

IF/RF & MICROWAVE PRODUCT GUIDE

USA/PG-2013



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IF/RF & MICROWAVE PRODUCTS

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INTERNATIONAL SALES REPRESENTATIVE NETWORK For detailed performance specs & data, go to minicircuits.com



Mini-Circuits product lines...

FEATURED PRODUCT LINES

AMPLIFIERS.....	8-9
ATTENUATORS.....	18
CABLES.....	17
COUPLERS.....	10
CUSTOM PRODUCTS.....	6-7
FILTERS.....	11
FREQUENCY MIXERS.....	24
FREQUENCY MULTIPLIERS.....	22
LIMITERS.....	22
PORTABLE TEST EQUIPMENT.....	14-16
• Digital Step Attenuators	• I/O Boxes
• RF Switch Matrixes	• Power Meters
• RS232 to SPI Converters	• Frequency Counters
• Synthesized Signal Generators	
POWER SPLITTERS/COMBINERS.....	12-13
SWITCHES.....	19
SYNTHESIZERS.....	21
TRANSFORMERS.....	23
VOLTAGE CONTROLLED.....	20
OSCILLATORS	

Choose from thousands of signal processing components— data sheets, performance curves, material declarations, environmental specifications, pricing, and stock availability for all of our models are easy to find at minicircuits.com

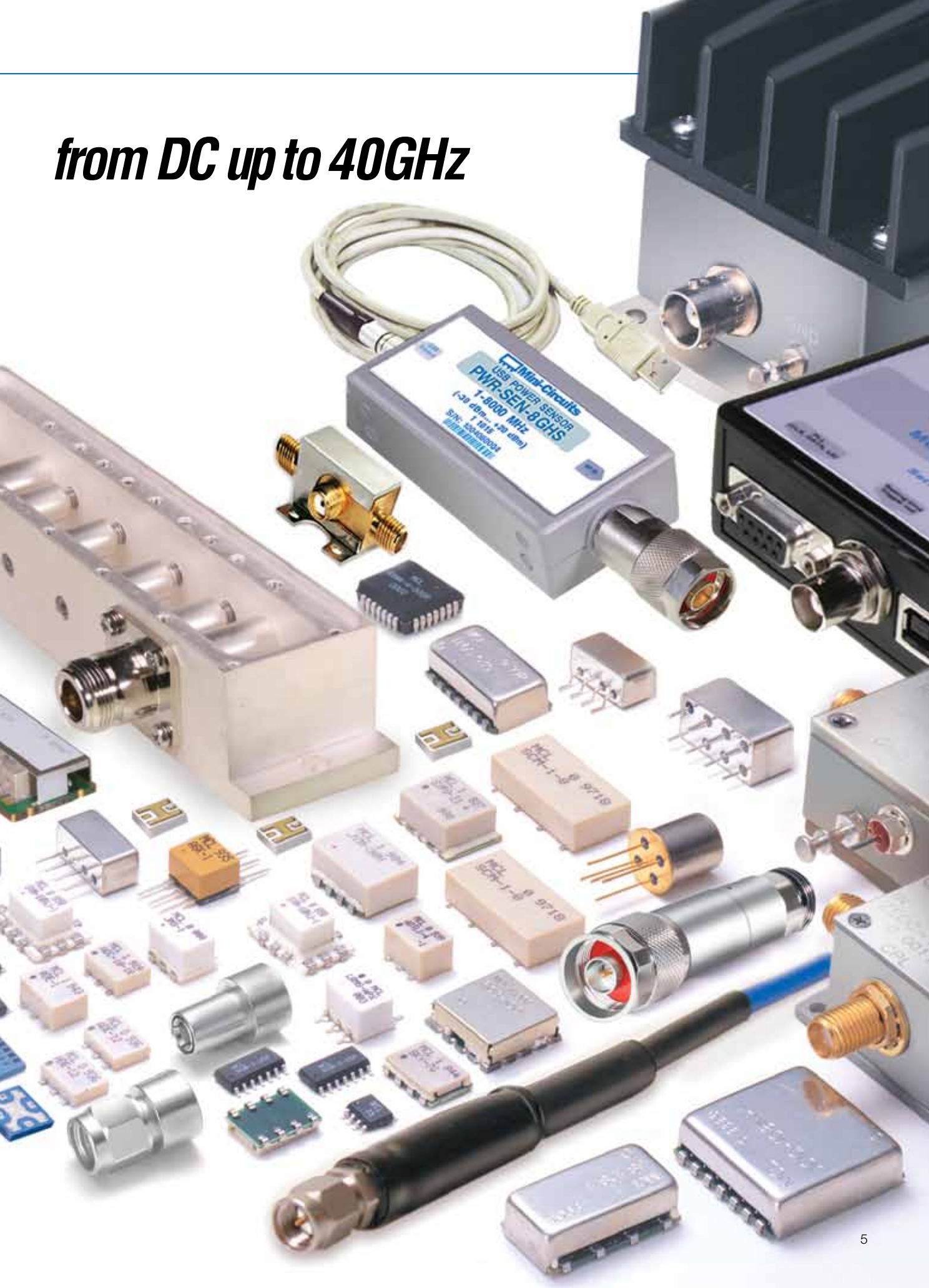
minicircuits.com

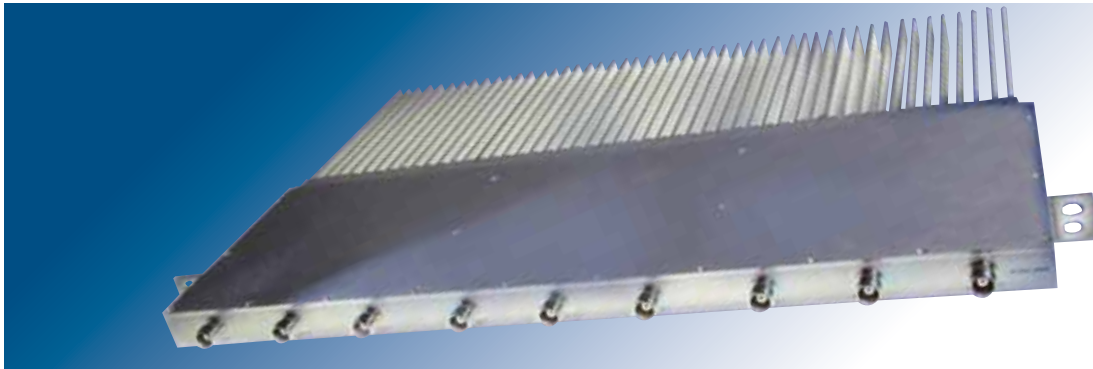
See website for additional product lines:

ADAPTERS
BIAS TEES
DC BLOCKS
DESIGNER KITS
ELECTRONIC LINE STRETCHERS
IMPEDANCE MATCHING PADS
MODULATORS/DEMODULATORS
PHASE DETECTORS
PHASE SHIFTERS
POWER DETECTORS
RF CHOKES
TERMINATIONS
VOLTAGE VARIABLE EQUALIZERS



from DC up to 40GHz

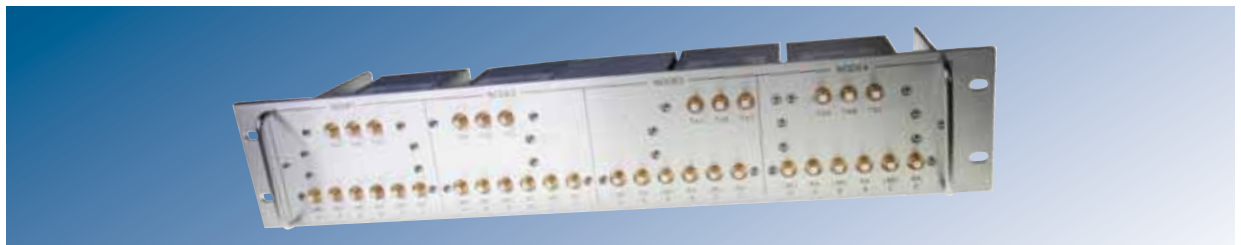




300 Watt Rack Mounted Base Station Combiners



Ultra-Reliable Switching & Distribution Module

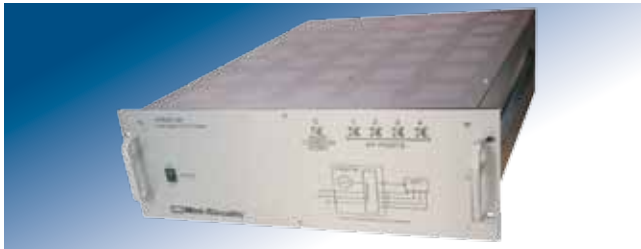


BTS-DAS Quad Simulcast Module



Multi-Function Base Station Module

designed & manufactured to meet customer requirements



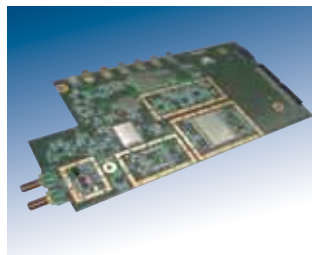
5 Port Tester



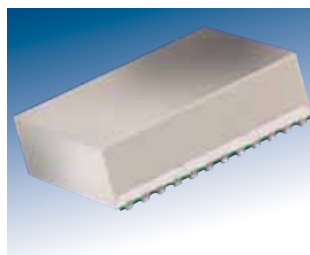
Integrated Vector Control Module



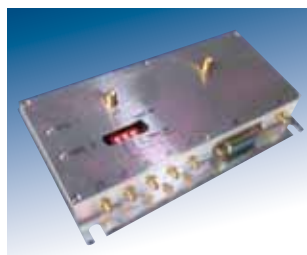
Integrated High Dynamic Range Active Mixer Module



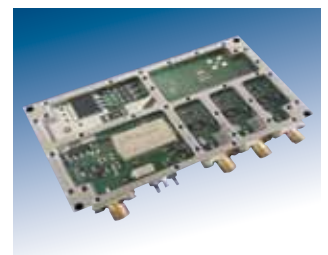
Integrated L Band Up Converter



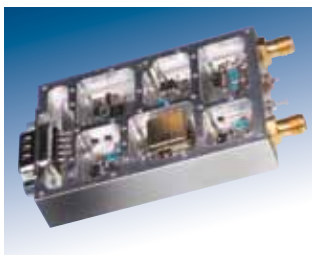
CDMA-IS95 Baseband Frequency Filter Module



Base Station Switch Matrix



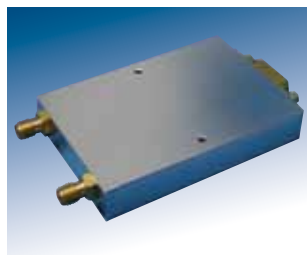
Micro Controller 3 Output Synthesizer



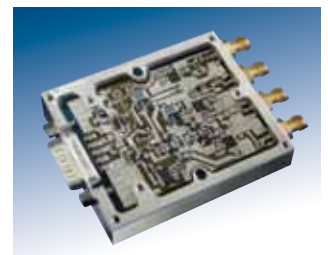
Variable High Gain Amplifier Module



VHF/UHF Integrated Receiver Front End



FM Modulation 8 GHz Synthesizer



Amplifier Switch Filter Matrix



Clock Generation Module



Cell Band Dual High IP3 Low Noise Amplifier



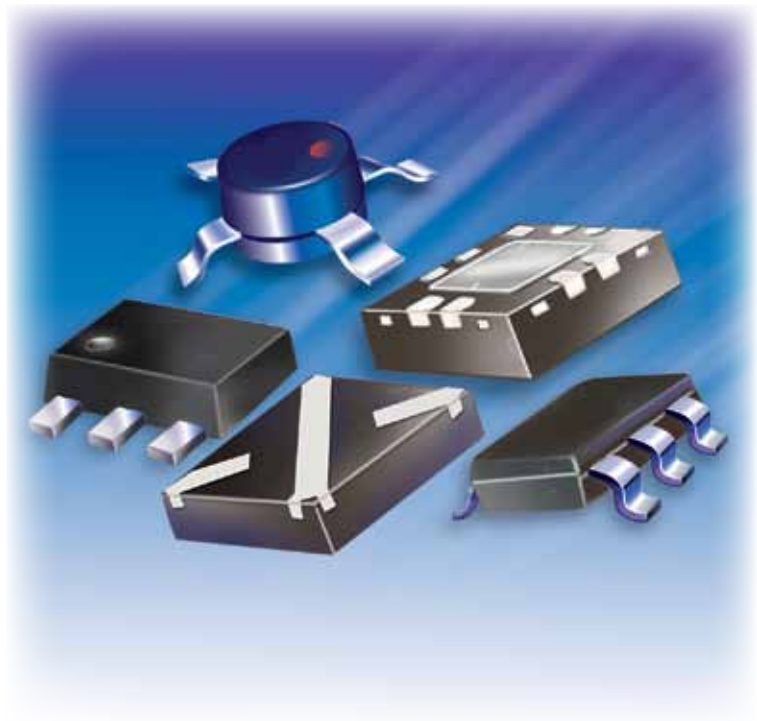
Automatic Power Control Module



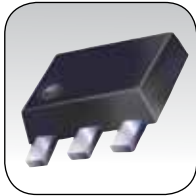
Base Station 3 Way Active GPS Splitter

MMIC Amplifiers

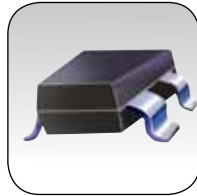
DC to 20 GHz



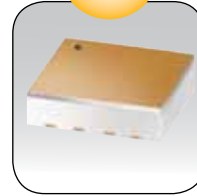
**HOT NEW
PRODUCT**



PGA family
High Linearity
50 MHz to 6 GHz
IP3 up to +45 dBm
NF from 0.5 dB
DC from 3V/60 mA



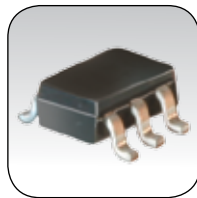
SAV-541+
Ultra Low Noise
450 MHz to 6 GHz
NF 0.5 dB
IP3 +33 dBm



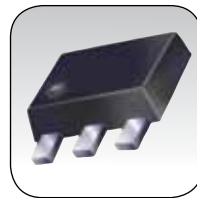
CMA family
Low Profile High IP3
10 MHz to 6 GHz
IP3 up to +38 dBm
Ceramic Hermetic Case



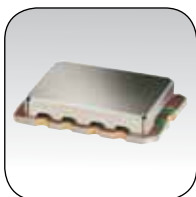
AVA family
Ultra Wideband
5 to 20 GHz
Flatness from ± 0.8 dB
Isolation up to 38 dB



PSA family
High Linearity LNA
50 MHz to 4 GHz
NF from 0.75 dB
IP3 up to +37 dBm



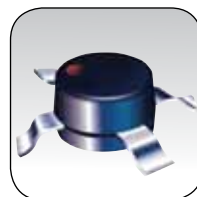
GVA family
Flat Gain Wideband
10 MHz to 6 GHz
Flatness from ± 0.8 dB
IP3 up to +38 dBm



TAMP family
Low Noise
400 MHz to 3.6 GHz
Gain up to 35 dB
NF from 0.55 dB



GALI family
Wideband
DC to 8 GHz
Gain 12 to 22 dB
IP3 up to +38 dBm



ERA family
Wideband
DC to 8 GHz
Gain 8 to 19 dB
IP3 up to +36 dBm

Over 150 MMIC models ALWAYS IN STOCK! For more information, just go to minicircuits.com

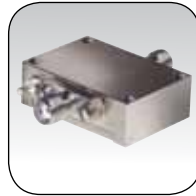


Coaxial Amplifiers

2.5 kHz to 21 GHz



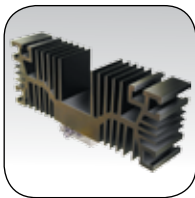
ZHL family
High Power GaN & GaAs
5 MHz to 4 GHz
P_{OUT} up to 100 W
IP3 up to +60 dBm



ZVA family
Super Ultra Wideband
100 MHz to 21 GHz
Flat gain, from ±1 dB
P_{OUT} up to +27 dBm



ZX60 family
Low Noise/Wideband
300 kHz to 20 GHz
NF from 0.4 dB
IP3 up to +46 dBm



ZVE family
Medium Power
2 to 18 GHz
P_{OUT} up to 3W
IP3 up to +44 dBm
Low Cost



ZFL family
Wideband
50 kHz to 2.5 GHz
P_{OUT} up to +25 dBm
IP3 up to +38 dBm
Low cost



ZRL family
High Dynamic Range
150 MHz to 3.5 GHz
NF from 1.0 dB
IP3 up to +46 dBm



LZY family
High Power
100 kHz to 1.0 GHz
P_{OUT} up to 50 W
Up to 70 dB blanking



ZKL family
Wideband
10 MHz to 2.7 GHz
Gain up to 40 dB
DC 12V/120 mA typ
Low cost



TVA family
Instrument amplifiers
500 kHz to 21 GHz
Gain 25 to 41 dB
P_{OUT} up to +35 dBm
IP3 up to +44dBm

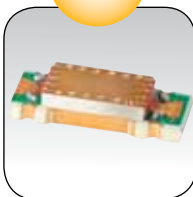
Over 100 coaxial models, WITH or WITHOUT HEAT SINK, ALWAYS IN STOCK at minicircuits.com

Couplers

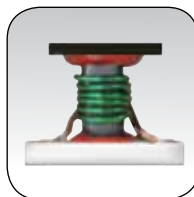
5 kHz to 12 GHz



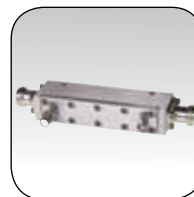
HOT NEW
PRODUCT



SYBD family
Bidirectional, to 100 W
400 MHz to 6 GHz
Coupling 8 to 33 dB
Directivity up to 35 dB
DC Pass up to 2A



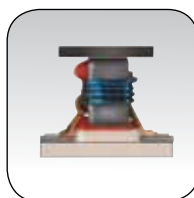
DBTC family
Directional, to 2 W
5 MHz to 2 GHz
Coupling 7 to 21 dB
Directivity up to 32 dB
Tiny, from 3.8 x 3.8 mm



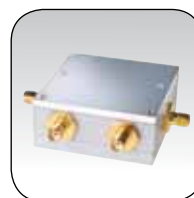
ZGDC/ZGBDC family
Directional Bidirectional, to 250 W
300 MHz to 12 GHz
Coupling 6 to 35 dB
Directivity up to 26 dB
DC Pass up to 3A



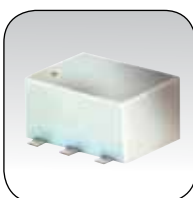
BDC and MBD families
Bidirectional, to 65 W
360 MHz to 6 GHz
Coupling 6 to 21 dB
Directivity up to 27 dB
Tiny LTCC, from 3.2 x 1.6 mm



TCD family
Directional, to 2 W
5 MHz to 2 GHz
Coupling 7 to 21 dB
Directivity up to 32 dB
Tiny, from 3.8 x 3.8 mm



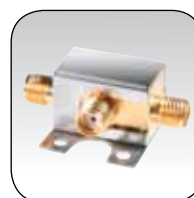
ZABDC family
Bidirectional, to 50 W
700 MHz to 3.2 GHz
Coupling 10 to 22 dB
Directivity up to 28 dB
DC Pass up to 2A



ADC family
Directional, to 5 W
5 MHz to 1.3 GHz
Coupling 6 to 26 dB
Directivity up to 40 dB
50 and 75 Ω models



D1 and D2 families
Directional, to 1 W
810 MHz to 2.6 GHz
Coupling 18 to 19 dB
Tiny case, 3 x 3 mm
From 99¢ ea (Qty. 20)



ZX30 series
Directional, to 1 W
5 MHz to 2 GHz
Coupling 9 to 21 dB
Directivity up to 25 dB
Small size, low cost

Hundreds of coupler models ALWAYS IN STOCK! Just go to minicircuits.com



Filters

DC to 15 GHz

Low Pass, High Pass, Band Pass
Band Stop, Diplexers



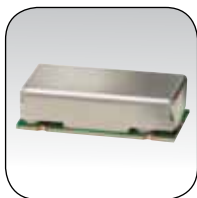
LFCN family
Low Pass LTCC
DC up to 12 GHz
Passband IL 1.2 dB typ
Rejection 30 dB typ
Tiny, 3.2 x 1.6 x 0.9 mm



HFCN family
High Pass LTCC
500 MHz up to 15 GHz
Passband IL 1.5 dB typ
Rejection 30-50 dB
Tiny, 3.2 x 1.6 x 0.9 mm



VLF family
Low Pass, Unibody
DC to 7.2 GHz
Passband IL <1 dB
Rejection 30 dB typ
Low Price



LPF family
Low Pass
DC up to 500 MHz
High rejection 40 dB
Fast roll-off
Passband IL <1 dB typ



BFCN family
Band Pass LTCC
1.42 to 8.75 GHz
2% to 29% passband
Passband IL <3 dB typ
Rejection 20-30 dB typ
Tiny, 3.2 x 1.6 x 0.9 mm



CBP/CSBP family
Ceramic resonator
880 MHz to 1.9 GHz
High rejection 30 dB
Low IL, from 0.7 dB
P_{MAX} to 28 W
50 & 75 Ω



Diplexers
DC up to 2.7 GHz
Passband IL <1 dB typ
High rejection, >30 dB



**HOT NEW
PRODUCT**

BLP, NLP, & SLP family
Low Pass, Shielded
DC up to 2.7 GHz
Passband IL <1 dB
Rejection 40 dB typ
Low Price



ZX75BS family
Band Stop
Stop bands from
470 up to 170 MHz
Passband IL <1 dB
High rejection, 45 dB

HUNDREDS of filter models ALWAYS IN STOCK at minicircuits.com

The World's Largest Selection

Surface-Mount Power Splitters/Combiners

100 kHz to 8 GHz



QC family
2 Way-90° LTCC
90 MHz to 8 GHz
High P_{MAX} 10 to 15 W
Tiny case, 0805 to 1210
High bandwidth/size
Low price



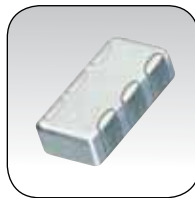
JEPS family
16 Way-0°
5 MHz to 1 GHz
Good VSWR, 1.2 typ
Good ISO, 23 dB typ



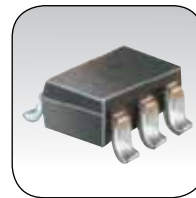
TCP family
2 Way-0°
5 MHz to 3 GHz
High ISO, up to 29 dB
Low IL, from 0.3 dB
Small size, 0.16 x 0.15"
Very low cost



GP family
2 Way-0°
500 MHz to 7.2 GHz
Very wide bandwidths
Good ISO, 20+ dB typ
Low IL, 0.4 dB typ
Tiny 3x3 mm cases



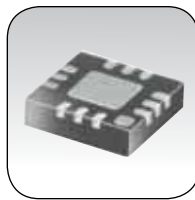
SCN family
2 and 3Way-0° LTCC
750 MHz to 6.5 GHz
Low IL, 0.6 dB typ
Good ISO, 20+dB typ
Tiny 1206 case



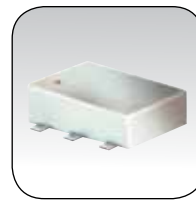
SP family
2 Way-0°
640 MHz to 4.2 GHz
High ISO, up to 28 dB
Low IL, 0.5 dB typ
from 96¢ ea (qty 20)



SBTC family
2 Way-0° or 180°
50/75Ω matching
5 MHz to 2.5 GHz
Low IL, from 0.3 dB typ
ISO as high as 28 dB

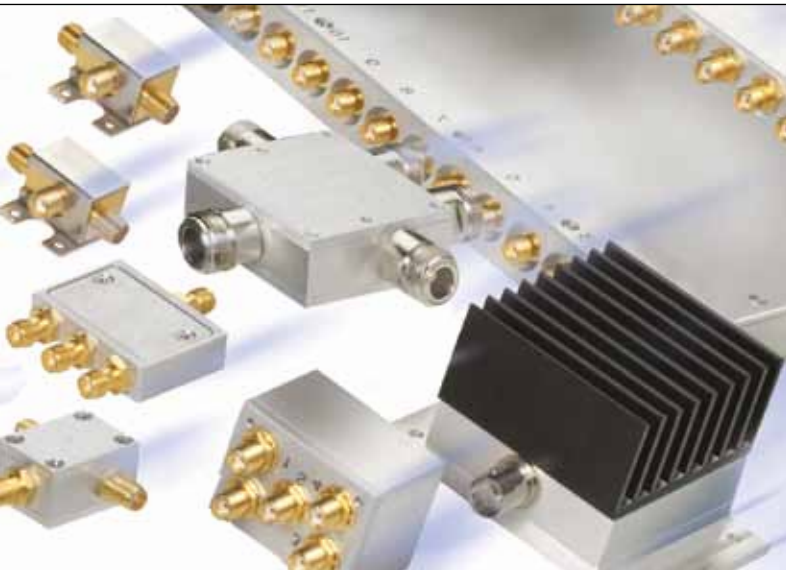


WP4 family
4 Way-0°
720 MHz to 6.5 GHz
High ISO, up to 30 dB
Low IL, from 0.4 dB
Tiny 3x3 mm cases



ADP-family
2 Way-0°
500 KHz to 2 GHz
High ISO, up to 30 dB
Low IL, 0.4 dB typ

HUNDREDS of surface-mount splitter/combiner models ALWAYS IN STOCK—just go to minicircuits.com



Coaxial Power Splitters/Combiners

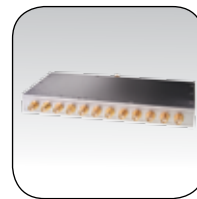
DC to 18 GHz



ZB4PD-232-50W+
High Power 4 Way-0°
600 MHz to 2.3 GHz
 P_{MAX} 50 W
High ISO, +28 dBm typ



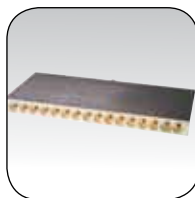
ZX10Q-2-12+
High Power 2 Way-90°
800 MHz to 1.25 GHz
 P_{MAX} 25W
Ampl. Unbal. 0.5 dB typ



ZN family
2 to 12 Way-0°
250 MHz to 6.4 GHz
Low IL, 0.5 dB typ
High ISO, 25 dB typ



ZA2CS-2G-2W+
High Power 2 Way-0°
1.8 to 2.0 GHz
 P_{MAX} 20 W
Unbalance 0.5°/0.05 dB



ZC family
2 to 16 Way-0°
500 kHz to 2.6 GHz
High ISO, up to 35 dB
 P_{MAX} up to 10 W



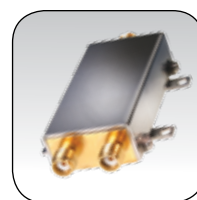
ZFSC family
2 to 24 Way-0°
Very Wide Bandwidths
2 kHz to 10 GHz
Low IL, from 0.3 dB
High ISO, 25 dB typ



ZFRSC family
2 or 4 Way-0° Resistive
DC to 18 GHz
Unbalance from 0.2 dB
ISO up to 20 dB



ZB8CS-950-32W+
High Power 8 Way-0°
800 to 950 MHz
 P_{MAX} 32W
High ISO, 30 dB



ZX10-2-183+
2 Way-0°
Ultra Wideband
1.5 to 18 GHz
Low IL, 0.8 dB typ
Good ISO, 22 dB typ
Unbalance 2°/0.1 dB

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PRODUCT**

HUNDREDS of coaxial splitter/combiner models ALWAYS IN STOCK—just go to minicircuits.com

Portable Test Equipment

Our user-friendly GUI gets you up and running in minutes:

- Using almost any 32/64-bit Windows® computer*
- Command-line support for 32/64-bit Linux® systems*
- Full compatibility with most test software (see data sheets)

Smart Synthesized Signal Generators 250 kHz to 6.4 GHz



**30 day
MONEY-BACK
GUARANTEE!**
See minicircuits.com/30day
for details



SSG-4000HP
High P_{OUT} -50 to +20 dBm
250 MHz to 4 GHz
Low Harmonics -40 dBc typ
Power level adjust 0.25 dB
Frequency step size 5 kHz
213 x 216 x 55 mm
Only \$1995

**HOT NEW
PRODUCT**



HPG-13
High Power SSG
800 MHz to 1 GHz
P_{OUT} up to 100 W
Frequency step size 5 kHz
Sampled output -33 dBc
Trigger & Reference In/Out
Available Q2 2013



SSG-4000LH
Low Harmonics -66 dBc typ
250 MHz to 4 GHz
P_{OUT} -60 to +10 dBm
Power level adjust 0.25 dB
Frequency step size 5 kHz
279 x 216 x 55 mm
Only \$2395

**HOT NEW
PRODUCT**



SSG-6400HS
High Speed CW and Pulse
250 kHz to 6.4 GHz
Full range sweep in 100 μs
Pulse as short as 100 nS
Phase control 360°
AM/FM/PM Modulation
P_{OUT} -70 to +10 dBm
Power level adjust 0.01 dB
Frequency step size 0.01 Hz
279 x 216 x 55 mm
Available Q2 2013

**HOT NEW
PRODUCT**



SSG-6000
Wideband CW and Pulse
25 MHz to 6 GHz
Pulse as short as 1 μs
Low Harmonics -40 dBc typ
P_{OUT} -60 to +10 dBm
Power level adjust 0.25 dB
Frequency step size 6 Hz
213 x 216 x 55 mm
Only \$2695

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Portable Test Equipment

Our user-friendly GUI gets you up and running in minutes:

- Using almost any 32/64-bit Windows® computer*
- Command-line support for 32/64-bit Linux® systems*
- Full compatibility with most test software (see data sheets)

Smart
Power Meters
Frequency Counters
I/O Boxes
RS232 to SPI Converters
Digital Step Attenuators
9 kHz to 8 GHz

30 day MONEY-BACK GUARANTEE!
 See minicircuits.com/30day for details



PWR-4GHS
Ultra Wide Band VLF
 9 kHz to 4 GHz
 RF Input -30 to +20 dBm
 Measurements in 30 mS
 User-friendly GUI
 Only \$795

PWR-8FS
High Speed
 1 MHz to 8 GHz
 Measurements in 10 mS
 RF Input -30 to +20 dBm
 User-friendly GUI
 Only \$969

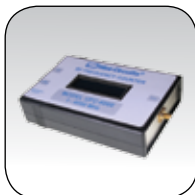
PWR-4RMS
True RMS Power Meter
 50 MHz to 4 GHz
 RF input -35 to +20 dBm
 Measurements in 30 mS
 User-friendly GUI
 Only \$1169

PWR-6GHS
Wide Band
 1 MHz to 6 GHz
 RF Input -30 to +20 dBm
 Measurements in 30 mS
 User-friendly GUI
 Incredible Price! \$695

PWR-8GHS
Ultra Wide Band SHF
 1 MHz to 8 GHz
 RF Input -30 to +20 dBm
 Measurements in 30 mS
 User-friendly GUI
 Only \$869

PWR-2.5GHS-75
75Ω Extra Wide Band
 100 kHz to 2.5 GHz
 RF Input -30 to +20 dBm
 Measurements in 30 mS
 User-friendly GUI
 Only \$795

Custom Models—
Just Give us a Call!
 Purpose-built
 Smart Power Meters
 for Medical and
 other applications



UFC-6000
Frequency Counter
 1 MHz to 6 GHz
 Accuracy to 0.13 ppm
 RF P_{IN} -28 to +13 dBm
 User-friendly GUI
 Only \$495



USB-I/O family
Input/Output Boxes
 Up to 16 TTL/LVTTL ports
 Up to 8 form C dry relays
 Up to 2 analog outputs
 User-friendly GUI
 From just \$119⁹⁵



RS232/USB-SPI family
 Control SPI peripherals
 from USB or RS232-
 equipped computers
 User-friendly GUI
 All-inclusive, only \$244⁹⁵

HOT NEW PRODUCT



RUDAT Series
 1 MHz to 6 GHz
 30, 60 & 90 dB models
 0.25 dB steps
 Controlled by USB/RS232
 From \$395.00

All Smart Portable Test Equipment models ALWAYS IN STOCK at minicircuits.com

IF/RF& MICROWAVE PRODUCTS

Portable Test Equipment

Our user-friendly GUI gets you up and running in minutes:

- Using almost any 32/64-bit Windows® computer*
- Command-line support for 32/64-bit Linux® systems*
- Full compatibility with most test software (see data sheets)

Smart RF Switch Matrix DC to 18 GHz



New Feature

Switch position indicator lights

30 day MONEY-BACK GUARANTEE!
See minicircuits.com/30day for details



USB-2SPDT-A18
2 SPDT Switch Matrix
Ultra Reliable
DC to 18 GHz
152 x 114 x 57 mm
Only \$685 ea. (Qty 1-9)



USB-3SPDT-A18
3 SPDT Switch Matrix
Ultra Reliable
DC to 18 GHz
152 x 114 x 57 mm
Only \$980 ea. (Qty 1-9)



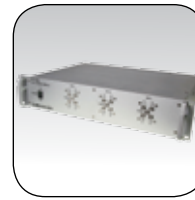
USB-4SPDT-A18
4 SPDT Switch Matrix
Ultra Reliable
DC to 18 GHz
152 x 114 x 57 mm
Only \$1180 ea. (Qty 1-9)



USB-8SPDT-A18
8 SPDT Switch Matrix
Ultra Reliable
DC to 18 GHz
305 x 114 x 57 mm
Only \$2495 ea. (Qty 1-9)



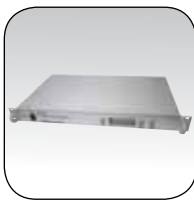
ZT-100
Network Analyzer Extender
Ultra Reliable
DC to 8.5 GHz
2 x 10 port switch matrix
High Isolation, 90 dB typ
Excellent VSWR, 1.2:1 typ



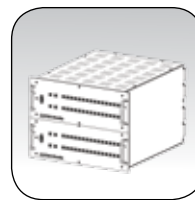
ZT-103
3 x 12 Switch Matrix
Ultra Reliable
DC to 18 GHz
Low IL, 0.2 dB typ
High Isolation, 80 dB typ



USB-1SP4T-A18
1 SP4T Switch Matrix
Ultra Reliable
DC to 18 GHz
152 x 114 x 57 mm
Only \$795 ea. (Qty 1-9)



ZT-101
Switched signal leveler
Ultra Reliable
1 to 15 GHz
1 x 2 matrix
Gain 26+/-1 dB
P_{OUT} to 18 dBm



60-Port Rx/Tx Tester
Ultra Reliable
DC to 18 GHz
Modular 4U design
Configured to customer req's

* Windows is a registered trademark of Microsoft Corporation in the United States and other countries. Linux is a registered trademark of Linus Torvalds. Neither Mini-Circuits nor Mini-Circuits Portable Test Equipment is affiliated with or endorsed by the owners of the above referenced trademarks.

All Smart Switch Matrix models ALWAYS IN STOCK at minicircuits.com



Cables

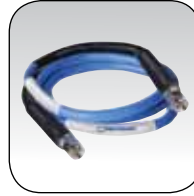
DC to 40 GHz



CBL Precision Test
 DC to 18 GHz
 SMA (M or F), N-Type (M)
 Length 0.5 to 7.6 M
 Return Loss 27 dB typ
 Proven 20k flex cycles
 6-month guarantee



KBL 40 GHz Low Loss
 DC to 40 GHz
 2.92 mm (M) connectors
 Length 0.5 to 2 M
 IL 3.1 dB @ 40 GHz/1 M
 Proven 20k flex cycles
 6-month guarantee



KBL 40 GHz Phase Stable
 DC to 40 GHz
 2.92 mm (M) connectors
 Length 0.5 to 2 M
 Phase 3° typ @ 40 GHz
 & 1 full turn 3" diameter
 Proven 20k flex cycles
 6-month guarantee



QBL Quick Connect
 DC to 18 GHz
 SMA (M) or N-Type (M)
 Length 1.5 to 10 feet
 Return Loss 27 dB typ
 Proven 20k flex cycles
 6-month guarantee



Hand Flex™ Interconnects
 DC to 18 GHz
 SMA (M) or N-Type (M)
 Straight or right-angle
 Length 7.6 to 127 cm
 .086 or .141" diameter



APC Armored
 DC to 18 GHz
 N-Type (M) connectors
 Length 6 to 15 feet
 Proven 20k flex cycles
 6-month guarantee



HOT NEW PRODUCT

FLC Super Flexible
 DC to 26 GHz
 SMA (M)
 Lengths from 1 ft to 6.5 ft
 IL: 1.4 dB at 10 GHz/3.3 ft
 Proven 20k flex cycles
 6 month guarantee

All Test Cable and Interconnect models ALWAYS IN STOCK at minicircuits.com

Attenuators

DC to 26 GHz

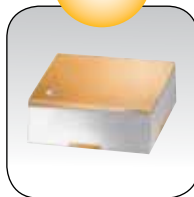


HOT NEW
PRODUCT

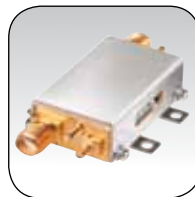


YAT family -- Fixed
DC to 18 GHz
0-10, 12, 15, 20, 30 dB
 P_{MAX} 2 W
Flatness $<\pm 1$ dB typ
Tiny, 2 x 2 mm

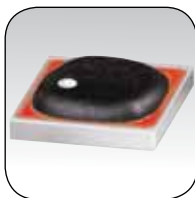
HOT NEW
PRODUCT



RCAT family
Fixed Hermetic LTCC
DC to 18 GHz
0-10, 12, 15, 20, 30 dB
 P_{MAX} 2 W
Flatness $<\pm 1$ dB typ
Tiny, 2.2 x 2.2 mm



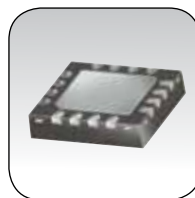
ZX76 family
Digital Step
DC to 4 GHz
Attenuation to 31.5 dB
Step 0.5 to 1.0 dB
Rugged unibody case



HVA, MVA, RVA, VACC
Voltage Variable
10 MHz to 7 GHz
Attenuation to 47 dB
 $V_{CONTROL}$ up to 17 V
Tiny, from 3.8 x 3.8 mm
50 & 75 Ω



BW family
Fixed Precision
DC to 26 GHz
0-10, and up to 40 dB
Flatness ± 0.5 dB typ
 P_{MAX} up to 100 W



DAT family
Digital Step
DC to 4 GHz
Attenuation to 31.5 dB
Step 0.5 to 1.0 dB
Tiny, 4 x 4 mm



BW-40N100W+
High Power Fixed
DC to 4 GHz
 P_{MAX} 100W
Attenuation 40 dB
Flatness ± 1.4 dB



VAT family
Fixed
DC to 6 GHz
1-10, and up to 30 dB
 P_{MAX} up to 2 W



TERM-500W-14N+
High Power Termination
700 MHz to 10 GHz
 P_{MAX} 500W @ 1.0 GHz
Return loss 17 to 25 dB

All attenuator and termination models ALWAYS IN STOCK—just go to minicircuits.com



Switches

DC to 18 GHz

Mechanical switches DC to 18 GHz

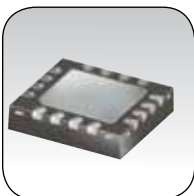
HOT NEW
PRODUCT



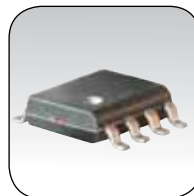
Unsurpassed
Reliability
SPDT, SP4T, or Transfer
DC to 18 GHz
Low IL, 0.25 dB typ
High ISO, 80 dB typ



Semiconductor switches DC to 6 GHz



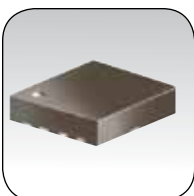
HSWA2-30DR+
Absorptive SPDT
DC to 3 GHz
High ISO 54 dB typ
High IIP3 +55 dBm typ
Single DC supply 3V
Immune to latchup



MSW family
SPDT or Transfer
DC to 2 GHz
Low video leakage
Excellent VSWR 1.2:1 typ
Fast switch from 5 ns typ



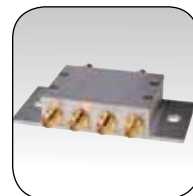
ZX80-DR230+
DC to 3 GHz
High ISO 54 dB typ
High IIP3 +55 dBm typ
Single DC supply 3-5V
Rugged unibody case



M3SW family
TTL controlled SPDT
DC to 4.5 GHz
High in-out ISO 54 dB typ
Low IL 0.7 dB typ
Tiny, 3.25 x 3.25 mm



VSW family
Ultra Wide Band SPDT
50 MHz to 6 GHz
Low IL, from 0.5 dB typ
DC supply 3 to 5V
Tiny, from 2 x 3 mm



ZASW family
TTL controlled SPDT
DC to 5 GHz
Super High ISO 82 dB typ
Absorptive or reflective
Rugged construction

All switch models ALWAYS IN STOCK at minicircuits.com

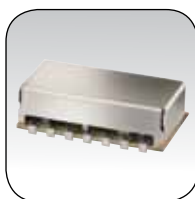
Voltage Controlled Oscillators

3 MHz to 7 GHz

Surface-Mount or Coaxial
Low Phase Noise CROs
Fixed Freq / Ultra Low Φ Noise
Dual Frequency
Wideband Linear Tuning
Modulation Ports
Custom Models Available



ROS family
Passive or Ceramic
 43 MHz to 6.8 GHz
 P_{OUT} -6.5 to +13 dBm
 V_{TUNE} up to 28 V
 Sensitivity 1-150 MHz/V
 V_{CC} 3-15 V
 0.5 x 0.5"



JTOS family
 24 MHz to 3 GHz
 P_{OUT} +7 to +12 dBm
 V_{TUNE} up to 22 V
 Sensitivity 1-160 MHz/V
 V_{CC} 5-12 V
 0.8 x 0.5"



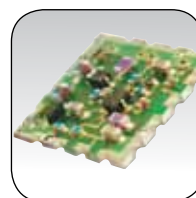
ZX95 family
 43 MHz to 6.8 GHz
 P_{OUT} -2.6 to +10 dBm
 V_{TUNE} up to 28 V
 Sensitivity 1-150 MHz/V
 V_{CC} 3-15 V
 Rugged unibody case



MOS family
 57 MHz to 2.8 GHz
 P_{OUT} -8.5 to +7 dBm
 V_{TUNE} up to 20 V
 Sensitivity 4.5-73 MHz/V
 V_{CC} 3-15 V
 Very small, 0.4 x 0.4"



JCOS family
 125 MHz to 1.1 GHz
 P_{OUT} +3.7 to +9 dBm
 V_{TUNE} up to 20 V
 Sensitivity 3-8 MHz/V
 V_{CC} 8-12 V
 0.9 x 0.8"



Custom Models
 3 MHz to 7 GHz
 1 MHz to Octave Bandwidths
 Φ Noise -135 dBc/Hz @10 kHz
 V_{TUNE} up to 28V
 P_{OUT} up to +15 dBm
 As small as 0.2 x 0.2 x 0.1"



SOS family
 600 MHz to 4.3 GHz
 P_{OUT} -6.5 to +6 dBm
 V_{TUNE} up to 5 V
 Sensitivity 7-180 MHz/V
 V_{CC} 2.75-8 V
 Tiny, 0.3 x 0.3"



ZOS family
 25 MHz to 1.02 GHz
 P_{OUT} +8 to +10 dBm
 Aux out -12 dBc typ
 V_{TUNE} 1-16 V
 Sensitivity 2.5-30 MHz/V
 V_{CC} 12 V



DOS and WOS families
 100 MHz to 1.22 GHz
 Very Tiny, from 0.2 x 0.2"
 P_{OUT} +0.5 to +9 dBm
 V_{TUNE} 0.3 to 4.7 V
 Sensitivity 45 MHz/V max

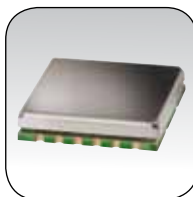
Hundreds of VCO models ALWAYS IN STOCK! For more information, just go to minicircuits.com



Synthesizers

56 MHz to 7.8 GHz

Integer and Fractional N
Narrow Band / Low Phase Noise
Fixed Freq / Ultra Low Φ Noise
Dual Frequency
Fast Settling Time
Ultra Wideband
Custom Models Available



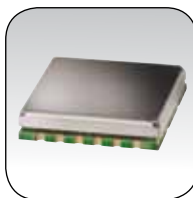
SSND Dual Fixed family
 600 MHz to 1.44 GHz
 RF P_{OUT} +3 dBm typ
 IF P_{OUT} -10 dBm typ
 Φ Noise-90 dBc/Hz @10 kHz
 Settling time 0.4 mS typ
 Small size, 0.6 x 0.6"



KSN Narrow Band family
 430 MHz to 4.26 GHz
 P_{OUT} +0.5 to +4.6 dBm
 Step size 5 kHz to 10 MHz
 Φ Noise-95 dBc/Hz @10 kHz
 Small size, 0.8 x 0.6"



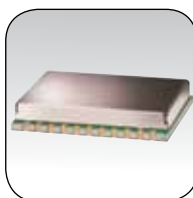
Custom Models
 56 MHz to 7.8 GHz
 Up to 2-Octave Bandwidths
 Φ Noise -122 dBc/Hz @10 kHz
 Settling time from 15 μ S
 P_{OUT} up to +13 dBm
 Cases from 0.6 x 0.6"



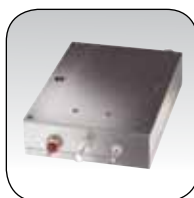
SSN Narrow Band family
 1.4 to 6 GHz
 P_{OUT} +0.5 to +4.6 dBm
 Step size 125-250 kHz
 Φ Noise-95 dBc/Hz @10 kHz
 Small size, 0.6 x 0.6"



**WSN Very Wide Band/
 Fast Settling Time family**
 700 MHz to 4 GHz
 Settling time 15 μ S
 Step size 10 MHz
 Φ Noise-97 dBc/Hz @10 kHz
 1.75 x 1.25"



DSN Wide Band family
 924 MHz to 3.5 GHz
 P_{OUT} -0.5 to +9 dBm
 Step size 12.5-10000 kHz
 Φ Noise-95 dBc/Hz @10 kHz
 Small size, 1.25 x 1.0"



ZSN family
 3.7 to 7.8 GHz
 P_{OUT} -3.5 to +10 dBm
 Step size 1 to 10 MHz
 Φ Noise-87 dBc/Hz @10 kHz
 Small size, 2.75 x 2"

All synthesizer models ALWAYS IN STOCK—just go to minicircuits.com

Frequency Multipliers

output 100 kHz to 20 GHz

Limiters

200 kHz to 8.2 GHz



**HOT NEW
PRODUCT**



X2 Multipliers

Output 20-20000 MHz
RF Input up to 17 dBm
Low CL 12 dB typ
F1/F3 reject. to -45 dBc
Tiny, from 0.2 x 0.18"



X2 Multipliers

Output 0.1-20000 MHz
RF Input up to 20 dBm
Low CL 12 dB typ
F1/F3 reject. to -45 dB
Small, from 0.74 x 0.9"



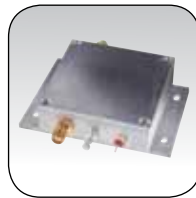
CLM family

Ultra Wideband Limiter
30 MHz to 8.2 GHz
Max P_{IN} +32 dBm
P_{OUT} +11.5 dBm
LTCC Hermetic Package
Tiny, 3 x 3 x 1.14 mm



X3 Multipliers

Output 300-15000 MHz
RF Input up to 17 dBm
Low CL 15 dB typ
F2/F4 reject. to -67 dBc
Tiny, from 0.25 x 0.31"



X12 Multiplier

Output 4.5-6 GHz
RF Input up to 0 dBm
Low CL 6.5 dB typ
F11/F13 reject. -26 dBc
Rugged case, 2 x 2"



RLM family

Wideband Limiters
200 kHz to 6 GHz
Max P_{IN} up to +33 dBm
Low P_{OUT} from 0 dBm



X5 Multipliers

Output 37.5-2750 MHz
RF Input up to 17 dBm
Low CL 22 dB typ
F4/F6 reject. to -67 dBc
Tiny, from 0.25 x 0.31"



**Give us
a call!**

Custom models

Multipliers & Limiters
Rapid response
Fast turnaround



VLM & ZFLM family

Wideband Limiters
10 MHz to 7 GHz
Max P_{IN} up to +33 dBm
P_{OUT} from 0 dBm

Multiplier and limiter models ALWAYS IN STOCK and ready to ship at minicircuits.com

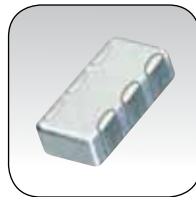


Transformers

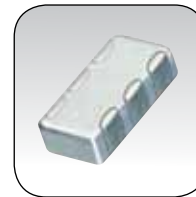
4 kHz to 8 GHz



TC family
3 MHz to 6 GHz
 Ω ratios from 1 to 16
Ceramic base
Small as 0.15 x 0.15"



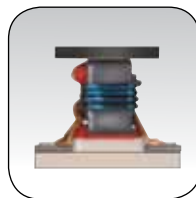
NCS family
600 MHz to 8 GHz
Rugged LTCC case
 Ω ratios from 1 to 4
Good Φ & amplitude
Tiny 0.08 x 0.05"



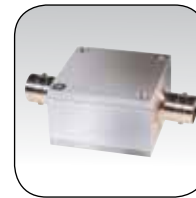
TCN family
600 MHz to 4.5 GHz
Rugged LTCC case
 Ω ratios from 1 to 4
Good Φ & amplitude
Tiny 0.13 x 0.06"



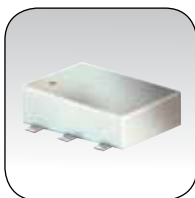
TT family
4 kHz to 500 MHz
Center-tap prim. & sec.
 Ω ratios from 1 to 25
Small as 0.15 x 0.16"



TCM family
1.5 MHz to 4 GHz
 Ω ratios from 1 to 9
Plastic base, low cost
Small as 0.15 x 0.15"



FT family
10 kHz to 500 MHz
Rugged aluminum case
Good return loss
DC isolated
connectors available
Small 1.25 x 1.25"



ADT family
15 kHz to 1.8 GHz
 Ω ratios from 1 to 16
Excellent Φ & amplitude
Small as 0.31 x 0.27"



SYTX family
30 MHz to 1 GHz
High RF power, 10W
DC pass 30 mA
High thermal conduct.
Small 0.43 x 0.69"



Z7550 Series
75 to 50 Ω
10-2300 MHz
Low Loss Less than 0.5dB typ.
Rugged Aluminum Case
Small 1.25" x 1.25"

Hundreds of transformer models ALWAYS IN STOCK at minicircuits.com

Frequency Mixers

More mixer models, that meet more needs, than all other mixer manufacturers combined!

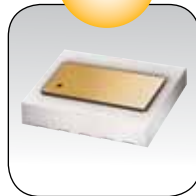
500 Hz to 20 GHz



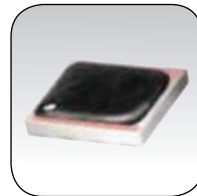
HOT NEW PRODUCT



ADE family
50 kHz to 4.2 GHz
P_{LO} +3 to +20 dBm
Low CL, from 4.6 dB typ
Tiny, from 8 x 7 x 2 mm
Low price



MAC family
Ultra-Rel Hermetic LTCC
300 MHz to 12 GHz
P_{LO} +4 to +17 dBm
Low CL, from 5.8 dB
Tiny, 7.6 x 6.4 x 1.5 mm



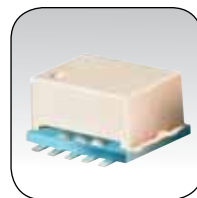
SIM family
Rugged LTCC cases
100 kHz to 20 GHz
P_{LO} +4 to +17 dBm
Low CL, from 5.8 dB
Tiny, 5 x 4.6 x 2.2 mm



LAVI family
Very low distortion
2 MHz to 3.65 GHz
P_{LO} +17 to +23 dBm
High IP3 to +36 dBm
Super high ISO to 58 dB



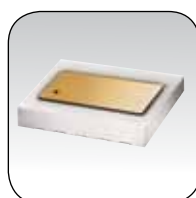
HJK family
Low distortion
130 MHz to 5.4 GHz
P_{LO} +7 to +17 dBm
High IP3 to +34 dBm
High ISO to 55 dB



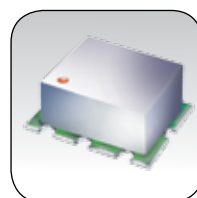
MCA- family
High dynamic range
500 MHz to 5 GHz
P_{LO} +10 to +20 dBm
Low CL, from 5.9 dB
High IP3 to +35 dBm
High ISO to 44 dB



ZX05 family
100 kHz to 20 GHz
P_{LO} +3 to +17 dBm
Low CL, from 5.2 dB
High ISO to 60 dB
Rugged unibody



MRA family
Ultra-Rel High Gain
1.0 to 4.2 GHz
P_{LO} +7 to +13
Conv. Gain 12 dB
Tiny, 7.6 x 6.4 x 1.5 mm



SYM family
1 MHz to 6 GHz
P_{LO} +7 to +20 dBm
Low CL, from 6.3 dB
High IP3 to 32 dBm
High ISO to 50 dB
Low cost

Over 500 mixer models in stock and ready to ship today! Just go to minicircuits.com