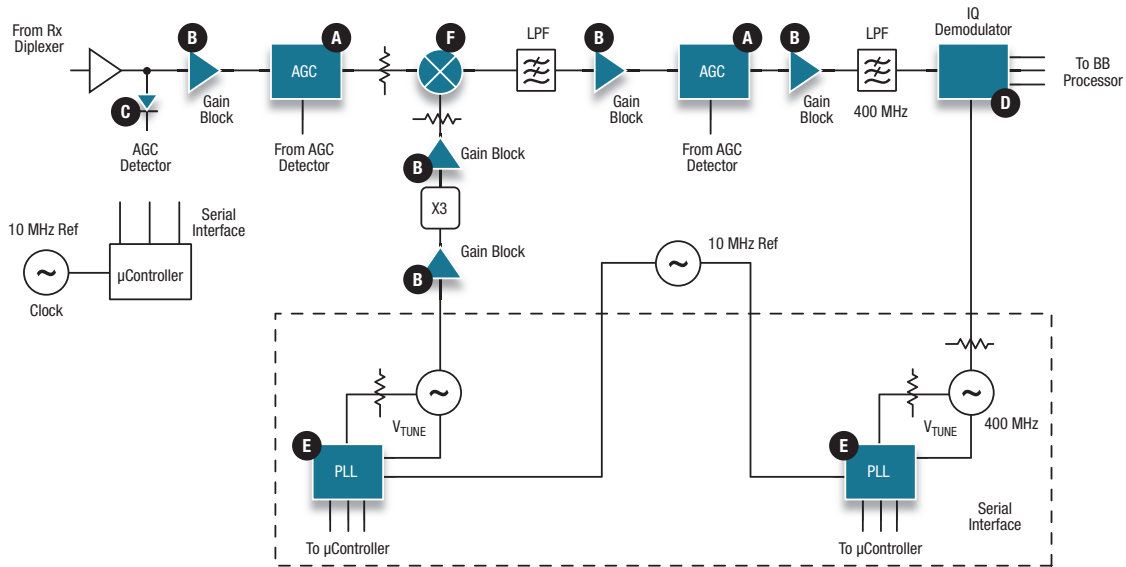
Attenuators

- C** SKY12322-86LF
- SKY12323-303LF
- SKY12324-73LF
- SKY12325-350LF
- SKY12328-350LF
- SKY12329-350LF
- SKY12345-362LF
- SKY12347-362LF
- SKY12406-360LF

Direct Quadrature Modulator

- D** SKY73092-459LF

RF ID Receiver



Digital Attenuators

- A** SKY12324-73LF
- SKY12325-350LF
- SKY12328-350LF
- SKY12329-350LF
- SKY12345-362LF
- SKY12406-360LF

Amplifiers

- B** SKY65013
- SKY65014
- SKY65015
- SKY65016
- SKY67012-396LF
- SKY67013-396LF
- SKY67014-396LF
- SKY67130-396LF

Schottky Diode

- C** SMS7630-040LF
- SMS7630-061
- SMS7630-079LF

Quadrature Demodulators

- D** SKY73009
- SKY73012

Synthesizers/PLLs

- E** SKY72300-21
- SKY73100
- SKY73112

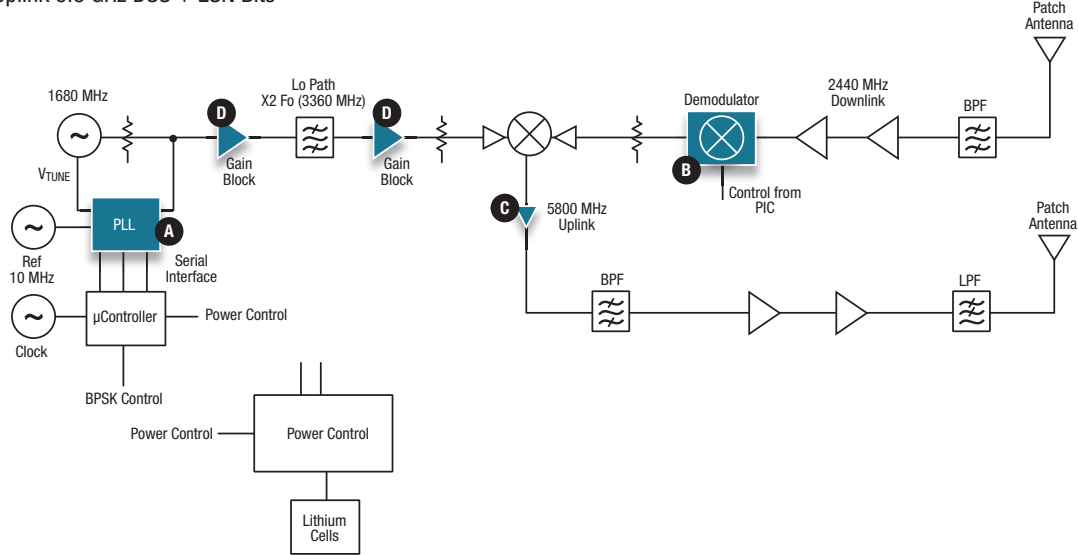
Mixers

- F** SKY42068-355LF
- SKY73032
- SKY73035-11



### RF ID Full Duplex Tag

Downlink 2.44 GHz DSS  
Uplink 5.8 GHz DSS + ESN Bits



**Synthesizers/PLLs**

- A** SKY72300-21

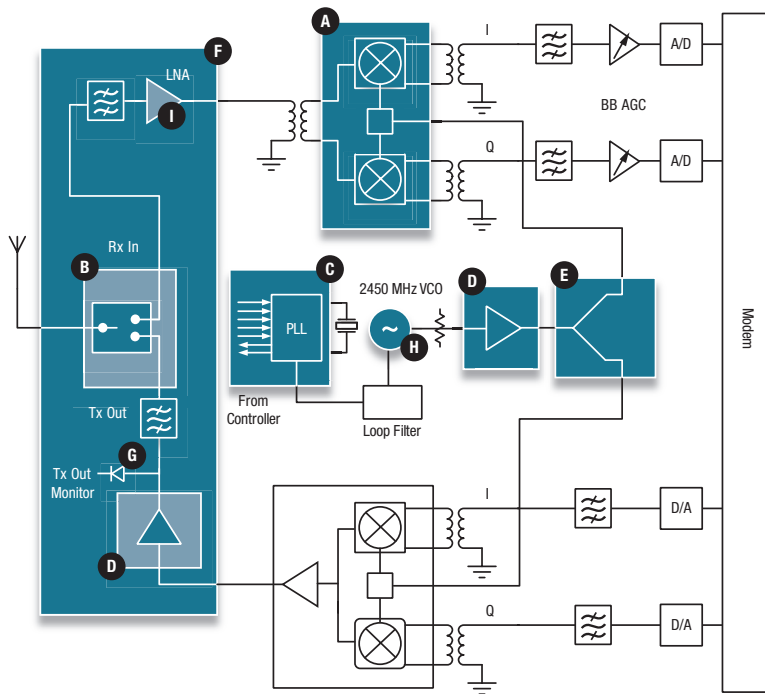
**Direct Quadrature Demodulators**

- B** SKY73009
- SKY73012

**Amplifiers**

- C** SKY65015-70LF
- SKY65015-92LF
- D** SKY65016-70LF
- SKY65016-92LF
- SKY67130-396LF

### 2.45 GHz DSS Wireless Reader (Simplified)



**Quadrature Demodulators**

- A** SKY73009
- SKY73012

**Switch**

- B** AS179-92LF
- AS211-334
- SKY13306-313LF
- SKY13348-374LF
- SKY13377-313LF
- SMP1325-085LF

**Synthesizers/PLLs**

- C** SKY74038-21

**Amplifiers**

- D** SE2425U
- SE2433T
- SKY65006-348LF
- SKY65013-70LF
- SKY65013-92LF
- SKY65131
- SKY65132
- SKY67130-396LF

**Power Divider**

- E** PD22-73LF

**Front-end Modules**

- F** SE2431L
- SE2432L
- SE2436L
- SE2437L
- SE2438T
- SKY65344-21

**Schottky Detector**

- G** SMS7630-005LF

**Varactor Diodes**

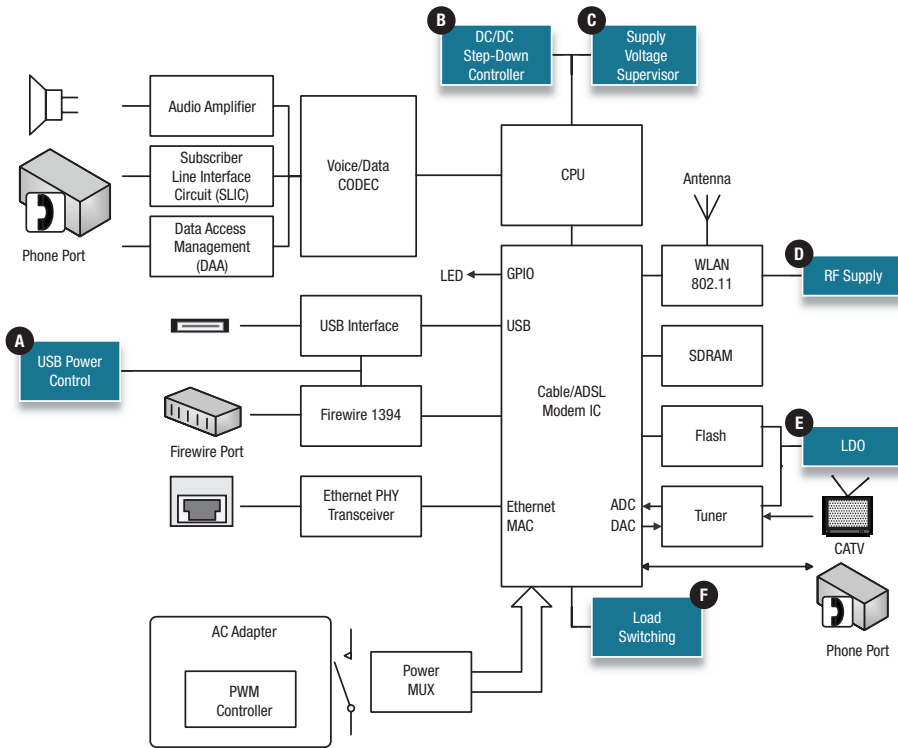
- H** SMV1142-011LF
- SMV1235-011LF
- SMV1249-003LF
- SMV1251-079LF
- SMV1413-001LF
- SMV1413-079LF

**Low Noise Amplifier**

- I** SKY65047-360LF
- SKY67014-396LF

Power Management

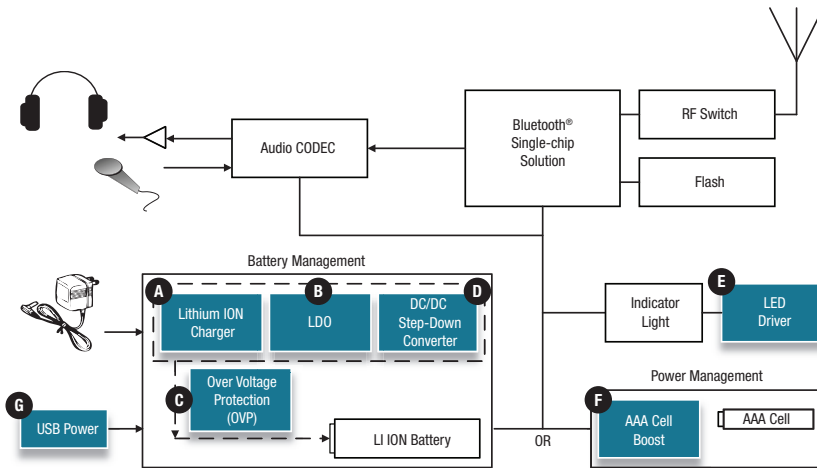
ADSL and Cable Modems



- A** **USB Power Control Step-Up Converters**  
AAT1275  
AAT1275A  
AAT1276  
**Single Input High Side Switches**  
AAT4610B  
AAT4614
- B** **DC/DC Step-Down Controller Step-Down Converters**  
AAT1161  
AAT1189  
AAT2687  
AAT2688
- C** **Supply Voltage Supervisor Microprocessor Supervisor**  
AAT3517  
AAT3522
- D** **RF Supply PMIC-PMU**  
AAT2522  
AAT2687  
AAT2688
- E** **LDO (for FLASH) LDO**  
AAT3242  
AAT3244
- F** **Load Switching Current Limiting Load Switches**  
AAT4610B  
AAT4614

Power Management

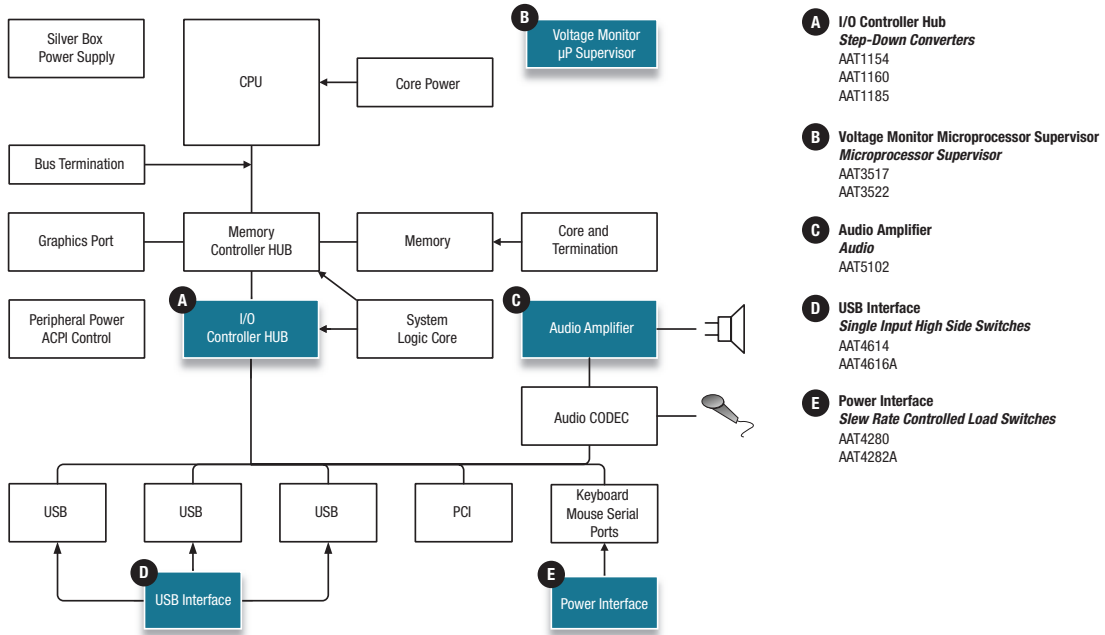
Bluetooth® Devices



- A** **Lithium-Ion Charger Battery Chargers**  
AAT3681  
AAT3688  
AAT3698
- B** **LDO LDO**  
AAT3244  
**PMIC PMU**  
AAT2605  
AAT2606  
AAT2608A  
AAT3604B
- C** **OVP**  
AAT4684  
AAT4686  
AAT4687
- D** **DC/DC Step-Down Converter Step-Down Converters**  
AAT2120  
SKY87201-11  
**PMIC PMU**  
AAT2554  
AAT2605A  
AAT2749  
AAT3604B
- E** **LED Driver RGB LED Driver**  
AAT3129
- F** **AA Cell Boost Step-Up Converters**  
AAT1217  
AAT1218
- G** **USB Power Step-Up Converters**  
AAT1275  
AAT1275A  
AAT1276  
**Single Input High Side Switches**  
AAT4614  
AAT4616

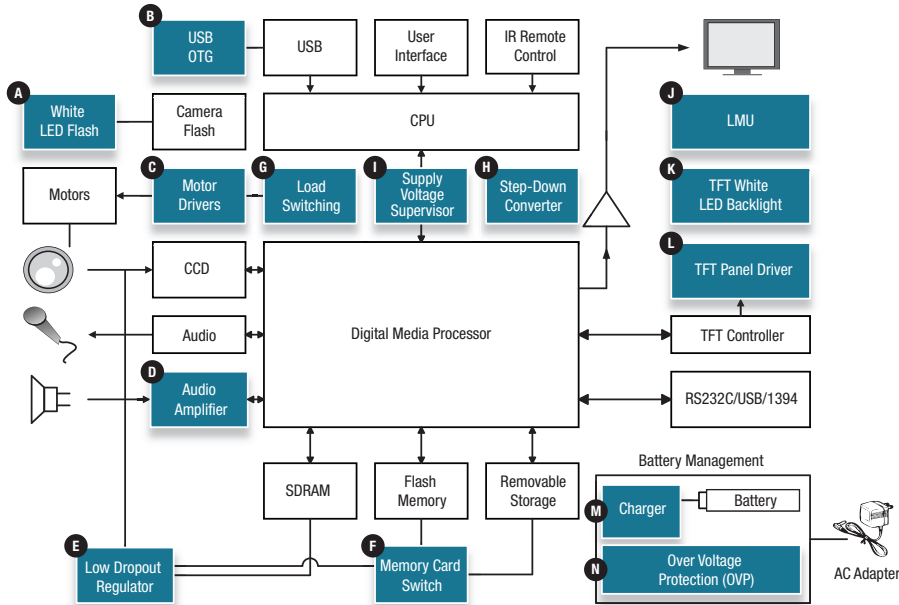
Power Management

Desktop Computers / Workstations / Servers



Power Management

Digital Cameras



- A** White LED Flash  
LED Camera Flash Driver  
AAT1270  
AAT1272  
AAT1274  
AAT1277  
AAT1282  
AAT3170  
AAT3171  
AAT3171A  
AAT3174  
AAT3176A  
AAT3177A

- B** USB OTG  
Step-Up Converters  
AAT1276
- C** Motor Driver  
Power Half Bridges  
AAT4901  
AAT4910  
AAT4900
- D** Audio Amplifier  
Audio  
AAT5102

- E** LDO  
LDO  
AAT3244  
AAT3218  
AAT3220  
*PMIC-PMU*  
AAT2601A  
AAT3603A
- F** Memory Card Switch  
Single Input  
High Side Switches  
AAT4610  
AAT4614  
AAT4618

- G** Load Switching  
Slew Rate Controlled  
Load Switches  
AAT4280  
AAT4285  
*I/O Expander Serial Controlled  
Load Switches*  
AAT4290  
AAT4291  
AAT4296  
AAT4298  
*Single Input High Side  
Switches*  
AAT4610A

- H** Step-Down Converter  
AAT1142  
AAT2114A  
AAT2148  
AAT2158  
AAT2522  
AAT2785  
*PMIC-PMU*  
AAT2601A  
AAT3603A

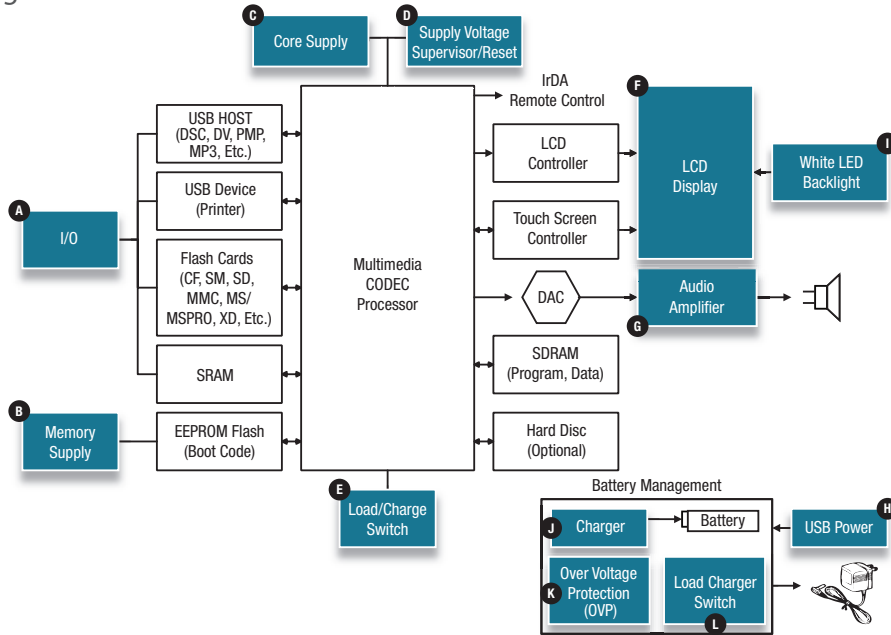
- I** Supply Voltage Supervisor  
Microprocessor Supervisor  
AAT3517  
AAT3522
- J** LMU  
Lighting Management Unit  
AAT2803  
AAT2948  
AAT2862  
AAT2870

- K** TFT White LED Backlight  
Serial Boost LED Driver  
AAT1231  
AAT1235  
AAT1236  
AAT1239  
AAT1401  
AAT1402  
AAT1403  
AAT1410  
AAT1410  
AHK1421
- L** TFT Panel Display  
Panel Power  
AAT2822  
AAT2823  
AAT3190

- M** Chargers  
Battery Chargers  
AAT3672  
AAT3681  
AAT3691  
AAT3698  
*PMIC-PMU*  
AAT2601A  
AAT3603A
- N** OVP  
AAT4684  
AAT4686  
AAT4687

Power Management

Digital Photo Frames



**A** I/O  
LDO  
AAT3218  
AAT3220  
  
PMIC-PMU  
AAT2601A  
AAT3603A

**C** Core Supply  
LDO  
AAT3218  
AAT3220  
AAT3236

**D** Supply Voltage Supervisor/Reset  
Microprocessor Supervisor  
AAT3517  
AAT3522

**F** LCD Display  
Panel Power  
AAT2822  
AAT2823  
AAT3190

**H** USB Power  
Step-Up Converters  
AAT1218  
AAT1276

**J** Charger  
Linear Chargers  
AAT3670  
AAT3686  
AAT3691

**K** OVP  
AAT4684  
AAT4686  
AAT4687

**L** Load Charger Switch  
Single Input High Side Switches  
AAT4610A  
AAT4685

**B** Memory Supply  
LDO  
AAT3220  
AAT3218  
  
PMIC-PMU  
AAT2601A  
AAT3603A

PMIC-PMU  
AAT2601A  
AAT3603A  
  
Step-Down Converters  
AAT1189  
AAT1185

**E** Load/Charge Switch  
Slew Rate Controlled  
Load Switches  
AAT4280  
AAT4250

**G** Audio Amplifier  
Audio  
AAT5102

Single Input High Side Switches  
AAT4610B  
AAT4618  
AAT4614

Switching Chargers  
AAT3620

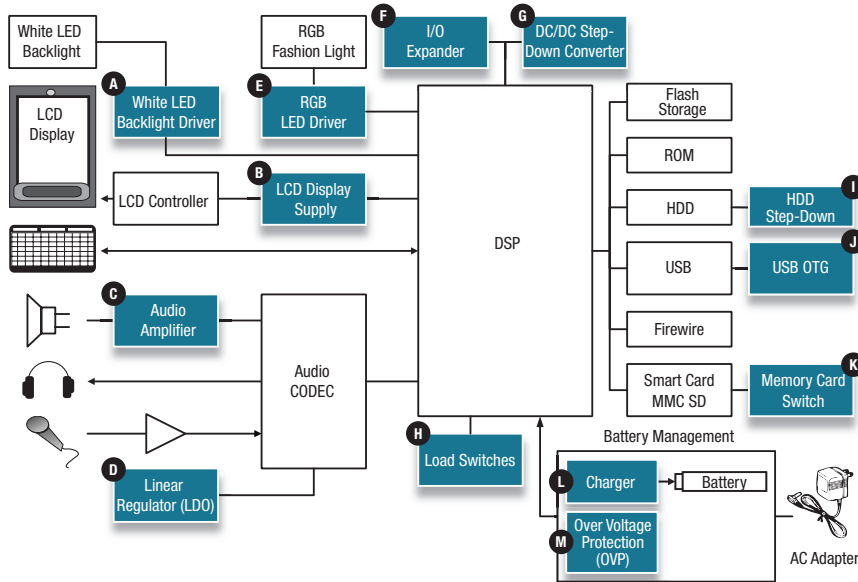
PMIC-PMU  
AAT2601A  
AAT3603A

Slew Rate Controlled  
Load Switches  
AAT4280

**I** White LED Backlight Driver  
AAT1231  
AAT1235  
AAT1236  
AAT1405  
AAT1407  
AAT1409  
AAT1451

Power Management

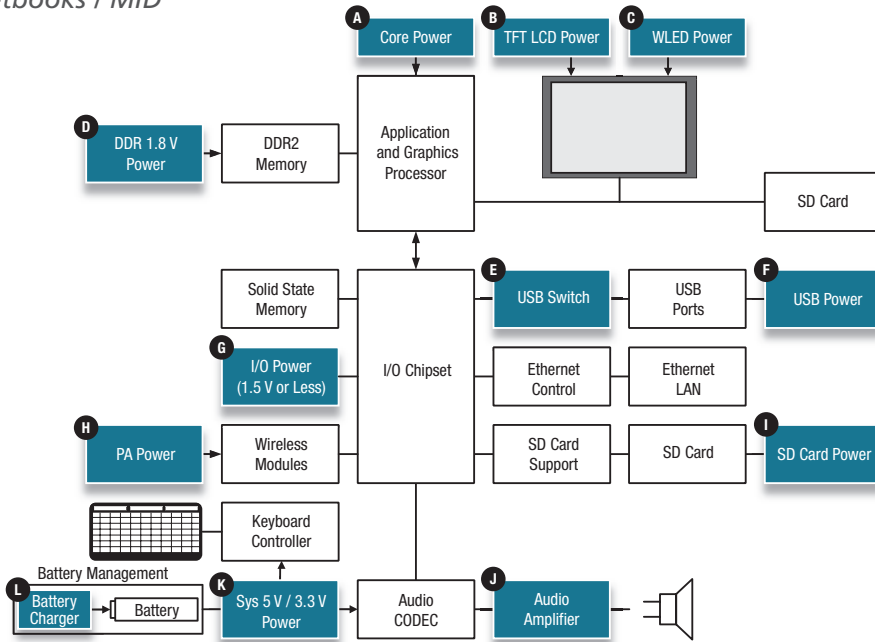
Media Players (MP3, MP4, PMP)



- A** **White LED Driver**  
*Serial Boost LED Driver*  
AHK3292  
AAT1231  
AAT1239  
AAT3169  
AAT1401  
AHK1421
- B** **LCD Display Driver**  
*Panel Power*  
AAT2822  
AAT2823  
AAT3190
- C** **Audio Amplifier**  
AAT5102
- D** **LDO**  
*LDO*  
AAT3244  
AAT3218  
AAT3236  
  
*PMIC-PMU*  
AAT2601A  
AAT2605  
AAT2606  
AAT3603A
- E** **RGB LED Driver**  
AAT3128
- F** **I/O Expander**  
*Serial Controlled Load Switches*  
AAT4291  
  
*RGB LED Controllers*  
AAT4295  
AAT4297
- G** **DC/DC Step-Down Converter**  
*Step-Down Converter*  
AAT2114A  
AAT2522  
  
*PMIC-PMU*  
AAT2608A
- H** **Load Switching**  
*Slew Rate Controlled Load Switches*  
AAT4280  
AAT4282A  
  
*Single Input High Side Switches*  
AAT4610A  
AAT4614  
AAT4616
- I** **HDD Step-Down**  
*Step-Down Converters*  
AAT1160  
AAT1161  
AAT1185
- J** **USB OTG**  
*Step-Up Converters*  
AAT1275  
AAT1276
- K** **Memory Card Switch**  
*Single Input High Side Switches*  
AAT4610  
AAT4618  
AAT4614
- L** **Charger**  
*Linear Chargers*  
AAT3691  
AAT3692
- M** **OVP**  
AAT4684  
AAT4686  
AAT4687

Power Management

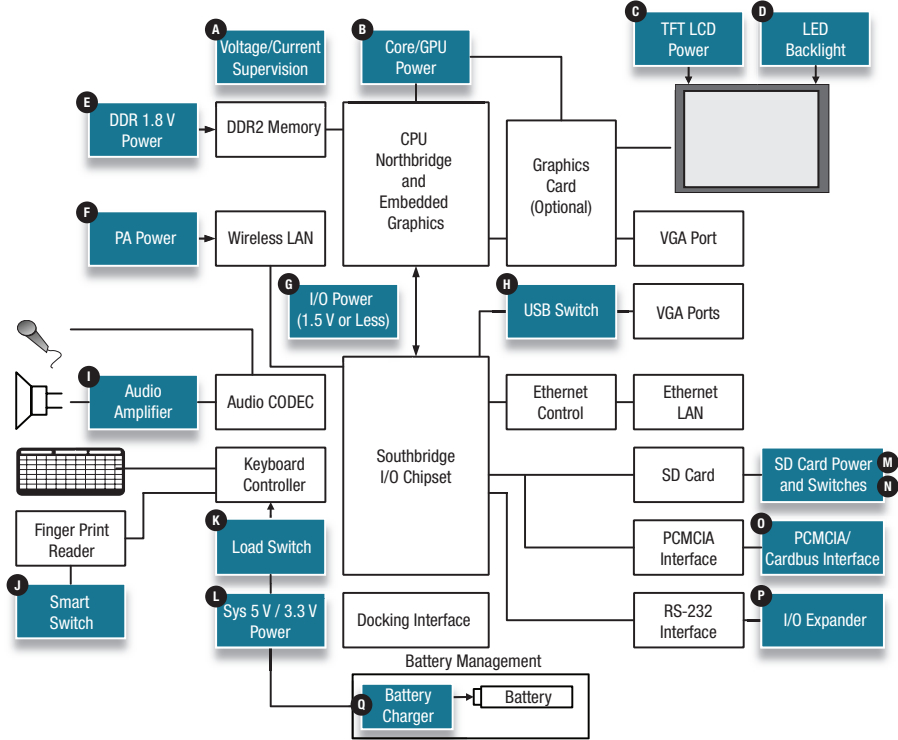
Netbooks / MID



- A** Core Power  
*Step-Down Converters*  
AAT1142\*  
AAT1185  
AAT2114A  
AAT2522  
  
*PMIC-PMU*  
AAT3601A  
AAT3603A
- B** TFT LCD Power  
*Panel Power*  
AAT2822  
AAT2823  
AAT3190
- C** White LED Backlight  
*Drivers*  
AAT1231  
AAT1235  
AAT1236  
AAT1239  
AAT1405  
AAT1407  
AAT1409  
AAT1451
- D** DDR 1.8 V Power  
*PMIC-PMU*  
AAT2153  
AAT2158
- E** USB Switch  
*Single Input High Side Switches*  
AAT4614  
AAT4616  
AAT4616A  
  
*Slew Rate Controlled Load Switches*  
AAT4282A
- F** USB Power  
*Step-Up Converters*  
AAT1218  
AAT1276
- G** I/O Power (1.5 V or Less)  
*PMIC-PMU*  
AAT3601A  
AAT3603A
- H** PA Power  
*LDO*  
AAT3218  
AAT3236  
AAT3244  
  
*Step-Down Converter*  
AAT1171
- I** SD Card Power  
*Single Input High Side Switches*  
AAT4620  
AAT4621  
  
*Multiple Input High Side Switches*  
AAT4650
- J** Audio Amplifier  
AAT5102
- K** Sys 5 V / 3.3 V Power  
*Step-Down Converters*  
AAT1160\*  
AAT1161  
AAT1185  
  
*PMIC-PMU*  
AAT3601A  
AAT3603A
- L** Battery Charger  
*Switching Charger*  
AAT3620

Power Management

Notebooks / Laptops / Tablet PCs

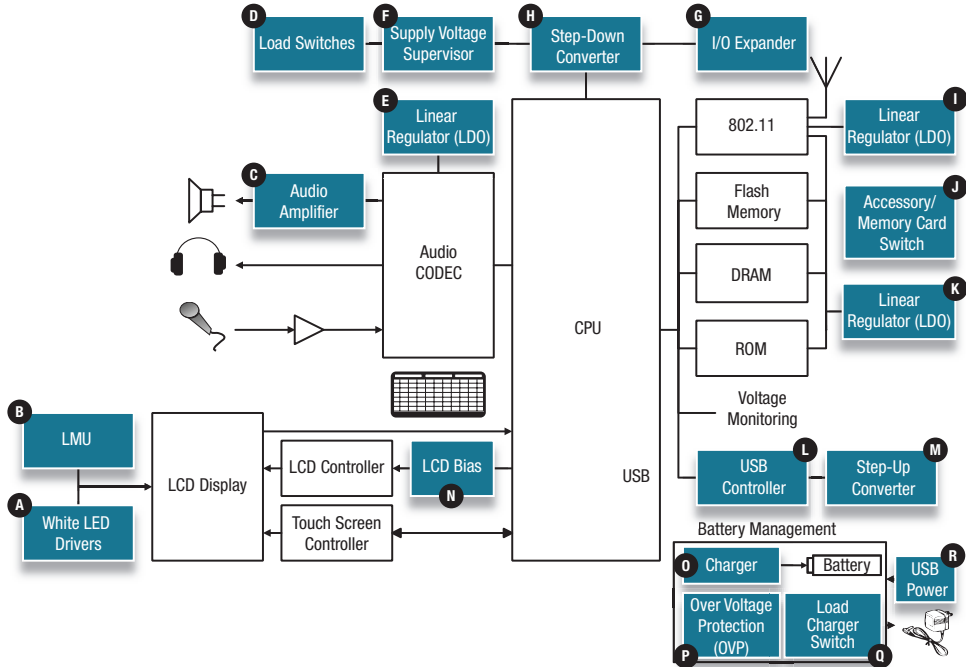


- A** Voltage Supervision  
AHK432  
*Microprocessor Supervisor*  
AAT3512  
AAT3522
- B** Core/GPU Power  
*Step-Down Converters*  
AAT1160  
AAT1185  
*PMIC-PMU*  
AAT3601A  
AAT3603A
- C** TFT LCD Power  
*Panel Power*  
AAT2822  
AAT2823  
AAT3190
- D** White LED Backlight Driver  
AAT1409  
AAT1451
- E** DDR 1.8 V Power  
*PMIC PMU*  
AAT2114A  
AAT2153  
AAT2158  
AAT3603A
- F** PA Power  
*LDO*  
AAT3218  
AAT3236  
AAT3244  
*Step-Down Converter*  
AAT1171
- G** I/O Power (1.5V or less)  
*PMIC-PMU*  
AAT3601A  
AAT3603A
- H** USB Switch  
*Single Input High Side Switches*  
AAT4610B  
AAT4614  
*Stew Rate Controlled Load Switches*  
AAT4280  
AAT4282A
- I** Audio Amplifier  
AAT5102
- J** Smart Switch  
*Single Input High Side Switches*  
AAT4610  
AAT4614  
AAT4618
- K** Load Switch  
*Single Input High Side Switches*  
AAT4610B  
AAT4614  
*Stew Rate Controlled Load Switches*  
AAT4280  
AAT4282A
- L** Sys 5 V / 3.3 V Power  
*Step-Down Converters*  
AAT1160  
AAT1161  
AAT1185  
*PMIC-PMU*  
AAT3601A  
AAT3603A
- M** SD Card Power  
*Multiple Input High Side Switches*  
AAT4650
- N** PCMCIA/Cardbus Interface  
*Single Input High Side Switches*  
AAT4620  
AAT4621  
*Multiple Input High Side Switches*  
AAT4650
- O** I/O Expander  
*Slew Rate Controlled Load Switches*  
AAT4280  
AAT4282A  
*Serial Controlled Load Switches*  
AAT4290  
AAT4296  
AAT4298
- P** Battery Charger  
*Switching Chargers*  
AAT3620



## Power Management

### Portable Navigation Devices (PNDs)



- A** White LED Backlight  
Serial Boost LED Driver  
AAT1231  
AAT1235  
AAT1236  
AAT1239  
AAT1405  
AAT1407  
AAT1451

- B** LMU  
Lighting Management Unit  
AAT2848  
AAT2862  
AAT2822  
AAT2870

- C** Audio Amplifier  
AAT5102

- D** Load Switching  
Slew Rate Controlled  
Load Switches  
AAT4282A  
AAT4280  
  
Serial Controlled  
Load Switches  
AAT4290  
AAT4291

- E** LDO for CPU  
LDO  
AAT3218  
AAT3220  
AAT3236  
  
PMIC-PMU  
AAT3608

- F** Supply Voltage Supervisor  
Microprocessor Supervisor  
AAT3517  
AAT3522  
  
**G** I/O Expander  
Serial Controlled  
Load Switches  
AAT4296  
AAT4298

- H** Step-Down Converters  
AAT1185  
AAT1189  
AAT2114A  
AAT2522  
AAT2687  
AAT2688  
AAT2689

- I** LDO for 802.11  
LDO  
AAT3244  
AAT3218

- J** Memory Card Switch  
Single Input High Side Switches  
AAT4610  
AAT4614  
AAT4618

- K** LDO  
LDO  
AAT3218  
AAT3220  
AAT3236

- L** USB Controller  
Single  
Input High Side Switches  
AAT4601  
AAT4618  
AAT4626

- M** Step-Up Converters  
AAT2215  
AAT1218  
AAT1276

- N** LCD Bias  
Panel Power  
AAT2822  
AAT2823  
AAT3190

- O** Charger  
Switching Chargers  
AAT3620

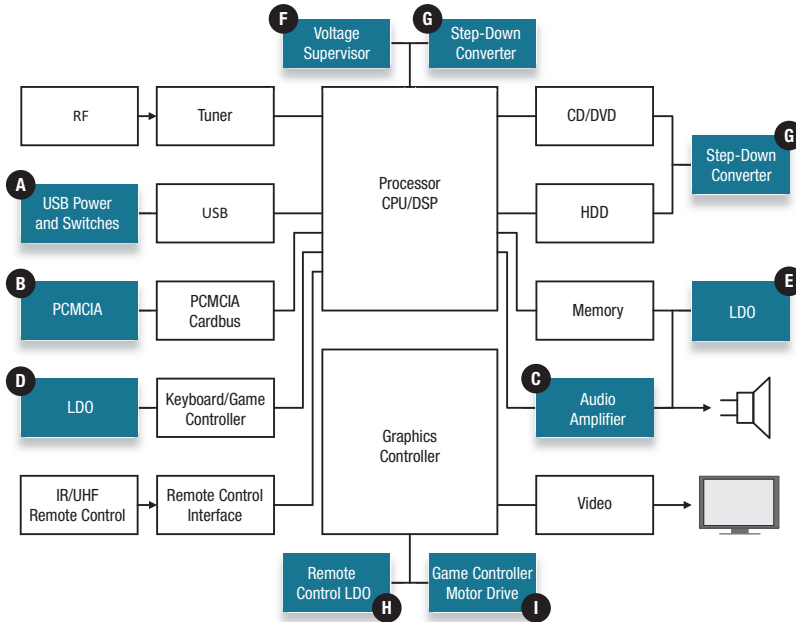
- P** OVP  
AAT4684  
AAT4686  
AAT4687

- Q** Load Charger Switch  
Slew Rate  
Controlled Load Switches  
AAT4250  
AAT4280  
AAT4282

- R** USB Power  
PMIC-PMU  
AAT2601A  
AAT2608A  
AAT3603A  
  
Single Input  
High Side Switches  
AAT4610  
AAT4618  
AAT4614

Power Management

Set-top Boxes and Game Consoles



- A** **USB Power Step-Up Converters**  
AAT1275  
AAT1275A  
AAT1276
- Single Input High Side Switches**  
AAT4614  
AAT4616  
AAT4616A

- B** **PCMCIA Multiple Input High Side Switches**  
AAT4650

- C** **Audio Amplifier**  
AAT5102

- D** **LDO LDO**  
AAT3244  
AAT3218
- PMIC PMU**  
AAT2605  
AAT2606

- E** **LDO LDO**  
AAT3221

- F** **Voltage Supervisor Microprocessor Supervisor**  
AAT3512  
AAT3522

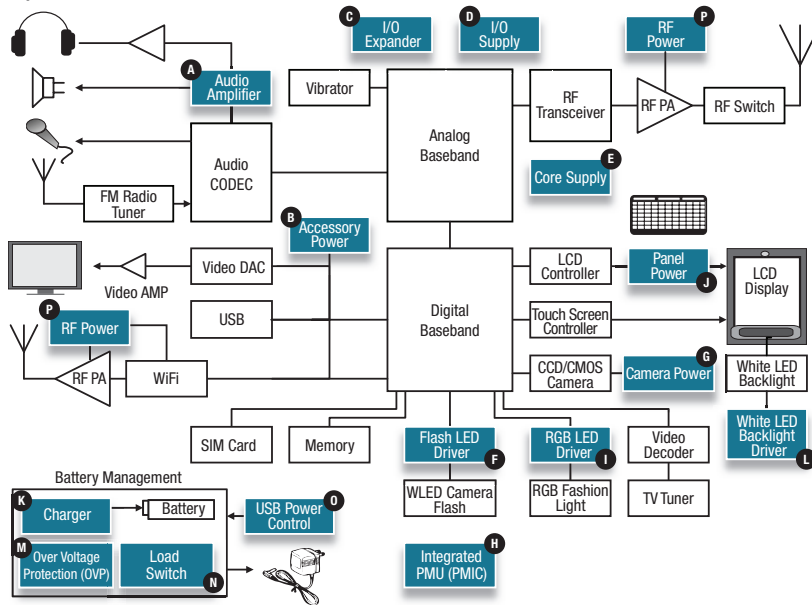
- G** **Step-Down Converters**  
AAT1189  
AAT1185  
AAT1160  
AAT2522
- PMIC PMU**  
AAT2687  
AAT2688  
AAT2689

- H** **Remote Control LDO LDO**  
AAT3218  
AAT3220

- I** **Game Controller Motor Drive Power Half Bridges**  
AAT4901  
AAT4910

Power Management

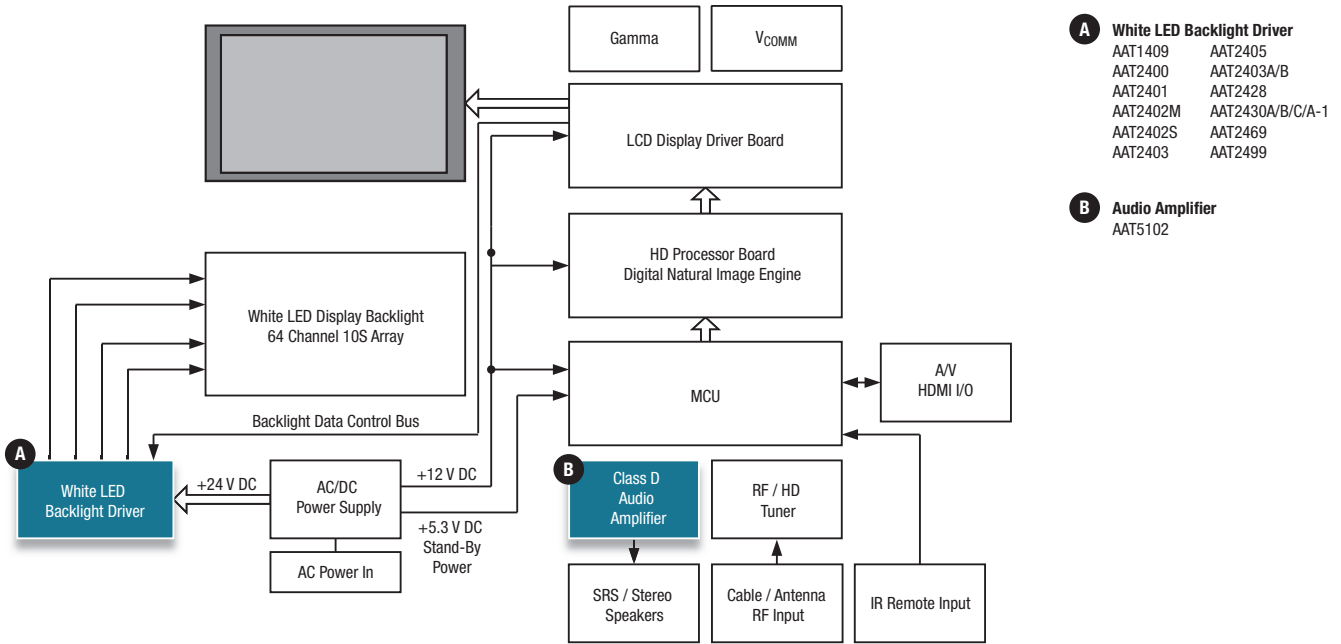
Smartphones



- A** Audio Amplifier  
AAT5102
- B** Accessory Power  
**PMIC-PMU**  
AAT2605  
AAT2612  
AAT2614  
*Single Input High Side Switches*  
AAT4610  
AAT4618  
AAT4614
- C** I/O Expander  
*Serial Controlled Load Switches*  
AAT4298  
AAT4292
- D** I/O Supply  
**LDO**  
AAT3218  
AAT3220
- E** Core Supply  
*Step-Down Converters*  
AAT2158  
AAT1142  
**LDO**  
AAT3236  
AAT3237  
**PMIC-PMU**  
AAT2603  
AAT2608
- F** Flash LED Driver  
**LED Camera Flash Driver**  
AAT1270  
AAT1272  
AAT1274  
AAT1282  
AAT3176A  
AAT3177A  
SKY81279  
SKY81292  
*Lighting Management Unit*  
AAT2862  
AAT2848
- G** CCD Power  
**Camera Power**  
AAT3190  
AAT2612  
AAT2614
- H** Integrated PMU  
**PMIC-PMU**  
AAT2601A  
AAT3603A  
AAT3605  
AAT2606  
AAT2608A  
**RGB LED Drivers**  
**RGB LED Controllers**  
AAT4295  
**RGB LED Drivers**  
AAT3128  
AAT3129
- I** RGB LED Drivers  
**RGB LED Controllers**  
AAT4295  
**RGB LED Drivers**  
AAT3128  
AAT3129
- J** LCD Display Supply  
**Panel Power**  
AAT2822  
AAT2823  
AAT3190
- K** Charger  
**Linear Chargers**  
AAT3672  
AAT3683  
*Switching Chargers*  
AAT3620
- L** White LED Backlight Driver  
AAT1231  
AAT1235  
AAT1236  
AAT1239  
AAT3169  
AHK3294  
AHK3296  
AAT1401  
AHK1421  
*Lighting Management Unit*  
AAT2861  
AAT2862  
AAT2866  
AAT2803  
AAT2870  
AAT2893
- M** Over Voltage Protection (OVP)  
AAT4684  
AAT4687
- N** Load Switch  
*Slow Rate Controlled Load Switches*  
AAT4250  
AAT4280  
AAT4282B
- O** USB Power Control  
*Single Input High Side Switches*  
AAT4601  
AAT4610  
AAT4618
- P** RF Power  
SKY87000

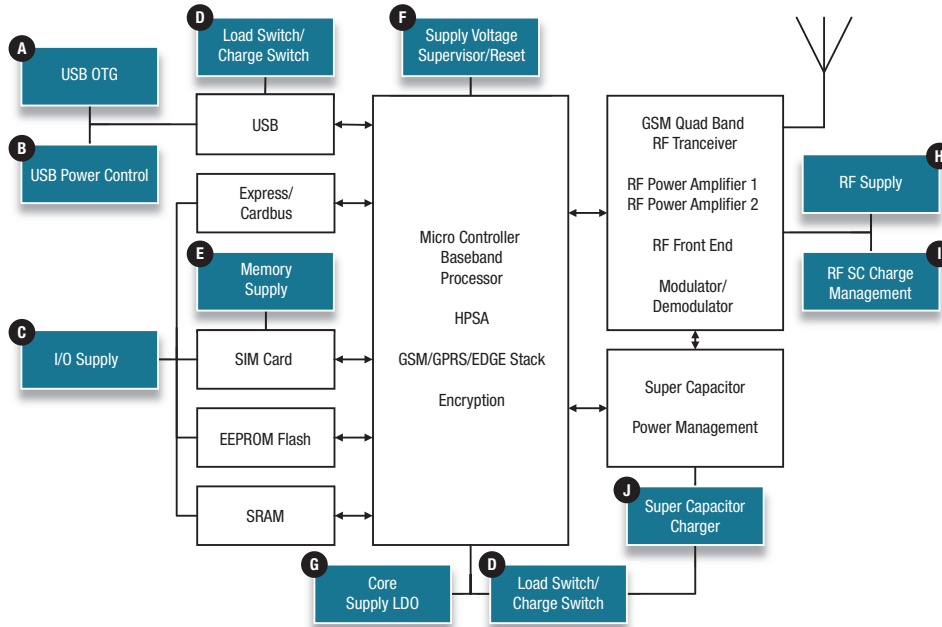
Power Management

LCD TVs and Monitors



Power Management

Wireless LAN Cards / Clients



**A** USB OTG  
Step-Up Converters  
AAT1275  
AAT1275A  
AAT1276

**B** USB Power Control  
Single Input High-Side Switches  
AAT4610  
AAT4601  
AAT4618

**C** I/O Supply  
LDO  
AAT3220  
AAT3236

**D** Load Switch/Charge Switch  
Slew Rate Controlled Load Switches  
AAT4250  
AAT4280  
AAT4282  
  
Single Input High Side Switches  
AAT4616  
AAT4616A

**E** Memory Supply  
LDO  
AAT3218  
AAT3220  
AAT3236

**F** Supply Voltage Supervisor/Reset  
Microprocessor Supervisor  
AAT3512  
AAT3522
































**G** Core Supply  
LDO  
AAT3236  
AAT3244























**H** RF Supply  
LDO  
AAT3215  
AAT3218  
AAT3236

**I** RF SC Charge Management  
Single Input High Side Switches  
AAT4616

**J** Super Capacitor Charger  
Single Input High Side Switches  
AAT4712

## PACKAGE SELECTION GUIDE

| Part Number Suffix     | Package Type                    | Actual Size   | Package Dimensions (mm) (Lead Inclusive)* |
|------------------------|---------------------------------|---|---|
| -060, -061             | 0201 Micro Surface Mount Device |    | 0.60 x 0.30 x 0.27                        |
| -040                   | SOD-882 2L (0402)               |    | 1.00 x 0.60 x 0.46                        |
| -378, -385             | QFN 6L                          |    | 1.00 x 1.00 x 0.45                        |
| N/A                    | WLCSP 15-bump                   |    | 1.04 x 1.04 x 0.285                       |
| N/A                    | WLCSP 8-bump                    |    | 1.10 x 1.10 x 0.36                        |
| N/A                    | WLCSP 15-bump                   |    | 1.20 x 1.60 x 0.606                       |
| -517, -518             | MIS                             |    | 1.47 x 1.23 x 0.813                       |
| -334                   | LGA 6L                          |    | 1.50 x 1.20 x 0.80                        |
| -374                   | QFN 6L                          |    | 1.50 x 1.50 x 0.45                        |
| -373                   | QFN 8L                          |    | 1.50 x 1.50 x 0.45                        |
| -381                   | QFN 6L                          |    | 1.50 x 2.00 x 0.50                        |
| -079                   | SC-79                           |    | 1.60 x 0.80 x 0.60                        |
| -344                   | SOT-666                         |    | 1.65 x 1.65 x 0.60                        |
| N/A                    | WLCSP 20-bump                   |    | 1.75 x 2.30 x 0.65                        |
| -477                   | DFN 6L                          |    | 2.00 x 1.30 x 0.45                        |
| -372                   | SC-70 4L (SOT-323)              |    | 2.00 x 1.35 x 1.10                        |
| -468                   | QFN 18L                         |    | 2.00 x 2.00 x 0.45                        |
| -397, -460             | QFN 12L                         |   | 2.00 x 2.00 x 0.50                        |
| -368, -465             | QFN 12L                         |  | 2.00 x 2.00 x 0.55                        |
| -370                   | QFN 8L                          |  | 2.00 x 2.00 x 0.60                        |
| -396                   | QFN 8L                          |  | 2.00 x 2.00 x 0.75                        |
| -085, -086             | QFN 3L (2 x 2)                  |  | 2.00 x 2.00 x 0.90                        |
| -087                   | QFN 2L (2 x 2)                  |  | 2.00 x 2.00 x 0.90                        |
| -335                   | QFN 6L (2 x 2)                  |  | 2.00 x 2.00 x 0.90                        |
| -360                   | QFN 8L (2 x 2)                  |  | 2.00 x 2.00 x 0.90                        |
| -349                   | QFN 8L EP (2 x 2)               |  | 2.00 x 2.00 x 0.90                        |
| -360                   | QFN 8L                          |  | 2.00 x 2.00 x 0.90                        |
| -375                   | QFN 10L                         |  | 2.00 x 3.00 x 0.45                        |
| -313                   | QFN 6L                          |  | 2.00 x 3.00 x 1.00                        |
| -92, -081, -999        | SC-88 (SC-70 6L)                |  | 2.10 x 2.00 x 0.95                        |
| -073, -074, -075, -076 | SC-70 3L                        |  | 2.10 x 2.00 x 0.95                        |

| Part Number Suffix  | Package Type                  | Actual Size   | Package Dimensions (mm) (Lead Inclusive)* |
|---|-------------------------------|---|---|
| -377  | QFN 4L                        |    | 2.20 x 2.00 x 1.35                        |
| -388  | QFN 16L                       |    | 2.30 x 2.30 x 0.45                        |
| -001, -003, -004, -005, -006, -007, -39                   | SOT-23 3L                     |    | 2.37 x 2.92 x 1.00                        |
| -015, -016, -017, -019, -020, -021, -022, -023, -026, -32 | SOT-143 3L                    |    | 2.37 x 2.92 x 1.00                        |
| -555LF  | MLP 2-pin                     |    | 2.50 x 2.50 x 0.75                        |
| -011  | SOD-323                       |    | 2.52 x 1.25 x 1.04                        |
| -027, -72   | SOT-23 5L                     |    | 2.80 x 2.90 x 1.18                        |
| -73   | SOT-23 6L                     |    | 2.80 x 2.90 x 1.18                        |
| -465  | QFN 12L                       |    | 3.00 x 3.00 x 0.55                        |
| -321, -337, -348, -350, -356                              | QFN (3 x 3)                   |    | 3.00 x 3.00 x 0.75                        |
| -389  | QFN 26L                       |    | 3.00 x 3.80 x 0.75                        |
| -455  | QFN 26L                       |    | 3.00 x 3.80 x 0.75                        |
| N/A   | Multichip Module (MCM)        |  | 3.00 x 3.00                               |
| N/A   | Multichip Module (MCM)        |  | 3.00 x 5.00                               |
| N/A   | Multichip Module (MCM)        |  | 3.00 x 6.00                               |
| N5A   | LGA 24L                       |  | 3.50 x 4.50                               |
| N/A   | Multichip Module (MCM)        |  | 4.00 x 3.00                               |
| N/A   | Multichip Module (MCM)        |  | 4.00 x 4.00                               |
| N/A   | LGA, RFLGA                    |  | 4.00 x 4.00                               |
| -340  | QFN 20L (4 x 4) 2.1 mm Paddle |  | 4.00 x 4.00 x 0.75                        |
| -359, -467  | QFN 16L (4 x 4)               |  | 4.00 x 4.00 x 0.90                        |
| -306  | QFN 16L EP (4 x 4)            |  | 4.00 x 4.00 x 0.90                        |



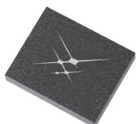


\*Dimensions indicated: lead tip to lead tip x body width x total thickness.






| Part Number Suffix | Package Type                     | Actual Size | Package Dimensions (mm) (Lead Inclusive)* |
|--------------------|----------------------------------|-------------|---|
| -307               | QFN 16L (4 x 4)<br>2.8 mm Paddle |             | 4.00 x 4.00 x 0.90                        |
| -362, -459         | QFN 24L (4 x 4)                  |             | 4.00 x 4.00 x 0.90                        |
| -365               | QFN 20L EP<br>(4 x 4)            |             | 4.00 x 4.00 x 0.90                        |
| -478               | QFN 16L (4 x 4)                  |             | 4.00 x 4.00 x 1.50                        |
| -70                | SOT-89                           |             | 4.50 x 2.50 x 1.50                        |
| -59                | MSOP 8L                          |             | 4.90 x 3.00 x 0.96                        |
| -86                | MSOP 10L                         |             | 4.90 x 3.00 x 0.96                        |
| -302               | MSOP 8L EP                       |             | 4.90 x 3.00 x 1.10<br>(Max.)              |
| -303               | MSOP 10L EP                      |             | 4.90 x 3.00 x 1.10                        |
| -315               | Multichip Module<br>(MCM)        |             | 4.90 x 3.20 x 1.00                        |
| N/A                | Multichip Module<br>(MCM)        |             | 5.00 x 4.00                               |
| N/A                | Multichip Module<br>(MCM)        |             | 5.00 x 5.00                               |
| N/A                | RFLGA                            |             | 5.00 x 5.00                               |
| -355               | QFN 20L                          |             | 5.00 x 5.00 x 0.90                        |
| -364               | QFN 32L<br>3.15 mm Paddle        |             | 5.00 x 5.00 x 0.90                        |
| -470               | QFN 32L (5 x 5)<br>3.3 mm Paddle |             | 5.00 x 5.00 x 0.90                        |
| N/A                | Multichip Module<br>(MCM)        |             | 5.00 x 6.00                               |
| N/A                | LGA                              |             | 5.00 x 6.00                               |
| N/A                | Multichip Module<br>(MCM)        |             | 5.00 x 7.00                               |
| -207               | Hermetic Ceramic<br>Pill         |             | 5.08 x 2.18                               |
| -210               | Hermetic Pill                    |             | 5.7 x 3.15                                |
| -230               | Epoxy Stripline                  |             | 5.98 x 1.4 x 0.76                         |
| -232               | Epoxy Stripline                  |             | 5.98 x 3.69 x 0.76                        |

| Part Number Suffix | Package Type              | Actual Size | Package Dimensions (mm) (Lead Inclusive)* |
|--------------------|---------------------------|-------------|---|
| -234, -235         | Epoxy Stripline           |             | 5.98 x 5.98 x 0.76                        |
| -339, -84          | SOIC 8L<br>Exposed Pad    |             | 5.99 x 4.93 x 1.55                        |
| -12                | SOIC 8L                   |             | 6.00 x 4.90 x 1.60                        |
| -80                | SSOP 16L                  |             | 6.00 x 4.90 x 1.60                        |
| N/A                | Multichip Module<br>(MCM) |             | 6.00 x 6.00                               |
| N/A                | Multichip Module<br>(MCM) |             | 6.00 x 8.00                               |
| -24                | SOIC 14L                  |             | 6.00 x 8.70 x 1.55                        |
| -93                | TSSOP 16L<br>Exposed Pad  |             | 6.40 x 6.40 x 1.00                        |
| N/A                | Multichip Module<br>(MCM) |             | 7.00 x 6.00                               |
| N/A                | Multichip Module<br>(MCM) |             | 7.5 x 7.00                                |
| -85                | SSOP 20L                  |             | 7.80 x 7.20 x 1.90                        |
| N/A                | Multichip Module<br>(MCM) |             | 8.00 x 6.00                               |
| N/A                | Multichip Module<br>(MCM) |             | 8.00 x 8.00                               |
| -345, -501,<br>N/A | Multichip Module<br>(MCM) |             | 8.00 x 10.00                              |
| -250, -251         | Epoxy Stripline           |             | 8.12 x 2.54 x 1.27                        |
| -252, -253         | Epoxy Stripline           |             | 8.12 x 5.33 x 1.27                        |
| -254               | Epoxy Stripline           |             | 8.12 x 8.12 x 1.27                        |
| -255, -257         | Epoxy Stripline           |             | 8.12 x 8.12 x 1.27                        |
| N/A                | CLCC 8L                   |             | 8.30 x 8.30                               |

\*Dimensions indicated: lead tip to lead tip x body width x total thickness.


















## Package Selection Guide



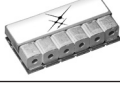

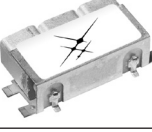

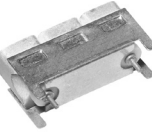




| Part Number Suffix | Package Type           | Actual Size   | Package Dimensions (mm) (Lead Inclusive)* |
|--------------------|------------------------|---|---|
| N/A                | Multichip Module (MCM) |  | 9.10 x 11.60 x 1.50                       |
| -25                | SOIC 16L               |  | 10.00 x 6.00 x 1.70                       |
| N/A                | Multichip Module (MCM) |  | 10.00 x 14.00                             |
| -220, -221         | Hermetic Stripline     |  | 11.3 x 1.91 x 1.14                        |
| -224               | Hermetic Stripline     |  | 11.3 x 11.3 x 1.14                        |

| Part Number Suffix | Package Type           | Actual Size   | Package Dimensions (mm) (Lead Inclusive)* |
|--------------------|------------------------|---|---|
| -225               | Hermetic Stripline     |  | 11.3 x 11.3 x 1.14                        |
| -222               | Hermetic Stripline     |  | 11.3 x 6.6 x 1.14                         |
| -223               | Hermetic Stripline     |  | 11.3 x 6.6 x 1.14                         |
| -240               | Hermetic Stripline     |  | 11.52 x 2.64 x 1.18                       |
| N/A                | Multichip Module (MCM) |  | 13.00 x 13.00                             |


























Trans-Tech Inc., a wholly owned subsidiary of Skyworks Solutions Inc., offers filters in a number of standard packages. In addition to SMT, Trans-Tech offers a flatpack and through-hole configuration. In addition to our standard offering, Trans-Tech has the capability and experience to meet many unique footprint layouts and custom packages. For each of our 2- to 6-pole packages, Trans-Tech offers profiles ranging from 2 mm to 6 mm. Dimension "L" will vary in length, dependent upon filter's frequency.

| Part Number Suffix | Package Type | Not Actual Size   | Package Dimensions (mm) (Lead Inclusive)* |
|--------------------|--------------|---|---|
| TT2P2-P            | SMT          |    | 5.33 x L x 3.01                           |
| TT2P3-P            | SMT          |    | 7.42 x L x 3.01                           |
| TT2P4-P            | SMT          |    | 9.50 x L x 3.01                           |
| TT2P5-P            | SMT          |    | 11.58 x L x 3.01                          |
| TT2P6-P            | SMT          |    | 13.67 x L x 3.01                          |
| TT3P2-P            | SMT          |    | 7.80 x L x 4.01                           |
| TT3P3-P            | SMT          |    | 11.18 x L x 4.01                          |
| TT3P4-P            | SMT          |    | 13.72 x L x 4.01                          |
| TT3P5-P            | SMT          |   | 16.81 x L x 4.01                          |
| TT3P6-P            | SMT          |  | 19.91 x L x 4.01                          |
| TT4P2-P            | SMT          |  | 9.16 x L x 4.99                           |
| TT4P3-P            | SMT          |  | 13.16 x L x 4.99                          |
| TT4P4-P            | SMT          |  | 17.48 x L x 4.98                          |
| TT4P5-P            | SMT          |  | 21.08 x L x 4.98                          |
| TT4P6-P            | SMT          |  | 25.40 x L x 4.98                          |
| TT6P2-P            | SMT          |  | 13.14 x L x 7.01                          |
| TT6P3-P            | SMT          |  | 19.14 x L x 7.01                          |

| Part Number Suffix            | Package Type | Not Actual Size   | Package Dimensions (mm) (Lead Inclusive)* |
|-------------------------------|--------------|---|---|
| TT6P4-P                       | SMT          |    | 25.85 x L x 7.01                          |
| TT6P5-P                       | SMT          |    | 31.14 x L x 7.01                          |
| TT6P6-P                       | SMT          |    | 37.16 x L x 7.01                          |
| TT6P2-F                       | Flatpack     |    | 17.00 x L x 6.50                          |
| TT6P3-F                       | Flatpack     |    | 24.00 x L x 6.50                          |
| TT6P2-T                       | Through Hole |   | 13.00 x L x 6.50                          |
| TT6P3-T                       | Through Hole |  | 20.00 x L x 6.50                          |
| TT4P4-T-R                     | SMT          |  | 16.10 x 19.30 x 4.98                      |
| TT6P10-T-R                    | SMT          |  | 62.79 x 21.23 x 7.01                      |
| Notch Filter Connectorized    | SMA          |  | 57.79 x 55.75 x 20.62                     |
| Connectorized Filter Assembly | SMA          |  | 31.12 x 55.50 x 144.27                    |

\*Dimensions indicated: lead tip to lead tip x body width x total thickness.










### Power Management Products

| Classification Package  | Package Name    | Package Dimensions (L x W x H) | PCB Footprint (mm <sup>2</sup> ) | Packing Standard |                | Moisture Sensitivity Level (MSL) | Package Classification Suffix |
|---|-----------------|--------------------------------|----------------------------------|------------------|----------------|----------------------------------|-------------------------------|
|   |                 |                                |                                  | Quantity/Reel    | Packing Method |                                  |                               |
|    | WLCSP-5         | 1.235 x .910 x .58             | 1.12                             | 3000             | Tape and Reel  | Level 1                          | UV                            |
|    | WLCSP-9         | 1.35 x 1.36 x 0.62             | 1.14                             | 3000             | Tape and Reel  | Level 1                          | UR                            |
|    | WLCSP-10        | 1.545 x 1.145 x 0.62           | 1.15                             | 3000             | Tape and Reel  | Level 1                          | UQ                            |
|    | WLCSP-16        | 1.645 x 1.645 x 0.59           | 1.59                             | 3000             | Tape and Reel  | Level 1                          | UN                            |
|    | WLCSP-12        | 2.23 x 1.535 x 0.63            | 3.43                             | 3000             | Tape and Reel  | Level 1                          | RG                            |
|    | TDFN2.2x2.2-10L | 2.20 x 2.20 x 0.75             | 3.63                             | 3000             | Tape and Reel  | Level 1                          | DH                            |
|    | STDFN22-8       | 2.00 x 2.00 x 0.55             | 4                                | 3000             | Tape and Reel  | Level 1                          | ES                            |
|    | TDFN22-8        | 2.00 x 2.00 x 0.75             | 4                                | 3000             | Tape and Reel  | Level 1                          | PS                            |
|    | FTDFN22-8       | 2.00 x 2.00 x 0.75             | 4                                | 3000             | Tape and Reel  | Level 1                          | PS                            |
|    | SC70JW-8        | 2.20 x 2.00 x 1.05             | 4.2                              | 3000             | Tape and Reel  | Level 1                          | JS                            |
|    | TQFN3.0x2.2-18  | 3.00 x 2.20 x 0.75             | 4.5                              | 3000             | Tape and Reel  | Level 1                          | BO                            |
|    | SC70JW-10       | 2.20 x 2.00 x 0.55             | 4.84                             | 3000             | Tape and Reel  | Level 1                          | JQ                            |
|   | STDFN2.2x2.2-10 | 2.20 x 2.20 x 0.55             | 4.84                             | 3000             | Tape and Reel  | Level 1                          | OQ                            |
|  | WLCSP-30        | 3.115 x 2.615 x 0.69           | 5.62                             | 3000             | Tape and Reel  | Level 1                          | UW                            |
|  | DLN-8L          | 2.4 x 2.4 x 1.00               | 5.76                             | 4000             | Tape and Reel  | Level 1                          | TM                            |
|  | TDFN33-10L      | 3.00 x 3.00 x 0.75             | 6.75                             | 3000             | Tape and Reel  | Level 1                          | DE                            |
|  | TDFN33-12       | 3.00 x 3.00 x 0.75             | 6.75                             | 3000             | Tape and Reel  | Level 1                          | WP                            |
|  | SOT143          | 2.92 x 2.37 x 1.01             | 6.92                             | 3000             | Tape and Reel  | Level 1                          | CX                            |
|  | SOT23-3         | 2.92 x 2.37 x 1.02             | 6.92                             | 3000             | Tape and Reel  | Level 1                          | GY                            |
|  | DLN-10L         | 2.95 x 2.4 x 1.00              | 7.08                             | 4000             | Tape and Reel  | Level 1                          | DI                            |
|  | SC59            | 2.85 x 2.80 x 1.20             | 7.98                             | 3000             | Tape and Reel  | Level 1                          | GY                            |
|  | SOT23-5         | 2.85 x 2.80 x 1.20             | 7.98                             | 3000             | Tape and Reel  | Level 1                          | GV                            |
|  | SOT23-6         | 2.85 x 2.80 x 1.20             | 7.98                             | 3000             | Tape and Reel  | Level 1                          | GU                            |

## Power Management Products

| Classification Package  | Package Name  | Package Dimensions (L x W x H) | PCB Footprint (mm <sup>2</sup> ) | Packing Standard |                | Moisture Sensitivity Level (MSL) | Package Classification Suffix |
|---|---------------|--------------------------------|----------------------------------|------------------|----------------|----------------------------------|-------------------------------|
|   |               |                                |                                  | Quantity/Reel    | Packing Method |                                  |                               |
|    | TSOT23-6      | 2.90 x 2.80 x 1.00             | 8.12                             | 3000             | Tape and Reel  | Level 1                          | CA                            |
|    | TSOP-6        | 2.95 x 2.80 x 1.05             | 8.26                             | 3000             | Tape and Reel  | Level 1                          | DU                            |
|    | TSOPJW-8      | 3.00 x 2.85 x 1.01             | 8.621                            | 3000             | Tape and Reel  | Level 1                          | TS                            |
|    | TSOPJW-12     | 3.00 x 2.85 x 1.02             | 8.721                            | 3000             | Tape and Reel  | Level 1                          | TP                            |
|    | TSOPJW-14     | 3.05 x 2.85 x 1.02             | 8.69                             | 3000             | Tape and Reel  | Level 1                          | TO                            |
|    | STDFN33-12    | 3.00 x 3.00 x 0.55             | 9                                | 1500             | Tape and Reel  | Level 1                          | FP                            |
|    | STDFN33-14    | 3.00 x 3.00 x 0.55             | 9                                | 1500             | Tape and Reel  | Level 1                          | FO                            |
|    | QFN33-16      | 3.00 x 3.00 x 0.93             | 9                                | 1500             | Tape and Reel  | Level 1                          | VN                            |
|    | TQFN33-20     | 3.00 x 3.00 x 0.75             | 9                                | 1500             | Tape and Reel  | Level 1                          | DG                            |
|    | TDFN33-14     | 3.00 x 3.00 x 0.75             | 9                                | 1500             | Tape and Reel  | Level 1                          | WO                            |
|  | QFN34-20      | 3.00 x 4.00 x 0.93             | 12                               | 1500             | Tape and Reel  | Level 1                          | ZL                            |
|  | TDFN34-16     | 3.00 x 4.00 x 0.75             | 12                               | 1500             | Tape and Reel  | Level 1                          | RN                            |
|  | TDFN34-16L    | 3.00 x 4.00 x 0.75             | 12                               | 1500             | Tape and Reel  | Level 1                          | RN                            |
|  | TQFN34-20     | 3.00 x 4.00 x 0.75             | 12                               | 1500             | Tape and Reel  | Level 1                          | ML                            |
|  | TQFN34-24     | 3.00 x 4.00 x 0.75             | 12                               | 1500             | Tape and Reel  | Level 1                          | MK                            |
|  | MSOP-8        | 4.90 x 3.00 x 0.95             | 14.7                             | 1500             | Tape and Reel  | Level 1                          | KS                            |
|  | TDFN44-16     | 4.00 x 4.00 x 0.75             | 16                               | 1500             | Tape and Reel  | Level 1                          | XN                            |
|  | TQFN44-28     | 4.00 x 4.00 x 0.75             | 16                               | 1500             | Tape and Reel  | Level 1                          | BJ                            |
|  | QFN44-24      | 4.00 x 4.00 x 0.93             | 16                               | 1500             | Tape and Reel  | Level 1                          | SK                            |
|  | QFN44-16      | 4.00 x 4.00 x 0.93             | 16                               | 1500             | Tape and Reel  | Level 1                          | SN                            |
|  | TQFN44-24     | 4.00 x 4.00 x 0.75             | 16                               | 1500             | Tape and Reel  | Level 1                          | BK                            |
|  | TQFN44-28-0.4 | 4.00 x 4.00 x 0.75             | 16                               | 1500             | Tape and Reel  | Level 1                          | NJ                            |

### Power Management Products

| Classification Package  | Package Name | Package Dimensions (L x W x H) | PCB Footprint (mm <sup>2</sup> ) | Packing Standard |                | Moisture Sensitivity Level (MSL) | Package Classification Suffix |
|---|--------------|--------------------------------|----------------------------------|------------------|----------------|----------------------------------|-------------------------------|
|   |              |                                |                                  | Quantity/Reel    | Packing Method |                                  |                               |
|  | SOT89        | 4.50 x 4.095 x 1.50            | 18.43                            | 1000             | Tape and Reel  | Level 1                          | QY                            |
|  | TQFN55-40    | 5.00 x 5.00 x 0.75             | 18.75                            | 1000             | Tape and Reel  | Level 1                          | IC                            |
|  | TSSOP-8      | 6.40 x 3.00 x 1.20             | 19.2                             | 2500             | Tape and Reel  | Level 1                          | HS                            |
|  | TQFN45-24    | 5.00 x 4.00 x 0.75             | 20                               | 1500             | Tape and Reel  | Level 1                          | FK                            |
|  | TQFN56-42    | 5.00 x 6.00 x 0.75             | 22.5                             | 1000             | Tape and Reel  | Level 1                          | CG                            |
|  | TQFN77-48    | 7.00 x 7.00 x 0.50             | 24.5                             | 1000             | Tape and Reel  | Level 1                          | SZ                            |
|  | SOP-8        | 4.90 x 6.00 x 1.55             | 29.4                             | 2500             | Tape and Reel  | Level 1                          | AS                            |
|  | TQFN55-36    | 5.50 x 5.50 x 0.75             | 30.25                            | 2000             | Tape and Reel  | Level 1                          | IH                            |
|  | TO-92        | 17.38 x 5.50 x 3.57            | 60.2                             | 2000             | Tape and Reel  | Level 3                          | LY                            |

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