



**SKYWORKS®**

**| New and Featured Products**

# Billions of Connections, One Solution

Skyworks has been enabling wireless connectivity for over a decade. But given growing consumer demand for wireless ubiquity and the desire for anytime, anywhere access, there are billions of connections yet to be made.

With our high-performance analog semiconductors, Skyworks is linking people, places, and things across a growing number of markets and applications – bringing everyone closer to vital information wherever it is needed.

Headquartered in Woburn, Massachusetts, Skyworks is a global company with engineering, marketing, operations, sales and service facilities located throughout Asia, Europe and North America. For more information, please visit Skyworks' website at: [www.skyworksinc.com](http://www.skyworksinc.com).

## | The Right Design Choice Starts Here

Skyworks is continually releasing new products. We invite you to review our new and featured product offerings from our broad portfolio.



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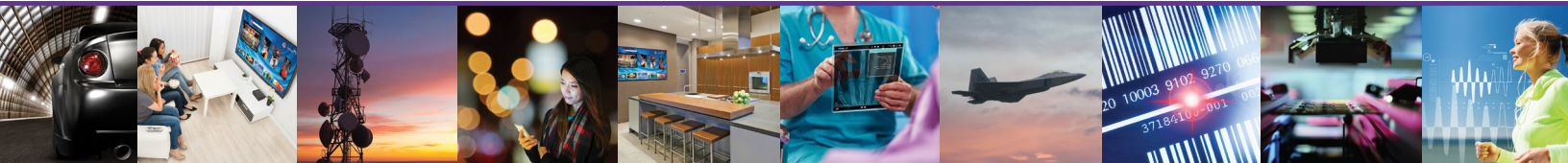
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## Mobile Devices

Consumers are more connected than ever and Skyworks is helping drive the revolution in mobile connectivity. Our complex modules and components are compact, energy and cost efficient, meeting size and performance constraints while managing potential signal interference. Our products serve as key components in the design of wireless mobile devices such as smartphones, tablets, data cards and WLAN (wireless local area network) systems.

### SkyOne® Ultra

**SKY78041, SKY78042**

SkyOne® Ultra, the newest addition to the SkyOne® platform, leverages Skyworks' broad systems expertise resulting in a highly configurable, integrated solution that is optimized for envelope tracking, solves harmonically-related carrier aggregation challenges and delivers the highest power added efficiency in the world.

### SkyOne®

**SKY78027-12**

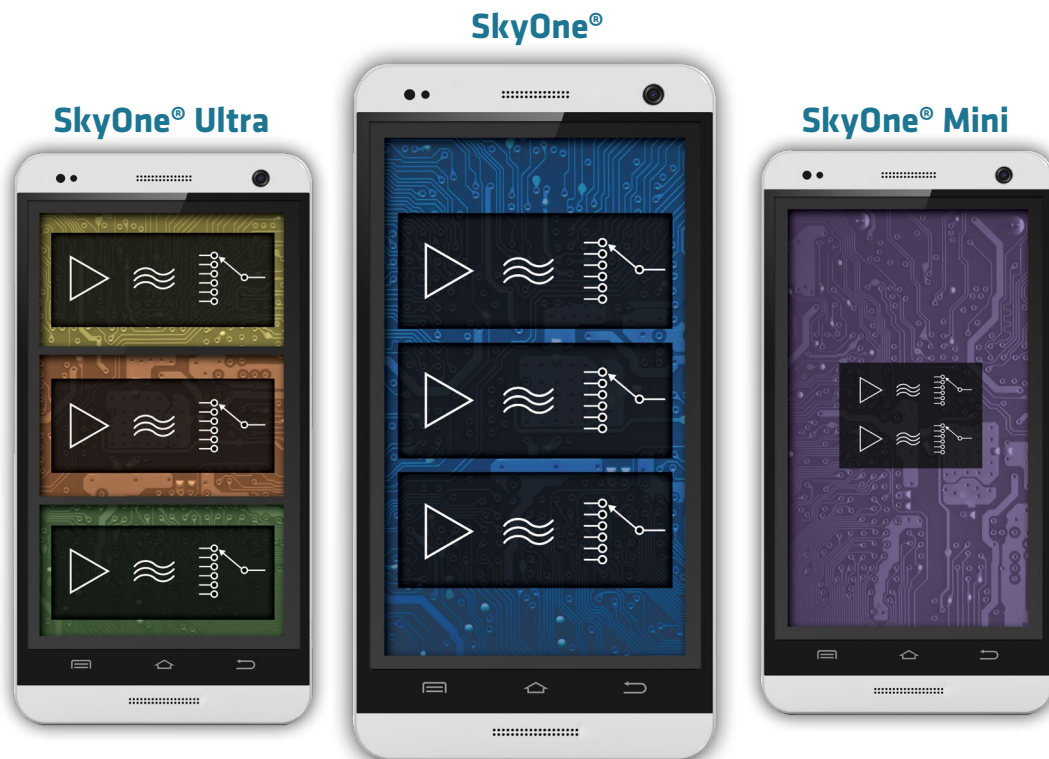
The industry's highest performance, most integrated front-end solutions, SkyOne® offers rapid customization and a >50% smaller footprint for superior 2G, 3G and LTE performance. The SkyOne® family leverages our portfolio and system solutions expertise to deliver scalable, complex front-end solutions that enable worldwide mobile data access for always on connectivity.

### SkyOne® Mini

**SKY78070, SKY78071, SKY78072**

SkyOne® Mini, a derivative of the SkyOne® platform, addresses the growing demand for value-oriented solutions in the LTE market by delivering the full functionality associated with the highly integrated SkyOne® devices at a reduced cost and size.

## Highly Flexible, Customizable Family of Solutions





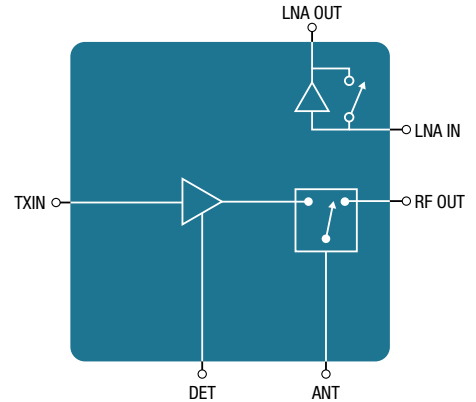
## Consumer Electronics

Skyworks technology makes it possible to stream movies and music on demand, share files, play games and much more. And as the demand for increased speed, flexibility and capacity increases, Skyworks is innovating new solutions to meet this need. We are proud that our connectivity solutions meet the standards for multi-stream (MIMO) configuration in WLAN 802.11a,b,g,n, and high-throughput 802.11ac.

### 2 GHz WLAN Front-end Module for High-power 802.11ac Applications

#### SKY85309-11

- Fully-matched input and output
- Integrated power detector and directional coupler
- Transmit / receive gain: 32 / 12 dB
- Output power: 22 dBm @ 1.8% EVM, HT40, MCS9, 5 V;  
24 dBm @ 3% EVM, HT40, MCS7, 5 V
- Packaging: QFN 24L 3 x 5 x 0.85 mm

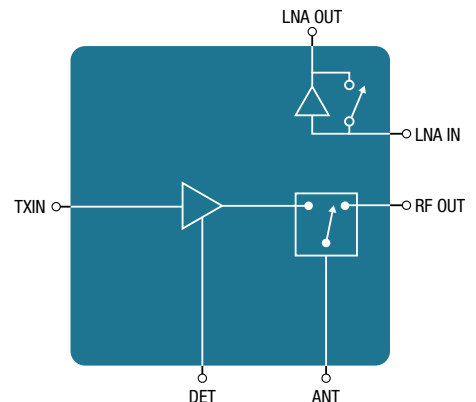


Functional Block Diagram

### 5 GHz WLAN Front-end Module for High-power 802.11ac Applications

#### SKY85710-11

- Fully-matched input and output
- Integrated power detector and directional coupler
- Transmit / receive gain: 31 / 12 dB
- Output power: 21 dBm @ 1.8% EVM, HT40, MCS9, 5 V;  
22 dBm @ 3% EVM, HT40, MCS7, 5 V
- Packaging: QFN 24L 3 x 5 x 0.85 mm

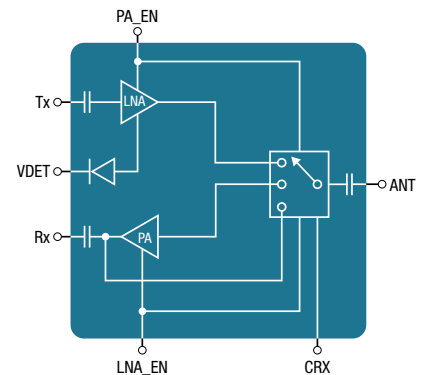


Functional Block Diagram

### 5 GHz WLAN Front-end Module for High-power 802.11ac Applications

#### SKY85712-11

- Fully-matched input and output
- Integrated power detector and directional coupler
- Transmit / receive gain: 28 / 12 dB
- Output power: 19 dBm @ 1.8% EVM, HT40, MCS9, 5 V;  
20 dBm @ 3% EVM, HT40, MCS7, 5 V
- Packaging: QFN 16L 3 x 3 x 0.55 mm



Functional Block Diagram



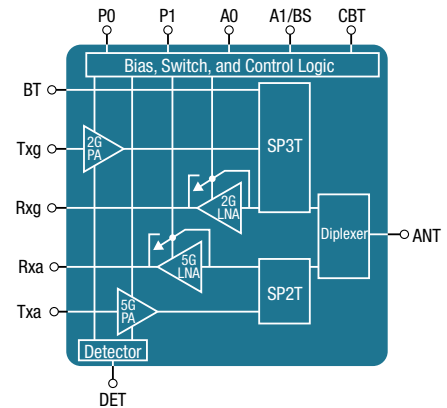
## Consumer Electronics

Skyworks technology makes it possible to stream movies and music on demand, share files, play games and much more. And as the demand for increased speed, flexibility and capacity increases, Skyworks is innovating new solutions to meet this need. We are proud that our connectivity solutions meet the standards for multi-stream (MIMO) configuration in WLAN 802.11a,b,g,n, and high-throughput 802.11ac.

### Dual-band 802.11a/g/n/ac Wireless LAN Front-end for Media Applications

#### SKY85806

- Integrated dual-band 5 GHz PA, LNA, T/R switch, filters, and diplexers
- Power: 5 GHz, 17 dBm, MCS9, HT80  
2 GHz, 17 dBm, MCS9, HT40
- Single supply voltage: 3.3 V ±10%
- Sleep mode: < 1 μA
- Bluetooth® ready; functional when Vcc = 0 V or 3.3 V
- Multiple receive bypass step attenuation
- Packaging: QFN 28L 4 x 3 x 0.8 mm



Functional Block Diagram



## Wearables

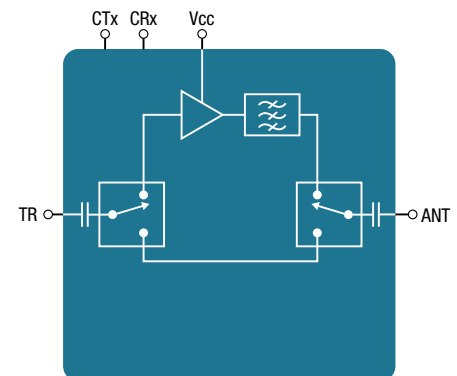
Health-focused watches, glasses, and fitness trackers measure our daily activities, calculating steps taken, calories burned, and other personal data.

Innovations from Skyworks are designed to pack high-performance semiconductors into compact, wearable sizes.

### Bluetooth® Low Energy Front-end Modules for Wearable Applications

#### SKY66110-11, SKY66111-11

- Operating range: 2.4 to 2.485 GHz
- Low power consumption
- Output: 10 dBm
- Supply operation: 1.8 to 5 V
- Low sleep current
- Rx bypass
- Packaging: MCM 20-pin 3.3 x 3.0 x 0.8 mm



Functional Block Diagram (SKY66110-11)



## Wireless Infrastructure

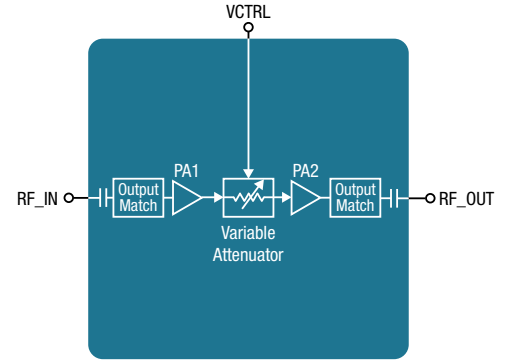
Skyworks products are at work in wireless infrastructure systems that connect people with each other and the information they need.

Our portfolio includes components and subsystems from the antenna connection to the baseband output.

### 695 to 866 MHz Variable Gain Amplifier for WCDMA Base Station Applications

#### SKY65388-11

- High gain: > 25 dB
- Attenuation range: > 30 dB
- $OP_{1dB}$ : > 26 dBm
- ACLR < -68 dBc for  $P_{OUT} = 8$  dBm
- Single DC supply: 5 V
- Packaging: MCM 12-pin 8 x 8 x 1.3 mm

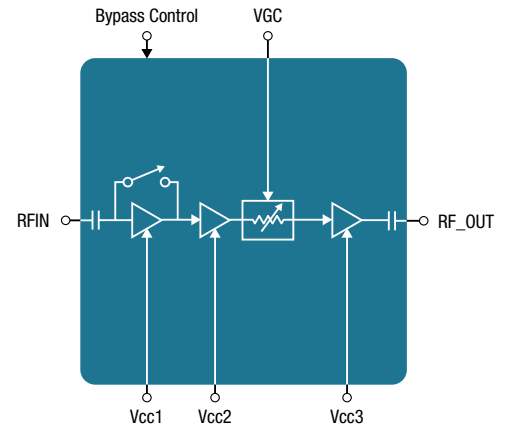


Functional Block Diagram

### High Linearity, Active Bias Low Noise Variable Gain Amplifier for Wireless Applications

#### SKY65372-11

- Frequency range: 2500 to 2570 MHz
- High gain: 42 dB
- Excellent return loss: > 20 dB
- High linearity gain control > 35 dB
- Low noise figure: 0.8 dB
- Switchable high/low gain state modes
- Packaging: MCM 16-pin 8 x 8 x 1.3 mm

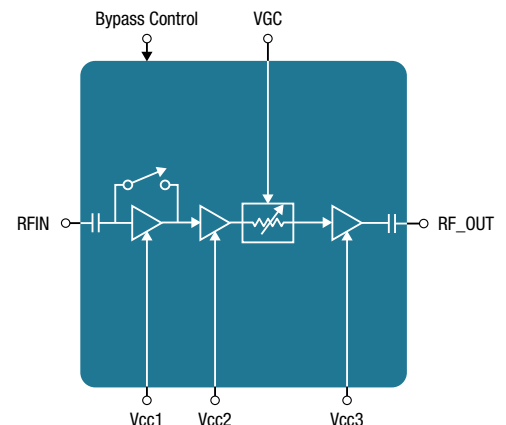


Functional Block Diagram

### High Linearity, Active Bias Low Noise Variable Gain Amplifier for Wireless Applications

#### SKY65376-11

- Frequency range: 2500 to 2570 MHz
- High gain: 40 dB
- Excellent return loss: > 20 dB
- High linearity gain control > 35 dB
- Low noise figure: 1.1 dB
- Switchable high/low gain state modes
- Packaging: MCM 16-pin 8 x 8 x 1.3 mm



Functional Block Diagram



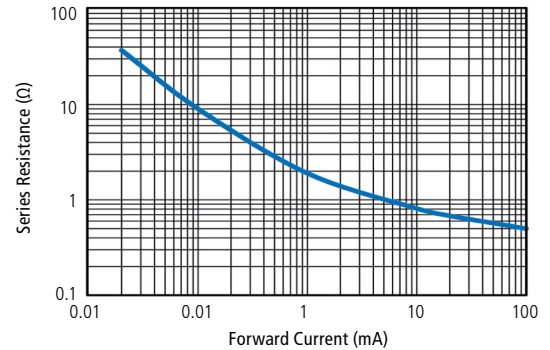
## Automotive

From delivering turn-by-turn directions to finding your favorite restaurant, the connected car has become one of Skyworks' automotive solutions are enabling new convenience and safety features in everything from remote keyless entry, to collision avoidance, toll transponders, garage door openers, lighting, infotainment, video displays, vehicle tracking and telematics.

### High Isolation Switching PIN Diode for In-vehicle Infotainment (IVI) Applications

#### SMVA1320-079LF

- AEC-Q101 qualified
- ISO/TS16949 certified facility
- Low resistance: 0.75  $\Omega$  typical @ 10 mA
- Low capacitance: 0.23 pF typical @ 30 V
- Packaging: SC-79 2L 2 x 2 x 0.2 mm

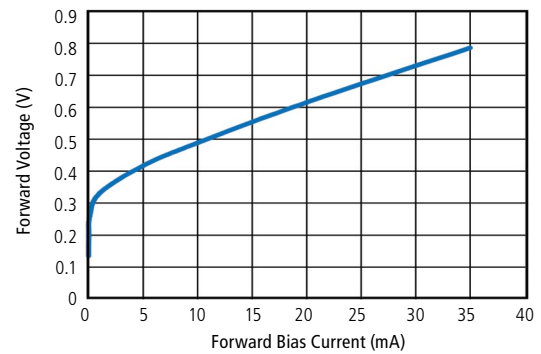


Series Resistance vs. Current @ 100 MHz

### SMT Schottky Diode for In-vehicle Platform Mixer / Detector Applications

#### SMVA3923-011LF

- AEC-Q101 qualified
- ISO/TS16949 certified facility
- Ideal for general purpose RF detector and mixer devices
- Fully characterized, including spice models
- Tight  $V_f$  distribution device
- Packaging: SOD-323 4L 2 x 1.35 x 1.1 mm

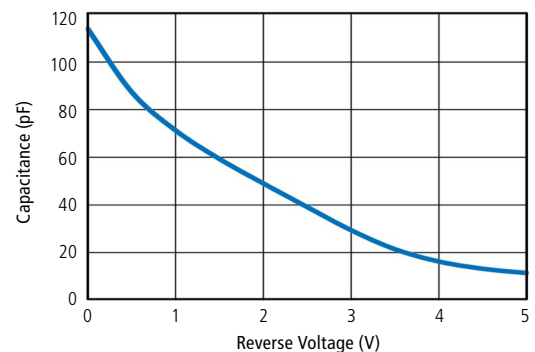


Series Forward Voltage vs. Forward Bias Current

### Hyperabrupt Junction Tuning Varactor for Wireless System and Infotainment Applications

#### SMVA1470-004LF

- AEC-Q101 qualified
- ISO/TS16949 certified facility
- Dual hyperabrupt tuning varactor
- High capacitance ratio, low  $R_s$
- Ideal for low noise VCOs
- Packaging: Dual-die SOT-23 3L 2.37 x 2.92 x 1 mm



Capacitance vs. Reverse Voltage



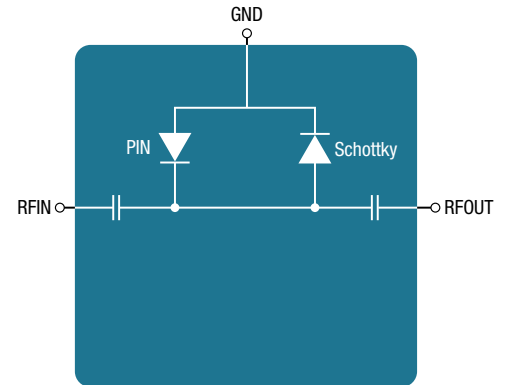
## Aerospace and Defense

Skyworks' portfolio of RF/microwave products support a broad array of mission-critical communication and radar applications including avionics systems, electronic countermeasures, electronic warfare platforms, global positioning devices and land mobile radios.

### Low-threshold PIN Diode Limiter for Automotive, GPS, and Military Applications

#### SKY16602-632LF

- Operating range: 0.2 to 4.0 GHz
- Low limiting threshold: 5 dBm typical
- Low insertion loss
- Low distortion
- Integrated PIN limiter and Schottky diodes, and DC blocks
- Package: QFN 2L 2.3 x 2.3 x 0.55 mm

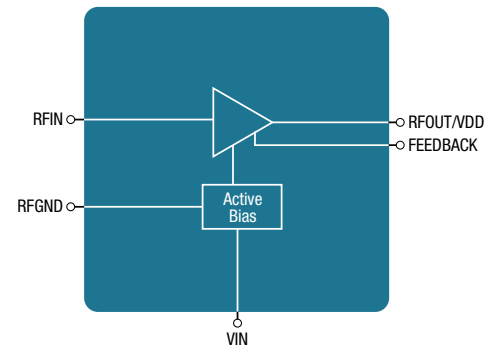


Functional Block Diagram

### High Linearity, Active Bias LNA for L and S Band Military Radio Applications

#### SKY67103-396LF

- High gain: 16.5 dB @ 3.6 GHz
- Low noise figure: 0.7 dB @ 3.6 GHz
- High IIP3 performance: 17.8 dBm @ 3.6 GHz
- Return loss >17.5 dB @ 3.6 GHz
- Adjustable supply current and gain
- Flexible bias voltage: 3 to 5 V
- Adjustable supply current from 30 mA to 100 mA
- Package: DFN 8L 2 x 2 x 0.75 mm



Functional Block Diagram



# Specifications for All New and Featured Products

Specifications tables for all of our latest products are provided on the following pages. New products are continually being introduced at Skyworks. For the latest information, please visit the New Products section of our website at [http://www.skyworksinc.com/Products\\_whatsnew.aspx](http://www.skyworksinc.com/Products_whatsnew.aspx). Featured products from our broad portfolio can be viewed at [http://www.skyworksinc.com/Products\\_Featured.aspx](http://www.skyworksinc.com/Products_Featured.aspx).

## Amplifiers

### Cellular Power Amplifiers

#### LTE PAs

Part Number	Frequency (MHz)	Description	Typical PAE (%)	Typical Gain (dB)	Typical Linear LTE Power (dBm)	Supply Voltage (V)	Package (mm)
SKY77778-51	2500–2570	PAM for LTE FDD Band 7	–	–	–	–	10-pad MCM 2 x 2.5 x 0.9
	2496–2690	FDD Band 7					
	2300–2400	TDD Bands 38/41					
	2545–2575	TDD Band 40					
		AXGP Band					
SKY77814-11	2500–2570	PAM for LTE FDD Band 7	–	–	–	–	24-pad MCM 4 x 3 x 0.8
	2305–2315	LTE Band 7					
	2496–2690	LTE Band 30					
	2300–2400	LTE Band 38/41					
	2545–2575	LTE Band 40					
SKY77830	–	PAM for LTE FDD Band 7, Band 30, LTE TDD Bands 38/41, and 40, and AXGP Band	–	–	–	–	28-pad MCM 4 x 3.65 x 0.8
		LTE Band 7					
		LTE Band 30					
		LTE Band 38/41					
		LTE Band 40					
	AXGP Band						

#### CDMA PAs

##### Other Bands

Part Number	Frequency (MHz)	Description	Typical PAE (%)	Typical Gain (dB)	Typical Linear LTE Power (dBm)	Supply Voltage (V)	Package (mm)
SKY77192-14	450–460	PAM for CDMA2000	40	29	–	3.2–4.2	10-pad MCM 4 x 4 x 1.5

# Amplifiers

## Cellular Power Amplifiers

### WCDMA PAs

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

Part Number	Frequency (MHz)	Description	Package (mm)
SKY77742-21		SkyHi™ Broadband PAM for WCDMA / HSDPA / HSUPA / HSPA+ (Bands 1, 2, 4, 5, 8), CDMA (Bands 1, 2, 5)	14-pad MCM 3 x 4 x 0.9
	1920–1980	WCDMA Band 1	
	1850–1910	WCDMA Band 2	
	1710–1785	WCDMA Band 4	
	824–849	WCDMA Band 5	
	880–915	WCDMA Band 8	
SKY77769		Broadband PAM for WCDMA / HSDPA / HSUPA / HSPA+ (Bands 1, 2, 4, 5, 8), CDMA (Bands 1, 2, 5)	14-pad MCM 3 x 4.2 x 0.9
	1920–1980	WCDMA Band 1	
	1850–1910	WCDMA Band 2	
	1710–1785	WCDMA Band 4	
	824–849	WCDMA Band 5	
	880–915	WCDMA Band 8	

### 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)
SKY77621-31		Multiband/Multimode PAM	–	–	–	–	42-pad MCM 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 Band 1					
	1850–1910	WCDMA/LTE Band 2					
	1710–1785	WCDMA/LTE Band 3					
	1710–1755	WCDMA/LTE Band 4					
	824–849	WCDMA/LTE Band 5					
	880–915	WCDMA/LTE Band 8					
	699–716	LTE Band 12					
	777–787	LTE Band 13					
	704–716	LTE Band 17					
	832–862	LTE Band 20					
	703–748	LTE Band 28					
	1880–1920	LTE Band 39					
2010–2025	TD-SCDMA Band 34						
SKY77621-51		Multiband/Multimode PAM	–	–	–	–	42-pad MCM 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 Band 1					
	1850–1910	WCDMA/LTE Band 2					
	1710–1785	WCDMA/LTE Band 3					
	1710–1755	WCDMA/LTE Band 4					
	824–849	WCDMA/LTE Band 5					
	880–915	WCDMA/LTE Band 8					
	1750–1785	WCDMA/LTE Band 9					
	699–716	LTE Band 12					
	777–787	LTE Band 13					
	704–716	LTE Band 17					
	832–862	LTE Band 20					
	1850–1915	LTE Band 25					
814–849	LTE Band 26						
703–748	LTE Band 28						
1880–1920	TD-SCDMA Band 39						
703–803	TD-SCDMA Band 44						

# 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)
SKY77627-11		Multiband/Multimode PAM					42-pad MCM 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 Band 1					
	1850–1910	WCDMA/LTE Band 2					
	1710–1785	WCDMA/LTE Band 3					
	1710–1755	WCDMA/LTE Band 4					
	824–849	WCDMA/LTE Band 5					
	880–915	WCDMA/LTE Band 8					
	699–716	LTE Band 12					
	777–787	LTE Band 13					
	704–716	LTE Band 17					
	832–862	LTE Band 20					
703–748	LTE Band 28						
1880–1920	LTE / TD-SCDMA Band 39						
2010–2025	TD-SCDMA Band 44						
SKY77633	–	MMMB PAM for Quad-band GSM / EDGE – Hepta-Band (1, 2, 3, 4, 5, 8, 10) WCDMA / HSDPA / HSUPA / HSPA+ / LTE	–	–	–	–	42-pad MCM 7 x 5 x 0.9
SKY77646	–	Multiband/Multimode PA for Quad-band GSM / EDGE - WCDMA / HSDPA / HSUPA / HSPA+ / LTE Bands 1, 2, 3, 4, 5, 8, 12, 13, 17, 20, 26, 28, 34, 39	–	–	–	–	42-pad MCM 7 x 5 x 0.8
SKY77647	–	Multiband/Multimode PA for Quad-band GSM / EDGE - WCDMA / HSDPA / HSUPA / HSPA+ / LTE Bands 1, 2, 3, 4, 5, 8, 12, 13, 17, 20, 26, 28, 34, 39	–	–	–	–	42-pad MCM 7 x 5 x 0.8
SKY77648	–	Multiband/Multimode PA for Quad-band GSM / EDGE - WCDMA / HSDPA / HSUPA / HSPA+ / LTE Bands 1, 2, 3, 4, 5, 8, 12, 13, 17, 20, 26, 28, 34, 39	–	–	–	–	42-pad MCM 7 x 5 x 0.8




# Amplifiers

## WiFi Connectivity Amplifiers



### 2.5 GHz Power Amplifiers

Part Number	Frequency Range (GHz)	Test Frequency (GHz)	Typ. Gain (dB)	OIP3 (dBm)	V <sub>DD</sub> (V)	Typ. Noise Figure (dB)	Package (mm)
 SKY85004-11	2.4-2.5	2.45	29	-	3.0-4.6	-	Flip Chip Die 12-bump, 0.84 x 0.6

### 2.5 GHz Low Noise Amplifiers


Part Number	Frequency Range (GHz)	Test Frequency (GHz)	Typ. Gain (dB)	OIP3 (dBm)	V <sub>DD</sub> (V)	Typ. Noise Figure (dB)	Package (mm)
 SKY85203-11	2.4-2.5	14	14	-	3.6	2	12-pin QFN 2 x 2 x 0.6
 SKY85204-11	2.4-2.5	-	-	-	-	-	Flip Chip Die 11-bump, 0.76 x 0.97
 SKY85207-11	2.4-2.5	-	-	-	-	-	8-pin DFN 1.5 x 1.5 x 0.33

### 5 GHz Low Noise Amplifiers



Part Number	Frequency Range (GHz)	Test Frequency (GHz)	Typ. Gain (dB)	OIP3 (dBm)	V <sub>DD</sub> (V)	Typ. Noise Figure (dB)	Package (mm)
 -11	2.4-2.5	-	-	-	-	-	Flip Chip Die 11-bump, 0.76 x 0.97
 SKY85613-11	2.4-2.5	-	-	-	-	-	6-pin DFN 1.2 x 1.4 x 0.33

## 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>1dB</sub> (dBm)	V <sub>DD</sub> (V)	Typ. Supply Current (mA)	Typ. Noise Figure (dB)	Package (mm)
 SKY67103-396LF	0.5-4	3.6	16.5	34.3	17.4	5	78	0.7	8-pin DFN 2 x 2 x 0.75

## BDS / GPS / GNSS

Part Number	Frequency Range (GHz)	Test Frequency (GHz)	Description	Gain (dB)	V <sub>DD</sub> (V)	IP <sub>1dB</sub> (dBm)	NF (dB)	Package (mm)
 SKY65605-21	1550-1601.8	-	BDS / GPS / GNSS Low Noise Amplifier	19	-	-14	0.75	6-pin QFN 0.7 x 1.1 x 0.55
 SKY65611-11	-	-	GPS / GLONASS / Galileo / BDS Low Noise Amplifier	-	-	-	-	6-pin DFN 2 x 1.3 x 0.45


# Amplifiers

## Variable Gain Amplifiers (VGAs)

Part Number	Operating Frequency (MHz)	Architecture	Attenuator	Control Range (dB)	Step Size (dB)	Gain (dB)	Min. NF (dB)	IP3 (dBm)	$P_{1\text{dB}}$ (dBm)	$V_{CC}$ (V)	Package (mm)
 SKY65372-11	699–748	Single Channel	Analog	>35	Analog	42	0.8	2	-10	5	16-pin MCM 8 x 8 x 1.3
 SKY65375-11	1920–1980	Single Channel	Analog	>35	Analog	43	0.9	6	-5.5	5	16-pin MCM 8 x 8 x 1.3
 SKY65376-11	2500–2570	Single Channel	Analog	>35	Analog	40	1.1	5	-6	5	16-pin MCM 8 x 8 x 1.3
SKY65388-11	695–866	Single Channel	Analog	34	N/A	29	4.5	43	26	5	12-pin MCM 8 x 8 x 1.3

# Attenuators


## Digital

Part Number	Frequency (GHz)	Control Bits / Interface Parallel / Serial	Attenuation Range (dB)	LSB Attenuation (dB)	Typ. IL (dB)	Typ. IIP3 (dBm)	Typ. $P_{1\text{dB}}$ (dBm)	Package (mm)
 SKY12361-350LF	0.1–3.7	4/P	15	1	1	47	29	16-pin QFN 3 x 3 x 0.75


# Limiter Diodes

Core Components for Receiver Protection Applications

## Limiter Modules

Part Number	RF Test Freq. (GHz)	Typ. Insertion Loss (dB) Pin = 0 dBm	Typ. Return Loss (dB) Pin = 0 dBm	Typ. Threshold Level (dBm)	Maximum Saturated Power (Watts)	Typ. Flat Leakage Power (dBm) Pin = 10 dBm	Package (mm)
 SKY16602-632LF	0.9 2.45	0.3 0.5	14 25	6 5	30 23	6 4	QFN 2L 2.3 x 2.3 x 0.55

## Limiter Diodes



Part Number	RF Test Freq. (GHz)	Typ. Insertion Loss (dB) Pin = 0 dBm	Typ. Threshold Level (dBm)	Maximum Saturated Power (Watts)	$V_B$ $I_R = 10$ $\mu\text{A}$ (V)	I Regional Thickness ( $\mu\text{m}$ ) Nominal	$C_T$ (pF) 30 V F = 1 MHz	$I_F = R\theta$ mA F = 100 MHz ( $\Omega$ )	Carrier Lifetime $T_L$ (ns) $I_F = 10$ mA	Package (mm)
 CLA4611-085LF	2.6	0.3		25	10	6 4	25	25	25	QFN 3L 2 x 2 x 0.9

## PIN Diodes

Superior Building Blocks for Switch and Attenuator Applications




### Switching Silicon 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)	$R_S$ $I_F = 1 mA$ $F = 100 MHz$ ( $\Omega$ )	Max. $R_S$ $I_F = 10 mA$ $F = 100 MHz$ ( $\Omega$ )	Max. $R_S$ $I_F = 100 mA$ $F = 100 MHz$ ( $\Omega$ )	Typ. Carrier Lifetime $I_F = 10 mA$ (ns)	Package (mm)
 SMPA1302-079LF	200	0.3	0.80	20 Max.	3.0	1.5	700	QFN 2L 2 x 2 x 0.9
 SMPA1320-079LF	50	0.3	0.85	2 Typ.	0.9	–	400	QFN 2L 2 x 2 x 0.2

### 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. $R_S$ $I_F = 100 mA$ $F = 100 MHz$ ( $\Omega$ )	Typ. Carrier Lifetime $I_F = 10 mA$ (ns)	Package (mm)
 SMPA1302-079LF	200	0.30	0.80	20	3	1.5	700	QFN 2L 2 x 2 x 0.9
 SMPA1304-011LF	200	0.30	0.80	50	7	2.0	1000	SOD 2L 2.52 x 1.25 x 1.04
 SMPA1304-019LF	200	0.45	0.80	50	7	2.0	1000	SOT 3L 2.37 x 2.92 x 1.00

## Schottky Diodes

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

### Schottky PIN Diodes

AEC-Q101 Qualified\*

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

\*Not all stresses listed within AEC-Q101 have been performed. Qualification report available upon request.

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# Varactor Diodes

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

## Wide Tuning Range (Hyperabrupt) Varactor Diodes

AEC-Q101 Qualified\*

Part Number	V <sub>R</sub> Reverse Breakdown Voltage I <sub>r</sub> = 10 μA (V) Min.	Typ. C <sub>T</sub> V <sub>R</sub> = 1 V (pF)	Typ. C <sub>T</sub> V <sub>R</sub> = 4 V (pF)	Typ. C <sub>T</sub> V <sub>R</sub> = 8 V (pF)	Typ. C <sub>T</sub> V <sub>R</sub> = 12 V (pF)	Typ. C <sub>T</sub> V <sub>R</sub> = 20 V (pF)	Min. C <sub>T</sub> (Ratio)	Capacitance Ratio Range (V)	Max. R <sub>s</sub> Series Resistance (Ω)
SMVA1211-001LF	12	98.6	19.4	10.5	–	–	5	1 to 4	0.4
SMVA1248-079LF	15	12.33	1.71	1.3	–	–	10.8	0.3 to 4.7	3.3
SMVA1253-079LF	15	37.07	4.86	3.28	–	–	11	0.3 to 4.7	1.4
SMVA1470-004LF	10	71.3	16.3	7.9	–	–	5	1 to 5	0.8
SMVA1705-004LF	12	18.3	6.1	–	–	–	2.8	1 to 4	0.32

# Front-end Modules

## SkyOne®

Part Number	Frequency (MHz)	Description	Package (mm)
SKY78027-12	824–849 880–915 1710–1785 1850–1910 1920–1980 1850–1910 1710–1785 824–849 880–915 832–862	GSM850 GSM900 DCS1800 PCS1900 Band 1 Band 2 Band 3 Band 5 Band 8 Band 10	60-pin MCM 8 x 9 x 0.9
SKY78041	–	SkyOne® Ultra Front-end Module for WCDMA / LTE Bands 26, 8, 12, 20, 13, GSM / EDGE 850 / 900 MHz	48-pad MCM 7.5 x 6.0 x 0.9
SKY78042	–	SkyOne® Ultra Front-end Module for WCDMA / LTE Bands 26, 8, 12, 20, 28A, 28B, and GSM / EDGE 850/900 MHz	48-pad MCM 7.5 x 6.0 x 0.9
SKY78070	–	SkyOne® Quad-band GSM / GPRS / EDGE / WCDMA / HSPA / HSPA+ / FDD LTE (Bands 1, 2, 3, 4, 5, 8, 12/17, 13, 20, 27, 28) / TD-SCDMA / TDD LTE (Bands 34, 39)	56-pad MCM 5 x 7 x 0.9
SKY78071	–	SkyOne® Quad-band GSM / GPRS / EDGE / WCDMA / HSPA / HSPA+ / FDD LTE (Bands 1, 2, 3, 4, 5, 8, 12/17, 13, 20, 27, 28) / TD-SCDMA / TDD LTE (Bands 34, 39)	56-pad MCM 5 x 7 x 0.9
SKY78072	–	SkyOne® Quad-band GSM / GPRS / EDGE / WCDMA / HSPA / HSPA+ / FDD LTE (Bands 1, 2, 3, 4, 5, 8, 12/17, 13, 20, 27, 28) / TD-SCDMA / TDD LTE (Bands 34, 39)	56-pad MCM 5 x 7 x 0.9

\*Not all stresses listed within AEC-Q101 have been performed. Qualification report available upon request.

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# Front-end Modules


## SkyLiTE™ Front-end Solutions

### Powering Next Generation Chipsets for Emerging Markets



The SkyLiTE™ family of LTE devices consist of highly integrated modules that incorporate the amplification, switching, Wi-Fi filtering and coupler functionality required to support all major FDD/TDD bands. With the addition of external duplexers, this product suite provides OEMs with a scalable and reconfigurable front-end system suitable for markets worldwide.

### Cellular Power Amplifiers

#### LTE PAs




Part Number	Frequency (MHz)	Description	Typical PAE (%)	Typical Gain (dB)	Typical Linear LTE Power (dBm)	Supply Voltage (V)	Package (mm)
 SKY77824-11	2500–2570 2305–2315 2496–2690 2300–2400 2545–2575	PAM for LTE FDD Band 7, Band 30, LTE TDD Bands 38/41, and 40, and AXGP Band LTE Band 7 LTE Band 30 LTE Band 38/41 LTE Band 40 AXGP Band	–	–	–	–	28-pad MCM 4 x 3.65 x 0.8

#### 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)
 SKY77643-11	–	Multiband/Multimode PAM WCDMA Band 1, 2, 3, 4, 5, 8, and 9 FDD LTE Band 1, 2, 3, 4, 5, 7, 8, 9, 12, 13, 17, 20, 28, and 30 TD-SCDMA Band 34 and 39 TDD LTE Bands 38, 39, 40, 41	–	–	–	–	42-pad MCM 4 x 6.8 x 0.8
 SKY77641	–	Multiband/Multimode PA WCDMA Bands 1, 2, 3, 4, 5, 8, 9 TD-SCDMA Bands 34, 39 FDD LTE Bands 1, 2, 3, 4, 5, 7, 8, 9, 12, 13, 17, 20, 28, 30 TDD LTE Bands 38, 39, 40, 4	–	–	–	–	42-pad MCM 4 x 6.8 x 0.8

### Front-end Modules for Cellular

#### TD-SCDMA Front-end Modules


Part Number	Frequency (MHz)	Description	Package (mm)
 SKY77910-21	–	SkyLite™ Tx-Rx FEM for Quad-band GSM / GPRS / EDGE with 14 Linear TRx Switch Ports, Dual-band TD-SCDMA, and TDD LTE Band 39	38-pad MCM 5.5 x 5.3 x 0.8
 SKY77912-21	–	SkyLite™ Tx-Rx FEM for Quad-band GSM / GPRS / EDGE with 14 Linear TRx Switch Ports, Dual-band TD-SCDMA, and TDD LTE Band 39	38-pad MCM 5.5 x 5.3 x 0.8
 SKY77916-21	–	Tx-Rx FEM for Quad-band GSM / GPRS / EDGE with 14 Linear TRx Switch Ports, Dual-band TD-SCDMA, and TDD LTE Band 39	38-pad MCM 5.5 x 5.3 x 0.8






# Front-end Modules

## Cellular

### GSM / GPRS Front-end Modules

Part Number	Frequency (MHz)	Description	Typ. Output Power GSM (dBm)	Typical PAE (%)	Supply Voltage (V)	Package (mm)
 SKY77585	824–849 880–915 1710–1785 1850–1910	Tx-Rx Quad-band FEM for GSM / GPRS with Six Linear TRx Switch Ports GSM850 GSM900 DCS1800 PCS1900	–	–	3.0–4.5	28-pin MCM 6 x 6 x 0.9

### BDS / GPS / GNSS

Part Number	Frequency Range (GHz)	Test Frequency (GHz)	Description	Gain (dB)	V <sub>DD</sub> (V)	IP <sub>1dB</sub> (dBm)	NF (dB)	Package (mm)
 SKY65713-11	–	–	GPS/GNSS/GNSS Pre-Filter + LNA Front-end Module	15	1.5–2.85	–	1.8	8-pin MCM 1.5 x 1.5 x 0.7
 SKY65715-81	–	–	GPS/GNSS/GNSS Pre-Filter + LNA Front-end Module	15	1.5–2.85	–	1.8	6-pin MCM 1.7 x 2.3 x 0.7
 SKY65903-11	–	–	GPS/GNSS/GNSS Pre- and Post-Filters + LNA Front-end Module	14	1.5–2.85	–	1.8	16-pin MCM 2.5 x 2.5 x 0.7

# Front-end Modules

## 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 QSM / QPRS / EDGE with Six Linear TRx Switch Ports and Dual-band TD-SCDMA	42-pad MCM 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	
SKY77597-11		Tx-Rx FEM for Quad-band QSM / QPRS / EDGE with Six TRx Switch Ports and Dual-band TD-SCDMA	28-pad MCM 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	


### High Throw Count Antenna Switch Modules

Part Number	Frequency (MHz)	Description (Absorptive/Reflective)	Typ. IL (dB)	Typ. Isol. (dB)	Typ. IIP3 (dBm)	Package (mm)
SKY13455-31	0.4-2.7	SP12T (R)	0.6-1.25	22-43	-	22-pin MCM 3.2 x 2.5 x 0.8






# Front-end Modules

## WiFi Connectivity


### 2.5 GHz Front-end Modules

Part Number	Frequency (GHz)	802.11 WLAN Standard	Antenna Ports	Architecture	Typ. P <sub>OUT</sub> @ 1.8% EVM (dBm)	Typ. P <sub>OUT</sub> @ 3% EVM (dBm)	Typ. Tx Gain (dB)	V <sub>CC</sub> (V)	Package (mm)
 SKY85309-11	2.4–2.5	ac	1	WLAN Front-end Module	22	24	32	5	24-pin QFN 3 x 5 x 0.85




### 5 GHz Front-end Modules

Part Number	Frequency (GHz)	802.11 WLAN Standard	Antenna Ports	Architecture	Typ. P <sub>OUT</sub> @ 1.8% EVM (dBm)	Typ. P <sub>OUT</sub> @ 3% EVM (dBm)	Typ. Tx Gain (dB)	V <sub>CC</sub> (V)	Package (mm)
 SKY85710-11	5.15–5.85	ac	1	WLAN Front-end Module	21	22	31	5	24-pin QFN 3 x 5 x 0.85
 SKY85711-21	5.15–5.85	ac	1	5 GHz WLAN Front-end Module	–	20	27	5	16-pin QFN 2.5 x 2.5 x 0.45
SKY85712-11	5.15–5.85	ac	1	5 GHz WLAN Front-end Module	17	18	27	3.3	16-pin QFN 3 x 3 x 0.55
SKY85712-21	5.15–5.85	ac	1	5 GHz WLAN Front-end Module	19	20	27	5	16-pin QFN 3 x 3 x 0.55
 SKY85716-11	5.15–5.85	ac	1	5 GHz Front-end Module	–	17.5	30	3.3	16-pin QFN 2.3 x 2.3 x 0.33
 SKY85717-11	–	ac	1	5 GHz WLAN Front-end Module	–	–	–	–	16-pin QFN 2.5 x 2.5 x 0.4
 SKY85717-21	–	ac	1	5 GHz WLAN Front-end Module	–	–	–	–	16-pin QFN 2.5 x 2.5 x 0.4

## Dual-band







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> (dBm)	Typ. Tx Gain (dB)	Package (mm)
 SKY85806-11	2.4–2.5 5.15–5.9	a g n ac	1	802.11a/g/n/ac WLAN Front-end	–	–	–	20-pin MCM 3.3 x 3.0 x 0.8

## 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)	Tx I <sub>CC</sub> (mA)	Tx Gain (dB)	Typ. Saturated Output Power (dBm)	Supply Voltage (V)	Package (mm)
 SKY65362-11	900–930	3	16	2.5	33	30.5	3.55–5.25	36-pin MCM 6 x 6 x 0.9
 SKY66110-11	2400–2485	0.9	-0.9	10	10	10	3	20-pin MCM 3.3 x 3.0 x 0.8
 SKY66111-11	2400–2485	0.5	-0.5	10	10	10	3	20-pin MCM 3.3 x 3.0 x 0.8


# Front-end Modules

## Diversity Receive Modules

Part Number	Description	Package (mm)
 SKY13529-11	Rx Diversity Front-end Module with Gain	17-pin MCM 4 x 3 x 0.8
 SKY13568-11	Rx Diversity Front-end Module with Gain	17-pin MCM 4 x 3 x 0.8
 SKY13569-11	Rx Diversity Front-end Module with Gain	17-pin MCM 4 x 3 x 0.8
 SKY13740	Rx Diversity Front-end Module with Gain	23-pin MCM 5 x 3 x 0.8
 SKY13741	Rx Diversity Front-end Module with Gain	24-pin MCM 4 x 3 x 0.7
 SKY13744-11	Rx Diversity Front-end Module with Gain	29-pin MCM 5 x 3 x 0.75

# Limiter Modules

## Limiter Modules

Part Number	RF Test Freq. (GHz)	Typ. Insertion Loss (dB) Pin = 0 dBm	Typ. Return Loss (dB) Pin = 0 dBm	Typ. Threshold Level (dBm)	Maximum Saturated Power (Watts)	Typ. Flat Leakage Power (dBm) Pin = 10 dBm	Package (mm)
 SKY16602-632LF	0.9 2.45	0.3 0.5	14 25	6 5	30 23	6 4	QFN 2L 2.3 x 2.3 x 0.55

# Power Management

## Voltage Regulation

### DC/DC Converters (Switching Regulators)



#### 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)
 SKY87006	-	-	-	-	-	-	-	WLCSP 9-bump


## Display and Lighting

### White LED Drivers

#### Serial Boost White LED Backlight Drivers




Part Number	Number of LEDs	LED Channels	LEDs per Channel	Min. $V_{IN}$ (V)	Max. $V_{IN}$ (V)	Interface	Typ. $I_Q$ ( $\mu$ A)	Peak Efficiency	Current Accuracy (%)	Current Matching (%)	Max. $I_{OUT}$ per Channel (mA)	Package (mm)
 SKY82896	27	3	9	2.5	5.5	i <sup>2</sup> C, FPWM, DPWM	1000	89	±2	±2	30	WLCSP 16-bump 1.96 x 1.91 x 0.65
 SKY82897	18	2	9	2.5	5.5	i <sup>2</sup> C, FPWM, DPWM	1000	89	±2	±2	30	WLCSP 16-bump 1.96 x 1.91 x 0.65

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

Part Number	Battery Charger Type	Number of Switching Regulators		Number of LDO Regulators	Min. $V_{IN}$ (V)	Max. Regulator $V_{IN}$ (V)	Max. Charger $V_{IN}$ (V)	Max. Charger Protected $V_{IN}$ (V)	Max. Charge Current $V_{IN}$ (V)	Single/Channel Output Current (mA)		Max. Step-up Output Voltage (V)	Output Voltages Control
		Step-up	Step-down							Min.	Max.		
 SKYA21004	-	-	-	-	-	-	-	-	-	-	-	-	-

## Port Protection and Power Distribution

### Over Voltage Protection

Part Number	Number of Channels	Enable	Fault Flag	$I_{LIM}$	Ampere Rating (mA)	Nominal Resistance ( $\Omega$ )	Typ. $R_{DS(ON)}$ (m $\Omega$ )	Nominal Power Dissipation (W)	Max. Operating Voltage (V)	$V_{IN}$ (V)	Typ. $I_Q$ ( $\mu$ A)	Package (mm)
 SKY87604-11	1	No	No	-	750	0.466	-	0.284	63 VDC / 32 VAC	-	-	4L MCM 3 x 3 x 1.85
 SKY87604-12	1	No	No	-	250	2.024	-	0.138	63 VDC / 32 VAC	-	-	4L MCM 3 x 3 x 1.85
 SKY87604-13	1	No	No	-	375	1.247	-	0.183	63 VDC / 32 VAC	-	-	4L MCM 3 x 3 x 1.85



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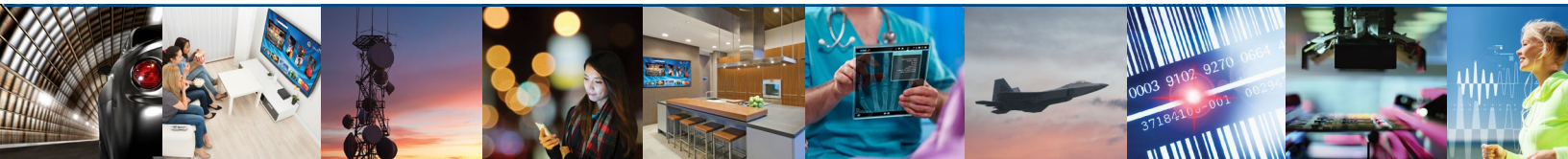
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