



# RF & Microwave

PRODUCT SELECTION  
GUIDE

**MACOM**<sup>®</sup>

*Partners from RF to Light*

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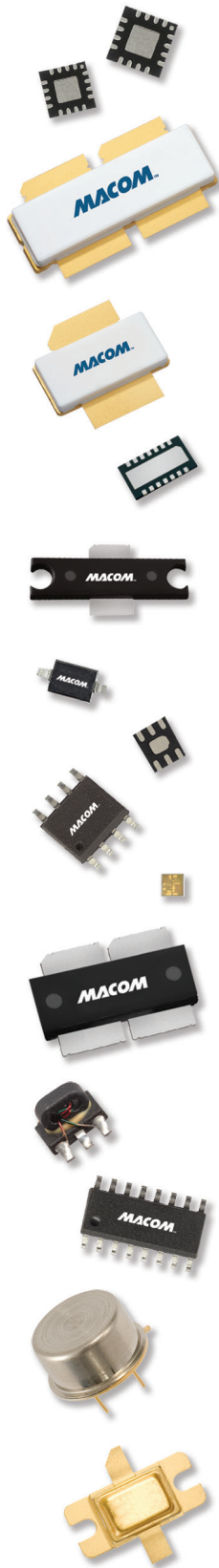


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**MACOM's 2023 RF & Microwave Product Selection Guide** features our catalog of thousands of products, which include integrated circuits (ICs), multi-chip modules (MCMs), power pallets and transistors, MMICs, diodes, amplifiers, switches and switch limiters, passive and active components, and complete subsystems. Inside are detailed product specifications designed to help engineers quickly evaluate and select the right products to differentiate their designs. Our selection guide includes application diagrams and key technologies to further assist you in your selection process.

Additional product information can be found on our website at [macom.com](https://www.macom.com). Contact our worldwide sales offices, authorized representatives, and industry-leading distributors to request samples, test boards, and application support. All contacts are listed on our website at: [www.macom.com/contact](https://www.macom.com/contact)

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## Partners from RF to Light

MACOM Technology Solutions Holdings, Inc. (MACOM) supplies key enabling technologies for the Cloud Connected Apps Economy and Modern Networked Battlefield. Recognized for its broad catalog portfolio of technologies and products, MACOM provides high-performance analog RF, microwave, millimeterwave, and lightwave semiconductor products for diverse applications ranging from high speed optical, satellite communications, wired and wireless infrastructure networks, to military and civil radar systems. A pillar of the semiconductor industry, we thrive on over 70 years of solving our customers' most complex problems as their trusted partner for solutions from RF to Light. Headquartered in Lowell, Massachusetts, MACOM has achieved certification to the IATF16949 automotive standard, the ISO9001 international quality standard and the ISO14001 environmental management standard. MACOM has design centers and sales offices throughout North America, Europe, and Asia.

## RF to Light Capabilities

MACOM offers end-to-end customer solutions and support, from proprietary process technologies to high-quality customer service. MACOM can produce and process semiconductor materials, design and manufacture complex devices, and combine these devices into multifunction components. We offer dual-use technologies that enable us to service commercial and aerospace and defense markets. We have unique technologies and capabilities to create innovative design solutions, including:

- > Si, GaAs, AlGaAs, InGaAs, InP, GaN-on-Si, SiPh, SiGe, SAEFT™, and RF CMOS IC products
- > Unique processes: HMIC™, GMIC™, and AlGaAs
- > In-house design, fabrication, assembly, and screening capabilities
- > Foundry service
- > Build-to-print turnkey assembly capabilities
- > Multiple design and sales locations to provide global coverage
- > Wide spectrum coverage across RF, microwave, and millimeterwave frequencies
- > One of the broadest selections of standard and custom products in the industry



### Commercial, Industrial and Military Products

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This guide features our catalog of thousands of products. We work with you, engineer-to-engineer, to provide custom products to meet your unique application-specific requirements.

If you cannot find a product that meets your needs in this guide, please contact us and we will work together to develop or recommend an appropriate solution. Our team of product managers and engineers is available to support all product and design needs, and offer the experience and attention to detail that ensure success.

### Quality and Reliability

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MACOM is committed to delivering high-quality products and services that meet our customers' and internal operations' needs in terms of delivery, reliability, performance and value. Process controls are implemented to ensure that tasks are performed properly the first time, so that products and services meet established, agreed-to requirements. It is the personal responsibility of every MACOM employee to ensure quality, customer satisfaction, continual improvement, maintenance of our quality management system and compliance with customer and regulatory requirements.

### Design and Manufacturing Facilities

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MACOM has multiple design centers, Si, GaAs, and InP fabrication, manufacturing, assembly and test, and operational facilities throughout North America, Europe, and Asia.

### How to Purchase

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#### Sales Representatives and Distribution Partners

Find solutions for your most complex applications today! You can purchase MACOM products online, direct through our sales offices, and through one of our many distribution and sales representative partners.

Visit our website to see a list of our industry-leading distributors and to get additional information about ordering samples and product.

To see inventory availability from MACOM and our Distributors click on the Order tab on your selected product page at [macom.com](http://macom.com)

**MACOM produces custom products and modifications to standard products to meet your specific requirements.**

**Please contact us with your specifications if you cannot find a standard product for your application.**

**See the back cover of this catalog for contact information.**

**Or visit us at [macom.com](http://macom.com) for more information.**



### Aluminium Gallium Arsenide (AlGaAs)

Band gap engineering has been used to produce novel semiconductor structures in the microwave industry for over two decades. These band gap principles have been applied to the development of MACOM's AlGaAs technology, resulting in a significant advancement in the RF performance of PIN diodes. Key applications include industrial, scientific and medical, test and measurement, wireless backhaul, aerospace and defense.

### Gallium Arsenide (GaAs)

For over three decades, MACOM has been the world leader in the advancement of GaAs technology, producing state-of-the-art, high performance discrete devices; control components; mixed signal processing and converters; driver amplifiers; CATV amplifiers; LNAs; and power amplifiers as single purpose and multi-function MMICs. Key applications include industrial, scientific and medical, CATV and wired broadband, wireless backhaul, aerospace and defense, satellite communication.

### Gallium Nitride (GaN)

MACOM is driving the commercialization of GaN into mainstream RF Power applications designing solutions with GaN-on-Si and GaN-on-SiC. Our **MACOM PURE CARBIDE** series of GaN-on-SiC power amplifiers is our most recent addition and offers high performance and reliability for the most demanding applications. We offer the RF and microwave industry a broad portfolio of GaN products spanning a wide range of package options for pulsed and continuous wave applications and address key applications in all markets including aerospace and defense, 5G wireless infrastructure, and industrial, scientific and medical.

### Heterolithic Microwave Integrated Circuit (HMIC™)

Developed at MACOM, this process joins two different materials—glass and silicon—into a single monolithic structure. This technology integrates the best properties of each material and therefore allows monolithic circuit solutions that reduce both size and cost. Key applications include CATV and wired broadband, wireless backhaul, industrial, scientific and medical, test and measurement, chip and wire high frequency microwave applications.

## Indium Phosphide (InP)

MACOM has assumed a key position in the market as a premier supplier of both photonic devices such as lasers, and optoelectronics products such as high speed modulator drivers, based on InP technology. *Key applications include laser diodes for silicon photonics, data and metro markets, modulator drivers for 100G and 400G coherent networks, metro networks, and data centers.*

## SAEFT™

MACOM's patented Self Aligning Etched Technology (SAEFT™) allows self-alignment of a laser either in edge-emitting or surface-emitting format to a silicon PIC, forming a Laser-PIC (L-PIC). *Key applications include base stations, FTTx/PON, wireless fronthaul/backhaul, cloud data centers, metro, and long haul.*

## Silicon (Si)

Leveraging our deep understanding of silicon technology, MACOM offers a broad portfolio of product offerings ranging from PIN and varactor tuning diodes to multi-hundred watt silicon power MOSFETs. *Key applications include aerospace and defense, industrial, scientific and medical, test and measurement, CATV and wired broadband, wireless networking.*

## Silicon Germanium (SiGe)

Building upon a long history in designing integrated circuits and subsystems for radar and mmW markets, MACOM leads the way in applying SiGe BiCMOS technology to both commercial and military needs. We see SiGe as a high value, differentiating technology which we will continue to leverage in MACOM's core product segments. *Key applications include high-speed optical network transceivers, base stations, wired broadband communications, high speed cross-point switches.*

## Silicon Photonics (SiPh)

MACOM is focused on integrated silicon microphotronics. These technologies enable high performance optics with low power in small form factors. Silicon microphotronics in particular brings the benefits of high-density, low-cost and performance scalability, similar to silicon CMOS chip manufacturing. *Key applications include 100G/400G datacom, telecom-metro and long haul applications, functional passive optical elements including AWGs, optical filters, couplers, and splitters.*

**MACOM produces and processes semiconductor materials, and offers unique technologies and capabilities to create innovative design solutions to solve our customers' most complex challenges.**





**Wireless Networking and Communication**

- > Wireless Network Infrastructure
- > Wireless Backhaul
- > Wireless LAN (WiFi)
- > SatCom/VSAT
- > 5G Communications
- > Hybrid Optoelectronic Assembly and Package Capability

**Optical Networking**

- > FTTx/PON
- > Wireless Fronthaul
- > Cloud Data Center
- > Network Security
- > Long Haul & Metro



**Industrial, Scientific and Medical**

- > Industrial
- > Test and Measurement
- > Healthcare
- > RF Energy

**Wired Broadband**

- > DOCSIS Infrastructure/CPE





### Broadcast Video

- > Cameras
- > Distribution Amplifiers
- > Format Conversion
- > Monitors
- > Routers and Switches
- > CoaXPress



### Aerospace & Defense

- > Communication
- > EW
- > Radar
- > MACOM in Active Active Antennas
- > Space & Hi-Rel
- > Free-space Optical Communication



### Surveillance

- > Cameras
- > DVRs



### Enterprise Solutions

- > Backplane Connectivity
- > Packet Switchers and Routers
- > Storage Area Networks
- > Transport Networks/OTN

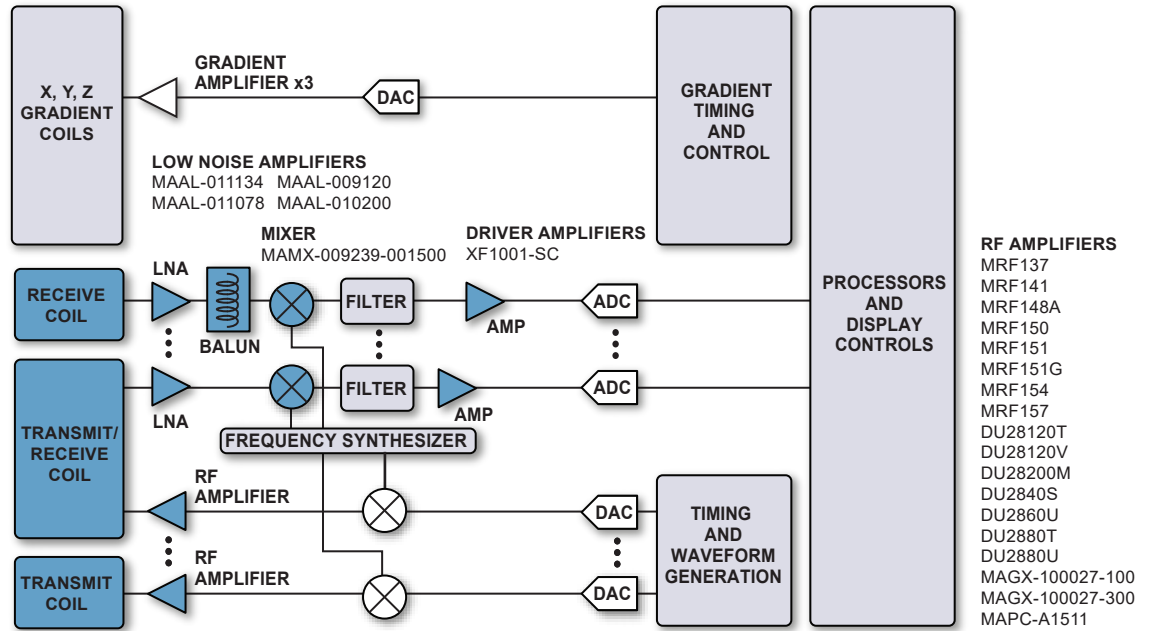
Recognized for our broad portfolio of technologies and products, MACOM serves a range of diverse markets and thrives on more than 70 years of solving our customers' most complex problems.

MACOM is your partner for applications from RF to Light.

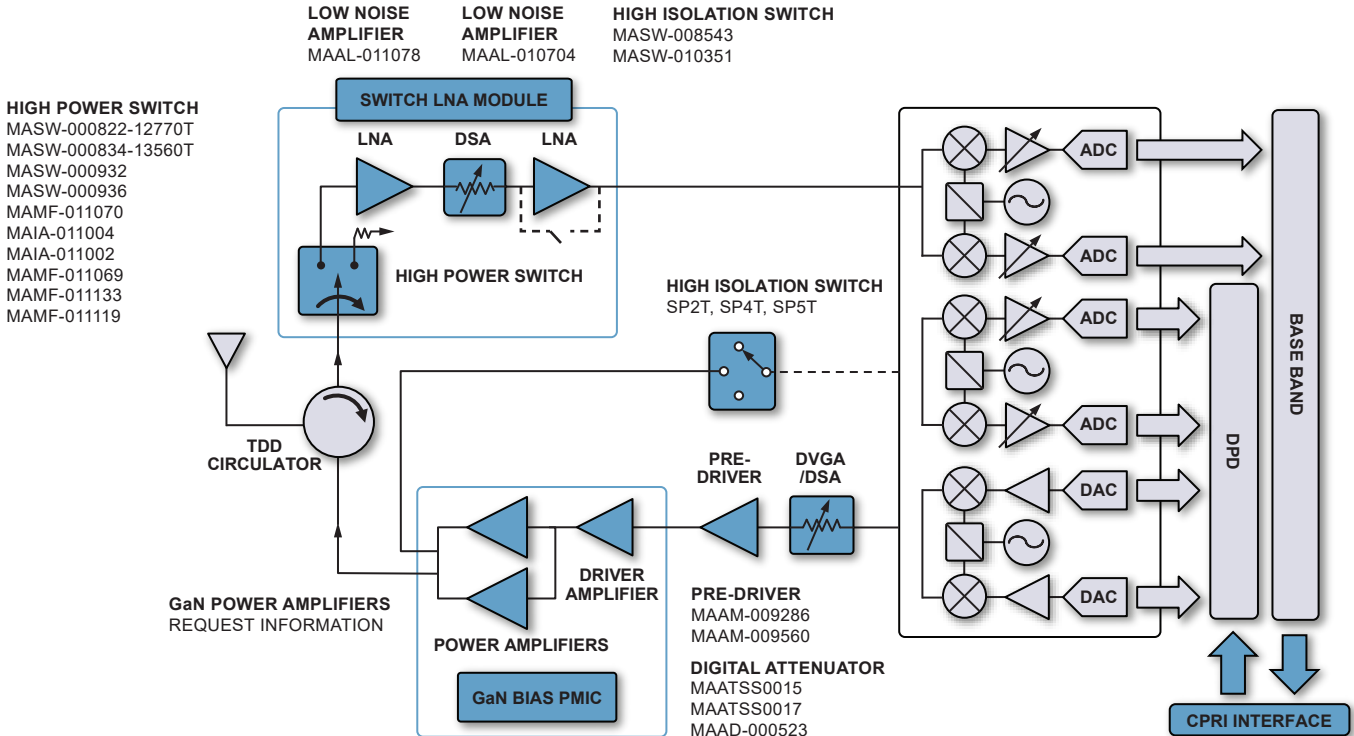
For more in-depth information, visit [macom.com/applications](http://macom.com/applications)

MRI

- RECEIVE COIL**  
 MA44781  
 MADP-011048  
 MADP-009989-14320T  
 MADP-009989-14340T  
 MADP-009989-14420T  
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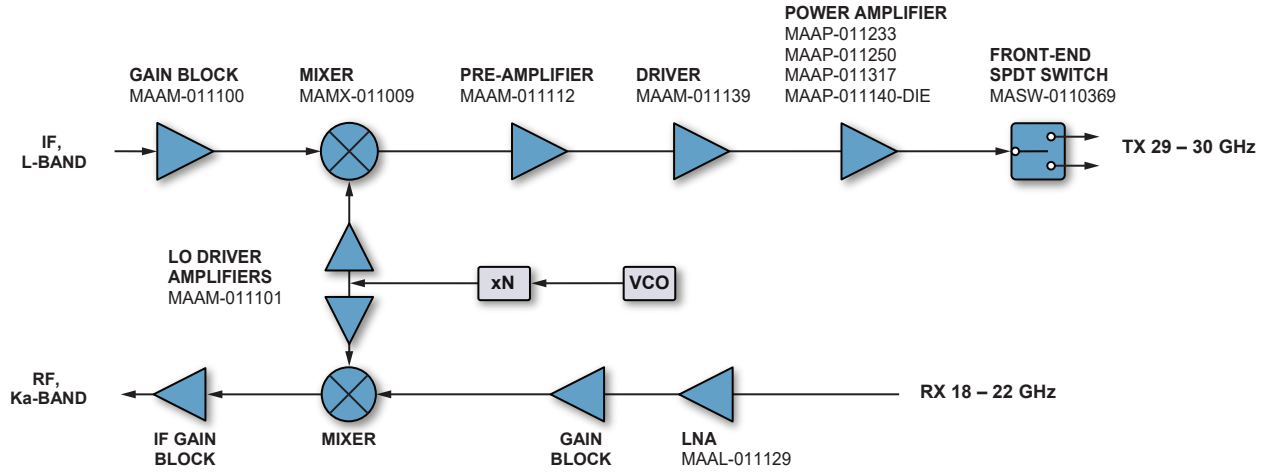


WIRELESS ACCESS TDD

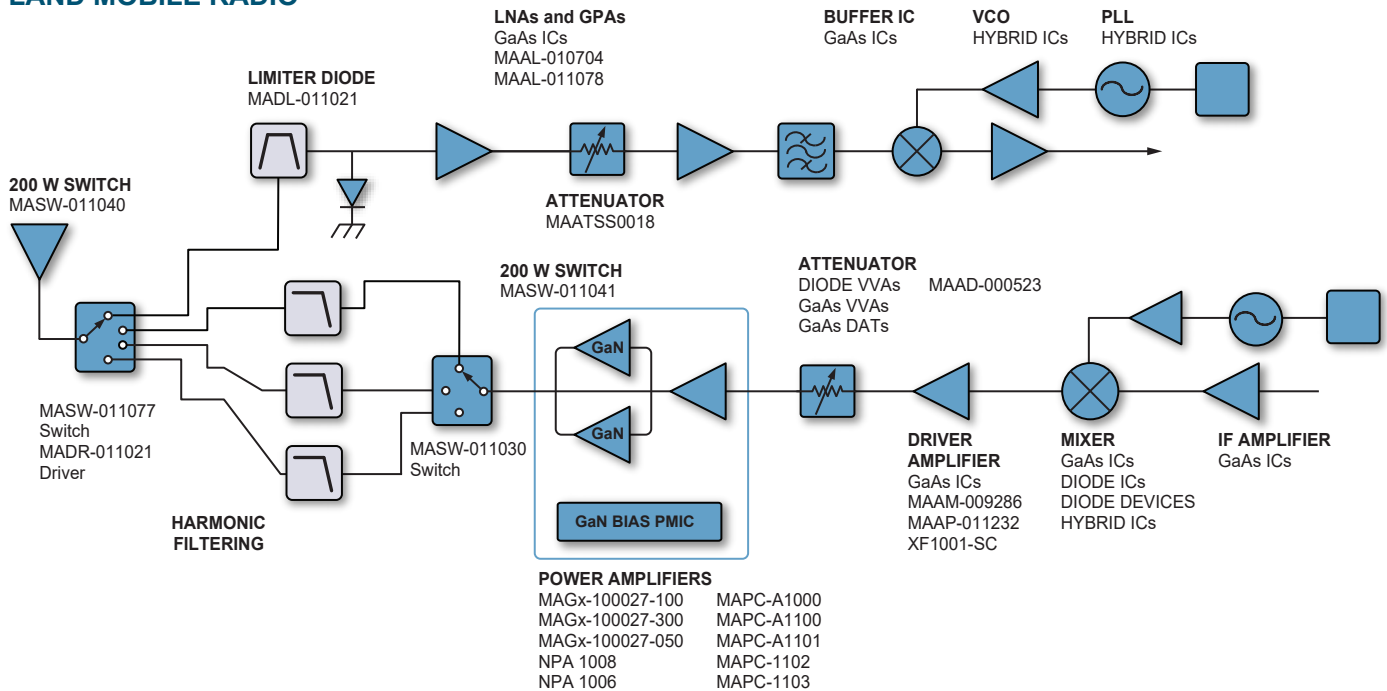




**Ka-BAND SATCOM**



**LAND MOBILE RADIO**





**RF Power Products**

MACOM offers a broad range of RF power semiconductor products as discrete devices, modules, and pallets designed to operate from DC to 12 GHz. These high power amplifiers are ideal for civil avionics, military communications, 5G networks, radar, industrial, scientific, and medical applications. Our product portfolio leverages MACOM's more than 70-year heritage of providing both standard and custom solutions using GaN, bipolar, and MOSFET technologies to meet the most demanding specifications. The MACOM PURE CARBIDE **MACOM PURE CARBIDE** line is our latest addition to the GaN portfolio.



**GaN-on-SiC *MACOM PURE CARBIDE***

- > Includes RF Power products as discrete devices, modules, and pallets
- > Designed to operate from 1 MHz to 12 GHz
- > Market leading high power/high voltage solutions exceeding 6 kW
- > Excellent RF performance, long-term reliability and ruggedness for pulsed and CW applications

**Bipolar**

- > Discrete devices, modules, and pallets from 1 MHz to 3.5 GHz
- > For civil avionics, communications, networks, radar, and industrial, scientific, and medical applications
- > All gold metallization fabrication processes ensure high performance and long-term reliability

**GaN-on-Si**

- > Discrete and integrated amplifiers
- > Includes a broad range of RF power products as discrete devices, modules, and pallets
- > Designed to operate from 1 MHz to 6 GHz
- > Market leading high power/high voltage solutions exceeding 6 kW
- > Excellent RF performance, long-term reliability and ruggedness for pulsed and CW applications

**MOSFET**

- > TMOS and DMOS RF Power MOSFET transistor products as discrete devices from 1 MHz to 1 GHz
- > All gold metallization fabrication processes ensures high performance and long-term reliability

**Pallets**

- > Easy to use 50 Ω matched building blocks easily cascaded and/or parallel combined to achieve high system power levels
- > Standard and custom options available
- > Single and multi-stage pallets with connector options
- > Pallet options with MACOM's Power Management IC (PMIC) to facilitate sequencing, control and monitoring

RF Power Amplifier: High Voltage GaN								
Part Number	Min Freq (MHz)	Max Freq (MHz)	Supply Voltage (V)	Output Power P <sub>SAT</sub> (W)	Gain (dB)	Efficiency (%)	Test Freq (GHz)	Package
MAPC-A1602	960	1215	130	2500	22	65	1.15	AC-780
MAPC-A1604	960	1215	150	5000	20	60	1.08	AC-1230
MAPC-A1605	960	1215	150	7000	20	57	1.06	AP-1230

RF Power Amplifier: MMICs									
Part Number	Description	Min Frequency (MHz)	Max Frequency (MHz)	Output P1dB (dBm)	PSAT (dBm)	Gain (dB)	OIP3 (dBm)	Package	
CGY2631UH	6 - 18 GHz 40 dBm GaN Power Amplifier	6000	18000	—	40	20	—	Die	
CGY2135UH	Power Amplifier, 33 dBm	18000	23000	31.2	33	25	—	Die	
CGY2650UH	29.5 - 33 GHz 40 dBm GaN Power Amplifier	29500	33000	—	39	22	—	Die	
CGY2654UH	32 - 38 GHz Power Amplifier	32000	38000	—	40	20	—	Die	
CGY2651UH	37 - 43 GHz 41 dBm GaN Power Amplifier	37000	43000	—	40	18	—	Die	

RF Power Amplifier: GaN: <b>MACOM PURE CARBIDE</b>								
Part Number	Min Freq (MHz)	Max Freq (MHz)	Supply Voltage (V)	Output Power P <sub>sat</sub> (W)	Gain (dB)	Efficiency (%)	Test Freq (GHz)	Package
MAPC-A1511	3	300	100	3000	19	79	0.13	AC-1230
MAPC-A1502	400	460	50	1250	17	83	400	AC-1230
MAPC-A1507	900	930	50	1400 (CW)	16	73	0.915	AC-1230
MAPC-A1508	900	930	50	700 (CW)	16.5	73	0.915	AC-780
MAPC-A1500	960	1215	65	2600	18.5	66.2	1.06	AC-1230S-4
MAPC-A1501	960	1215	65	1300	17.2	64.5	1.06	AC-780B-2
MAPC-A1504	1200	1400	50	500	17	54	1400	AC-780
MAPC-A1513	1300	1850	52	450	14	59	1.6	AP-780
MAPC-A1506	2000	2400	52	450	14	58	2.9	AP-780
MAPC-A1516	2400	2500	50	500 (CW)	14.5	70	2450	AC-780
MAPC-A1000	30	2700	50	25	13	51	2.7	7 x 6.5 mm DFN
MAPC-A1103	0	2700	50	270	18.4	68.2	2.6	AC-650S-4
MAPC-A2021	1800	2700	30	8	16.2	67	2.7	4 x 4 mm QFN
MAPC-A1522	2700	3100	65	1000	14.5	61	2900	AP-1230S-4
MAPC-A1505	2700	3300	50	700	14	68	2.2	AC-1230
MAPC-A1100	1	3500	50	65	18	71	3.5	AC-360S-2
MAPC-A1101	0	3500	50	85	15	70	3.5	AC-360S-2
MAPC-A1102	0	3500	50	150	13	65	3.5	AC-360S-2
MAPC-S1000	30	3500	50	15	13	—	3.5	5 x 5 mm
MAPC-A2004	3300	3800	50	90	14.5	52	3.6	7 x 6.5 mm DFN
MAPC-A2517	3400	3800	50	29	14	52.3	3.6	AC-780S-4
MAPC-A2001	3400	4000	50	50	17.2	62	3.85	7 x 6.5 mm DFN
MAPC-A2002	3400	4000	50	50	16.2	61	3.6	7 x 6.5 mm DFN
MAPC-A2011	3700	4000	50	90	14.5	52	3.8	7 x 6.5 mm DFN
MAPC-A2500	3400	4000	50	450	13	52	3.6	AC-780S-4
MAPC-A2506	3700	4000	50	29	12.5	52.3	3.85	AC-780S-4
MAPC-S1504	5200	5900	50	60	16.7	50.5	5.6	AC-400B-2N
MAPC-S1101	0	12000	50	15	16	58	3.5	3 x 3 mm

RF Power Amplifiers: GaN								
Part Number	Min Freq (MHz)	Max Freq (MHz)	Operating Voltage (V)	Output Power P <sub>sat</sub> (W)	Gain (dB)	Efficiency (%)	Test Freq (GHz)	Package
MAGE-100809-500G00	896	928	50	500	18	76	0.93	AC-780S-4
MAGX-101011-700E00	1000	1100	50	700	19.3	70	1.09	AC-780B-2

Note: Part numbers are RoHS compliant. Detailed specifications can be found quickly on our website at macom.com by typing the part number into the search box. All specifications are subject to change.



**RF Power Amplifiers: GaN** (continued)

Part Number	Min Freq (MHz)	Max Freq (MHz)	Operating Voltage (V)	Output Power Psat (W)	Gain (dB)	Efficiency (%)	Test Freq (GHz)	Package
NPA1006A	20	1000	28	12.5	14	>45	0.9	6 x 5 mm DFN-8
MAGX-101214-500L00	1200	1400	50	500	16	73.5	3	AC-780B-2
NPA1003QA	20	1500	28	7	15	>40	1	4 x 4 mm QFN-16
MAGE-102425-300S00	2400	2500	50	300	16.7	75	2.45	AC-780S-2
NPA1007	30	2500	28	10	10	>50	2	6 x 5 mm DFN-8
MAMG-100227-010COL	225	2600	28	10	23	45	2.6	14 x 18 mm
MAGX-100027-002SOP	0	2700	50	2	18.7	58.5	4	6 x 3 mm DFN
MAGX-100027-015SOP	0	2700	50	15	17.2	60	2.5	6 x 3 mm DFN
MAGX-100027-050COP	0	2700	50	50	16.8	72	2.5	TO-272S-2
MAGX-100027-100COP	0	2700	50	100	15.1	59	2.5	TO-272S-2
MAGX-100027-300COP	0	2700	50	300	16.3	5	2	TO-272S-4I
MAGB-102327-010BOP	2300	2700	50	8	17.2	23	2.5	4 x 4 mm DFN-6
MAGB-102327-012BOP	2300	2700	50	10	17.3	21	2.7	4 x 4 mm DFN-6
NPA1008A	20	2700	28	5	12	>45	1.9	4 x 4 mm PQFN-24
NPT25100B	2100	2700	28	90	16	>60	3	AC-780B-2
NPT25015	1	3000	28	23	14	>60 PEP	2.5	SOIC-8NE
NPT2018	1	3500	50	12.5	17.5	>50	2.5	6 x 3 mm PDFN-14
MAGB-101836-025BOP	1800	3600	50	25	16.9	29	3.5	5 x 7 mm QFN
MAGB-103438-020SOP	3400	3800	50	20	17	28	3.5	5 x 7 mm QFN
MAGB-103440-005BOP	3300	3800	50	5	17	15.5	3.6	4 x 4 mm DFN-6
MAGB-103338-050SOP	3300	3800	50	44	16.3	15.1	3.6	6 x 6.5 mm DFN
NPT35015	1	3800	28	18	11	>48 PEP	3.5	SOIC-8NE
NPTB00025B	1	4000	28	25	13	>50	3	AC-360B-2
MAGB-103440-010BOP	3300	4000	50	10	18.1	18.3	3.8	4 x 4 mm DFN-6
MAGB-103340-015BOP	3300	4000	50	15	16.4	17	3.6	4 x 4 mm DFN-6
MAGB-103740-008BOP	3700	4000	50	8	17.9	16.2	3.9	4 x 4 mm DFN-6
MAGX-101050-002SOP	1000	5000	50	2	15	50	4	4 x 4 mm DFN
MAGX-011086A	1	6000	28	4	9	>50	5.8	4 x 4 mm QFN-24
NPTB00004B	1	6000	28	5	17	>50	2.5	SOIC-8NE

**RF Power Amplifiers: Silicon Bipolar and MOSFET**

Part Number	Min Freq (MHz)	Max Freq (MHz)	Pout (W)	Gain (dB)	Efficiency (%)	Package
MRF421	1	30	100	10	40	Flange Ceramic
MRF448A	1	30	250	12	45	Flange Ceramic
MRF428	2	30	150	13	45	Flange Ceramic
MRF422	2	30	150	10	40	Flange Ceramic
MRF426	2	30	25	22	35	Flange Ceramic
MRF454	2	30	80	12	50	Flange Ceramic
MRF455	2	30	60	13	55	Flange Ceramic
MRF448	2	30	250	12	45	Flange Ceramic
MRF429	2	60	150	13	45	Flange Ceramic
MRF157	5	80	600	21	45	Flange Ceramic
MRF157H	5	80	600	21	45	Flange Ceramic
MRF154	5	80	600	17	45	Flange Ceramic
MRF140	5	150	150	15	40	Flange Ceramic
MRF150	5	150	150	17	45	Flange Ceramic
MRF151A	5	175	150	13	40	Flange Ceramic

Note: Part numbers are RoHS compliant.

Detailed specifications can be found quickly on our website at [macom.com](http://macom.com) by typing the part number into the search box. All specifications are subject to change.

RF Power Amplifiers: Silicon Bipolar and MOSFET (continued)

Part Number	Min Freq (MHz)	Max Freq (MHz)	Pout (W)	Gain (dB)	Efficiency (%)	Package
MRF141	5	175	150	18	40	Flange Ceramic
MRF173CQ	5	175	80	13	60	Flange Ceramic
MRF151	5	175	150	13	40	Flange Ceramic
MRF148A	5	175	30	18	40	Flange Ceramic
MRF173	5	175	80	11	60	Flange Ceramic
DU28120T	30	175	120	13	60	Flange Ceramic
DU2880U	30	175	80	13	60	Flange Ceramic
DU1215S	30	175	15	9.5	60	Flange Ceramic
DU2810S	30	175	10	13	55	Flange Ceramic
DU2880T	30	175	80	13	60	Flange Ceramic
DU28120V	30	175	120	13	60	Flange Ceramic
MRF151G	5	175	300	14	50	Flange Ceramic
DU2805S	30	175	5	11	55	Flange Ceramic
DU2820S	30	175	20	13	60	Flange Ceramic
DU28200M	30	175	200	13	55	Flange Ceramic
DU2860U	30	175	60	13	60	Flange Ceramic
DU2840S	30	175	40	13	60	Flange Ceramic
MRF141G	5	175	300	12	50	Flange Ceramic
MRF316	30	200	80	10	55	Flange Ceramic
MRF314	30	200	30	10	50	Flange Ceramic
MRF317	30	200	100	9	55	Flange Ceramic
MRF174	5	200	125	9	50	Flange Ceramic
MRF171A	100	200	45	17	60	Flange Ceramic
MRF175GV	5	225	200	14	65	Flange Ceramic
MRF176GV	5	225	200	15	50	Flange Ceramic
MRF313	100	400	1	15	45	Flange Ceramic
MRF392	100	400	125	10	55	Flange Ceramic
MRF175GU	5	400	150	12	55	Flange Ceramic
MRF175LU	5	400	100	10	55	Flange Ceramic
MRF136Y	5	400	30	14	54	Flange Ceramic
MRF176GU	5	400	150	12	45	Flange Ceramic
MRF177	5	400	100	12	60	Flange Ceramic
MRF134	5	400	5	11	50	Flange Ceramic
MRF137	5	400	30	13	60	Flange Ceramic
MRF136	5	400	15	16	60	Flange Ceramic
MRF321	150	400	10	12	50	Flange Ceramic
MRF323	150	400	20	10	50	Flange Ceramic
2N6439	225	400	60	7.8	55	Flange Ceramic
MRF327	225	400	80	7.3	50	Flange Ceramic
UF2815B	100	500	15	10	50	Flange Ceramic
UF2805B	100	500	5	10	50	Flange Ceramic
UF2840P	100	500	40	10	50	Flange Ceramic
UF2820P	100	500	20	10	50	Flange Ceramic
UF2810P	100	500	10	10	50	Flange Ceramic
UF28100V	100	500	100	10	50	Flange Ceramic
UF28100M	100	500	100	10	50	Flange Ceramic
UF2840G	100	500	40	10	50	Flange Ceramic

Note: Part numbers are RoHS compliant.

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RF Power Amplifiers: Silicon Bipolar and MOSFET (continued)						
Part Number	Min Freq (MHz)	Max Freq (MHz)	Pout (W)	Gain (dB)	Efficiency (%)	Package
UF28150J	100	500	150	8	55	Flange Ceramic
MRF275G	5	500	150	10	50	Flange Ceramic
MRF160	5	500	4	16	55	Flange Ceramic
MRF587	100	500	—	13	—	Flange Ceramic
MRF393	100	500	100	9.5	55	Flange Ceramic
MRF166C	5	500	20	13.5	50	Flange Ceramic
MRF166W	5	500	40	14	50	Flange Ceramic
MRF158	5	500	2	16	55	Flange Ceramic
MRF275L	5	500	100	8.8	55	Flange Ceramic
LF2805A	500	1000	5	10	50	Flange Ceramic
MAPRST1030-1KS	1030	1030	1000	8	45	Flange Ceramic
PHI090-700B	1030	1090	700	7.5	50	Flange Ceramic
PHI090-15L	1030	1090	15	9	40	Flange Ceramic
PHI090-550S	1030	1090	550	7.4	55	Flange Ceramic
PHI090-175L	1030	1090	175	8.3	55	Flange Ceramic
PHI090-350L	1030	1090	350	8	55	Flange Ceramic
PHI090-75L	1030	1090	75	9	45	Flange Ceramic
MAPR-001090-350S00	1025	1150	350	9	45	Flange Ceramic
MAPR-001011-850S00	1025	1150	850	7.8	42	Flange Ceramic
MRF10150	1025	1150	150	9.5	40	Flange Ceramic
MRF10350	1025	1150	350	8.5	40	Flange Ceramic
MRF10502	1025	1150	500	8.5	40	Flange Ceramic
MAPR-000912-500S00	960	1215	500	9	45	Flange Ceramic
MAPRST0912-50	960	1215	50	9.1	40	Flange Ceramic
MAPRST0912-350	960	1215	350	9.4	45	Flange Ceramic
MRF1004MB	960	1215	4	10	40	Flange Ceramic
MRF10031	960	1215	30	9	40	Flange Ceramic
MRF10005	960	1215	5	8.5	45	Flange Ceramic
MRF10120	960	1215	120	8	50	Flange Ceramic
MRF1000MB	960	1215	0.7	10	—	Flange Ceramic
MRF1150MB	960	1215	150	7.8	35	Flange Ceramic
MRF1090MB	960	1215	90	8.4	35	Flange Ceramic
PHI214-300M	1200	1400	300	8.75	50	Flange Ceramic
PHI214-55EL	1200	1400	55	6.6	50	Flange Ceramic
PHI214-2M	1200	1400	2	7	40	Flange Ceramic
PHI214-12M	1200	1400	12	9	45	Flange Ceramic
PHI214-25M	1200	1400	25	9.5	50	Flange Ceramic
PHI214-110M	1200	1400	110	7.4	50	Flange Ceramic
PHI214-80M	1200	1400	80	7.5	50	Flange Ceramic
PHI214-100EL	1200	1400	100	6	52	Flange Ceramic
PHI214-6M	1200	1400	6	7	45	Flange Ceramic
PHI214-220M	1200	1400	220	7.4	50	Flange Ceramic
PHI214-40M	1200	1400	40	8.5	50	Flange Ceramic
PHI617-2	1600	1700	2	10	35	Flange Ceramic
PH2226-50M	2200	2600	50	8	45	Flange Ceramic
PH2226-110M	2200	2600	110	7	40	Flange Ceramic

Note: Part numbers are RoHS compliant.

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**RF Power Amplifiers: Silicon Bipolar and MOSFET** (continued)

Part Number	Min Freq (MHz)	Max Freq (MHz)	Pout (W)	Gain (dB)	Efficiency (%)	Package
MAPR-002729-170M00	2700	2900	170	9	45	Flange Ceramic
PH2729-65M	2700	2900	65	8.5	40	Flange Ceramic
PH2729-130M	2700	2900	130	7.5	40	Flange Ceramic
PH2729-25M	2700	2900	25	9.2	45	Flange Ceramic
PH2729-110M	2700	2900	110	6.8	35	Flange Ceramic
PH2731-5M	2700	3100	5	7	30	Flange Ceramic
PH2731-20M	2700	3100	20	8.2	45	Flange Ceramic
PH2731-75L	2700	3100	75	7	40	Flange Ceramic
PH3134-55L	3100	3400	55	7.5	35	Flange Ceramic
PH3134-20L	3100	3400	20	7.5	35	Flange Ceramic
PH3134-10M	3100	3400	10	8	35	Flange Ceramic
PH3135-65M	3100	3500	65	7.5	35	Flange Ceramic
PH3135-25S	3100	3500	25	7.5	35	Flange Ceramic
PH3135-5M	3100	3500	5	8.5	30	Flange Ceramic
PH3135-90S	3100	3500	90	7.5	35	Flange Ceramic
PH3135-20M	3100	3500	20	7.5	35	Flange Ceramic

**Pallets: GaN-on-SiC**

Part Number	Min Freq (MHz)	Max Freq (MHz)	Pout (W)	Gain (dB)	Efficiency (%)	Package
MAPC-P1026	900	930	1300	15	70	Pallet
MAPC-P1012	1030	1090	2000	17	65	Pallet
MAPC-P1008	960	1215	2000	17	60	Pallet
MAPC-P1015	1300	1850	400	15	55	Pallet
MAPC-P1009	2700	2900	700	14	60	Pallet
MAPC-P1010	2700	3100	250	28	52	Pallet
MAPC-P1017	3000	3600	120	30	43	Pallet

**Pallets: Silicon Bipolar and MOSFET**

Part Number	Min Freq (MHz)	Max Freq (MHz)	Pout (W)	Gain (dB)	Efficiency (%)	Package
PHA2729-300M	2700	2900	300	7.5	36	Pallet
PHA2731-190M	2700	3100	190	7.5	33	Pallet
PHA3135-130M	3100	3500	130	7.4	35	Pallet

Note: Part numbers are RoHS compliant.

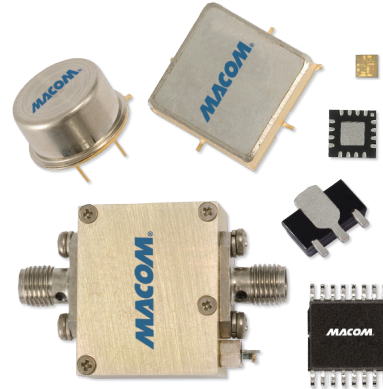
Detailed specifications can be found quickly on our website at [macom.com](http://macom.com) by typing the part number into the search box. All specifications are subject to change.



## AMPLIFIERS

### For Voice, Data and Point-to-Point Applications for A&D and Commercial Markets

MACOM designs, manufactures, and supports a wide variety of amplifiers for RF, microwave, and millimeterwave applications. Our products cover frequency ranges from 40 kHz to 90 GHz. We use a variety of semiconductor processes such as GaAs MESFET for linearity, pHEMT for power and low noise, and HBT for linearity and high gain. Additionally, our 50 to 1100 MHz cable band amplifiers exhibit best-in-class composite linearity performance. MACOM amplifiers are used in a variety of commercial and aerospace and defense applications.



#### Active Splitters

- > Available in 2, 3, 4, 5, 6, and 8-way splits
- > Designed for today's advanced CATV, FTTx, and direct broadcast satellite (DBS) subscriber equipment
- > Used in high definition flat screen TVs, set top boxes (STBs), embedded multi media terminal adapter (eMTAs), cable modems, and PCTV cards
- > Surface mount PDFN and PQFN plastic packages

#### Amplifier Gain Blocks

- > Frequencies from DC to 45 GHz
- > 50  $\Omega$  and 75  $\Omega$  applications include: networks, commercial, and aerospace and defense
- > Plastic packaging and bare die

#### Linear and Power Amplifiers

- > 40 kHz to 90 GHz frequencies for both linear and saturated applications including: network infrastructure, radar, test and measurement, and communication systems
- > Many of the power amplifiers include an on-chip temperature-compensated detector

#### Low Noise Amplifiers

- > Frequencies from 20 MHz to 86 GHz
- > For network infrastructure, radar, and communication systems
- > Available in a variety of packages

#### CATV Amplifiers

- > Single-ended and Push-Pull 75  $\Omega$  broadband amplifiers cover head-end, HFC infrastructure nodes, network, and drop amplifiers
- > Flat gain response, low distortion, and high linearity
- > Offered in small, plastic leaded and leadless packages

#### Hybrid Amplifiers

- Gain Block
- Low Noise Amplifiers
- Limiting Amplifiers
- > 10 kHz to 6 GHz
- > Unconditionally stable with excellent cascadability
- > Designed using thin film technology
- > Hermetically sealed and screened up to space level, these amplifiers are perfect for military applications

Active Splitters									
Part Number	Min Freq (MHz)	Max Freq (MHz)	Splits (#)	Gain (dB)	Noise Figure (dB)	CSO (dBc)	CTB	Bias Current/Voltage (mA)/(V)	Package
MAAM-009450	50	1100	3	3.5	3.8	-65	-65	100/5	3 mm PQFN-12
MAAM-007239	50	1100	3	6	4.5	-65	-77	125/5	3 mm PQFN-16
MAAM-008818	50	1100	2	3.2	3.4	-60	-63	120/5	2 mm PDFN-8
MAAM-008819	50	1100	3	2.6	3.8	-60	-63	120/5	2 mm PDFN-8
MAAM-008820	50	1100	4	3	3.8	-62	-70	120/5	3 mm PQFN-12
MAAM-008821	50	1100	5	3.5	3.8	-60	-70	120/5	3 mm PQFN-12
MAAM-007805	50	1100	2	8.5	4	-60	-75	100/5	3 mm PQFN-12
MAAM-009451	50	1100	3	3	3.5	-55	-67	90/3	2 mm PDFN-8
MAAM-009452	50	1100	4	2.5	3.5	-56	-65	96/3.3	3 mm PQFN-12
MAAM-009778	50	1100	4	2.5	4.5	-60	-65	100/5	3 mm PQFN-12
MAAM-009779	50	1100	5	1.5	3.9	-60	-65	110/5	3 mm PQFN-12
MAAM-009811	50	1100	2	2.4	4.5	-55	-65	90/3	2 mm PDFN-8
MAAM-009879	50	1100	2	3.5	3.8	-60	-65	100/5	3 mm PQFN-12
MAAM-010237	50	1100	8	1.9	4.4	-50	-65	190/5	4 mm PQFN-24
MAAM-008970	950	2150	2	4.8	5	—	—	60/5	3 mm PQFN-12

Amplifier Gain Block									
Part Number	Description	Min Freq (MHz)	Max Freq (MHz)	Gain (dB)	Output P1dB (dBm)	OIP3 (dBm)	Bias Current (mA)	Package	
MAAM-008198-00A162	Cascadable, High Eff	10	1200	13	6	18	15	TO-8	
MAAM02350-A2	Wideband Amplifier	200	3000	18	14	24	65	CR-3	
MAAM02350	Wideband Amplifier	200	3000	19	14	24	65	Die	
MAAM-011326-DIE	Gain Block	500	6000	21	20	36	90	Die	
MAAM-011326	Gain Block	500	6000	21	20	36	90	2 mm PDFN-8	
XF1001-SC	Packaged HFET	0	6000	15.5	30	46.5	300	SOT-89	
MAAM-011252	Broadband Low Noise	30	8000	20	20	34	56	2 mm PDFN-8	
MAAM-011305	Broadband Low Noise	30	8000	15.25	20	35	65	2 mm PDFN-8	
MAAM28000-A1	Wideband Amplifier	2000	8000	17	14	24	70	CR-3	
MAAM28000-A1G	Wideband Amplifier	2000	8000	17	14	24	70	CR-10	
MAAM28000	Wideband Amplifier	2000	8000	18	14	24	60	Die	
MAAM-011252-DIE	Broadband Amplifier	30	8000	20	20	34	60	Die	
MAAM-011252-CQ3	Broadband Low Noise	30	8000	20	20	34	65	3 mm CQFN-12	
MAAM-011305-DIE	Broadband Amplifier	30	8000	16	20	37	66	Die	
XB1007-BD	Buffer Amplifier	4000	11000	23	20	30	100	Die	
XB1007-QT	Buffer Amplifier	4000	11000	23	19	31	100	3 mm PQFN-16	
CMM0511-QT	Driver Amplifier	5000	14000	20	11	22	90	3 mm PQFN-16	
MAAM-011206	Driver Amplifier	DC	15000	13.5	18	28	72	1.5 x 1.2 mm TDFN-6	
MAAM-011101	Wideband Amplifier	4000	20000	16	19	30	45	1.5 x 1.2 mm TDFN-6	
MAAM-011289	Driver Amplifier	5000	20000	16.5	20	30	102	3 mm, AQFN-12	
MAAM-011290	Driver Amplifier	5000	20000	20.5	20	29	110	3 mm, AQFN-12	
MAAM-011289-DIE	Driver Amplifier	5000	20000	15	19.5	31	100	Die	
MAAM-011290-DIE	Driver Amplifier	5000	20000	20	19.5	32	115	Die	
XB1008-BD	Buffer Amplifier	10000	21000	18	20	30	100	Die	
XB1008-QT	Buffer Amplifier	10000	21000	17	18	32	100	3 mm PQFN-16	
XB1004-BD	Buffer Amplifier	16000	30000	21	19	29	100	Die	
XB1006-BD	Buffer Amplifier	18000	38000	21	15	25	50	Die	
XB1005-BD	Buffer Amplifier	35000	45000	23	16	26	50	Die	
MAAM-010651	Buffer Amplifier	37000	45000	21	20	30.5	50	3 mm PQFN-16	

Note: Part numbers are RoHS compliant.

Detailed specifications can be found quickly on our website at [macom.com](http://macom.com) by typing the part number into the search box. All specifications are subject to change.

**Amplifier Gain Block (continued)**

Part Number	Description	Min Freq (MHz)	Max Freq (MHz)	Gain (dB)	Output P1dB (dBm)	OIP3 (dBm)	Bias Current (mA)	Package
MAAM-011229	Broadband Low Noise	50	4000	19	20	34	80	2 mm PDFN-8
MAAM-011229-CQ3	Broadband Low Noise	50	4000	19	20	36	80	3 mm CQFN-12
MAAM-011326-DIE	Wideband Amplifier	500	6000	21	20	36	90	Die
CGY2731UH	Gain Block	12000	15000	19	—	—	—	Die
MAAM-011132	Driver Amplifier	17700	23600	23	21	33	180	4 mm PQFN-16
MAAM-011112	Buffer Amplifier	20000	37000	24	18	30	335	3 mm PQFN-1
MAAM-011109	Wideband Amplifier	100	40000	13	18	22	170	5 mm LGA-9

**GSIC140 GaN-on-SiC MMIC Amplifiers**

Part Number	Min Freq (MHz)	Max Freq (MHz)	Supply Voltage (V)	Output Power Psat (W)	Gain (dB)	Efficiency I(%)	Test Freq (GHz)
MAPC-MP0011-DIE	7900	8400	32	50	27	30	8.25
MAPC-MP0008-DIE	13000	15500	24	24	27	38	14.25
MAPC-MP0009-DIE	13000	15500	22	44	27	36	14.25
MAPC-MP0030-DIE	13500	16000	22	12.6	28	40	14.75
MAPC-MP0041-DIE	13500	16000	22	12	27.5	30	14.75
MAPC-MP0002-DIE	2000	20000	38	12.6	23	18	11
MAPC-MP0028-DIE	2000	20000	22	6	26	22	11
MAPC-MP0029-DIE	2000	20000	38	20	22	16	11
MAPC-MP0031-DIE	17300	21200	20	20	25	30	19.25
MAPC-MP0020-DIE	17000	22000	22	17.5	26	35	20
MAPC-MP0013-DIE	27000	31000	22	6	25	27	29
MAPC-MP0003-DIE	27000	31000	22	11.5	25	27	29
MAPC-MP0010-DIE	27000	31000	22	17.5	26	35	29
MAPC-MP0004-DIE	27000	31000	22	24	24	30	29
MAPC-MP0005-DIE	33000	37000	22	16	24	25	35
MAPC-MP0040-DIE	33000	37000	22	8	18	25	35
MAPC-MP0042-DIE	17000	40000	22	3	18	10	28.5

**Power Amplifiers**

Part Number	Description	Min Freq (MHz)	Max Freq (MHz)	Output P1dB (dBm)	Psat (dBm)	Gain (dB)	OIP3 (dBm)	Package
MAAP-011232	Power Amplifier	100	3000	29	30	25	40	3 mm PQFN-16
MAAP-010168	10 W Power Amplifier	500	3000	39	41	24	—	Ceramic Flanged-10
MAAP-011022	7 W Pulsed High Power Amplifier	2700	3000	37.5	38.3	23	—	6 mm PQFN-28
MAAP-010171	8 W Power Amplifier	2500	3500	38	39	27.3	—	5 mm PQFN-20
MAAP-011027	8 W Power Amplifier	5200	5900	—	39	20	—	5 mm PQFN-20
MAAM26100-B1	Power Amplifier	2000	6000	27	30.5	19	39	CR-2
MAAM26100-P1	Power Amplifier	2000	6000	28	30.5	20	40	CR-15
MAAP-010169	10 W Power Amplifier	2000	6000	38	41	18	—	Ceramic Flanged-10
XP1039-QJ	2.5 W Power Amplifier	5600	7100	33	34	17	48	6 mm QFN-24
MAAP-011161	4 W Power Amplifier	7100	7900	35.5	36.5	22	46.5	7 mm SMT
MAAP-011193	4 W Power Amplifier	7700	8500	35.5	36.5	20	46.5	7 mm SMT
XP1035-QH	0.5 W Power Amplifier	5900	9500	28	29	26	39	4 mm PQFN-24
MAAM26100	GaAs MMIC Power Amplifier	2000	6500	28	30.5	19	39	Die
MAAM71100	Power, GaAs MMIC	7000	11000	28	31	18	38	Die
MAAP-015035-DIE	12 W Power Amplifier	8500	11500	40	41	36	—	Die
MAAP-015030-DIE	13 W Power Amplifier	8500	11750	38	41	25	—	Die
MAAP-008924	1.2 W Power Amplifier	10000	13300	31	32	20	44	5 mm PQFN-20

Note: Part numbers are RoHS compliant.

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**Power Amplifiers** (continued)

Part Number	Description	Min Freq (MHz)	Max Freq (MHz)	Output P1dB (dBm)	Psat (dBm)	Gain (dB)	OIP3 (dBm)	Package
MAAP-011313	4 W Power Amplifier	13500	15000	34.5	36	36	—	5 mm AQFN-32
MAAP-011333-DIE	4 W Power Amplifier	13500	15000	37	—	26	—	Bare Die
MAAP-010150	10 – 15.35 GHz Power Amplifier	10000	15350	33.5	36	27	42	7 mm QFN-48
MAAP-011202	2.5 W Power Amplifier	12700	15400	33.5	34.5	30	41	5 mm QFN-24
MAAP-010517	3 W Power Amplifier	14400	15400	35	36.4	24	42	5 mm PQFN-24
XP1042-QT	0.5 W Power Amplifier	12000	16000	25	27	21	38	3 mm PQFN-16
XP1043-QH	1.5 W Power Amplifier	12000	16000	30	32	21.5	41	4 mm PQFN-24
MAAP-011145-STD	2 W Power Amplifier	17650	19750	33	34.5	25	43	7 mm Cavity
MAAP-011327	1 W Power Amplifier	1	22000	28.5	30.5	13.5	47	5 mm AQFN-32
MAAP-011327-DIE	1 W Power Amplifier	1	22000	30	32	14	47	Die
MAAP-011146-STD	2 W Power Amplifier	21150	23650	34	35	24	41	7 mm Cavity
MAAP-118260	Power Amplifier	18000	26000	28.5	31	28.5	37	5 mm QFN-24
MAAP-011324	0.25 W, DC – K Band Power Amplifier	0	27000	25.5	—	18	35	5 mm AQFN-32
MAAP-011324-DIE	0.25 W, DC – 40 GHz Power Amplifier	0	27000	25	—	18	35	Die
MAAP-011319	0.5 W, Ka-Band Power Amplifier	24000	30000	26	—	24	37	4 mm AQFN-24
MAAP-011358-DIE	6 W, Ka-Band Power Amplifier	27000	30000	37.5	39	27	—	Die
MAAP-011250	4 W, Ka-Band Power Amplifier	27500	30000	34.8	36	24	—	5 mm AQFN-32
MAAP-011289	3 W, Ka-Band Power Amplifier	28000	30000	34	36	24	—	5 mm AQFN-32
MAAP-011316	2 W, Ka-Band Power Amplifier	27000	31000	33.5	—	26	—	5 mm AQFN-32
MAAP-011233	4 W, Ka-Band Power Amplifier	28500	31000	34.5	37	25	—	5 mm AQFN-32
MAAP-011317	4 W Power Amplifier	27500	31000	36.5	—	27.5	—	5 mm QFN-32
MAAP-011139	4 W Power Amplifier	28500	31000	34.5	36	23	—	5 mm AQFN-32
MAAP-011139-DIE	4 W Power Amplifier	29000	31000	34.5	36.5	22	—	Die
MAAP-011298	2.3 W, Ka-Band Power Amplifier	28000	31500	32.5	33.5	24.5	—	5 mm AQFN-32
MAAP-011340	0.25 W, Ka-Band Amplifier	27000	31500	24	—	25	33	4 mm AQFN-24
MAAP-011340-DIE	0.25 W, Ka-Band Amplifier	27000	31500	24	—	24	33	Die
MAAP-011341	0.5 W, Ka-Band Power Amplifier	27000	31500	27	—	28	36	4 mm AQFN-24
MAAP-011246	Power Amplifier	27500	31500	30	33	23	—	5 mm AQFN 32
MAAP-011341-DIE	0.5 W, Ka-Band Power Amplifier	27000	31500	26.5	—	27	36	Die
MAAP-015016-DIE	4 W Ka-Band Power Amplifier	32000	38000	—	37	18	—	Die
MAAP-011170	Power Amplifier	37000	40000	27	28	27	38	7 mm SMD-16
XP1080-QU	38 GHz Power Amplifier	37000	40000	27	28.9	25	38	7 mm LGA-16
MAAP-011325-DIE	0.25 W, DC – 40 GHz Power Amplifier	0	40000	27	—	11	35	Die
MAAP-010512	42 GHz Power Amplifier	40500	43500	27	29	22	38	7 mm LGA-16
MAAP-011205	0.25 W Power Amplifier	71000	86000	21	—	19	—	7 mm AQFN-16
MAAP-011218-DIE	0.5 W Power Amplifier	71000	86000	26	27	20	31	Die
MAAP-011199	Power Amplifier	80000	100000	22	24	12	—	Die

**Linear Amplifiers**

Part Number	Description	Min Freq (MHz)	Max Freq (MHz)	Gain (dB)	OIP3 (dBm)	Output P1dB (dBm)	Package
MAAM-011106	Power Amplifier Module	1616	1627	30.5	—	33	Die
MAAM-011117	Broadband, Low Distortion	50	2700	16	35	19.5	2 mm PDFN-8
XP1044-QL	Power Amplifier Module	4000	5900	18.5	46	34	7 mm SMD-28
XF1001-SC	Packaged HFET	DC	6000	15.5	47	30	SOT-89
MAAM-011326	21 dB Gain Amplifier	500	6000	21	36	20	2 mm PDFN-8
XP1050-QJ	2.5 W Power Amplifier	7100	8500	15.5	47	33	6 mm QFN-24
MAAP-015035-DIE	12 W Power Amplifier	8500	11500	36	—	—	Die

Note: Part numbers are RoHS compliant.

Detailed specifications can be found quickly on our website at [macom.com](http://macom.com) by typing the part number into the search box. All specifications are subject to change.

**Linear Amplifiers** (continued)

Part Number	Description	Min Freq (MHz)	Max Freq (MHz)	Gain (dB)	OIP3 (dBm)	Output P1dB (dBm)	Package
MAAP-015024-DIE	8 W Power Amplifier	14500	17500	21	—	—	Die
XP1027-BD	Power Amplifier	27000	31000	25	43	—	Die
XP1026-BD	Power Amplifier	27000	32000	21	40	32	Die
MAAM-011139	Driver Amplifier	27500	33400	21	32	20	4 mm QFN-24
XP1017-BD	Power Amplifier	30000	36000	16	33	24	Die
MAAP-011106	Power Amplifier	71000	86000	20	30	23	Die
MAAM-011167	Medium Power Amplifier	71000	86000	18	27	21	Die
MAAP-011205	Power Amplifier	71000	86000	19	—	21	Die
MAAP-011388-DIE	1 W High Linearity Power Amplifier	71000	86000	28	42	—	4 x 4.3 mm Die

**High Frequency**

Part Number	Description	Min Freq (MHz)	Max Freq (MHz)	Gain (dB)	OIP3 (dBm)	Package
MAAP-011215-DIE	Power Amplifier	55000	70000	25	32	Die
MAAP-011106	Power Amplifier	71000	86000	20	30	Die
MAAM-011167	Power Amplifier	71000	86000	18	27	Die
MAAP-011218-DIE	0.5 W Power Amplifier	71000	86000	20	31	Die
MAMF-011142	E-Band Direct Upconverter	71000	86000	30	25.5	12 x 8 mm SMT
MADC-011021	E-Band Direct Downconverter	71000	86000	—	—	8 x 8 mm SMT
MAAP-011205	Power Amplifier	71000	86000	18	27	7 x 7 mm SMT
MAAP-011199-DIE	Power Amplifier	80000	100000	12	—	Die

**Low Noise Amplifiers**

Part Number	Min Freq (MHz)	Max Freq (MHz)	Gain (dB)	Noise Figure (dB)	OIP3 (dBm)	Output P1dB (dBm)	Bias Voltage (V)	Bias Current (mA)	Package
MAAL-011204 †	62.87	128.74	28	0.6	28	11.5	3	37	4 mm PDFN-8
MAAL-011136	45	1218	20.5	1.2	32	17.5	5	50	SOT-89 Plastic
MAALSS0042	1500	1600	27	1.15	13	1	5	20	Lead-Free SOIC-8
MAALSS0042	1500	1600	27	1.15	13	1	5	20	SOIC-8
MAAL-010705	500	1600	21	0.5	32	18.5	4	60	2 mm PDFN-8
MAAM-011299	5	1800	18.7	2.5	42	24	5	290	SOIC-8EP
MAAM-011297	5	1800	17	2	42	24	5	290	SOIC-8EP
MAALSS0048	1400	2000	18	1.6	13	1	3	7	SOT-26
CGY2106XHV	100	3000	19	0.45	35	19	2.5	50	—
MAAL-007304	500	3000	25.5	0.7	19	7	3	12	SOT-26
MAAL-009120	70	3000	11	1.4	35	18.5	3	80	SOT-363
MAAL-010200	70	3000	11	1.4	36	17.5	3	77	SOT-89
MAAL-009053	800	3000	11	1.4	35	18	3	80	SOT-363
MAAL-010704	100	3500	16	0.8	34	19	3	60	SOT-363
MAAL-010570	100	3500	16	0.75	34	18.8	5	15	SOT-363
MAAL-011138	2500	3500	21	1	28	—	5	55	2 mm PDFN-8
MAAM-011229	50	4000	19	1.3	45	19.5	5	80	2 mm QFN-8
MAAM-011229-CQ3	50	4000	19	1.3	38	19	5	80	3 mm CQFN-12
MAAL-010706	1400	4000	17.5	0.6	34.5	19	4	60	2 mm PDFN-8
CGY2105XHV	500	4000	19	0.42	35	21	3	50	—
CGY2107HV	500	6000	24	0.5	36	19	5	50	—
CGY2108GS	500	6000	21	0.6	36	10	5	50	—
CGY2108HV	500	6000	21.5	0.5	36	22	5	50	—
MAAL-011078	700	6000	23	0.35	33	17.5	3	50	2 mm PDFN-8

Note: Part numbers are RoHS compliant.

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Low Noise Amplifiers (continued)

Part Number	Min Freq (MHz)	Max Freq (MHz)	Gain (dB)	Noise Figure (dB)	OIP3 (dBm)	Output P1dB (dBm)	Bias Voltage (V)	Bias Current (mA)	Package
MAAL-011207-Q	150	6000	23	0.35	33	17.5	3	50	2 mm PDFN-8
MAAL-011134-CQ3	700	6000	15	0.85	28	15	3	50	3 mm CQFN-12
CGY2178UH	5000	6000	30	1	22	15	3	40	—
MAAM-011326	500	6000	21	1.5	36	20	5	90	2 mm PDFN-8
MAAL-011134	700	6000	15	0.85	28	15	3	50	2 mm PDFN-8
MAAL-011188	1000	6000	35	0.79	31	17.5	5	80	3 mm PQFN-16
MAAM37000-AIG	3500	7000	17	2.2	25	14	4	75	Ceramic Gull Wing-8
MAAM37000-A1	3500	7000	17	2.2	25	14	4	75	Ceramic-8
CGY2120XUH	5000	7000	13	0.5	—	12	1	50	—
MAAM37000	3500	7000	17	1.8	24	14	4	75	Die
MAAM-011305	30	8000	15.3	1.7	35	20	5	65	2 mm PDFN-8
MAAM-011305-DIE	30	8000	16	1.6	37	20	5	55	Die
MAAM-011252-DIE	30	8000	20	1.2	34	20	5	60	Die
MAAM-011252	30	8000	20	1.2	34	19.5	5	56	2 mm PDFN-8
MAAM-011252-CQ3	30	8000	20	1.4	34	20	5	65	3 mm CQFN-12
MAAM71200	7500	12000	16.5	2.3	22	12	4	40	Die
MAAM71200-H1	7500	12000	15.5	2.7	21	11	4	40	Leadless Ceramic
MAAL-010528	8000	12000	20	1.6	26	14	4	60	3 mm PQFN
CGY2124UH	8000	12000	33	1.1	20	10	5	55	—
CGY2220UH	1000	12000	36	1.5	12	—	1.5	54	—
CGY2221UH	8000	12000	16	1.6	29	17	5	82	—
CGY2222UH	6000	12500	20	1.5	—	20	8	160	—
CGY2221HV	7500	13000	16	1.6	29	17	5	82	—
CGY2232UH	12750	14750	24	1.3	—	0	3	24	—
CGY2125AUH	13000	15000	25	1.5	—	8	3.3	20	—
CGY2230UH	1000	18000	35	1.5	12	0	1.5	50	—
MAAL-011130	2000	18000	21	1.4	24	14	3	80	2 mm PQFN-8
MAAL-011151	2000	18000	15	3.5	—	5	3	2	5 mm PQFN-32
CGY2290SUH	6000	18000	8.5	3	—	13	5	30	—
MAAL-011182	2000	20000	15	1.5	24	14	5	65	5 mm PQFN-32
MAAL-011182-DIE	2000	20000	15	2.5	25	14	5	65	Die
MAAL-011181	9	20000	15	2.5	29	18	5	—	5 mm PQFN-32
MAAL-011181-DIE	9	20000	15	2.5	29	18	5	—	Die
MAAL-011146	17250	21500	17	1.4	14	12	2	30	3 mm PQFN-16
CGY2121XUH	18000	26000	19	1.3	5	7	1.5	60	—
MAAL-011141	DC	28000	17.5	1.4	27.5	16	6	75	5 mm AQFN-32
MAAL-011141-DIE	DC	28000	17.5	1.4	27.5	16	6	75	Die
MAAL-011129	18000	31500	23	2.5	25	16	3	80	2 mm PQFN-8
CGY2250UH	26000	34000	18	1.4	—	16	8	50	—
CGY2128UH	24000	34000	23	1.6	17.5	8.5	3.5	47	—
XL1002-BD	20000	36000	23	2.6	16	4	5	85	Die
MAAL-011198	32000	37000	18.5	3	23	18	3.3	90	2 mm PDFN-8
XL1010-QT	20000	38000	17	3	—	6	4	45	3 mm QFN-16
XL1010-BD	20000	38000	17	3	—	—	4	45	Die
MAAL-011111	22000	38000	19	2.5	—	5	3	55	3 mm QFN-16
XL1000-BD	20000	40000	20	2	16	9	3	35	Die
CGY2122XUH	25000	43000	32	1.5	10	1.2	1.1	30	—

Note: Part numbers are RoHS compliant. ♦ indicates non-RoHS compliant. † Indicates Non-magnetic. Detailed specifications can be found quickly on our website at [macom.com](http://macom.com) by typing the part number into the search box. All specifications are subject to change.

Low Noise Amplifiers (continued)

Part Number	Min Freq (MHz)	Max Freq (MHz)	Gain (dB)	Noise Figure (dB)	OIP3 (dBm)	Output P1dB (dBm)	Bias Voltage (V)	Bias Current (mA)	Package
MAAL-011186	20000	55000	20	2.5	24	14	3.5	130	5 mm SMT
CGY2260UH	24000	44000	25.5	1.7	22	6	1.5	50	—
MAAL-011186-DIE	20000	60000	20	2.5	24	14	3.5	130	Die
CGY2272UH	44000	69000	29	1.7	—	5	1.5	46	—
CGY2271UH	71000	86000	25	3	—	5	1.1	40	—
CGY2190UH	75000	110000	23	2.8	—	1	1	33	—

Low Phase Noise Amplifiers

Part Number	Min Freq (MHz)	Max Freq (MHz)	Gain (dB)	Noise Figure (dB)	Phase Noise (dBc/Hz)	Package
MAAL-011154	4000	8000	15.7	5	-165	4 mm PQFN-16
MAAL-011154-DIE	4000	8000	15	5.1	-165	Die
MAAL-011155	6000	12000	15.5	5	-167	4 mm PQFN-16
MAAL-011155-DIE	6000	12000	15	5.1	-167	Die
MAAL-011151	2000	18000	15	4	-154	5 mm PQFN-32
MAAL-011159-DIE	2000	27000	23	4	-164	Die
MAAL-011158-DIE	2000	28000	12	4	-172	Die

Variable Gain Amplifiers

Part Number	Description	Min Freq (MHz)	Max Freq (MHz)	Gain (dB)	OIP3 (dBm)	Output P1dB (dBm)	Atten Range	Package
MAAM-011100	Variable Gain Amplifier	400	20000	12	25	70/+5-5	30	1.5 x 1.2 mm TDFN-6

CATV Amplifiers

Part Number	Description	Min Freq (MHz)	Max Freq (MHz)	Gain (dB)	OIP3 (dBm)	Bias Current (mA)	Bias Voltage (V)	Noise Figure (dB)	Package
MAAM-011184	CATV Return Path Single-ended Amplifier	5	300	21	43	95	5	2.5	MSOP 8-EP
MAAM-011185	CATV Return Path Differential Amplifier	5	300	21.2	43	290	5	3.1	3 mm PQFN-16
MAAM-011156	Amplifier, CATV Return Path Differential	5	300	19	44	210	8	7	3 mm PQFN-16
MAAM-011168	Differential CATV Variable Gain	5	300	40	44	290	8	2.6	7 mm PQFN-48
MAAM-011186	Differential CATV Variable Gain Amplifier	5	300	39	42	280	8	3	7 mm PQFN-48
MAAMSS0044	Low Noise, Low Distortion Amplifier	50	1000	12.2	42	225	5	3.3	4 mm PQFN-20
MAAMSS0067	Low Noise, Low Distortion Amplifier	50	1000	12.2	32	190	5	3.3	4 mm PQFN-20
MAAM-009100	Broadband CATV Amplifier	50	1000	14.3	34	105	5	3	SOT-89
MAAM-007724	Low Noise, Low Distortion Amplifier	50	1005	12.2	32	190	5	3.3	4 mm PQFN-20
MAAM-010373	Broadband CATV Amplifier	50	1100	22	40	148	8	1.66	SOT-89
MAAM-009633	Broadband CATV Amplifier	50	1200	17	37	120	8	1.9	SOT-89
MAAMSS0060	Low Noise, Low Distortion Amplifier	50	1200	17	37	120	8	1.8	SOT-89
MAAMSS0041	Low Noise, Low Distortion Amplifier	50	1200	15	36	100	8	2.7	SOT-89
MAAMSS0042	Low Noise, Low Distortion Amplifier	50	1200	15	38	110	5	3	SOT-89
MAAM-011169	CATV 75 Ω Push Pull Amplifier	45	1200	25	54	480	12	4.4	5 x 7 mm PQFN-40
MAAM-011182	75 Ω, 8 V RF Amplifier	45	1218	18	38	130	8	2.7	2 mm PDFN-8
MAAM-011163	75 Ω, Differential RF Amplifier	5	1218	19	42	290	5	1.7	SOIC-8EP
MAAM-011240	75 Ω, Differential RF Amplifier	5	1218	17	44	290	5	1.7	SOIC-8EP
MAAM-011251	75 Ω, High Linearity, Low Noise CATV Amplifier	5	1218	15	37	100	5	1.9	SOT-89
MAAM-011258	75 Ω, High Linearity, Low Noise CATV Amplifier	5	1218	15	37	100	5	2.2	SOT-89
MAAM-011299	75 Ω, RF Differential Amplifier	5	1800	18.7	42	290	5	2	SOIC-8EP
MAAM-011297	75 Ω, RF Differential Amplifier	5	1800	17	42	290	5	2	SOIC-8EP
MAAL-011119	Satellite TV Amplifier	900	2200	10.5	32	80	2.5	1.5	SOT-363
MAAL-009053	Satellite TV Amplifier	800	3000	11	35	80	3	1.4	SOT-363

Note: Part numbers are RoHS compliant.

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CATV Amplifiers (continued)

Part Number	Description	Min Freq (MHz)	Max Freq (MHz)	Gain (dB)	OIP3 (dBm)	Bias Current (mA)	Bias Voltage (V)	Noise Figure (dB)	Package
MAAL-011139	Low Noise Amplifier	5	4000	21	34	85	5	1	SOT-89

Distributed Amplifiers

Part Number	Min Freq (MHz)	Max Freq (MHz)	Gain (dB)	Gain Flatness (dB)	Noise Figure (dB)	OIP3 (dBm)	Output P1dB (dBm)	Package
MAAM-011289	5000	20000	16	1	5	30	20	3 mm AQFN-12
MAAM-011290	5000	20000	20	2.5	4	29	20	3 mm AQFN-12
MAAP-011327	2000	22000	13	—	—	45	28	5 mm AQFN-32
MAAP-011327-DIE	2000	22000	13	—	—	42	28	Die
MAAP-011324	DC	27000	18	—	—	34	25	5 mm AQFN-32
MAAM-011109	100	40000	13	18	3.5	22	18	5 mm LGA-9
MAAP-011325-DIE	DC	40000	11	—	—	35	27	Die
MAAM-011275-DIE	0.03	40000	15	0.75	5	33	21	Die
MAAM-015023-DIE	18000	40000	26	0.5	6	30	21	Die
MAAM-011286-DIE	0.03	40000	16	1	4	30	22	Die
MAAM-011291-DIE	20000	45000	19	—	—	35	28.5	Die
MAAM-011277-DIE	20000	45000	24.5	—	—	30	23.5	Die
CGY2145UH	500	45000	12.7	—	4.5	—	18	Die
CGY2141UH	10	46000	16	—	4	—	19	Die
CGY2160UH	1500	47000	14.5	—	1.5	—	17	Die
MAAM-011275	0.03	50000	15	0.75	5	29	20	5 mm AQFN-12
XD1001-BD	18000	50000	17	1	5	24	15	Die
MAAM-011231-DIE	0.1	50000	15	1.5	3.5	24	15	Die
MAAM-011238	0.1	50000	14	3.5	5.5	27	17	5 mm LGA-12
CGY2144UH	10	54000	13	—	2.5	—	15	Die
MAAM-011238-DIE	0.1	67500	15	2	7	27	17.6	Die

FTTx Amplifiers

Part Number	Description	Min Freq (MHz)	Max Freq (MHz)	Gain (dB)	OIP3 (dBm)	Bias Current (mA)	Bias Voltage (V)	Noise Figure (dB)	Package
MAAM-007807	CATV and 2nd Stage FTTx Amplifier	50	1000	9	35	60	5	3.8	SOT-89
MAAM-008863	FTTx RF Amplifier	50	1000	37	—	220	5	4.8	4 mm PQFN-24
MAAM-010333	Optical Node RF Amplifier	50	1200	33	—	260	5	—	4 mm PQFN-24

Hybrid Amplifiers: Gain Blocks

Part Number	Description	Min Freq (MHz)	Max Freq (MHz)	Gain (dB)	OIP3 (dBm)	Package
A57	Cascadable	10	500	14.7	28	TO-8
SMA57	Cascadable	10	500	14.7	28	SMT
SMA513	Cascadable	10	500	20	30	SMT
A55	Cascadable	10	500	14.7	24	TO-8
RA89-1	Cascadable, High Gain	10	500	30	36	TO-8B
A74-2	Cascadable, High Efficiency	5	500	26	10	TO-8
SMRA89-1	Cascadable, High Gain	10	500	30	36	SMT
A72	Cascadable, High Efficiency	5	500	15	26	TO-8
SMA72	Cascadable, High Efficiency	5	500	15	26	SMT
A77	Cascadable	5	500	16.5	30	TO-8
PA512	Cascadable, Medium Power	10	500	18	40	TO-8
CRA89-1 ♦	Cascadable, High Gain	10	500	30	36	Connectorized
A88	Cascadable	5	500	18.7	30	TO-8

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Hybrid Amplifiers: Gain Blocks (continued)

Part Number	Description	Min Freq (MHz)	Max Freq (MHz)	Gain (dB)	OIP3 (dBm)	Package
SMA77	Cascadable	5	500	16.5	30	SMT
SMA88	Cascadable	5	500	18.7	30	SMT
RA89	Cascadable, High Gain	5	500	26.5	35	TO-8B
CRA89 ♦	Cascadable, High Gain	5	500	26.5	35	Connectorized
CA77 ♦	Cascadable	5	500	16.5	30	Connectorized
MAAM-007502-CPA512 ♦	Cascadable, Medium Power	10	500	18	40	Connectorized
A54	Cascadable	5	500	15.5	21	TO-8
MAAM-008200-000A83	Cascadable, High Efficiency	10	500	30	10	TO-8
A5-6	Cascadable	6	600	15.5	21	TO-8
SMA77-1	Cascadable	5	600	16	30	SMT
A77-1	Cascadable	5	600	16	30	TO-8
SMA5-6	Cascadable	6	600	16	21	SMT
CA77-1 ♦	Cascadable	5	600	16	30	Connectorized
A59-1	Cascadable, High Dynamic Range	10	700	10.5	36	TO-8
SMA59-1	Cascadable, High Dynamic Range	10	700	10.5	36	SMT
SMA89	Cascadable	100	800	22	30	SMT
A89	Cascadable	50	800	22	30	TO-8
AMC-145-SMA ♦	Cascadable	10	1000	10.7	32	Connectorized
AMC-184-SMA ♦	Cascadable	5	1000	20	20	Connectorized
CA17 ♦	Cascadable	10	1000	12	27	Connectorized
CA1021 ♦	Cascadable, High Gain	10	1000	26	26	Connectorized
CRA69 ♦	Cascadable, High Gain	10	1000	25	34	Connectorized
CRA66 ♦	Cascadable, High Gain	10	1000	37	30	Connectorized
CA66-1	Cascadable, High Gain	10	1000	27.5	28	Connectorized
SMA1021	Cascadable, High Gain	10	1000	26	26	SMT
RA66	Cascadable, High Gain	10	1000	37	30	TO-8B
SMRA69	Cascadable, High Gain	10	1000	25	34	SMT
SMA17	Cascadable	10	1000	12	27	SMT
A17	Cascadable Amplifier	10	1000	12	27	TO-8
A66-1	Cascadable, High Gain	10	1000	27.5	28	TO-8
SMA66-1	Cascadable, High Gain	10	1000	27.5	28	SMT
RA69	Cascadable, High Gain	10	1000	25	34	TO-8B
A19-1	Cascadable Amplifier	10	1000	11.5	35	TO-8
SMA19-1	Cascadable	10	1000	11.5	35	SMT
CA19-1 ♦	Cascadable	10	1000	11.5	35	Connectorized
AMC-155-SMA ♦	Cascadable, High Dynamic Range	300	1000	12.3	30	Connectorized
SMRA66	Cascadable, High Gain	10	1000	37	30	SMT
A1021	Cascadable, High Gain	10	1000	26	26	TO-8
CA66 ♦	Cascadable	10	1200	23.5	28	Connectorized
CA64 ♦	Cascadable, High Gain	10	1200	26	20	Connectorized
SMA66	Cascadable	10	1200	23.5	28	SMT
SMA64	Cascadable, High Gain	10	1200	26	20	SMT
A64	Cascadable, High Gain	10	1200	26	20	TO-8
A66	Cascadable	10	1200	23.5	28	TO-8
SMA28	Cascadable	10	1500	11	29	SMT
CA26 ♦	Cascadable	10	1500	20.5	27	Connectorized
CA24 ♦	Cascadable	5	1500	20	21	Connectorized

Note: Part numbers are RoHS compliant. ♦ indicates non-RoHS compliant.

Detailed specifications can be found quickly on our website at [macom.com](http://macom.com) by typing the part number into the search box. All specifications are subject to change.

**Hybrid Amplifiers: Gain Blocks** (continued)

Part Number	Description	Min Freq (MHz)	Max Freq (MHz)	Gain (dB)	OIP3 (dBm)	Package
SMA29-1	Cascadable	10	1500	9	32	SMT
A26	Cascadable Amplifier	10	1500	20.5	27	TO-8
A29-1	Cascadable	10	1500	9	32	TO-8
A28	Cascadable	10	1500	11	29	TO-8
A25	Cascadable Amplifier	5	1500	10	21	TO-8
A24	Cascadable	5	1500	20	21	TO-8
SMA26	Cascadable	10	1500	20.5	27	SMT
SMA24	Cascadable	5	1500	20	21	SMT
A27	Cascadable	5	1500	8.5	28	TO-8
CA28 ♦	Cascadable	10	1500	11	29	Connectorized
CA29-1 ♦	Cascadable	10	1500	9	32	Connectorized
CRA36 ♦	Cascadable, High Gain	100	2000	24	22	Connectorized
SMA36	Cascadable	100	2000	16.5	23	SMT
SMPA2010	Cascadable, Medium Power	200	2000	10	33	SMT
A38	Cascadable	10	2000	9.5	30	TO-8
CA38 ♦	Cascadable	10	2000	9.5	30	Connectorized
SMA39	Cascadable	10	2000	7.5	34	SMT
RA36	Cascadable, High Gain	100	2000	24	22	TO-8
SMA35	Cascadable	10	2000	10	21	SMT
A39	Cascadable	10	2000	7.5	34	TO-8
SMA38	Cascadable	10	2000	9.5	30	SMT
A34	Cascadable	100	2000	16	18	TO-8
A36	Cascadable	100	2000	16.5	23	TO-8
SMA37	Cascadable	10	2000	10	28	SMT
SMRA36	Cascadable, High Gain	100	2000	24	22	SMT
A37	Cascadable	10	2000	10	28	TO-8
SMA34	Cascadable	100	2000	16	18	SMT
A35	Cascadable	10	2000	10	21	TO-8
CA35 ♦	Cascadable	10	2000	10	21	Connectorized
CA36-1 ♦	Cascadable	100	2300	16.2	23	Connectorized

**Hybrid Amplifiers: Low Noise Amplifiers**

Part Number	Description	Min Freq (MHz)	Max Freq (MHz)	Gain (dB)	Noise Figure (mA)	OIP3 (dBm)	Package
AMC-162-SMA ♦	Cascadable, Low Noise, High Dynamic Range	10	100	12.5	1.5	30	Connectorized
AMS-162-PIN ♦	Cascadable, High Dynamic Range	10	100	12.5	1.5	30	TO-8
AM-162-PIN ♦	Cascadable, High Dynamic Range	10	100	12.5	1.1	32	TO-8
A101	Cascadable, High Linearity	5	100	17	3	36	TO-8
SMA101	Cascadable, High Linearity	5	100	17	3	36	SMT
MAAM-007844-OCA801 ♦	Cascadable	10	200	27.3	2	28	Connectorized
SMA80-1	Cascadable	10	200	27.3	2	28	SMT
A80-1	Cascadable	10	200	27.3	2	28	TO-8
SMA70-1	Cascadable, High Dynamic Range	10	250	8	1.8	28	SMT
CA83-1 ♦	Cascadable	10	250	35.5	2.5	9	Connectorized
A82-1	Cascadable	20	250	19	2.8	26	TO-8
SMA70	Cascadable, High Dynamic Range	10	250	8	1.6	24	SMT
SMA82-1	Cascadable	20	250	19	2.8	26	SMT
CA82 ♦	Cascadable	20	250	25	2.8	31	Connectorized

Note: Part numbers are RoHS compliant. ♦ indicates non-RoHS compliant.

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Hybrid Amplifiers: Low Noise Amplifiers (continued)

Part Number	Description	Min Freq (MHz)	Max Freq (MHz)	Gain (dB)	Noise Figure (mA)	OIP3 (dBm)	Package
A70-1	Cascadable, High Dynamic Range	10	250	8	1.8	28	TO-8
CA231 ♦	Cascadable, High Gain	10	250	26	1.7	22	Connectorized
SMA82	Cascadable	20	250	25	2.8	31	SMT
SMA81-1	Cascadable	20	250	25	2.5	27	SMT
SMA81	Cascadable	20	250	24.5	2.6	28	Ceramic SMT0-8
A231	Cascadable, High Gain	10	250	26	1.7	22	TO-8
A70	Cascadable, High Dynamic Range	10	250	8	1.6	24	TO-8
A81-1	Cascadable	20	250	25	2.5	27	TO-8
A70-3	Cascadable, High Dynamic Range	20	250	8	2.8	40	TO-8
SMA83-1	Cascadable	10	250	35.5	2.5	9	SMT
A82	Cascadable	20	250	25	2.8	31	TO-8
SMA231	Cascadable, High Gain	10	250	26	1.7	22	SMT
A81	Cascadable	20	250	25.5	3	28	TO-8
CA70-2 ♦	Cascadable, High Dynamic Range	10	250	8	2.2	38	Connectorized
A74-1	Cascadable, High Gain	5	250	31	4.5	21	TO-8
A70-2	Cascadable, High Dynamic Range	10	250	8	2.2	38	TO-8
A83-1	Cascadable	10	250	35.5	2.5	9	TO-8
CA78 ♦	Cascadable	5	300	14	3.5	35	Connectorized
SMA87-2	Cascadable	10	300	16	2.9	24	SMT
A78	Cascadable	5	300	14	3.5	35	TO-8
A87-2	Cascadable	10	300	16	2.9	24	TO-8
SMA78	Cascadable	5	300	14	3.5	35	SMT
SMA70-2	Cascadable, High Dynamic Range	10	300	8	2.2	38	Ceramic SMT0-8
SMA70-3	Cascadable, High Dynamic Range	15	300	8	2.8	40	Ceramic SMT0-8
PAW1027 ♦	Ultra Linear Power, Multi Carrier	35	350	38.5	3.7	43	SOT115J
EA1	Cascadable	5	400	14	4.3	13	TO-5
CA87-1 ♦	Cascadable	10	400	16	3.4	31	Connectorized
SMA411	Cascadable	10	400	15.8	3	24	SMT
SMA87-1	Cascadable	10	400	16	3.4	31	SMT
A87-1	Cascadable	10	400	16	3.4	31	TO-8
MAAM-008199-000A51	Cascadable	10	400	15	2.7	10	TO-8
A411	Cascadable	10	400	15.8	3	24	TO-8
CA511 ♦	Cascadable	10	500	17	3.4	33	Connectorized
MAAM-007272-SMA514	Cascadable, High Gain	5	500	28	4	32	SMT0-8
MAAM-007272-OCA515 ♦	Cascadable, High Gain	5	500	27.5	3.5	33	Connectorized
CA74 ♦	Cascadable, High Gain	5	500	30	3	20	Connectorized
AMC-147-SMA ♦	Cascadable, High Linearity	5	500	17	3.4	33	Connectorized
AMC-143-SMA ♦	Cascadable	5	500	15.8	2.5	20	Connectorized
AM-131-PIN	Cascadable, Low Noise, High Linearity	5	500	11.5	4	34	TO-8
AMC-123-SMA ♦	Cascadable, Low Noise, High Linearity	5	500	10	5.5	30	Connectorized
MAAM-007272-SMA515	Cascadable, High Gain	5	500	27.5	3.5	33	SMT0-8
A515	Cascadable, High Gain	5	500	27.5	3.5	33	TO-8
CA81-2 ♦	Cascadable	20	500	24.5	3	28	Connectorized
CA75 ♦	Cascadable	5	500	21	2.1	21	Connectorized
CA76 ♦	Cascadable, High Gain	5	500	28	3	28	Connectorized
A76	Cascadable, High Gain	5	500	28	3	28	TO-8
CA531 ♦	Cascadable	10	500	31.7	2	14	Connectorized

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**Hybrid Amplifiers: Low Noise Amplifiers** (continued)

Part Number	Description	Min Freq (MHz)	Max Freq (MHz)	Gain (dB)	Noise Figure (mA)	OIP3 (dBm)	Package
CA180 ♦	Cascadable	10	500	16.5	3.4	33	Connectorized
SMA59	Cascadable, High Dynamic Range	5	500	11.5	4.3	36	SMT
SMA75-3	Cascadable	10	500	20.5	1.7	16	SMT
A75-3	Cascadable	10	500	20.5	1.7	16	TO-8
SMA75	Cascadable	5	500	21	2.1	21	SMT
SMA74	Cascadable, High Gain	5	500	30	3	20	SMT
SMA58	Cascadable	5	500	11.5	4	34	SMT
EA53-2	Cascadable	5	500	19	3.6	24	TO-5
SMA73	Cascadable, High Gain	5	500	32	3.5	15	SMT
A74	Cascadable, High Gain	5	500	30	3	20	TO-8
A58	Cascadable	5	500	11.5	4	34	TO-8
SMA1	Cascadable	5	500	16	2.4	11	SMT
A1	Cascadable Amplifier	5	500	16	2.4	11	TO-8
A73	Cascadable, High Gain	5	500	32	3.5	15	TO-8
SMA76	Cascadable, High Gain	5	500	28	3	28	SMT
A75	Cascadable Amplifier	5	500	21	2.1	21	TO-8
SMA76-1	Cascadable, High Efficiency	5	500	27.5	3	26	SMT
A59	Cascadable, High Dynamic Range	5	500	11.5	4.3	36	TO-8
A531	Cascadable	10	500	31.7	2	14	TO-8
A76-1	Cascadable, High Efficiency	5	500	27.5	3	26	TO-8
A81-2	Cascadable	20	500	24.5	3	28	TO-8
MAAM-008317-CA7503 ♦	Cascadable	10	500	20.5	1.7	16	Connectorized
SMA180	Cascadable	10	500	16.5	3.4	33	SMT
MAAM-007272-OCA514	Cascadable, High Gain	5	500	28	4	32	Connectorized
A514	Cascadable, High Gain	5	500	28	4	32	TO-8
A511	Cascadable Amplifier	10	500	17	3.4	33	TO-8
A180	Cascadable	10	500	16.5	3.4	33	TO-8
A80	Cascadable	20	500	29	2.5	27	TO-8
A81-3	Cascadable	20	500	17	4	20	TO-8
SMA80	Cascadable	10	550	29	2.3	27	Ceramic SMT0-8
SMA67-1	Cascadable, High Efficiency	10	600	15	3.7	30	SMT
CA67-1 ♦	Cascadable, High Efficiency	10	600	15	3.7	30	Connectorized
A67-1	Cascadable, High Efficiency	10	600	15	3.7	30	TO-8
SMA611	Cascadable, Low Noise, Low Volt	5	700	15	3.2	24	SMT
A611	Cascadable, Low Noise, Low Volt	5	700	15	3.2	24	TO-8
A67	Cascadable, High Efficiency	10	800	14	4	30	TO-8
AMC-176-SMA ♦	Cascadable	5	1000	13.2	4	27	Connectorized
CA66-3 ♦	Cascadable, High Efficiency	10	1000	26	3	13	Connectorized
A11	Cascadable Amplifier	5	1000	14.7	3.1	10	TO-8
SMA66-3	Cascadable, High Efficiency	10	1000	26	3	13	SMT
SMA1031	Cascadable, High Gain	10	1000	28.5	2.7	22	SMT
A12	Cascadable Amplifier	10	1000	16	2.8	22	TO-8
A66-3	Cascadable, High Efficiency	10	1000	26	3	13	TO-8
A1031	Cascadable, High Gain	10	1000	28.5	2.7	22	TO-8
A18-1	Cascadable, High Dynamic Range	10	1000	14.7	3.8	30	TO-8
SMA11-2	Cablecast	5	1000	16	2.5	10	SMT
CA18-1 ♦	Cascadable, High Dynamic Range	10	1000	14.7	3.8	30	Connectorized

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# AMPLIFIERS

## Hybrid Amplifiers: Low Noise Amplifiers (continued)

Part Number	Description	Min Freq (MHz)	Max Freq (MHz)	Gain (dB)	Noise Figure (mA)	OIP3 (dBm)	Package
SMA18-1	Cascadable, High Dynamic Range	10	1000	14.7	3.8	30	SMT
SMA63	Cascadable	5	1000	16	3	15	SMT
AMC-182-SMA ♦	Cascadable, High Gain	5	1000	28.2	3.5	20	Connectorized
A63	Cascadable	5	1000	16	3	15	TO-8
MAAM-008198-SMA162	Cascadable, High Efficiency	10	1200	13	3.5	18	SMTO-8
SMA1211	Cascadable, Low Volt	10	1200	14	2.8	20	SMT
CA12 ♦	Cascadable, Low Volt	10	1200	14	2.8	20	Connectorized
CA1212 ♦	Cascadable, Low Volt	100	1200	14	1.8	29	Connectorized
A1212	Cascadable Amplifier	100	1200	14	1.8	29	TO-8
SMA1212	Cascadable, Low Volt	100	1200	14	1.8	29	SMT
MAAM-008198-OCA162	Cascadable, High Efficiency	10	1200	13	3.5	18	Connectorized
A1211	Cascadable Amplifier	10	1200	14	2.8	20	TO-8
CA28-2 ♦	Cascadable, High Efficiency	10	1500	14	3.5	24	Connectorized
A28-2	Cascadable, High Efficiency	10	1500	14	3.5	24	TO-8
A25-1	Cascadable	2	1500	13.5	3	22	TO-8
SMA28-2	Cascadable, High Efficiency	10	1500	14	3.5	24	SMT
CA25-1 ♦	Cascadable	2	1500	13.5	3	22	Connectorized
AM-153-PIN ♦	Cascadable, Low Noise	300	1800	12.4	2.5	17	TO-8
PA38	Cascadable, Medium Power	200	2000	10	4	34	TO-8
CA32 ♦	Cascadable, High Linearity	100	2000	13	2.1	32	Connectorized
SMA32	Cascadable, High Linearity	100	2000	13	2.1	32	SMT
SMA32-1	Cascadable, Low Noise, Low Volt	100	2000	11.5	2.5	25	SMT
A32-1	Cascadable, Low Noise, Low Volt	100	2000	11.5	2.5	25	TO-8
A32	Cascadable, High Linearity	100	2000	13	2.1	32	TO-8
CPA38 ♦	Cascadable, Medium Power	200	2000	10	4	34	Connectorized
CA32-1 ♦	Cascadable, Low Noise, Low Volt	100	2000	11.5	2.5	25	Connectorized
A31-1	Cascadable Amplifier	10	2000	11.5	3.5	9	TO-8
SMPA38	Cascadable, Medium Power	200	2000	10	4	34	SMT
MAAM-007501-OA2002	Cascadable	20	2700	11.5	2.5	40	TO-8
MAAM-007501-CA2002	Cascadable	20	2700	11.5	2.5	40	Connectorized
MAAM-007501-SA2002	Cascadable	20	2700	11.5	2.5	40	SMTO-8
SMA45	Cascadable	1000	4000	17.5	4	29	SMT
CA45 ♦	Cascadable	1000	4000	17.5	4	29	Connectorized
A45-1	Cascadable	1000	4000	17.5	4	26	TO-8
SMA4012	Cascadable, Low Noise, Low Volt	1000	4000	18	3.5	26	SMT
A4012	Cascadable, Low Noise, Low Volt	1000	4000	18	3.5	26	TO-8
A4011	Cascadable, Low Noise, Low Volt	1000	4000	15.5	2	29	TO-8
SMA45-1	Cascadable	1000	4000	17.5	4	26	SMT
SMA4011	Cascadable, Low Noise, Low Volt	1000	4000	15.5	2	29	SMT
A45	Cascadable	1000	4000	17.5	4	29	TO-8
A61	Cascadable, Low Noise, Low Volt	2000	6000	7.5	3.2	25	TO-8
A6011	Cascadable, Low Noise, Low Volt	2000	6000	14.8	1.5	30	TO-8
SMA61	Cascadable, Low Noise, Low Volt	2000	6000	7.5	3.2	25	SMT
CA6011 ♦	Cascadable, Low Noise, Low Volt	2000	6000	14.8	1.5	30	Connectorized
SMA6011	Cascadable, Low Noise, Low Volt	1500	6000	14.8	1.5	30	Ceramic SMTO-8

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Hybrid Amplifiers: Limiting Amplifiers						
Part Number	Description	Min Freq (MHz)	Max Freq (MHz)	Gain (dBm)	Package	
CAL7 ♦	Cascadable, Limiting Amplifier	50	500	13	SMA	
LA7	Cascadable, Limiting Amplifier	50	500	12.5	TO-8	
AL7	Cascadable, Limiting Amplifier	50	500	13	TO-8	
SMLA7	Cascadable, Limiting Amplifier	50	500	12.5	Ceramic SMTO-8	
CLA7 ♦	Cascadable, Limiting Amplifier	50	500	12.5	SMA	
SMAL7	Cascadable, Limiting Amplifier	20	550	13	Ceramic SMTO-8	
SMLA17	Cascadable, Limiting Amplifier	10	1000	11.5	Ceramic SMTO-8	
CLA17 ♦	Cascadable, Limiting Amplifier	10	1000	11.5	SMA	
LA17	Cascadable, Limiting Amplifier	10	1000	11.5	TO-8	
SML1	Cascadable, Signal Limiter	5	3000	—	Ceramic SMTO-8	
L1	Cascadable, Signal Limiter	5	3000	—	TO-8	
CL42 ♦	Cascadable, Signal Limiter	50	4000	—	SMA	
L42	Cascadable, Signal Limiter	50	4000	—	TO-8	
SML42	Cascadable, Signal Limiter	50	4000	—	SMT	

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## DIODES

### For Microwave Circuit Applications from 1 MHz to 80 GHz

MACOM designs, manufactures, and supports one of the widest variety of PIN, Schottky, Varactor, and Multiplier diodes in the industry for microwave circuit applications from 1 MHz to 80 GHz. Our diodes are manufactured in die, SURMOUNT™, plastic, and ceramic packaging for a variety of circuit configurations providing high performance.



#### Variable Varactor Diodes

- > GaAs constant gamma series for higher frequency and high Q applications
- > Plastic packaged silicon varactor diodes for surface mount applications, including VCOs, tunable filters, and phase shifters

#### Step Recovery Diodes

- > Flip chip series for higher frequency millimeterwave applications
- > Plastic packaged series for microwave frequency surface mount applications
- > Ceramic packaged series for high power waveguide and coaxial applications

#### PIN Switch and Attenuator Diodes

- > Broadband performance from 1 MHz to 70 GHz
- > Excellent choices for switch, limiter, phase shifter, and attenuator circuit applications
- > Plastic series for cost effective, surface mount applications
- > AlGaAs series for low loss, high isolation millimeter wave frequency applications
- > GaAs and silicon flip chip series for surface mount millimeterwave applications
- > SURMOUNT™ chip scale style for surface mount high performance applications

#### PIN Limiter Diodes

- > Die series for chip and wire high frequency microwave applications
- > Ceramic packaged series for waveguide, coaxial, and surface mount applications

#### Schottky Mixer and Detector Diodes

- > Best choice for microwave circuit detector and mixer applications ranging from DC to 80 GHz
- > Available in die form, SURMOUNT™, flip chip, plastic, and ceramic packaging

#### THz Diodes

- > The intrinsic cutoff frequencies of these Schottky junction devices exceed 1 THz
- > Well-suited for use in mixers and detectors operating in the frequency bands from 60 GHz into the hundreds of GHz bands



Variable Varactor Diodes						
Part Number	Gamma	Total Capacitance (pF)	Quality Factor @ 50 MHz, Min	Breakdown Voltage (V)	Package	
MAVR-011020-1411	0.9	0.025	3000	22	ODS-287/SOT-23	
MAVR-011005-12790T	1	0.27	—	20	ODS-1279 (SC-79)	
MA46600-134 <b>S</b>	0.5	0.3	8000	30	ODS-134 Die	
MGV075-08	0.75	0.3	4000	22	C01A	
MAVR-000120-14110G	1	0.35	3000	20	Flip Chip Die	
MAVR-000120-14110P	1	0.35	3000	20	Flip Chip Die	
MAVR-000120-12030W	1	0.35	3000	15	Flip Chip Die	
MGV100-08	1	0.35	4000	22	Die/Various	
MA46H120	1	0.35	3000	15	Flip Chip Die	
MGV075-09	0.75	0.4	4000	22	C01A	
MTV4030-01	—	0.4	5000	30	Die/Various	
MGV100-09	1	0.45	4000	22	Die/Various	
MGV075-10	0.75	0.5	3000	22	C01A	
MA46580-1209	1.25	0.5	3000	18	ODS-1209 Die	
MA46585-1209	1.25	0.5	3000	18	ODS-1209 Die	
MA46470-120	1.25	0.5	4000	22	ODS-120	
MA46470-134	1.25	0.5	4000	22	ODS-134 Die	
MGV100-20	1	0.55	4000	22	Die/Various	
MTV4030-02	—	0.6	5000	30	Die/Various	
MA46603-276	0.5	0.6	6500	30	ODS-276	
MA46603-134 <b>S</b>	0.5	0.6	6500	30	ODS-134 Die	
MA46H070-1056 <b>S</b>	0.75	0.6	4500	20	ODS-1056	
MA46H200-1056	1.25	0.6	3000	22	ODS-1056	
MA46471-134	1.25	0.7	4000	22	ODS-134 Die	
MTV4030-03	—	0.8	4800	30	Die/Various	
MA46H071-1056 <b>S</b>	0.75	1	4500	20	ODS-1056	
MA46H071-1088	0.75	1	4500	20	ODS-1088	
MTV4030-04	—	1	4800	30	Die/Various	
MA46472-94	1.25	1	3000	22	ODS-94	
MA46H501-1056	1.5	1	2500	18	ODS-1056	
MA46413-120	1.5	1	2500	18	ODS-120	
MA46H201-1056	1.25	1	3000	22	ODS-1056	
MA46H201-1088	1.25	1	3000	22	ODS-1088	
MA46452-134	1	1	3000	22	ODS-134 Die	
MA46472-134	1.25	1	3000	22	ODS-134 Die	
MA46473-134	1.25	1.2	3000	22	ODS-134 Die	
MTV4030-05	—	1.2	4600	30	Die/Various	
MA46473-186	1.25	1.2	3000	22	ODS-186	
MA46474-134	1.25	1.5	3000	22	ODS-134 Die	
MA46474-120	1.25	1.5	3000	22	ODS-120	
MA46474-94	1.25	1.5	3000	22	ODS-94	
MA46474-95	1.25	1.5	3000	22	ODS-95	
MGV100-26	1	1.7	3000	22	Die/Various	
MA46416-134 <b>S</b>	1.5	1.8	2500	18	ODS-134 Die	
MTV4030-08	—	1.8	4200	30	Die/Various	
MTV4030-09	—	2.2	4000	30	Die/Various	
MA46477-134	1.25	2.2	3000	22	ODS-134 Die	

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## Variable Varactor Diodes (continued)

Part Number	Gamma	Total Capacitance (pF)	Quality Factor @ 50 MHz, Min	Breakdown Voltage (V)	Package
MA46477-186	1.25	2.2	3000	22	ODS-186
MTV4030-10	—	2.7	3800	30	Die/Various
MAVR-000250-0287AT	1	2.7	450	12	SOT-23
MAVR-000250-0287FT	1	2.7	450	12	SOT-23
MAVR-000250-11410T	1	2.7	450	12	SOT-23
MAVR-000250-1146AT	1	2.7	450	12	SC-703LD
MAVR-000250-12790T	1	2.7	450	12	ODS-1279 (SC-79)
MA46H202-1056	1.25	3	2000	22	ODS-1056
MA46H202-1088	1.25	3	2000	22	ODS-1088
MAVR-000202-12790T	1.25	3	2000	22	ODS-1279 SC-79
MA46H072-1056 S	0.75	3	3000	20	ODS-1056
MA4ST1241-1141T	1	3.4	1200	12	ODS-1141 (SOT-323)
MAVR-001240-12790T	1	3.4	1200	12	ODS-1279 (SC-79)
MAVR-000240-11410T	1	3.5	450	12	ODS-1141 SOD323
MAVR-000240-0287AT	1	3.5	450	12	ODS-287 (SOT-23)
MAVR-000240-1146FT	1	3.5	450	12	ODS-1146 (SC-703LD)
MA46480-134	1.25	3.8	2000	22	ODS-134 Die
MAVR-045436-12790T	0.5	4.7	1800	30	SC-79
MAVR-045436-0287FT	0.5	4.7	1800	30	SOT-23
MAVR-045436-0287AT	0.5	4.7	1800	30	SOT-23
MA4ST1231-1141T	1	4.7	1700	12	ODS-1141 (SOT-323)
MAVR-001230-12790T	1	4.7	1700	12	ODS-1279 (SC-79)
MA46461-186	1	4.7	1500	22	ODS-186
MA46H203-1056	1.25	5	1500	22	ODS-1056
MA46H503	1.5	5	1200	18	ODS-1056
MA46H203-1088	1.25	5	1500	22	ODS-1088
MAVR-000083-0287FT	1.3	5	450	12	ODS-287 (SOT-23)
MAVR-000083-0287AT	1.3	5	450	12	ODS-287 (SOT-23)
MA46H073-1056 S	0.75	5	2200	20	ODS-1056
MTV4030-15	—	5.6	3000	30	Die/Various
MAVR-001350-1146FT	1	5.9	690	12	ODS-1146 (SC-70-3LD)
MAVR-001350-12790T	1	5.9	690	12	ODS-1279 (SC-79)
MAVR-000350-11410T	1	6.2	400	12	ODS-1141 (SOT-323)
MAVR-045438-0287FT	0.5	6.8	1600	30	SOT-23
MAVR-045438-0287AT	0.5	6.8	1600	30	SOT-23
MA46483-186	1.25	6.8	1500	22	ODS-186
MAVR-000082-0287AT	1.3	7.3	350	12	ODS-287 (SOT-23)
MAVR-001340-11410T	1	9.2	600	12	SOT-323
MAVR-001340-1146FT	1	9.2	600	12	ODS-1146 (SC-70-3LD)
MAVR-001340-12790T	1	9.2	600	12	ODS-1279 (SC-79)
MAVR-000340-11410T	1	9.5	350	12	ODS-1141 (SOT-323)
MA46485-120	1.25	10	1500	22	ODS-120
MA46H204-1088	1.25	10	1500	22	ODS-1088
MA46H204-1056	1.25	10	1500	22	ODS-1056
MAVR-045440-0287FT	0.5	10	1300	30	SOT-23
MAVR-045440-0287AT	0.5	10	1300	30	SOT-23
MAVR-000401-0287AT	1	10	250	22	ODS-287 (SOT-23)

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## Variable Varactor Diodes (continued)

Part Number	Gamma	Total Capacitance (pF)	Quality Factor @ 50 MHz, Min	Breakdown Voltage (V)	Package
MAVR-000401-0287FT	1	10	250	22	ODS-287 (SOT-23)
MAVR-000081-0287FT	1.3	10.1	300	12	ODS-287 (SOT-23)
MAVR-000081-0287AT	1.3	10.1	300	12	ODS-287 (SOT-23)
MAVR-045441-0287FT	0.5	12	1200	30	SOT-23
MAVR-045441-0287AT	0.5	12	1200	30	SOT-23
MAVR-001330-1146FT	1	13.2	530	12	ODS-1146 (SC-70-3LD)
MAVR-001330-1279OT	1	13.2	530	12	ODS-1279 (SC-79)
MAVR-001330-1141OT	1	13.2	530	12	ODS-1141 (SOT-323)
MAVR-000403-0287AT	1	15	250	22	SOT-23
MTV4030-20	—	15	2000	30	Die/Various
MAVR-000403-0287FT	1	15	250	22	ODS-287 (SOT-23)
MTV4030-21	—	18	1800	30	Die/Various
MAVR-000404-0287FT	1	18	175	22	ODS-287 (SOT-23)
MTV4030-22	—	22	1600	30	Die/Various
MAVR-000405-0287FT	1	22	175	22	SOT-23
MAVR-000080-0287AT	1.3	24.8	150	12	ODS-287 (SOT-23)
MAVR-000080-0287FT	1.3	24.8	150	12	ODS-287 (SOT-23)
MAVR-000320-1141OT	1	28	300	12	ODS-1141 (SOT-323)
MAVR-001320-1141OT	1	28.3	350	12	ODS-1141 (SOT-323)
MAVR-001320-1146FT	1	28.3	350	12	ODS-1146 (SC-70-3LD)
MAVR-045446-0287AT	0.5	33	750	30	SOT-23
MTV4030-24	—	33	1400	30	Die/Various
MAVR-000407-0287FT	1	33	150	22	SOT-23
MAVR-000407-0287AT	1	33	150	22	ODS-287 (SOT-23)
MAVR-000409-0287FT	1	47	150	22	ODS-287 (SOT-23)
MTV4030-26	—	47	1000	30	Die/Various
MAVR-000079-0287FT	1.3	54.1	80	12	ODS-287 (SOT-23)

## Step Recovery Diodes

Part Number	Total Capacitance Min (pF)	Total Capacitance Max (pF)	Reverse Voltage (V)	Lifetime (Typ vs Min) (ns)	Tt (Typ vs Max) (ps)	Package
MMDB35-B11 S	0.13	0.2	16	4	35	B11
MMDB45-B11 S	0.11	0.2	25	8	40	B11
MMDB30-B11 S	0.15	0.25	14	4	30	B11
MMDB35-0402	0.22	0.28	16	4	35	0402
MMDB45-0402	0.21	0.28	25	8	45	0402
MMDB35-0805-2	0.23	0.29	16	4	35	0805-2
MMDB45-0805-2	0.22	0.29	25	8	45	0805-2
MMDB45-E28/28X	0.24	0.31	25	8	45	E28/28X
MMDB35-E28/28X	0.25	0.31	16	4	35	E28/28X
MMDB30-0402	0.25	0.32	14	4	30	0402
MMDB30-0805-2	0.26	0.33	14	4	30	0805-2
MMDB30-E28/28X	0.28	0.36	14	4	30	E28/28X
MSD700 S	0.2	0.4	15	8	60	Die/Various
MSD700-12	0.2	0.4	15	8	60	CS12
MSD710 S	0.2	0.4	20	11	70	Die/Various
MSD720 S	0.2	0.4	30	17	100	Die/Various
MMDB37-C11 S	0.2	0.4	20	5	70	Die

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## Step Recovery Diodes (continued)

Part Number	Total Capacitance Min (pF)	Total Capacitance Max (pF)	Reverse Voltage (V)	Lifetime (Typ vs Min) (ns)	Tt (Typ vs Max) (ps)	Package
MMD840-C11 <b>S</b>	0.2	0.4	15	7	70	Die
SMMD837-SOD323	0.2	0.4	20	5	90	SOD323
SMMD837-SOT23-0S	0.2	0.4	20	5	90	SOT23-0S
SMMD837-SOT23-1S	0.2	0.4	20	5	90	SOT23-1S
SMMMD840-SOD323	0.2	0.4	15	5	90	SOD323
SMMMD840-SOT23-0S	0.2	0.4	15	5	90	SOT23-0S
MMD837-0805	0.26	0.46	20	5	70	805-2
MMD840-0805	0.26	0.46	15	7	70	0805-2
MMD837-E28	0.28	0.48	20	5	70	E28
MMD837-E28X	0.28	0.48	20	5	70	E28X
MMD840-E28X	0.28	0.48	15	7	70	E28X
MMD840-E28	0.28	0.48	15	7	70	E28
MMD840-H27 <b>S</b>	0.32	0.52	15	7	70	H27
MMD837-H27 <b>S</b>	0.32	0.52	20	5	70	H27
MMD837-T86 <b>S</b>	0.38	0.58	20	5	70	T86
MMD840-T86 <b>S</b>	0.38	0.58	15	7	70	T86
MSD701 <b>S</b>	0.4	0.6	15	8	60	Die/Various
MSD711 <b>S</b>	0.4	0.6	20	11	70	Die/Various
MSD731 <b>S</b>	0.4	0.6	40	21	150	Die/Various
MMD835-C11 <b>S</b>	0.3	0.7	15	10	70	Die
MMD0840-A15 <b>S</b>	—	0.75	15	—	—	A15
MSD722 <b>S</b>	0.6	0.8	30	17	100	Die/Various
MMD0151-A15 <b>S</b>	—	0.8	15	—	100	A15
MMD832-C11 <b>S</b>	0.4	0.8	20	10	80	Die
SMMD832-SOD323	0.4	0.8	20	10	100	SOD323
SMMD832-SOT23-0S	0.4	0.8	20	10	100	SOT23-0S
SMMD832-SOT23-1S	0.4	0.8	20	10	100	SOT23-1S
MMD835-0805	0.36	0.86	15	10	60	0805-2
MMD832-0805	0.46	0.86	20	10	80	0805-2
MMD832-E28	0.48	0.88	20	10	80	E28
MMD835-E28X	0.38	0.88	15	10	50	E28X
MMD835-E28	0.38	0.88	15	10	70	E28
MMD835-H20 <b>S</b>	0.42	0.92	15	10	70	H20
MMD832-H20 <b>S</b>	0.58	0.98	20	10	60	H20
MMD832-T86 <b>S</b>	0.58	0.98	20	10	60	T86
MMD835-T86 <b>S</b>	0.48	0.98	15	10	70	T86
SMMD830-SOD323	0.5	1	25	15	110	SOD323
SMMD830-SOT23-0S	0.5	1	25	15	110	SOT23-0S
SMMD830-SOT23-1S	0.5	1	25	15	110	SOT23-1S
MSD703 <b>S</b>	0.8	1	15	8	60	Die/Various
MSD723 <b>S</b>	0.8	1	30	17	100	Die/Various
MSD733 <b>S</b>	0.8	1	40	21	150	Die/Various
MMD830-C11 <b>S</b>	0.5	1	25	15	80	Die
MMD830-0805	0.56	1.06	25	15	80	0805-2
MMD830-E28X	0.58	1.08	25	15	80	E28X
MMD830-E28	0.58	1.08	25	15	80	E28
MMD830-H20 <b>S</b>	0.68	1.18	25	15	80	H20

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**Step Recovery Diodes (continued)**

Part Number	Total Capacitance Min (pF)	Total Capacitance Max (pF)	Reverse Voltage (V)	Lifetime (Typ vs Min) (ns)	Tt (Typ vs Max) (ps)	Package
MMD830-T86 <b>S</b>	0.68	1.18	25	10	80	T86
MAVR-044769-12790T	0.8	1.2	30	—	150	ODS-1279 (SC-79)
MA144769-287T	0.8	1.2	30	—	150	ODS-287 (SOT-23)
MAVR-044769-0287FT	0.8	1.2	30	—	150	ODS-287 (SOT-23)
MSD724 <b>S</b>	1	1.4	30	17	100	Die/Various
MMD820-C12 <b>S</b>	1	1.7	40	30	100	Die
SMMD820-SOD323	1	1.7	40	30	125	SOD323
SMMD820-SOT23-0S	1	1.7	40	30	125	SOT23-0S
SMMD820-SOT23-1S	1	1.7	40	30	125	SOT23-1S
MMD820-0805	1.06	1.76	40	30	100	0805-2
MMD820-E28X	1.08	1.78	40	30	100	E28X
MMD820-E28	1.08	1.78	40	30	100	E28
MMD820-H20 <b>S</b>	1.18	1.88	40	30	100	H20
MMD820-T86 <b>S</b>	1.18	1.88	40	30	100	T86
SMMD810-SOD323	1.5	2.5	50	40	250	SOD323
SMMD810-SOT23-0S	1.5	2.5	50	40	250	SOT23-0S
SMMD810-SOT23-1S	1.5	2.5	50	40	250	SOT23-1S
MMD810-T86 <b>S</b>	1.68	2.68	50	40	250	T86
MSD726 <b>S</b>	2	3	30	17	100	Die/Various
MSD736 <b>S</b>	2	3	40	21	150	Die/Various
SMMD805-SOD323	2.5	3.5	60	80	300	SOD323
SMMD805-SOT23-0S	2.5	3.5	60	80	300	SOT23-0S
SMMD805-SOT23-1S	2.5	3.5	60	80	300	SOT23-1S
MMD805-0805	2.56	3.56	60	80	300	0805-2
MMD0815-A15 <b>S</b>	—	4.15	50	—	320	A15

**PIN Switch and Attenuator Diodes**

Part Number	Min Freq (MHz)	Max Freq (MHz)	CW Power Dissipation (W)	Total Capacitance (pF)	Resistance (Ω)	Tl (ns)	Breakdown Voltage Min (V)	Package
MMP7078 <b>S</b>	0.1	100	—	1	0.5	2500	400	Die/Various
MMP7078-127-1	0.1	100	5	1	0.5	2500	400	CS127-1
MA4P1450NM-1091T †	1	300	30	1.8	5	8000	50	ODS-1091
MADP-011048	5	400	4.7	3	0.5	200	100	4 mm HQFN-8
MA4PH611	1	500	10	1	0.4	5000	1000	ODS-1091
MA4P1200NM-401T †	5	500	5.5	1.2	0.5	8000	50	ODS-401
MA4P1250NM-1072T	5	500	18	0.8	0.5	8000	50	ODS-1072
MA4PK3004	DC	500	50	4	0.2	65000	3000	ODS-1075
MA4P607-212	1	500	37.5	1.3	0.4	12000	1000	ODS-212 Die
MA4P506-255	1	500	13.6	0.95	0.3	3000	500	ODS-255
MA4P606-36 <b>S</b>	1	500	20	0.99	0.7	4000	1000	ODS-36
MA4PK3001	DC	500	75	4	0.2	65000	3000	ODS-1084
MA4P607-43	1	500	25	2	0.4	5000	100	ODS-43
MA4P504-255 <b>S</b>	1	500	7.5	0.4	0.6	1000	500	ODS-255
MA4P606-258	1	500	20	0.98	0.7	4000	1000	ODS-258
MA4PK3000	DC	500	75	4	0.2	65000	3000	ODS-1073
MA4PK2001	DC	500	50	3.2	0.2	30000	2000	ODS-1082
MA4P505-255 <b>S</b>	1	500	10.7	0.55	0.5	2000	500	ODS-255
MA4PK3003	DC	500	50	4	0.2	65000	3000	ODS-1085

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## PIN Switch and Attenuator Diodes (continued)

Part Number	Min Freq (MHz)	Max Freq (MHz)	CW Power Dissipation (W)	Total Capacitance (pF)	Resistance (Ω)	TI (ns)	Breakdown Voltage Min (V)	Package
MA4P4002B-402	DC	500	12	2.2	0.5	20000	200	ODS-402
MA4PK3002	DC	500	75	4	0.2	65000	3000	ODS-1074
MA4P4006B-402	DC	500	12	2.2	0.5	20000	600	ODS-402
MMP7089-127-1	0.1	500	5	0.5	0.6	1000	500	CS127-1
MA4P606-30 <b>S</b>	1	500	15	0.8	0.7	4000	1000	ODS-30
MA4PK2000 †	DC	500	50	3.2	0.2	30000	2000	ODS-1027
MA4PK2002 †	DC	500	50	3.2	0.2	30000	2000	ODS-1048
MA4PK2003 †	DC	500	37.5	3.2	0.2	30000	2000	ODS-1080
MA4PK2004 †	DC	500	37.5	3.2	0.2	30000	2000	ODS-1038
MA4P604-255 <b>S</b>	1	500	15	0.6	1	3000	1000	ODS-255
MA4P709-150	DC	500	75	3.3	0.3	10000	1500	ODS-150
MA4P4301B-402	DC	500	10	2	1	15000	100	ODS-402
MA4P1200-401T	5	500	5.5	1.2	0.5	8000	50	ODS-401
MA4P4001B-402	DC	500	12	2.2	0.5	20000	100	ODS-402
MA4P607-296 <b>S</b>	1	500	25	2.35	0.4	5000	1000	ODS-296
MA4P504-186 <b>S</b>	1	500	7.5	0.4	0.6	1000	500	ODS-186
MA4P504-30 <b>S</b>	1	500	7.5	0.4	0.6	1000	500	ODS-30
MA4P506-258	1	500	13.6	0.95	0.3	3000	500	ODS-258
MA4P506-30 <b>S</b>	1	500	13.6	0.95	0.3	3000	500	ODS-30
MA4P506-31 <b>S</b>	1	500	13.6	0.95	0.3	3000	500	ODS-31
MADP-000015-000030 <b>S</b>	1	500	15	0.55	0.4	2000	500	ODS-30
MA4P7002B-401T	1	1000	5	0.7	0.9	5000	200	ODS-401
MA4P1450-1091T	DC	1000	30	1.8	0.5	8000	50	ODS-1091
MA4P4001F-1091T	DC	1000	7.5	2.2	0.5	20000	100	ODS-1091
MA4P4002F-1091T	DC	1000	7.5	2.2	0.5	20000	200	ODS-1091
MA47266-146 <b>S</b>	1	1000	0.5	1.5	0.6	4000	200	ODS-146
MA4P606-4 <b>S</b>	1	1000	1	0.7	0.7	4000	1000	ODS-4
MA4P4301F-1091T	DC	1000	5	2	1	15000	100	ODS-1091
MA4P4006F-1091T	DC	1000	7.5	2.2	0.5	20000	600	ODS-1091
MA4PH239-1079T	DC	1000	1	0.8	6	2000	200	ODS-1079
MA47047-54 <b>S</b>	1	1000	0.3	0.3	1.5	1000	200	ODS-54
MA4P7102B-401T	1	1000	6	1	0.5	2500	200	ODS-401
MA4P7104B-401T	1	1000	6	1	0.5	2500	400	ODS-401
MA4P606-131 <b>S</b>	1	1000	15	0.6	0.7	4000	1000	ODS-131 Die
MA4P7101F-1072T	1	1000	11.5	1	0.5	2500	100	ODS-1072
MA4PH237-1079T	1	1000	1	1.5	0.6	3000	200	ODS-1079
MA47208	1	1000	15	1.3	0.3	1300	1000	ODS-114
MA4P7006B-401T	1	1000	5	0.7	0.9	5000	600	ODS-401
MA4PH238-1072T	DC	1000	1	0.5	6	2000	200	Ceramic SMT
MADP-000504-10720T †	DC	1000	2.9	0.5	0.6	1000	500	ODS-1072
MADP-007417-10720T	DC	1000	12	0.7	0.8	6500	1000	ODS-1072
MSWSE-020-05	10	1000	10	0.62	0.3	600	250	0503
MSWSE-020-10	10	1000	7.5	0.37	0.8	490	250	0503
SMPN7335-SOD323	5	1200	0.75	0.3	1.5	500	200	SOD323
SMPN7316-SOT23	50	1500	0.75	0.25	0.6	200	100	SOT23
MADP-000488-13740W <b>S</b>	100	1500	3.3	0.16	1.6	4000	900	ODS-1374 Die
MADP-000135-01340W <b>S</b>	100	1500	5	0.15	1.2	440	200	ODS-134 Die

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**PIN Switch and Attenuator Diodes** (continued)

Part Number	Min Freq (MHz)	Max Freq (MHz)	CW Power Dissipation (W)	Total Capacitance (pF)	Resistance (Ω)	TI (ns)	Breakdown Voltage Min (V)	Package
MADP-000234-10720T	DC	1500	3	1.7	0.3	3000	500	ODS-1072
MA4P7418-1072T	DC	1500	11.5	0.8	1.2	7000	1100	ODS-1072
MA4P505-1072T	DC	1500	15	0.7	0.5	2000	500	ODS-1072
MA4P7002F-1072T	DC	1500	10	0.7	0.9	5000	200	ODS-1072
MA4P7006F-1072T	DC	1500	10	0.7	0.9	5000	600	ODS-1072
MA4P7102F-1072T	DC	1500	11.5	1	0.5	2500	200	ODS-1072
MA4P7104F-1072T	DC	1500	11.5	1	0.5	2500	400	ODS-1072
MA4P506-1072T	DC	1500	15	1	0.3	3000	500	ODS-1072
MA4P7001F-1072T	DC	1500	10	0.7	0.9	5000	100	ODS-1072
MA4P1250-1072T	DC	1500	18	0.9	0.5	8000	50	ODS-1072
MA4PH235-1072T	1	1500	1	1.2	0.5	300	35	ODS-1072
MADP-000208-13180W	30	1800	2.6	0.81	0.4	500	90	ODS-1318 SURMOUNT™
SMPN7316-SOD323	50	2000	0.75	0.25	0.6	200	100	SOD323
MADP-000165-01340W <b>S</b>	100	2000	5	0.06	2.5	200	200	ODS-134 Die
MADP-042508-130600 <b>S</b>	50	2000	1.3	0.6	0.9	310	100	ODS-1306 Die
MADP-042505-130600 <b>S</b>	50	2000	1.3	0.6	0.8	210	80	ODS-1306 Die
MA4P404-258	5	2000	7.5	0.58	0.7	1000	250	ODS-258
MA4P404-30 <b>S</b>	5	2000	7.5	0.4	0.6	1000	250	ODS-30
MA4PH236-1072T	10	2000	1	0.5	3	1500	600	ODS-1072
MA47120-54T	DC	2000	0.25	1	0.5	3000	35	ODS-54
MA47123-139	DC	2000	0.25	0.5	3	1000	200	ODS-139
MA47600-54	DC	2000	0.25	0.3	6	2000	200	ODS-54
MA4P203-54	DC	2000	0.25	0.25	1.5	100	100	ODS-54
MA4P404-54	DC	2000	0.25	0.3	0.7	1000	250	ODS-54
MA4P506-4	DC	2000	0.25	0.85	0.3	2500	500	ODS-4
MA4PH151-139T	DC	2000	0.25	1.2	0.6	1000	100	ODS-139
MA4PH301	DC	2000	0.25	1.1	1	4000	200	ODS-146
MA4PH401-54T	DC	2000	0.25	0.3	1.5	1000	50	ODS-54
MPN3001 <b>S</b>	—	2000	—	0.25	1	—	200	A15
MSWSE-044-10	1	2000	7.5	0.3	0.5	1200	300	0805P
MA4P7433ST-1146T	25	2500	0.2	0.47	1.5	200	75	ODS-1146 SC-70 (3L)
MADP-007448-0287DT	25	2500	0.3	0.37	2	400	100	ODS-287 SOT-23
MADP-007167-0287FT	1	2500	0.3	0.42	16	3000	200	ODS-287 SOT-23
MADP-007167-0287BT	1	2500	0.3	0.42	16	3000	200	ODS-287 SOT-23
MADP-007436-0287DT	25	2500	0.2	1.12	0.5	200	75	ODS-287 SOT-23
MADP-007433-0287DT	25	2500	0.3	0.42	1.5	200	75	ODS-287 SOT-23
MADP-007167-11410T	1	2500	0.2	0.42	16	3000	200	ODS-1141 SOD-323 (2L)
MA4P7455CA-287T	5	2500	0.3	0.35	3	1000	100	ODS-287 SOT-23
MADP-007167-0287GT	1	2500	0.3	0.42	16	3000	200	ODS-287 SOT-23
MA4P7447ST-287T	15	2500	0.3	1.32	0.6	1000	100	ODS-287 SOT-23
MA4P7436CK-287T	25	2500	0.3	1.12	0.5	200	75	ODS-287 SOT-23
MA4P7455CA-1146T	5	2500	.25	0.47	3	1000	100	ODS-1146 SC70 (3L)
MADP-007448-12790T	25	2500	0.2	0.35	2	400	100	ODS-1279 SC-79
MADP-007167-0287DT	1	2500	0.3	0.42	16	3000	200	ODS-287 SOT-23
MA4P7436ST-287T	25	2500	0.3	1.12	0.5	200	75	ODS-287 SOT-23
MA4P7447CA-287T	15	2500	0.3	1.32	0.6	1000	100	ODS-287 SOT-23
MADP-007448-0287BT	25	2500	0.3	0.37	2	400	100	ODS-287 SOT-23

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## PIN Switch and Attenuator Diodes (continued)

Part Number	Min Freq (MHz)	Max Freq (MHz)	CW Power Dissipation (W)	Total Capacitance (pF)	Resistance ( $\Omega$ )	TI (ns)	Breakdown Voltage Min (V)	Package
MADP-007448-1146GT	25	2500	0.2	0.37	2	400	100	ODS-1146 SC70 (3L)
MA4P7455-287T	5	2500	0.3	0.47	3	1000	100	ODS-287 SOT-23
MADP-007455-0287DT	5	2500	0.3	0.47	3	400	100	ODS-287 SOT-23
MA4P7455ST-287T	5	2500	0.3	0.47	3	1000	100	ODS-287 SOT-23
MA4P7436-1141T	25	2500	0.2	1.11	0.5	200	75	ODS-1141 SOD-323
MADP-007436-1146DT	25	2500	0.2	1.12	0.5	200	75	ODS-1141 SOT-323
MA4P7433ST-287T	25	2500	0.3	0.47	1.5	200	75	ODS-287 SOT-23
MA4P7447-1141T	15	2500	0.2	1.31	0.6	1000	100	ODS-1141 SOD-323
MA4P7433CK-287T	25	2500	0.3	0.47	1.5	200	75	ODS-287 SOT-23
MA4P7433-287T	25	2500	0.3	0.47	1.5	200	75	ODS-287 SOT-23
MA4P7455CK-1146T	5	2500	0.2	0.47	3	1000	100	ODS-1146 SC70 (3L)
MADP-007155-0287DT	15	2500	0.3	1.32	0.6	1000	100	ODS-287 SOT-23
MA4P7447-287T	15	2500	0.3	1.32	0.6	1000	100	ODS-287 SOT-23
MA4P7455CK-287T	5	2500	0.3	0.35	3	1000	100	ODS-287 SOT-23
MA4P7433-1141T	25	2500	0.2	0.46	1.5	200	75	ODS-1141 SOD-323 (2L)
MA4P7436-287T	25	2500	0.3	1.12	0.5	200	75	ODS-287 SOT-23
MA4P7433CA-287T	25	2500	0.3	0.47	1.5	200	75	ODS-287 SOT-23
MA4P7447CK-287T	15	2500	0.3	1.32	0.6	1000	100	ODS-287 SOT-23
MA4P7436CK-1146T	25	2500	0.2	1.12	0.5	200	75	ODS-1146 SC70 (3L)
MA4P604-258	1	2500	15	0.68	1	3000	1000	ODS-258
MA4P604-30 <b>S</b>	1	2500	15	0.5	1	3000	1000	ODS-30
MA4P7433CA-1146T	25	2500	0.2	0.47	1.5	200	75	ODS-1146 SC-70 (3L)
MA4P7433CK-1146T	25	2500	0.2	0.47	1.5	200	75	ODS-1146 SC-70 (3L)
MA4P7436-1146T	25	2500	0.2	1.12	0.5	200	75	ODS-1146 SC-70 (3L)
MA4P7436CA-1146T	25	2500	0.2	1.12	0.5	200	75	ODS-1146 SC-70 (3L)
MA4P7436CA-287T	25	2500	0.3	1.12	0.5	200	75	ODS-287 SOT-23
MA4P7436ST-1146T	25	2500	0.2	1.12	0.5	200	75	ODS-1146 SC-70 (3L)
MA4P7455ST-1146T	5	2500	0.3	0.47	3	1000	100	ODS-1146 SC-70 (3L)
MADP-007167-0287AT	1	2500	0.3	0.42	16	3000	200	ODS-287 SOT-23
MADP-007433-1146DT	25	2500	0.3	0.42	1.5	200	75	ODS-1146 SC70 (3L)
MADP-007448-0287AT	25	2500	0.3	0.37	2	400	100	ODS-287 SOT-23
MADP-007448-0287FT	25	2500	0.3	0.37	2	400	100	ODS-287 SOT-23
MADP-007448-0287GT	25	2500	0.3	0.37	2	400	100	ODS-287 SOT-23
MADP-007448-1141OT	25	2500	0.2	0.36	2	400	100	ODS-1141 SOD-323
MADP-007448-1146BT	25	2500	0.2	0.37	2	400	100	ODS-1146 SC70 (3L)
MADP-007455-1146DT	5	2500	0.2	0.42	3	1000	100	ODS-1146 SC70 (3L)
MADP-007448-1146DT	25	2500	—	0.25	2	—	100	SMT
MSWSE-050-10	100	3000	15	0.53	0.4	3200	500	0805P
MADP-010633-13920T	25	3000	6	0.4	0.6	1000	500	ODS-132
MADP-010631-13920T	25	3000	5	1	0.5	200	100	ODS-1392
MADP-010630-13920T	25	3000	2	0.35	1.5	200	100	ODS-1392
MA4SPS422	50	3000	1.8	0.34	3.1	10000	200	SURMOUNT™ Die
MSWSE-010-16S	1	3000	10	0.15	0.9	1000	250	0402P
MSWSE-040-10	1	3000	40	0.12	0.6	700	250	0805P
MSWSE-050-17	100	3000	60	0.2	0.7	1600	500	0805P
MADP-000506-014400 <b>S</b>	1	4000	10	0.7	0.3	100	500	ODS-144
MADP-007433-0287HT	25	4000	0.3	0.42	1.5	200	75	ODS-287 SOT-23

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## PIN Switch and Attenuator Diodes (continued)

Part Number	Min Freq (MHz)	Max Freq (MHz)	CW Power Dissipation (W)	Total Capacitance (pF)	Resistance (Ω)	TI (ns)	Breakdown Voltage Min (V)	Package
MADP-007433-12790T	25	4000	0.2	0.4	1.5	200	75	SC-79
MADP-042405-130600 <b>S</b>	50	4000	1.3	0.27	0.8	210	80	ODS-1306 Die
MADP-007436-12790T	25	4000	0.2	1.1	0.5	200	75	ODS-1279 SC-79
MADP-007455-12790T	5	4000	0.2	0.45	3	1000	100	ODS-1279 SC-79
MA4P505-36 <b>S</b>	1	4000	15	0.55	0.5	2000	500	ODS-36
MA4P303-186 <b>S</b>	20	4000	0.3	0.35	1.5	200	200	ODS-186
MA4P203-30 <b>S</b>	30	4000	5	0.35	1.5	100	100	ODS-30
MA4P203-1056 <b>S</b>	30	4000	0.3	0.35	1.5	100	100	ODS-1056
MA4P303-120 <b>S</b>	20	4000	5	0.35	1.5	200	200	ODS-120
MA4P202-276	50	4000	0.3	0.25	2.5	60	100	ODS-276
MA4P506-131 <b>S</b>	1	4000	13.6	0.7	0.3	3000	500	ODS-131 Die
MA4P303-1088	20	4000	0.3	0.47	1.5	200	200	ODS-1088
MA4P202-120 <b>S</b>	50	4000	0.3	0.25	2.5	60	100	ODS-120
MA4P7455-1225	10	4000	—	0.47	1.4	1000	100	ODS-1225 SOT-25
MADP-007167-0287HT	1	4000	0.3	0.42	16	3000	200	ODS-287 SOT-23
MADP-042408-130600	50	4000	1.5	0.36	0.6	380	100	ODS-1306 Die
MMP7068	0.5	4000	—	0.3	0.8	2000	500	Die/Various
MADP-007437-0287BT	5	5000	0.3	0.42	6	2000	200	ODS-287 SOT-23
MADP-007437-0287DT	5	5000	0.3	0.42	6	2000	200	ODS-287 SOT-23
MADP-007438-0287FT	5	5000	0.2	0.42	10	3000	200	ODS-287 SOT-23
MADP-007438-0287DT	5	5000	0.3	0.42	10	3000	200	ODS-287 SOT-23
MA4P7437-1141T	5	5000	0.2	0.46	6	2000	200	ODS-1141 SOT-323
MADP-007438-0287BT	5	5000	0.3	0.42	10	3000	200	ODS-287 SOT-23
MA4P7437-287T	5	5000	0.3	0.47	6	2000	200	ODS-287 SOT-23
MADP-007437-0287FT	5	5000	0.3	0.42	6	2000	200	ODS-287 SOT-23
MA4P7455-1141T	5	5000	0.2	0.46	3	1000	100	ODS-1141 SOT-323
MA4P7438-287T	5	5000	0.2	0.47	10	3000	200	ODS-287 SOT-23
MA4P7438-1141T	5	5000	0.2	0.46	10	3000	200	ODS-1141 SOD-323 (2L)
MA4P7437CA-287T	5	5000	0.3	0.47	6	2000	200	ODS-287 SOT-23
MA4P7438CA-287T	5	5000	0.3	0.47	10	3000	200	ODS-287 SOT-23
MMP7036	1	5000	—	0.3	0.7	225	200	Die/Various
MMP7024 <b>S</b>	1	6000	—	0.25	0.5	60	70	Die/Various
MADP-042308-130600 <b>S</b>	50	6000	1	0.14	1.3	280	100	ODS-1306 Die
MADP-008120-12790T	10	6000	0.2	0.15	2.5	200	100	ODS-1279 SC-79
MADP-042305-130600 <b>S</b>	50	6000	1	0.14	1.3	180	80	ODS-1306 Die
MA4SPS421	50	6000	1.8	0.13	6.2	5000	200	SURMOUNT™ Die
MA4P505-131 <b>S</b>	1	6000	10.7	0.35	0.5	2000	500	ODS-131 Die
MADP-017015-1314 <b>S</b>	1	6000	5	0.32	0.7	1300	115	ODS-1314 Die
MADP-017025-1314 <b>S</b>	1	6000	5	0.23	1	2300	1335	ODS-1314 Die
MADP-030015-13140P <b>S</b>	1	6000	11.5	0.78	0.5	1600	115	ODS-1314 Die
MADP-030025-1314 <b>S</b>	1	6000	11.5	0.5	0.7	2800	135	ODS-1314 Die
MSWSE-005-10S	10	6000	5	0.08	2	180	200	0402P
MSWSE-005-15	10	6000	4	0.11	2	180	200	0503
MSWSH-020-30	100	6000	20	0.13	0.6	600	100	2012
MSWSH-040-30	50	6000	40	0.42	0.4	600	500	2012
MSWSH-100-30	100	6000	100	0.4	0.4	3400	700	CM22
MMP7092 <b>S</b>	1	6000	—	0.2	0.6	1000	500	Die/Various

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## PIN Switch and Attenuator Diodes (continued)

Part Number	Min Freq (MHz)	Max Freq (MHz)	CW Power Dissipation (W)	Total Capacitance (pF)	Resistance (Ω)	TI (ns)	Breakdown Voltage Min (V)	Package
MMP7064	0.5	6000	—	0.3	0.8	1500	250	Die/Various
MPN7306-H20 <b>S</b>	100	6000	1	0.26	1.2	50	70	H20
MPN7312A-H20 <b>S</b>	20	6000	1	0.26	1.2	150	120	H20
MPN7312B-H20 <b>S</b>	20	6000	1	0.36	0.8	250	120	H20
MPN7315-H20 <b>S</b>	10	6000	1	0.26	1.2	180	150	H20
MPN7320-H20 <b>S</b>	5	6000	1	0.2	3	120	150	H20
MPN7345 <b>S</b>	5	6000	4	0.3	0.3	500	300	C40
MPN7360 <b>S</b>	1	6000	10	0.8	0.2	2500	600	C37
MPN7370 <b>S</b>	1	6000	10	2	0.2	5000	700	C39
MPN7380 <b>S</b>	1	6000	10	0.4	0.3	2500	800	C38
MPN7420 <b>S</b>	1	6000	2.5	0.06	1	1000	400	C12
MPN7453A <b>S</b>	1	6000	3	0.1	0.7	700	300	C22
MPN7453B <b>S</b>	1	6000	3	0.15	0.6	2500	400	C22
MPN7453C <b>S</b>	1	6000	3	0.18	0.4	1000	300	C22
MMP7067	0.5	8000	—	0.2	1	1500	500	Die/Various
MA4P504-144 <b>S</b>	1	8000	7.5	0.4	0.6	1000	500	ODS-144
MA4P604-131 <b>S</b>	1	8000	15	0.3	1	3000	1000	ODS-131 Die
MA47222 <b>S</b>	1	8000	3.8	0.4	1.6	160	150	ODS-144
MMP7063	0.5	8000	—	0.2	1	1000	250	Die/Various
MA47223 <b>S</b>	1	8000	7.5	0.4	0.6	1000	500	ODS-144
MMP7023 <b>S</b>	1	8000	—	0.2	0.7	60	70	Die/Various
MMP7035	1	8000	—	0.2	0.8	225	200	Die/Various
MNP0012A <b>S</b>	5	8000	1	0.18	0.6	650	350	C22p
MNP0012A-ET47P	5	8000	1	0.58	0.6	650	350	ET47p
MNP0012A-T54P <b>S</b>	5	8000	0.25	0.36	0.6	650	350	T54p
MNP0012A-T55P <b>S</b>	5	8000	0.25	0.31	0.6	650	350	T55p
MNP0012A-T89P <b>S</b>	5	8000	0.25	0.43	0.6	650	350	T89p
MMP7034	1	10000	—	0.15	1	225	200	Die/Various
MA47418-134 <b>S</b>	5	10000	6	0.15	3	1000	200	ODS-134 Die
MA47416-132 <b>S</b>	DC	10000	5	0.15	6	2000	200	ODS-132 Die
MA4P504-132 <b>S</b>	1	10000	7.5	0.2	0.6	1000	500	ODS-132 Die
MA4P404-132 <b>S</b>	5	10000	7.5	0.2	0.7	600	250	ODS-132 Die
MSAT-N25	100	10000	2	—	1.5	3000	200	2012
MSAT-P25	100	10000	2	—	1.5	3000	200	2012
MSWSHB-020-30	50	10000	40	0.5	—	4000	200	2012
MSWSHC-040-40	50	10000	40	0.5	—	3000	300	2615
MMP7022 <b>S</b>	1	10000	—	0.15	0.9	60	70	Die/Various
MMP7028	1	10000	—	0.15	1	100	100	Die/Various
MPN7312B-0805-2	20	10000	1	0.24	0.8	250	120	0805-2
MPN7315-0805-2	10	10000	1	0.14	1.2	180	150	0805-2
MPN7312A-0805-2	20	10000	1	0.14	1.2	150	120	0805-2
MPN7320-0805-2	5	10000	1	0.08	3	120	150	0805-2
MNP0014 <b>S</b>	1	10000	1.5	0.12	1.3	750	500	C22p
MNP0014-ET47P	1	10000	0.5	0.52	0.8	750	450	ET47p
MNP0014-T54P <b>S</b>	1	10000	0.1	0.32	0.8	750	450	T54p
MNP0014-T55P <b>S</b>	1	10000	0.1	0.25	0.8	750	450	T55p
MNP0014-T89P <b>S</b>	1	10000	0.1	0.37	0.8	750	450	T89p

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## PIN Switch and Attenuator Diodes (continued)

Part Number	Min Freq (MHz)	Max Freq (MHz)	CW Power Dissipation (W)	Total Capacitance (pF)	Resistance (Ω)	TI (ns)	Breakdown Voltage Min (V)	Package
MPN7302-0805-2	500	10000	1	0.14	1.2	8	20	0805-2
MPN7306-0805-2	100	10000	1	0.14	1.2	50	70	0805-2
MPN7312B <b>S</b>	20	12000	1	0.18	0.8	250	120	C12
MPN7320 <b>S</b>	5	12000	1	0.02	3	120	150	C01
MADP-011028-14150T	50	12000	4.3	0.24	3.4	2000	200	1.5 x 1.2 mm TDFN-6
MADP-011027-14150T	50	12000	3.3	0.24	1.9	1000	100	1.5 x 1.2 mm TDFN-6
MADP-011029-14150T	50	12000	7.5	0.31	1.5	1000	400	1.5 x 1.2 mm TDFN-6
MMP7011 <b>S</b>	200	12000	—	0.15	0.8	10	25	Die/Various
MMP7041	1	12000	—	0.07	1.5	400	200	Die/Various
MMP7062	0.5	12000	—	0.1	1.2	1000	250	Die/Various
MMP7066-11	0.5	12000	—	0.1	1.2	1500	500	Die/Various
MNP0008-ET47P	100	12000	1	0.48	2	150	100	ET47p
MNP0008-T54P <b>S</b>	100	12000	0.25	0.28	2	150	100	T54p
MNP0008-T55P <b>S</b>	100	12000	0.25	0.21	2	150	100	T55p
MNP0008-T89P <b>S</b>	100	12000	0.25	0.33	2	150	100	T89p
MNP0010-ET47P	10	12000	1	0.48	2	300	150	ET47p
MNP0010-T54P <b>S</b>	10	12000	0.25	0.28	2	300	150	T54p
MNP0010-T55P <b>S</b>	10	12000	0.25	0.21	2	300	150	T55p
MNP0010-T89P <b>S</b>	10	12000	0.25	0.33	2	300	150	T89p
MNP0012 <b>S</b>	5	12000	1	0.08	3.5	350	300	C12p
MNP0012-ET47P	5	12000	1	0.48	3.5	350	300	ET47p
MNP0012-T54P <b>S</b>	5	12000	0.25	0.28	3.5	350	300	T54p
MNP0012-T55P <b>S</b>	5	12000	0.25	0.21	3.5	350	300	T55p
MNP0012-T89P <b>S</b>	5	12000	0.25	0.33	3.5	350	300	T89p
MPN7302 <b>S</b>	500	12000	1	0.08	1.2	8	20	C11
MPN7306 <b>S</b>	100	12000	1	0.08	1.2	50	70	C12
MMP7061	0.5	14000	—	0.08	1.5	1000	250	Die/Various
MMP7065	0.5	14000	—	0.08	1.5	1500	500	Die/Various
MMP7033	1	14000	—	0.1	1.6	225	200	Die/Various
MMP7026	1	14000	—	0.07	1.5	100	100	Die/Various
MMP7027	1	14000	—	0.1	1.2	100	100	Die/Various
MMP7021 <b>S</b>	1	14000	—	0.1	1	60	70	Die/Various
MMP7040	1	15000	—	0.03	2.6	400	200	Die/Various
MMP7060	0.5	16000	—	0.05	2	1000	250	Die/Various
MADP-042908-130600 <b>S</b>	50	16000	0.8	0.06	3.1	230	100	ODS-1306 Die
MADP-042905-130600 <b>S</b>	50	16000	0.8	0.06	3.1	140	80	ODS-1306 Die
MPN1103-12	500	17000	0.1	0.06	4	50	50	Beam Lead
MMP7020 <b>S</b>	1	18000	—	0.05	1.2	60	70	Die/Various
MMP7025 <b>S</b>	1	18000	—	0.03	1.9	100	100	Die/Various
MMP7031	1	18000	—	0.03	3	225	200	Die/Various
MADP-000402-12530G <b>S</b>	50	18000	1	0.04	5	200	1000	ODS-1253 Die
MADP-000402-12530P <b>S</b>	50	18000	1	0.04	4.5	200	70	ODS-1253 Die
MADP-064908-131000 <b>S</b>	50	18000	1	0.05	5	200	100	ODS-1310 Die
MA4PBL027 <b>S</b>	100	18000	0.2	0.03	4	150	90	Beam Lead Die
MA4P7493-134 <b>S</b>	50	18000	2.5	0.05	1.8	80	150	ODS-134 Die
MA4SPS402 <b>S</b>	50	18000	1	0.04	5	200	100	ODS-1253 Die
MA4P161-134 <b>S</b>	100	18000	2.3	0.1	1.5	150	100	ODS-134 Die

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## PIN Switch and Attenuator Diodes (continued)

Part Number	Min Freq (MHz)	Max Freq (MHz)	CW Power Dissipation (W)	Total Capacitance (pF)	Resistance (Ω)	TI (ns)	Breakdown Voltage Min (V)	Package
MA4P203-134 <b>S</b>	30	18000	5	0.15	1.5	100	100	ODS-134 Die
MA4P303-134 <b>S</b>	20	18000	5	0.15	1.5	200	200	ODS-134 Die
MA4FCP305	100	24000	0.2	0.06	2.1	25	40	ODS-1269 Die
MA4SPS552 <b>S</b>	50	26000	1	0.06	1.7	2500	200	ODS-1270
MA4SPS502 <b>S</b>	1	26000	35	0.14	2.4	2800	275	ODS-1270
MA4SPS302 <b>S</b>	1	26000	0.8	0.4	1.3	460	100	SURMOUNT™ Die
MSWSH-020-24	100	26000	2	—	—	600	200	2020
MADP-001907-13050P	100	30000	0.5	0.03	4.2	4	50	Flip Chip Die
MADP-000907-14020P	100	30000	0.1	0.03	5.2	4	45	Flip Chip Die
MADP-000907-14020W	100	30000	0.1	0.03	5.2	4	45	Flip Chip Die
MA4AGP907	100	30000	0.1	0.03	5.2	4	50	Flip Chip Die
MA4FCP300	100	30000	0.2	0.03	2.6	140	70	ODS-1269
MA4GP907	100	30000	0.3	0.03	4.2	2	45	Flip Chip Die
MMPN080150 <b>S</b>	2000	35000	—	—	—	—	200	C51
MA4AGFCP910	100	40000	0.1	0.02	5.2	4	75	Flip Chip Die
MA4AGBLP912 <b>S</b>	100	40000	0.1	0.02	4	5	50	Beam Lead Die
MA4FCP200	100	40000	0.1	0.02	2.8	100	70	ODS-1264 Die
MA4GP905	100	40000	0.1	0.03	3	2	50	Die
MA4GP022 <b>S</b>	100	40000	0.3	0.15	1	20	50	ODS-277
MA4GP030 <b>S</b>	100	40000	0.3	0.06	2	25	100	ODS-277
MMPN080045 <b>S</b>	2000	20000	—	—	—	—	200	C50
MMSPN050-C53 <b>S</b>	1000	40000	40	—	0.6	4000	200	C53
MMSPN050-C54 <b>S</b>	1000	40000	40	—	0.6	4000	200	C54

## PIN Limiter Diodes

Part Number	Incident Power, Max (W)	Thermal Resistance	Junction Capacitance (pF)	Resistance (Ω)	Lifetime (ns)	Vb (V)	Package
MADL-011021-14150T	2.5	100	0.4	1.5	10	—	1.5 x 1.2 mm TDFN-6
MADL-011008	30	150	0.3	1.5	15	—	1.2 x 1.5 mm PDFN-6
MLP7100 <b>S</b>	50	100	0.2	1.5	5	20 - 45	Die/Various
MLP7130 <b>S</b>	50	120	0.12	2	5	15 - 30	Die/Various
MLP7130-0805-2	50	120	0.12	2	5	15 - 30	Die/Various
MLP7140 <b>S</b>	50	100	0.12	2	7	30 - 40	Die/Various
MADL-000011-13880G <b>S</b>	80	175	0.18	2.1	10	—	ODS-13880G Die
MA4L011-31 <b>S</b>	80	175	0.36	2.1	10	—	ODS-31
MA4L011-137	80	175	0.32	2.1	10	—	ODS-137
MA4L011-1088	80	175	0.3	2.1	10	—	ODS-1088
MA4L011-186 <b>S</b>	80	175	0.33	2.1	10	—	ODS-186
MA4L011-134 <b>S</b>	80	175	0.18	2.1	10	—	ODS-134 Die
MA4L011-1056 <b>S</b>	80	175	0.38	2.1	10	—	ODS-1056
MA4L011-30 <b>S</b>	80	175	0.36	2.1	10	—	ODS-30
MA4L011-32 <b>S</b>	80	175	0.48	2.1	10	—	ODS-32
MADL-011021-14210G <b>S</b>	90	175	0.2	2.1	10	—	ODS-1056
MADL-000021-003000 <b>S</b>	90	175	0.38	21	10	—	ODS-30
MA4L022-120 <b>S</b>	90	175	0.32	2	10	—	ODS-120
MA4L022-137	90	175	0.33	2	10	—	ODS-137
MA4L022-1056 <b>S</b>	90	175	0.39	2	10	—	ODS-1056
MA4L022-30 <b>S</b>	90	175	0.37	2	10	—	ODS-30

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## PIN Limiter Diodes (continued)

Part Number	Incident Power, Max (W)	Thermal Resistance	Junction Capacitance (pF)	Resistance ( $\Omega$ )	Lifetime (ns)	Vb (V)	Package
MA4L022-186 <b>S</b>	90	175	0.34	2	10	—	ODS-186
MA4L021-134 <b>S</b>	90	175	0.2	2.1	10	—	ODS-134 Die
MA4L022-134 <b>S</b>	90	175	0.19	2	10	—	ODS-134 Die
MA4L021-120 <b>S</b>	90	175	0.33	2.1	10	—	ODS-120
MA4L021-1056 <b>S</b>	90	175	0.4	2.1	10	—	ODS-1056
MA4L021-31 <b>S</b>	90	175	0.38	2.1	10	—	ODS-31
MA4L022-32 <b>S</b>	90	175	0.49	2	10	—	ODS-32
MADL-011023-14150T	100	175	0.2	1.3	10	—	1.5 x 1.2 mm TDFN-6
MLP7101 <b>S</b>	100	80	0.5	1.2	10	20 – 45	Die/Various
MLP7102 <b>S</b>	100	55	0.7	1	10	20 – 45	Die/Various
MLP7131 <b>S</b>	100	80	0.2	1.5	5	15 – 30	Die/Various
MLP7141 <b>S</b>	100	70	0.2	1.5	7	30 – 60	Die/Various
MADL-011010-01340W <b>S</b>	125	150	0.24	1.5	15	—	ODS-134
MADL-000031-13880G <b>S</b>	125	150	0.21	2.1	20	—	ODS-1388
MA4L032-186 <b>S</b>	125	150	0.35	2.5	15	—	ODS-186
MA4L031-31 <b>S</b>	125	150	0.39	2	20	—	ODS-31
MA4L031-186 <b>S</b>	125	150	0.36	2	20	—	ODS-186
MA4L031-134 <b>S</b>	125	150	0.21	2	20	—	ODS-134 Die
MA4L032-1056 <b>S</b>	125	150	0.4	2.5	15	—	ODS-1056
MA4L032-134 <b>S</b>	125	150	0.2	2.5	15	—	ODS-134 Die
MA4L031-1056 <b>S</b>	125	150	0.41	2	20	—	ODS-1056
MA4L032-31 <b>S</b>	125	150	0.38	2.5	15	—	ODS-31
MA4L032-32 <b>S</b>	125	150	0.5	2.5	15	—	ODS-32
MADL-000032-003000 <b>S</b>	125	150	0.21	2.1	20	—	ODS-3000
MADL-011011-01340W <b>S</b>	200	150	0.17	2.3	10	—	ODS-134
MADL-000062-13880G <b>S</b>	200	150	0.15	2.5	10	—	ODS-13880G Die
MADL-000062-105600 <b>S</b>	200	150	0.35	2.5	10	—	ODS-1056
MA4L062-134 <b>S</b>	200	150	0.15	2.5	10	—	ODS-134 Die
MLP7110 <b>S</b>	200	80	0.2	1.5	10	45 – 75	Die/Various
MADL-000101-13880G <b>S</b>	250	30	0.15	2	90	—	ODS-13880G Die
MA4L101-134 <b>S</b>	250	30	0.15	2	90	—	ODS-134 Die
MA4L101-186 <b>S</b>	250	30	0.3	2	90	—	ODS-186
MA4L101-30 <b>S</b>	250	30	0.33	2	90	—	ODS-30
MLP7111 <b>S</b>	400	60	0.5	1.2	15	45 – 75	Die/Various
MADL-000301-01340W <b>S</b>	500	30	0.2	1.5	200	—	ODS-134 Die
MA4L301-1056 <b>S</b>	500	30	0.4	1.5	200	—	ODS-1056
MA4L301-31 <b>S</b>	500	30	0.38	1.5	200	—	ODS-31
MADL-000301-13870G <b>S</b>	500	30	0.2	1.5	200	—	ODS-1370
MADL-011052-14280W <b>S</b>	500	36	0.19	2	222	—	ODS-134 Die
MLP7112 <b>S</b>	795	40	0.7	1	20	45 – 75	Die/Various
MA4L401-1056 <b>S</b>	1000	25	0.5	1.2	800	—	ODS-1056
MA4L401-31 <b>S</b>	1000	25	0.48	1.2	800	—	ODS-31
MA4L401-134 <b>S</b>	1000	25	0.3	1.2	800	—	ODS-134 Die
MA4L401-30 <b>S</b>	1000	25	0.48	1.2	800	—	ODS-30
MA4L401-120 <b>S</b>	1000	25	0.43	1.2	800	—	ODS-32
MADL-000401-13870G <b>S</b>	1000	25	0.3	1.2	800	—	ODS-13870G Die
MLP7120 <b>S</b>	1000	40	0.2	1.5	50	120 – 180	Die/Various

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**PIN Limiter Diodes** (continued)

Part Number	Incident Power, Max (W)	Thermal Resistance	Junction Capacitance (pF)	Resistance (Ω)	Lifetime (ns)	Vb (V)	Package
MLP7120-2012	1000	45	0.2	1.5	50	120 – 180	2012
MLP7121 <b>S</b>	2000	20	0.6	1	50	120 – 180	Die/Various
MLP7122 <b>S</b>	4000	15	0.8	0.5	100	120 – 80	Die/Various

**Schottky Mixer and Detector Diodes**

Part Number	Min Freq (MHz)	Max Freq (MHz)	Total Capacitance (pF)	Dynamic Resistance (Ω)	Vf (mV)	Vb (V)	Package
IN5819	—	—	0.04	—	110	30	DO-7
MGR700 <b>S</b>	DC	1000	1.2	—	0.34	8	Die/Various
MGR703 <b>S</b>	DC	1000	1	—	0.41	20	Die/Various
MGR705 <b>S</b>	DC	1000	1.2	—	0.41	70	Die/Various
MA4E2532L-1113	DC	1800	0.1	16	440	5	ODS-1113
MNM201 <b>S</b>	DC	2600	0.2	20	0.4	3	Die/Various
MNM207 <b>S</b>	DC	2600	0.14	20	0.425	4	Die/Various
MNM211	DC	2600	0.25	20	0.45	5	Die/Various
MNM212 <b>S</b>	DC	2600	0.21	20	0.475	5	Die/Various
SMSD6012-SOD323	DC	3000	0.25	15	630	2	SOD-323W
SMST6004-SOT23	DC	3000	0.6	10	600	2	SOT-23
MZB600-19-6	DC	8000	0.2	3500	0.3	3	CS19-6
MZB600-32 <b>S</b>	DC	8000	0.2	3500	0.3	3	CS32
MZB600-B11	DC	8000	0.2	3500	0.3	3	B11
MZB600-C15P	DC	8000	0.2	3500	0.3	3	C15P
MZB604-B11 <b>S</b>	DC	8000	0.2	5000	0.3	4	B11
MZB604-C15P	DC	8000	0.2	5000	0.3	4	C15P
MSS20-054-C15 <b>S</b>	DC	8000	0.2	80	—	0.8	C15P
MSS20-054-E25	DC	8000	0.3	80	—	0.8	E25
MSS20-054-H27 <b>S</b>	DC	8000	0.35	80	—	0.8	H27
MSS20-054-T86 <b>S</b>	DC	8000	0.41	80	—	0.8	T86p
MSS20-055-C15 <b>S</b>	DC	8000	0.2	80	—	0.8	C15P
MSS20-055-E25	DC	8000	0.3	80	—	0.8	E25
MSS20-055-H27 <b>S</b>	DC	8000	0.35	80	—	0.8	H27
MSS20-055-T86 <b>S</b>	DC	8000	0.41	80	—	0.8	T86p
MA40147-213	DC	10000	0.32	—	—	—	ODS-213
MA40264 <b>S</b>	DC	10000	0.32	—	—	3	ODS-186
MADS-011010-1419	DC	10000	0.15	7	—	3	ODS-1419
MSS20-046-T86 <b>S</b>	DC	12000	0.31	80	—	0.8	T86p
MSS20-050-C15 <b>S</b>	DC	12000	0.15	80	—	0.8	C15P
MSS20-051-C15 <b>S</b>	DC	12000	0.15	80	—	0.8	C15P
MSS20-051-E25	DC	12000	0.25	80	—	0.8	E25
MSS20-051-H27 <b>S</b>	DC	12000	0.3	80	—	0.8	H27
MSS20-051-T86 <b>S</b>	DC	12000	0.36	80	—	0.8	T86p
MSS20-054-0805-2 <b>S</b>	DC	12000	0.3	80	—	0.8	0805-2
MSS20-055-0805-2	DC	12000	0.3	80	—	0.8	0805-2
MSS20-050-E25	DC	12000	0.25	80	—	0.8	E25
MSS20-050-H27 <b>S</b>	DC	12000	0.3	80	—	0.8	H27
MSS20-050-T86 <b>S</b>	DC	12000	0.36	80	—	0.8	T86p
MSS39-048-C15	DC	12000	0.15	—	—	5	C15p
MSS39-048-P55 <b>S</b>	DC	12000	0.3	—	—	5	P55p

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**Schottky Mixer and Detector Diodes** (continued)

Part Number	Min Freq (MHz)	Max Freq (MHz)	Total Capacitance (pF)	Dynamic Resistance ( $\Omega$ )	Vf (mV)	Vb (V)	Package
MSS39-048-P86 <b>S</b>	DC	12000	0.32	—	—	5	P86p
MSS20-047-T86 <b>S</b>	DC	12000	0.31	80	—	0.8	T86p
MSS39-148-H20 <b>S</b>	DC	12000	0.33	—	—	3.5	H20
MSS39-152-B10B <b>S</b>	DC	12000	0.18	—	—	3.5	B10Bp
MSS39-152-E25	DC	12000	0.28	—	—	3.5	E25
MA40215-120 <b>S</b>	DC	16000	0.32	—	—	5	ODS-1200
MADS-011030-14280W <b>S</b>	DC	16000	0.33	6.5	100	3.5	Die
MSS20-051-0805-2	DC	18000	0.25	80	—	0.8	0805-2
MSS20-046-C15 <b>S</b>	DC	18000	0.1	80	—	0.8	C15P
MSS20-046-E25	DC	18000	0.2	80	—	0.8	E25
MSS20-046-H27 <b>S</b>	DC	18000	0.25	80	—	0.8	H27
MSS20-047-C15 <b>S</b>	DC	18000	0.1	80	—	0.8	C15P
MSS20-047-E25	DC	18000	0.2	80	—	0.8	E25
MSS20-047-H27 <b>S</b>	DC	18000	0.25	80	—	0.8	H27
MSS20-050-0805-2	DC	18000	0.25	80	—	0.8	0805-2
MADS-002545-1307MG	DC	18000	0.11	10	—	5	ODS-1307
MADS-002545-1307LG	DC	18000	0.11	11	—	5	ODS-1307
MADS-002545-1307HG	DC	18000	0.11	10	—	5	ODS-1307
SMS202	DC	18000	0.2	80	—	1	0503
MSS30 PCR46-B47 <b>S</b>	DC	18000	0.13	22	—	2	B47
MSS30 PCR53-B47 <b>S</b>	DC	18000	0.25	15	—	2	B47
MSS30-046-C15 <b>S</b>	DC	18000	0.12	18	—	2	C15
MSS30-046-P55 <b>S</b>	DC	18000	0.3	18	—	2	P55
MSS30-046-P86 <b>S</b>	DC	18000	0.33	18	—	2	P86
MSS30-050-C15 <b>S</b>	DC	18000	0.18	15	—	2	C15
MSS30-050-P55 <b>S</b>	DC	18000	0.35	15	—	2	P55
MSS30-050-P86 <b>S</b>	DC	18000	0.38	15	—	2	P86
MSS30-142-B10B <b>S</b>	DC	18000	0.1	22	—	2	B10B
MSS30-142-E25	DC	18000	0.26	22	—	2	E25
MSS30-142-H20 <b>S</b>	DC	18000	0.31	22	—	2	H20
MSS30-148-B10B <b>S</b>	DC	18000	0.15	15	—	2	B10B
MSS30-148-E25	DC	18000	0.31	15	—	2	E25
MSS30-148-H20 <b>S</b>	DC	18000	0.36	15	—	2	H20
MSS30-154-B10B <b>S</b>	DC	18000	0.25	12	—	2	B10B
MSS30-154-E25	DC	18000	0.41	12	—	2	E25
MSS30-154-H20 <b>S</b>	DC	18000	0.46	12	—	2	H20
MSS30-242-B20 <b>S</b>	DC	18000	0.1	22	—	2	B20
MSS30-242-E35	DC	18000	0.21	22	—	2	E35
MSS30-242-H30 <b>S</b>	DC	18000	0.31	22	—	2	H30
MSS30-248-B20 <b>S</b>	DC	18000	0.15	15	—	2	B20
MSS30-248-E35	DC	18000	0.25	15	—	2	E35
MSS30-248-H30 <b>S</b>	DC	18000	0.36	15	—	2	H30
MSS30-254-B20 <b>S</b>	DC	18000	0.25	12	—	2	B20
MSS30-254-E35	DC	18000	0.35	12	—	2	E35
MSS30-254-H30 <b>S</b>	DC	18000	0.46	12	—	2	H30
MSS30-346-B21 <b>S</b>	DC	18000	0.3	16	—	2	B2
MSS30-346-E25	DC	18000	0.4	16	—	2	E25

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**Schottky Mixer and Detector Diodes** (continued)

Part Number	Min Freq (MHz)	Max Freq (MHz)	Total Capacitance (pF)	Dynamic Resistance ( $\Omega$ )	Vf (mV)	Vb (V)	Package
MSS30-346-H20 <b>S</b>	DC	18000	0.5	16	—	2	H20
MSS30-442-B41 <b>S</b>	DC	18000	0.1	22	—	4	B41
MSS30-442-B42 <b>S</b>	DC	18000	0.1	22	—	2	B42
MSS30-442-E45	DC	18000	0.1	22	—	2	E45
MSS30-442-H40 <b>S</b>	DC	18000	0.1	22	—	2	H40
MSS30-448-B41 <b>S</b>	DC	18000	0.15	15	—	2	B41
MSS30-448-B42 <b>S</b>	DC	18000	0.15	15	—	2	B42
MSS30-448-E45	DC	18000	0.26	15	—	2	E45
MSS30-448-H40 <b>S</b>	DC	18000	0.35	15	—	2	H40
MSS30-454-B40 <b>S</b>	DC	18000	0.25	12	—	2	B40
MSS30-454-E45	DC	18000	0.35	12	—	2	E45
MSS30-454-H40 <b>S</b>	DC	18000	0.46	12	—	2	H40
MSS30-B46-B45 <b>S</b>	DC	18000	0.125	25	—	2	B45
MSS30-B46-E45	DC	18000	0.25	25	—	2	E45
MSS30-B46-H40 <b>S</b>	DC	18000	0.35	25	—	2	H40
MSS30-B53-B45 <b>S</b>	DC	18000	0.25	15	—	2	B45
MSS30-B53-E45	DC	18000	0.35	15	—	2	E45
MSS30-B53-H40 <b>S</b>	DC	18000	0.46	15	—	2	H40
MSS30-CR46-B49	DC	18000	0.125	22	—	2	B49
MSS30-CR46-E45	DC	18000	0.22	22	—	2	E45
MSS30-CR46-H40 <b>S</b>	DC	18000	0.33	22	—	2	H40
MSS30-CR53-B49 <b>S</b>	DC	18000	0.25	15	—	2	B49
SS30-CR53-E45	DC	18000	0.35	15	—	2	E45
MSS30-CR53-H40	DC	18000	0.45	15	—	2	H40
MSS30-PCB46-B48 <b>S</b>	DC	18000	0.12	20	—	2	B48
MSS39-045-C15 <b>S</b>	DC	18000	0.1	—	—	5	C15p
MSS39-045-P55	DC	18000	0.26	—	—	5	P55p
MSS39-045-P86 <b>S</b>	DC	18000	0.27	—	—	5	P86p
MSS39-144-0402	DC	18000	0.16	—	—	3.5	0402
MSS39-144-0805-2	DC	18000	0.17	—	—	3.5	0805-2
MSS39-144-H27 <b>S</b>	DC	18000	0.24	—	—	3.5	H27
MSS39-146-0402	DC	18000	0.18	—	—	3.5	0402
MSS39-146-0805-2	DC	18000	0.2	—	—	3.5	0805-2
MSS39-146-H27 <b>S</b>	DC	18000	0.25	—	—	3.5	H27
MSS39-148-0402	DC	18000	0.2	—	—	3.5	0402
MSS39-148-0805-2	DC	18000	0.22	—	—	3.5	0805-2
MSS39-148-B10B <b>S</b>	DC	18000	0.12	—	—	3.5	B10Bp
MSS39-148-E25	DC	18000	0.22	—	—	3.5	E25
MSS39-152-0402	DC	18000	0.25	—	—	3.5	0402
MSS39-152-0805-2	DC	18000	0.27	—	—	3.5	0805-2
MSS39-152-H20 <b>S</b>	DC	18000	0.36	—	—	3.5	H20
MSS40-045-C15 <b>S</b>	DC	18000	0.12	15	—	3	C15
MSS40-045-P55 <b>S</b>	DC	18000	0.28	15	—	3	P55
MSS40-045-P86 <b>S</b>	DC	18000	0.3	15	—	3	P86
MSS40-048-C15 <b>S</b>	DC	18000	0.15	15	—	3	C15
MSS40-048-P55	DC	18000	0.3	15	—	3	P55
MSS40-048-P86 <b>S</b>	DC	18000	0.33	15	—	3	P86

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## Schottky Mixer and Detector Diodes (continued)

Part Number	Min Freq (MHz)	Max Freq (MHz)	Total Capacitance (pF)	Dynamic Resistance ( $\Omega$ )	Vf (mV)	Vb (V)	Package
MSS40-141-0402	DC	18000	0.18	18	—	3	0402
MSS40-141-B10B <b>S</b>	DC	18000	0.1	22	—	3	B10B
MSS40-141-E25	DC	18000	0.22	18	—	3	E25
MSS40-141-H20 <b>S</b>	DC	18000	0.3	18	—	3	H20
MSS40-148-0402	DC	18000	0.24	15	—	3	0402
MSS40-148-B10B <b>S</b>	DC	18000	0.15	17	—	3	B10B
MSS40-148-E25	DC	18000	0.28	15	—	3	E25
MSS40-148-H20	DC	18000	0.36	15	—	3	H20
MSS40-155-0402 <b>S</b>	DC	18000	0.38	14	—	3	0402
MSS40-155-B10B	DC	18000	0.3	13	—	3	B10B
MSS40-155-E25	DC	18000	0.41	14	—	3	E25
MSS40-155-H20 <b>S</b>	DC	18000	0.51	14	—	3	H20
MSS40-244-0805-4	DC	18000	0.36	28	—	3	0805-4
MSS40-244-B20 <b>S</b>	DC	18000	0.12	22	—	3	B20
MSS40-244-E35	DC	18000	0.24	28	—	3	E35
MSS40-248-0805-4	DC	18000	0.25	18	—	3	0805-4
MSS40-248-B20 <b>S</b>	DC	18000	0.15	17	—	3	B20
MSS40-248-E35	DC	18000	0.28	18	—	3	E35
MSS40-255-0805-4	DC	18000	0.3	15	—	3	0805-4
MSS40-255-E35	DC	18000	0.41	14	—	3	E35
MSS40-448-B42 <b>S</b>	DC	18000	0.15	17	—	3	B42
MSS40-448-E45	DC	18000	0.25	15	—	3	E45
MSS40-448-H40 <b>S</b>	DC	18000	0.36	15	—	3	H40
MSS40-455-B40 <b>S</b>	DC	18000	0.3	17	—	3	B40
MSS40-455-E45	DC	18000	0.4	14	—	3	E45
MSS40-455-H40 <b>S</b>	DC	18000	0.32	14	—	3	H40
MSS40-B46-B45 <b>S</b>	DC	18000	0.13	25	—	3	B45
MSS40-B46-E45	DC	18000	0.24	25	—	3	E45
MSS40-B53-B45 <b>S</b>	DC	18000	0.25	15	—	3	B45
MSS40-B53-E45	DC	18000	0.36	15	—	3	E45
MSS40-CR46-B49 <b>S</b>	DC	18000	0.125	22	—	3	B49
MSS40-CR46-E45	DC	18000	0.23	15	—	3	E45
MSS40-CR46-H40 <b>S</b>	DC	18000	0.35	15	—	3	H40
MSS40-PCB46-B48 <b>S</b>	DC	18000	0.12	20	—	3	B48
MSS40-PCR46-B47 <b>S</b>	DC	18000	0.13	22	—	3	B47
MSS50-046-C26	DC	18000	0.12	20	—	4	C26
MSS50-046-P55 <b>S</b>	DC	18000	0.28	20	—	4	P55
MSS50-046-P86	DC	18000	0.3	20	—	4	P86
MSS50-048-C15	DC	18000	0.15	15	—	4	C15
MSS50-146-0402	DC	18000	0.2	18	—	4	0402
MSS50-146-0805-2	DC	18000	0.22	18	—	4	0805-2
MSS50-146-B10B <b>S</b>	DC	18000	0.12	18	—	4	B10B
MSS50-146-E25	DC	18000	0.24	18	—	4	E25
MSS50-146-H20 <b>S</b>	DC	18000	0.34	18	—	4	H2
MSS50-155-0805-2	DC	18000	0.4	15	—	4	0805-2A
MSS50-244-0805-4	DC	18000	0.44	16	—	4	0805-4
MSS50-244-B20	DC	18000	0.2	16	0.5	4	B20

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**Schottky Mixer and Detector Diodes** (continued)

Part Number	Min Freq (MHz)	Max Freq (MHz)	Total Capacitance (pF)	Dynamic Resistance ( $\Omega$ )	Vf (mV)	Vb (V)	Package
MSS50-244-E35	DC	18000	0.31	16	0.5	4	E35
MSS50-244-H30	DC	18000	0.42	16	0.5	4	H30
MSS50-448-0805-4	DC	18000	0.35	10	—	4	0805-4
MSS50-448-B40 <b>S</b>	DC	18000	0.25	14	0.5	4	B40
MSS50-448-E45 <b>S</b>	DC	18000	0.36	10	0.5	4	E45
MSS50-448-H40 <b>S</b>	DC	18000	0.48	10	0.5	4	H40
MSS50-B46-B45 <b>S</b>	DC	18000	0.13	20	0.5	4	B45
MSS50-B46-E45	DC	18000	0.25	20	0.5	4	E45
MSS50-B46-H40 <b>S</b>	DC	18000	0.35	20	0.5	4	H40
MSS50-B53-B45 <b>S</b>	DC	18000	0.25	15	0.5	4	B45
MSS50-B53-E45 <b>S</b>	DC	18000	0.36	15	0.5	4	E45
MSS50-B53-H40 <b>S</b>	DC	18000	0.48	15	—	4	H40
MSS50-CR53-B49 <b>S</b>	DC	18000	0.25	15	0.5	4	B49
MSS50-CR53-E45	DC	18000	0.36	15	—	4	E45
MSS50-CR53-H40 <b>S</b>	DC	18000	0.46	15	0.5	4	H40
MSS50-PCR53-B48 <b>S</b>	DC	18000	0.25	15	0.5	4	B47
MSS20-046-0805-2	DC	20000	0.2	80	—	0.8	0805-2
MSS20-047-0805-2	DC	20000	0.2	80	—	0.8	0805-2
MSS20-140-0402	DC	26000	0.15	80	—	0.8	0402
MADS-002502-1246HP	DC	26000	0.12	11	—	3	ODS-1246
MADS-002502-1246LP	DC	26000	0.12	16	—	3	ODS-1246
MADS-002502-1246MP	DC	26000	0.12	12	—	3	ODS-1246
MA4E2513L-1289 <b>S</b>	DC	26000	0.12	10	—	3	ODS-1289
MA4E2508H-1112 <b>S</b>	DC	26000	0.24	6	—	5	ODS-1112
MA4E2501L-1290 <b>S</b>	DC	26000	0.12	10	—	5	ODS-1290
MA4E2532M-1113 <b>S</b>	DC	26000	0.16	10	—	5	ODS-1113
MSS39-146-B10B <b>S</b>	DC	26000	0.1	—	—	3.5	B10Bp
MA4E2508M-1112 <b>S</b>	DC	26000	0.24	12	0.42	5	ODS-1112
MA4E2514L-1116 <b>S</b>	DC	26000	0.12	16	0.3	3	ODS-1116
MA4E2508L-1112 <b>S</b>	DC	26000	16	0.24	0.3	5	ODS-1112
MA4E2514M-1116 <b>S</b>	DC	26000	0.12	12	0.4	3	ODS-1116
MA4E2502H-1246 <b>S</b>	DC	26000	0.12	11	0.65	3	ODS-1246
MA4E2502M-1246 <b>S</b>	DC	26000	0.12	12	0.42	3	ODS-1246
MA4E2502L-1246 <b>S</b>	DC	26000	0.12	16	0.3	3	ODS-1246
MADS-002501-1290LP	DC	26000	0.12	10	0.3	5	ODS-1290
SMGS11	DC	26500	0.13	13	0.69	4.5	0503
SMS201	DC	26500	0.1	80	0.09	1	0503
MSS20-140-B10D <b>S</b>	DC	40000	0.08	80	—	0.8	B10D
MSS20-141-0402	DC	40000	0.08	80	—	0.8	0402
MSS20-141-B10D <b>S</b>	DC	40000	0.08	80	—	0.8	B10D
MSS20-142-0402 <b>S</b>	DC	40000	0.1	80	—	0.8	0402
MSS20-142-B10D <b>S</b>	DC	40000	0.1	80	—	0.8	B10D
MSS20-143-0402	DC	40000	0.1	80	—	0.8	0402
MSS20-143-B10D <b>S</b>	DC	40000	0.1	80	—	0.8	B10D
MSS20-145-0402	DC	40000	0.12	80	—	0.8	0402
MSS20-145-B10D <b>S</b>	DC	40000	0.12	80	—	0.8	B10D
MSS20-146-0402	DC	40000	0.12	80	—	0.8	0402

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## Schottky Mixer and Detector Diodes (continued)

Part Number	Min Freq (MHz)	Max Freq (MHz)	Total Capacitance (pF)	Dynamic Resistance ( $\Omega$ )	Vf (mV)	Vb (V)	Package
MSS20-146-B10D <b>S</b>	DC	40000	0.12	80	—	0.8	B10D
MSS25-047-C15c <b>S</b>	DC	40000	0.1	65	—	3	C15c
MSS25-049-C15c <b>S</b>	DC	40000	0.12	52	—	3	C15c
MSS25-141-B10D <b>S</b>	DC	40000	0.08	65	—	3	B10D
MSS25-143-B10D <b>S</b>	DC	40000	0.1	60	—	3	B10D
MSS25-145-B10D <b>S</b>	DC	40000	0.12	52	—	3	B10D
MSS39-144-B10B <b>S</b>	DC	40000	0.08	—	—	3.5	B10Bp
MGS802	DC	60000	0.1	7	0.7	5	Flip Chip
MGS802A	DC	60000	0.15	5	0.7	5	Flip Chip
MGS803	DC	60000	0.06	7	0.7	5	Flip Chip
MGS901 <b>S</b>	DC	60000	0.06	7	0.7	5	Beam Lead
MGS902 <b>S</b>	DC	60000	0.1	7	0.7	5	Beam Lead
MGS903 <b>S</b>	DC	60000	0.06	7	0.7	5	Beam Lead
MGS904 <b>S</b>	DC	60000	0.06	7	0.7	—	B85
MGS904A <b>S</b>	DC	60000	0.08	5	0.7	5	B85
MGS905 <b>S</b>	DC	60000	0.06	7	0.7	5	B86
MGS906 <b>S</b>	DC	60000	0.04	14	1.4	10	B90
MGS907 <b>S</b>	DC	60000	0.04	14	1.4	10	B85
MGS907A <b>S</b>	DC	60000	0.06	12	1.4	10	B85
MGS908 <b>S</b>	DC	60000	0.04	14	1.4	10	B86
MGS909 <b>S</b>	DC	60000	0.1	21	1.4	15	B90
MGS910 <b>S</b>	DC	60000	0.1	21	1.4	15	B87
MGS912 <b>S</b>	DC	60000	0.03	28	1.95	20	B89
MA4E2039 <b>S</b>	DC	60000	0.05	4	0.7	4.5	Beam Lead
MA4E2040 <b>S</b>	DC	60000	0.05	4	0.7	4.5	Beam Lead
MA4E2037 <b>S</b>	DC	60000	0.05	4	0.7	4.5	Beam Lead
MADS-001317-1500AG	DC	80000	0.05	4	0.7	4.5	ODS-1500
MADS-001317-1500AP	DC	80000	0.05	4	0.7	7	ODS-1500
MA4E2160	DC	80000	0.05	4	0.7	7	ODS-1262
MA4E1318	DC	80000	0.09	4	0.7	4.5	ODS-1197
MA4E1317	DC	80000	0.05	4	0.7	4.5	ODS-1278
MA4E1319-1	DC	80000	0.05	4	0.7	4.5	ODS-1199
MADS-001318-1197HP	DC	80000	0.09	4	0.7	7	Tape & Reel
MA4E1310	DC	110000	0.04	7	0.7	7	ODS-1278

## THz Schottky Barrier Diodes

Part Number	Cutoff Frequency (THz)	Total Capacitance (fF)	Resistance ( $\Omega$ )	Configuration (mV)
MADZ-011001	1.27	40	3.4	Single
MADZ-011002	1	49	3.5	Single
MADZ-011003	1	49	3.5	Anti Parallel
MADZ-011004	1	49	3.5	Reverse Tee
MADZ-011005	1	49	3.5	Unconnected Anti-Parallel Pair

## THz Diodes

Part Number	Cutoff Frequency (THz)	Total Capacitance (fF)	Resistance ( $\Omega$ )	Configuration (mV)
CGY2870AUH	1.27	40	3.4	Single

Note: Part numbers are RoHS compliant. **S** indicates these parts are also available with Space and Hi-Rel Screening & Qualification. Detailed specifications can be found quickly on our website at [macom.com](http://macom.com) by typing the part number into the search box. All specifications are subject to change.

## Low Magnetic and Non-Magnetic PIN Diodes

Product	Min Frequency (MHz)	Max Frequency (MHz)	CW Power Dissipation(W)	Total Capacitance (pF)	Resistance (Ω)	Lifetime (ns)	Breakdown Voltage Minimum(V)	Package
MADP-010015-14320T	—	—	—	6	0.6	7.5	75	ODS-1432 (SMT)
MADP-010015-14340T	—	—	—	6	0.6	7.5	75	ODS-1434 (Axial)
MADP-010015-14420T	—	—	—	6	0.6	7.5	75	ODS-1442 (AP Pair)
MMP7078-128-1	—	—	—	1	0.5	3	400	CS128-1
MMP7080-128-1	—	—	—	0.7	0.8	3	600	CS128-1
MMP7089-128-1	—	—	—	0.5	0.6	1000	500	CS128-1
MADP-011143-10720T	0	120	6	1	0.2	4000	500	ODS-1072
MADP-011084-TR0500	5	400	50	2	1	55	50	4 mm HQFN-8
MADP-011084-1134B0	5	400	50	2	1	55	50	Ceramic 2 LD
MA4P4001BNM-402	DC	500	12	2.2	0.5	20000	100	ODS-402
MADP-04002B-NM402T	DC	500	12	2.2	0.5	20000	200	ODS-402
MADP-07006B-NM401T	1	1000	5	0.7	0.9	5000	600	ODS-401
MADP-000504-10720T	0	1000	2.9	0.16	0.6	1000	500	ODS-1072
MA4P7435NM-1091T	0	1000	50	2.5	0.2	14000	1100	ODS-1091
MA4P7441F-1091T	0	1000	30	2.2	0.5	18000	100	ODS-1091
MA4P7446F-1091T	0	1000	25	2.2	0.5	19000	600	ODS-1091
MA44781	10	1000	1.7	1.5	0.8	200	60	ODS-1134
MA45471	10	1000	1.7	3	—	200	75	ODS-1134
MADP-009989-14320T	30	1500	4	1.2	0.3	6500	75	ODS-1432 (SMT)
MADP-009989-14340T	30	1500	4	1.2	0.3	6500	75	ODS-1434 (Axial)
MADP-009989-14420T	30	1500	4	1.2	0.3	6500	75	ODS-1442 (AP Pair)
MADP-011034-10720T	10	1500	6	1	0.4	300	150	ODS-1072
MADP-000404-10720T	100	1500	7.5	0.6	0.7	100	250	ODS-1072
MADP-000235-10720T	0	1500	7.5	1.2	0.5	300	35	ODS-1072
MA4P7470F-1072T	0	1500	12	0.7	0.8	6500	800	ODS-1072
MA4P7452F-1072T	0	1500	10	0.7	0.9	9000	150	ODS-1072
MA4P7461F-1072T	0	1500	8	1	0.5	6000	100	ODS-1072
MA4P7464F-1072T	0	1500	7.5	0.8	0.5	4500	400	ODS-1072
MADP-011127-11410T	25	2500	0.2	0.35	1.5	200	75	ODS-1141 SOT-323
MADP-011128-11410T	25	2500	0.2	1	0.5	200	75	ODS-1141 SOT-323
MADP-011136-11410T	50	3000	0.25	0.5	2	20	70	SOD-323
MADP-011136-N287BT	50	3000	0.25	0.5	2	20	70	SOT-23
MADP-011136-N287T0	50	3000	0.25	0.5	2	20	70	SOT-23

Note: Part numbers are RoHS compliant. **S** indicates these parts are also available with Space and Hi-Rel Screening & Qualification.

Detailed specifications can be found quickly on our website at [macom.com](http://macom.com) by typing the part number into the search box. All specifications are subject to change.

CONTROL PRODUCTS

For a Wide Range of A&D and Commercial Applications

MACOM offers control products for a wide range of A&D and commercial applications, covering a broad frequency spectrum from DC to 100 GHz, using Silicon, AlGaAs, and GaAs based technologies.

**Power Detectors**

- > Broadband devices with integrated low loss directional couplers and built-in temperature compensation circuits
- > Lead-free plastic surface mount packages
- > For power monitoring and leveling in point-to-point radios, IMS, radar, VSAT, EW, A&D systems

**Digital Phase Shifters**

- > 4-Bit and 6-Bit with either serial or parallel control inputs
- > For military or weather radar, transmit/receive modules, and EW
- > Convenient surface mount PQFN with 360° coverage, fast switching speed, and low phase error

**Voltage Variable Attenuators**

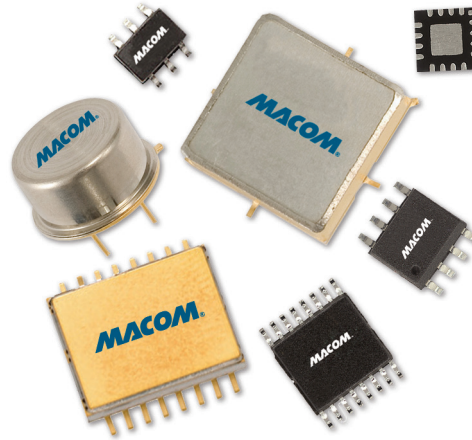
- > Automotive and wireless markets
- > Ideal for cellular infrastructure, handset gain control, radar systems, satellite radios, and test equipment

**Digital Attenuators**

- > Used in a variety of applications for automotive and wireless markets
- > Typical applications include: CATV infrastructure, cellular infrastructure, handset gain control, radar systems, satellite radios, and test equipment including 75 Ω versions for CATV

**Limiters**

- > Thin-film hybrid manufacturing for the highest levels of performance, repeatability, reliability, and cost-effectiveness



**CMOS Switch Drivers**

- > For wireless infrastructure base stations and A&D applications including: cordless and mobile phones, satellite radio, GPS and DAB, 2.4 GHz and 5.0 GHz WLAN, VSAT, CATV and broadband, commercial and military radar, and multi-market applications

**Switches**

- > Frequency spectrum from DC to 100 GHz
- > (HMIC™) PIN diodes: high power and broadband from 50 MHz to 26 GHz
- > AlGaAs PIN diode: upper frequency ranges for instrumentation and radar
- > GaAs pHEMT and MESFET for fast switching and low control voltage for narrow band and broadband
- > 75 Ω absorptive switches for CATV, FTTx and DBS infrastructure, and CPE applications

**Phase Detectors**

- > SRD reference frequency multiplier, coupling capacitors and a Schottky diode microwave sampler/phase detector in a 0.075" by 0.100" hybrid
- > Used to phase lock microwave oscillators up to 22 GHz to a much lower reference frequency



**Limiters**

Part Number	Min Freq (MHz)	Max Freq (MHz)	Insertion Loss (dB)	Ave. Power (W)	Peak Power (W)	Leakage (mW)	Recovery Time (ns)	Package
MADL-011012	300	1000	0.2	360	55.6	100	3000	SMT Hermetic
2690-1001 ♦	1000	2000	0.7	1	100	75	100	Coax
2690-1003 ♦	1000	2000	0.9	3	1000	100	1000	Coax
MADL-011014	1000	2000	0.35	200	320	100	3500	SMT Hermetic
MADL-011015	2000	4000	0.6	100	250	30	3000	SMT Hermetic
MADL-011173-DIE	2000	4000	0.5	12.5	—	40	80	Die
LM202602-H-A-300	2000	6000	0.85	100	100	63	100	Surface Mount
LM202802-Q-B-301	2000	8000	1.1	100	125	126	5000	Surface Mount
LM202802-Q-C-301	2000	8000	1.1	100	125	126	5000	Surface Mount
LM202802-L-C-300	2000	8000	1	4	100	79	75	Surface Mount
MADL-011074-DIE	4000	8000	0.6	10	—	50	130	Die
MADL-011078-DIE	4000	8000	0.6	12.5	—	40	70	Die
MADL-011087-DIE	2000	8000	0.6	12.5	—	35	30	Die
2690-1005 ♦	2000	8000	1.1	1	100	50	100	Coax
2690-1007 ♦	2000	8000	1.3	3	1000	100	1000	Coax
MADL-011088-DIE	6000	12000	0.4	8	—	56	60	Die
MADL-011092	100	18000	1	3.1	400	500	11000	8.8 x 5 mm SMT
2690-1014 ♦	2000	18000	2.3	2	500	75	250	Coax
2690-1015 ♦	2000	18000	2.3	3	1000	100	1000	Coax
2690-1009 ♦	8000	18000	1.8	1	100	50	100	Coax
2690-1011 ♦	8000	18000	2.3	3	1000	100	1000	Coax
MADL-011100	1000	20000	1.1	5	500	39	0.270	SMT Ceramic

**Power Detectors**

Part Number	Min Freq (MHz)	Max Freq (MHz)	Insertion Loss (dB)	Sensitivity (dBm)	Directivity (dB)	Max Power (dBm)	Package
MACP-010571	2000	6000	0.2	-15	15	30	1.5 x 1.2 mm TDFN-6
MACP-010572	6000	18000	0.25	-18	16	30	1.5 x 1.2 mm TDFN-6
MACP-010573	10000	30000	0.5	-17	14	30	1.5 x 1.2 mm TDFN-7
MADT-011000-DIE	5000	44000	—	—	—	15	Die
MADT-011000	5000	44000	—	—	—	15	3 mm QFN

**Digital Phase Shifters**

Part Number	Min Freq (MHz)	Max Freq (MHz)	Insertion Loss (dB)	Bit Count	LSB (°)	P3 (dBm)	RMS Phase (dBm)	Package
MAPS-011021	900	1200	3.5	6-Bit	5.6	42	—	4 mm PQFN-24
MAPS-011007	1200	1400	3.8	6-Bit	5.6	48	2	4 mm PQFN-24
MAPS-010163-DIE	1400	2400	3.8	6-Bit	5.6	40	3	Die
MAPS-010143	1400	2400	3.2	4-Bit	22.5	40	2	4 mm PQFN-24
MAPS-010163	1400	2400	5	6-Bit	5.6	40	3	4 mm PQFN-24
MAPS-010164-DIE	2300	3800	3.6	6-Bit	5.6	45	3	Die
MAPS-010144	2300	3800	2.5	4-Bit	22.5	47	2.2	4 mm PQFN-24
MAPS-010164	2300	3800	3.2	6-Bit	5.6	45	3	4 mm PQFN-24
MAPS-011019	2400	5100	4.5	6-Bit	5.6	48	—	4 mm PQFN-24
MAPS-010165-DIE	3500	6000	4.9	6-Bit	5.6	40	4	Die
MAPS-010145	3500	6000	5	4-Bit	22.5	45	3	4 mm PQFN-24
MAPS-010165	3500	6000	5.5	6-Bit	5.6	40	4	4 mm PQFN-24
MAPS-011008	5000	6000	4	6-Bit	5.6	48	2	4 mm PQFN-24
CGY2177AUH	4800	6800	5	6	5.625	—	2	Die

Note: Part numbers are RoHS compliant. ♦ indicates non-RoHS compliant

Detailed specifications can be found quickly on our website at macom.com by typing the part number into the search box. All specifications are subject to change.



Digital Phase Shifters (continued)								
Part Number	Min Freq (MHz)	Max Freq (MHz)	Insertion Loss (dB)	Bit Count	LSB (°)	P3 (dBm)	RMS Phase (dBm)	Package
MAPS-010146	8000	12000	6.5	4-Bit	22.5	40	5	4 mm PQFN-24
MAPS-010166	8000	12000	6.5	6-Bit	5.6	40	5	4 mm PQFN-24
CGY2172XAUH	8000	12000	8	6	5.625	—	2	Die
CGY2172XBUH	8000	12000	8	6	5.625	—	2	Die
CGY2174UH	14000	16000	8	6	5.625	—	6	Die
CGY2173UH	6000	18000	13	6	5.625	—	4	Die
CGY2392SHV	6000	18000	10.8	6	5.625	—	1.09	5 x 5 mm
CGY2392SUH	6000	18000	10.8	6	5.625	—	1.7	Die

Digital Attenuators								
Part Number	Min Freq (MHz)	Max Freq (MHz)	Attenuator Range (dB)	Insertion Loss (dB)	Bit Count	IIP3	LSB	Package
CGY2176AUH	1000	8000	31.5	5.6	6	—	—	Die
CGY2171XBUH	1000	15000	31.5	5	6	—	—	Die
CGY2169UH	10000	18000	23.5	4	6	—	—	Die
CGY2390SUH	6000	18000	35	2.2	3	—	—	Die

Fixed Attenuators							
Part Number	Min Freq (MHz)	Max Freq (MHz)	Attenuation (dB)	Return Loss (dB)	Input P1dB (DBM)	Input OIP3 (DBM)	Package
MAAT-011022-DIE	DC	50000	0.2	17.5	—	—	Die
MAAT-011023-DIE	DC	50000	0.3	17.5	—	—	Die
MAAT-011024-DIE	DC	50000	2	17.5	27	40	Die
MAAT-011025-DIE	DC	50000	3.1	17.5	27	40	Die
MAAT-011026-DIE	DC	50000	4.2	17.5	27	40	Die
MAAT-011027-DIE	DC	50000	6.3	17.5	27	40	Die
MAAT-011028-DIE	DC	50000	10.3	17.5	27	40	Die
MAAT-011029-DIE	DC	50000	15.4	17.5	27	40	Die
MAAT-011030-DIE	DC	50000	20.4	17.5	27	40	Die

CMOS Switch Drivers							
Part Number	Type	Rise Time/Fall Time (ns)	Vcc (V)	Vee (-V)	cc (mA)	Package	
MADR-007131-000100	Dual Linearizer	—	5	—	1	CSP-9	
MADR-007097-000100	Single	2	5	-5	1	SOIC-8	
MADR-010574	PIN	2	3	—	170	7 mm PQFN-16	
MADR-011021	4CH HV Driver	3	5	180 (VDD)	5	6 mm PQFN-18	
MADR-010410	TR Module	6	3	3	—	5 mm PQFN-40	
MADR-011007	FET	6	—	-5	—	6 mm PQFN-48	
MADR-010269-DIE	Hex FET	8/4.5	3.3	-5	1	Die	
MADRCC0005	Single	25	5	-5	1	SO-8	
MADRCC0004	Quad	25	5	-5	—	SO-16	
MADR-009150	PIN	30	3.3	—	.05	3 mm PQFN-16	
MADR-011022	2CH Driver	30	5	-25	20	4 mm PQFN-16	
MADR-011020	2CH Driver	50	5	-50	50	4 mm PQFN-16	
MADR-009151-000DIE	Single	300	5	-5	1	Die	
MADR-009269-000100	Single, PIN	300	5	5	1	SOIC-8	
MADR-009190-000100	Quad	300	5	-5	1	SOIC-16	
MADR-009443-000100	Quad	500	5	-5	20	4 mm PQFN-20	
MADRCC0006	Single	500	5	-5	—	SO-8	

Note: Part numbers are RoHS compliant. ♦ indicates non-RoHS compliant  
 Detailed specifications can be found quickly on our website at macom.com by typing the part number into the search box. All specifications are subject to change.

**CMOS Switch Drivers**

Part Number	Type	Rise Time/Fall Time (ns)	Vcc (V)	Vee (-V)	cc (mA)	Package
MADRCC0007	Quad	500	5	-5	—	SOIC16
MADRCC0002 †	Dual	5000	20	—	—	CSP-9

**Voltage Variable Attenuators**

Part Number	Min Freq (MHz)	Max Freq (MHz)	Insertion Loss (dB)	Attenuator Range (dB)	Input IP3 (dBm)	Voltage (Volts)	Current (mA)	Package
MAATCC0013	824	960	—	25	—	—	—	SOT-25
MAAV-007088-000100	50	1000	2.8	42	34	—	—	SOW-16
MA4VAT900-1277T	800	1000	1	24	40	—	—	3 mm PQFN-16
MA4VAT904-1061T	800	1000	1	24	49	—	—	SOIC-8
MA4VAT907-1061T	800	1000	1	24	49	—	—	SOIC-8
MAAV-007092-000100	800	1000	3.6	34	40	—	30	6 mm PQFN-28
MAAV-008022	500	2000	2.7	40	32	+5	0.05	SOIC-8
MAAV-007941	0	2000	3.2	12	36	-4	0.02	SOIC-8
SMG2	5	2000	—	23	—	—	—	SMT
MAAM-007987-000CG2	5	2000	—	23	—	—	—	SMA
MA4VAT2004-1061T	1700	2000	1.4	24	49	—	—	SOIC-8
MAAVSS0008	500	2000	2.8	30	28	+5	0.3	SOIC-8
MA4VAT2007-1061T	1700	2000	1.4	23	52	—	—	SOIC-8
CG30	100	2000	—	44	—	—	—	SMA
G2	5	2000	2.6	28	—	+5	15	TO-8
SMG1	5	2000	—	30	—	—	—	SMTO-8
SMG30	100	2000	—	44	—	—	—	SMTO-8
G1 †	5	2000	2.5	25	—	+15	15	TO-8, SMT, SMA
G30	100	2000	—	44	—	—	—	TO-8
MAAV-007090-000100	1700	2000	3.5	35	31	—	—	SOW-16
MA4VAT2000-1277T	1700	2200	1.2	24	21	—	—	3 mm PQFN-16
MAAVSS0001	1800	2500	2.4	42	32	+2.25	0.05	SOT-25
MAAVSS0006	0	2500	3.6	25	36	-3	0.025	SOT-25
MADP-007167-12250T	5	3000	2.8	36	50	—	—	SOT-25
MA4P7455-1225T	10	4000	1	29	43	—	—	SOT-25
CG40	500	4000	—	32	—	—	—	SMA
SMG40	500	4000	—	25	—	—	—	SMT
G40	500	4000	2.5	32	—	+15	12	TO-8
MAAT-010521-L2	5800	12000	2	30	29	—	—	3 mm PQFN-16
MAAT-010521-L1	5800	16000	2	30	29	—	—	3 mm PQFN-16
MAAT-010521-H1	17600	40000	2	30	29	—	—	3 mm PQFN-16
MAAV-011013	5000	45000	1.5	30	42	—	—	3 mm PQFN-16
MAAV-011014-DIE	80000	100000	3	25	40	—	—	Die
LG1 *	—	—	—	—	—	—	—	TO-8
CLG1	—	—	—	—	—	—	—	SMA

**Switches**

Part Number	Min Freq (MHz)	Max Freq (MHz)	Insertion Loss (dB)	Isolation (dB)	Input IP3 (dBm)	Package
<b>SPST</b>						
MASW-008177	5	1000	0.7	53	52	3 mm PQFN-12
MASWSS0162	50	2500	1	48	46	SOIC-8

Note: Part numbers are RoHS compliant. **S** indicates these parts are also available with Space and Hi-Rel Screening & Qualification.

† Indicates Non-magnetic. \* LG1 Linearizer is compatible with the G1 Attenuator. Yields linear attenuation (dB) for linear control voltage. Available in TO-8, SMT, SMA.

Detailed specifications can be found quickly on our website at [macom.com](http://macom.com) by typing the part number into the search box. All specifications are subject to change.

Switches (continued)						
Part Number	Min Freq (MHz)	Max Freq (MHz)	Insertion Loss (dB)	Isolation (dB)	Input IP3 (dBm)	Package
MASW-001150-1316 <b>S</b>	45	2500	0.3	65	40	Die
SW-209-PIN	0	3000	1.5	27	40	CR10
SW05-0311	0	3000	40	46	CR-9	
MASWSS0148	300	4000	1.6	51	49	3 mm PQFN-12
SW-231-PIN	5	4000	2	22	46	FP-16
MASW6020G	100	6000	0.9	45	46	Die
MASW-011138-CS0240 <b>S</b>	1000	26500	3.1	50	38	Hermetic with 2.4 mm Connectors
MASW-011138-CS0292 <b>S</b>	1000	26500	3.1	50	38	Hermetic with 2.92 mm Connectors
MA4SW110 <b>S</b>	50	26500	0.6	48	40	HMIC Die
MA4AGSW1A <b>S</b>	50	50000	1.2	48	—	Die
MA4AGSW1 <b>S</b>	50	50000	0.2	43	—	Die
CGY2370UH	92000	96000	2.2	35	—	Die
SPDT						
MASWSS0103	5	1000	0.8	71	47	4 mm PQFN-20
MA8334-004	20	1000	0.4	25	—	844-004
MA8334-001	20	1000	0.4	25	80	844-001
MASWSS0161	500	2000	0.6	30	55	SOIC-8
MASWSS0179	50	2000	0.5	28	52	SOT-26
MASWSS0201	50	2500	1	45	44	3 mm PQFN-12
MASWSS0180	50	2500	0.6	38	46	SOIC-8
MASWSS0157	50	2500	0.6	35	45	SOIC-8
MASW-008899	500	3000	0.3	24	48	SC-70 (SOT-363)
MASW-007075-000100	0	3000	1.8	36	46	SOW-24
MASWSS0166	100	3000	0.4	21	55	SC-70 (SOT-363)
MASWSS0151	0	3000	0.6	28	55	SC-70 (SOT-363)
MASW-007935	0	3000	0.7	34	50	SOT-26
MASWSS0192	50	3000	0.2	24	53	SC-70 (SOT-363)
MASWSS0143	100	3000	0.4	18	58	SOT-26
MASWSS0204	300	3000	0.3	22	56	SC-70 (SOT-363)
SW-313-PIN	50	3000	0.8	52	46	CR-9
MASWSS0181	300	3000	0.5	23	57	SOT-26
MASWSS0136	0	3000	0.4	27	48	SC-70 (SOT-363)
MASWSS0176	50	3000	0.3	23	45	SOT-26
MASWSS0178	10	3000	0.6	57	43	MSOP-8
MASWSS0169	100	3000	0.7	48	50	MSOP-10
MASWSS0167	500	3000	0.4	28	48	1.2 x 1.5 mm PQFN-6
MASWSS0115	50	3000	0.3	24	46	SC-70 (SOT-363)
MASWSS0121	500	3000	0.7	54	46	4 mm PQFN-16
MASW-009101	5	3000	1	65	39	3 mm PQFN-16
MASW-008801	5	3000	0.8	85	47	3 mm PQFN-16
MASW-011207	5	3000	1.2	55	51	3 mm PQFN-16
MASW-007221	500	3000	0.4	22	52	SC-70 (SOT-363)
MASW2000	0	3000	0.6	40	53	Die
MASW4030G	50	4000	0.6	53	46	Die
SW-228-PIN	0	4000	0.7	42	46	CR-2
MASW-007071-000100	0	4000	1.8	30	46	4 x 6 mm PQFN

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Switches (continued)						
Part Number	Min Freq (MHz)	Max Freq (MHz)	Insertion Loss (dB)	Isolation (dB)	Input IP3 (dBm)	Package
SW-226-PIN	0	4000	1	48	46	CR-2
MASW-000932	10	4000	53	43	72	4 mm PQFN-16
MASW-008543	10	4000	0.7	58	53	MSOP-8
MASW-009588	500	4000	0.4	26	55	1 mm PDFN-6
MASW-010370	1500	4000	0.5	37	—	3 mm PQFN-16
MASW-008853	0	5000	0.3	25	56	SC-70 (SOT-363)
MASW-011184	1000	5000	0.35/0.5	29/27	54/51	3 mm PQFN-16
MASW-008206-000DIE	2400	5800	0.85	30	54	Die
MASW-011120	30	6000	0.25	44	68	5 mm HQFN-20
MASW-000834-13560T	50	6000	0.2	53	65	4 mm PQFN-16
MASW-000825-12770T	50	6000	0.3	35	64	3 mm PQFN-16
MASW-007588	1000	6000	0.9	28	55	3 mm PQFN-12
MASW-000822-12770T	50	6000	0.2	32	60	3 mm PQFN-16
MASWSS0202	1000	6000	0.6	25	52	3 mm PQFN-12
MASW-009444	200	6000	0.3	28	54	1 mm PDFN-6
MASW-000936	50	6000	0.2	45	72	4 mm PQFN
MASW6010G	200	6000	0.8	38	46	Die
MASW6010	0	6000	0.8	38	46	Die
MASW-007921	50	7000	0.7	30	58	2 mm PDFN-8
MASW-007107	0	8000	0.5	30	54	2 mm PDFN-8
MASW-010647 <b>S</b>	8000	10500	0.8	37	60	Die
MASW-011071	8000	10500	1	38	60	7 mm PQFN-44
MASW-011021 <b>S</b>	6000	14000	0.7	34	60	SURMOUNT™ Die
CGY2890SUH	6000	18000	1.5	50	—	Die
MASW-002102-13580 <b>S</b>	2	18000	1.8	55	40	Die
MASW-011108-DIE <b>S</b>	6000	18000	0.6	44	—	Die
MASW20000	50	20000	1.4	58	43	Die
MASW-002103-1363 <b>S</b>	50	20000	0.8	38	40	SURMOUNT™ Die
MASW-008322	500	20000	1	45	48	4 mm PQFN-24
MASW-011057 • Reflective	13000	20000	0.8	42	55	4 mm QFN-20
MASW-011129-DIE	2000	22000	0.6	45	50	Die
MA4SW210B-1 <b>S</b>	2000	26000	1.2	48	40	Die
MASW-011052 <b>S</b>	2000	26000	0.8	50	43	Die
MASW-011135-CS0240 <b>S</b>	2000	26000	3.3	30	45	Hermetic with 2.4 mm Connectors
MASW-011135-CS0292 <b>S</b>	2000	26000	3.3	30	45	Hermetic with 2.92 mm connectors
MASW-011107-DIE	DC	26500	1.3	46	45	Die
MA4SW210 <b>S</b>	50	26500	0.6	52	40	HMIC Die
MASW-002100-1191 <b>S</b>	50	26500	0.3	65	40	Die
MASW-011128-DIE	50	26500	1.7	48	42	Die
MASW-011102	0	30000	1.8	40	45	3 mm PQFN-14
MASW-011105	17700	31000	1.6	30	43	3 mm PQFN-14
MASW-011145	27000	31000	1.3	45	60	3 mm 20-Lead Laminate
MASW-011098	26000	40000	1.17	38	—	5 mm 20-Lead Laminate
MASW-011144-DIE <b>S</b>	20000	40000	65	30	—	Die
MASW-010646 <b>S</b>	26000	40000	0.6	39	60	Die
MASW-011036 <b>S</b>	26000	40000	0.7	40	60	Die

• Not yet released  
 Note: Part numbers are RoHS compliant. **S** indicates these parts are also available with Space and Hi-Rel Screening & Qualification.  
 Detailed specifications can be found quickly on our website at [macom.com](http://macom.com) by typing the part number into the search box. All specifications are subject to change.

Switches (continued)						
Part Number	Min Freq (MHz)	Max Freq (MHz)	Insertion Loss (dB)	Isolation (dB)	Input IP3 (dBm)	Package
MASW-011197	0	44000	1.4	46	52	2.25 mm 12-Lead Laminate
MASW-011198	0	44000	1.8	47	52	3 mm 20-Lead Laminate
MASW-011131-CS0240 <b>S</b>	8000	50000	2.2	35	—	Hermetic with 1.85 mm Connectors
MA4AGSW2 <b>S</b>	50	50000	0.6	46	—	Die
MASW-011173	20000	55000	1	35	50	Die
MASW-011152	0	55000	3.3	38	52	3 mm 20-Lead Laminate
MASW-011151	0	67000	3	33	52	2.25 mm 12-Lead Laminate
MASW-011111-DIE <b>S</b>	80000	100000	0.8	25	—	Die
SP3T						
MASW-011041	50	1500	0.3	51	73	9 mm HQFN-20
MASWSS0200	500	2500	0.6	24	61	3 mm PQFN-12
MASWSS0199	500	2500	0.5	30	58	3 mm PQFN-12
MASW-011030	50	2500	0.4	27	77	7 mm HQFN-16
MASW-007074-000100	0	3000	2	32	45	SOW-24
MASWSS0144	500	3000	0.6	24	55	3 mm PQFN-12
MASW-008955	0	3000	0.6	22	54	2 mm PDFN-8
MASW-008330	500	3000	0.5	24	50	2 mm PQFN-8
MASWSS0191	500	3000	0.7	30	58	2 mm STDFN-8LD
MASW-010612	0	3500	0.6	21	54	1.5 mm PDFN-8
MASW-009482	50	4000	0.75	23	65	2 mm STQFN-12
MASW-011053 <b>S</b>	2000	18000	0.8	50	48	Die
MASW-003102-13590 <b>S</b>	2000	18000	0.8	50	40	Die
MASW-003103-1364 <b>S</b>	50	20000	0.8	40	40	SURMOUNT™ Die
MASW-011130-DIE	2000	22000	0.6	45	45	Die
MA4SW310B-1 <b>S</b>	2000	26000	1.2	47	40	Die
MA4SW310 <b>S</b>	50	26500	0.8	48	40	Die
MASW-003100-1192 <b>S</b>	50	26500	0.3	65	40	Die
MA4AGSW3 <b>S</b>	50	50000	0.6	48	—	Die
MASW-011185	50	60000	1.5	35	44	5 mm QFN-4
MASW-011029 <b>S</b>	75000	100000	1.3	33	—	Die
SP4T						
MASW-011077	50	1000	0.3	48	50	12 mm XHQFN-28
MASW-011040	50	1500	0.3	51	73	9 mm HQFN-20
MASWCC0009	3	3000	1.4	42	46	QSOP24
MASW-007813-000000	500	3000	0.8	27	58	3 mm PQFN-16
MASW-008566	100	3000	0.7	26	57	4 mm PQFN-16
MASWCC0010	0	4000	2.3	38	40	CSP-2
MASW-010350	10	4000	0.8	60	50	4 mm PQFN-24
MASW4060G	0	4000	1.3	50	46	Die
MA4SW410B-1 <b>S</b>	2000	18000	0.8	48	40	Die
MASW-004102-12760 <b>S</b>	2	18000	1.5	50	40	Die
MASW-004103-1365 <b>S</b>	50	20000	0.8	50	63	SURMOUNT™ Die
MASW-004240-13170 <b>S</b>	10	24000	2.5	50	—	Die
MASW-004100-1193 <b>S</b>	50	26500	0.3	65	40	Die
MA4SW410 <b>S</b>	50	26500	0.7	48	40	Die

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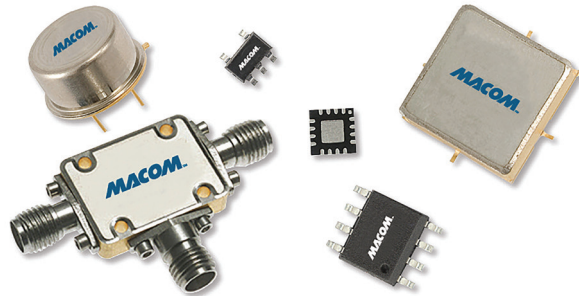
Switches (continued)										
Part Number	Min Freq (MHz)	Max Freq (MHz)	Insertion Loss (dB)	Isolation (dB)	Input IP3 (dBm)	Package				
MASW-011087 <b>S</b>	27000	30000	0.85	50	55	Die				
MASW-011137-CS0240 <b>S</b>	500	30000	3.8	30	45	Hermetic with 2.4 mm Connectors				
MASW-011199	0	44000	2.6	34	51	3 mm 22-Lead Laminate				
MASW-011200	0	44000	3.3	41	51	3 mm 22-Lead Laminate				
MA4AGSW4 <b>S</b>	50	50000	0.8	42	40	Die				
MASW-011153	0	57000	3.5	34	51	3 mm 22-Lead Laminate				
MASW-011154	0	57000	4	39	51	3 mm 22-Lead Laminate				
SP5T										
MASW-010351	10	4000	1.4	57	50	4 mm PQFN-24				
MA4SW510B-1 <b>S</b>	2000	18000	0.9	40	40	Die				
MASW-005102-13600 <b>S</b>	2000	18000	0.9	40	40	Die				
MA4SW510 <b>S</b>	50	26500	0.9	38	40	Die				
MASW-005100-1194 <b>S</b>	50	26500	0.9	38	40	Die				
MASW-006102-13610 <b>S</b>	50	26500	0.3	65	40	Die				
MA4AGSW5 <b>S</b>	50	50000	1.1	47	40	Die				
MASW-011170	50	50000	1.1	47	40	Die				
SP6T										
MASWCC0006	0	4000	2.1	25	40	CSP-2				
MA4SW610B-1 <b>S</b>	2000	18000	1.3	45	40	Die				
MASW-006102-13610 <b>S</b>	2000	18000	1.3	45	40	Die				
SP8T										
MA4AGSW8-1 <b>S</b>	50	50000	1.5	37	40	Die				
DPDT										
MASW2040	0	2000	0.4	20	46	Die				
MASWSS0130	500	3000	0.6	25	55	3 mm PQFN-12				
MASW-009460	500	3000	0.6	19	52	3 mm PQFN-12				
MASWSS0184	200	4000	0.7	35	58	3 mm PQFN-12				
MASW-007587-000000	200	4000	0.7	38	59	3 mm PQFN-12				
MASW6030G	0	6000	0.6	40	45	Die				
MASWSS0190	2000	6000	0.8	43	50	2 mm UTQFN-8				
Phase Detectors										
Part Number	SRD VBR Min (V)	SRD CJ Typ (pF)	SRD TL Typ (ns)	SRD TT Max (ps)	Cap CT Typ (pF)	SD CJ Typ (pF)	SD VF Typ	SD RD Typ (mV)	FMW Typ (GHz)	Package
MSPD1000-E50/E50SM	15	1	35	95	20	0.4	270	7	0.5	E50/E50SM
MSPD1000-H50 <b>S</b>	15	1	35	95	20	0.4	270	7	0.5	H50
MSPD1002-E50/E50SM	15	0.5	20	70	3.5	0.22	270	8	2	E50/E50SM
MSPD1011-122/121	15	22	10	100	0.5	0.08	300	20	20	CS122/CS121
MSPD1012-121	15	22	10	100	0.5	0.08	450	20	20	CS121
MSPD1012-122	15	22	10	100	0.5	0.08	450	20	20	CS122
MSPD1012-E50/E50SM	15	0.5	10	70	2.5	0.18	270	9	12	E50/E50SM
MSPD1012-H50 <b>S</b>	15	0.5	10	70	2.5	0.18	270	9	12	H50
MSPD1013-121	15	22	10	100	0.5	0.08	550	20	20	CS121
MSPD1013-122	15	22	10	100	0.5	0.08	550	20	20	CS122
MSPD2018-E50/E50SM	15	0.35	5	55	0.6	0.1	430	16	22	E50/E50SM
MSPD2018-H50 <b>S</b>	15	0.35	5	55	0.6	0.1	430	16	22	H50

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FREQUENCY CONVERSION

Offering a Broad Range of Frequency and Performance Specifications

MACOM's frequency conversion products include hybrid-mixers, mixers, receivers, transceivers, up converters, and frequency multipliers. Our frequency conversion devices are ideal for point-to-point radio, aerospace and defense, and other broadband communications applications. Available as surface mount devices, our reliable products enable easy assembly and integration for real estate constrained customers.



**Frequency Multipliers**

- > Combining an active doubler with an output buffer amplifier to deliver constant power over a range of input powers
- > Available as bare die or in surface mount lead-free QFN packages

**Hybrid Mixers**

- > For aerospace and defense, wireless, test and measurement, and broadband communications applications
- > Available in subsets of the frequency range:
  - RF and LO: 50 kHz to 24 GHz
  - IF: DC to 8 GHz
- > Double and triple balanced designs
- > Variety of technologies
  - GaAs pHEMT
  - Si HMIC™
- > Connectorized, flat pack, drop-in, and surface mount packages

**Receivers**

- > Widely used in point-to-point radio, aerospace and defense, and broadband communications applications
- > Features an integrated LNA, mixer and LO buffer amplifier on a single chip
- > 4500 to 45000 MHz frequency range
- > Excellent noise figure and conversion gain performance
- > Lead-free QFN or SMD packages

**Transceivers**

- > Monolithic and stereo doppler transceivers for directional motion detection
- > Used in automatic door openers, ground speed recorders and police radar detectors

**Up Converters**

- > Applications include point-to-point radio and broadband communications
- > Featuring an integrated image reject (balanced) mixer, LO buffer, RF buffer, and LO doubler or variable attenuator on a single chip
- > 5600 to 40000 MHz frequency range
- > Lead-free QFN or SMD packages
- > Excellent variable gain control with adjustable bias, high linearity and image rejection, with low LO leakage

**Mixers**

- > Constructed using broadband ferrite balun transformers and matched silicon Schottky diodes
- > Ideal for use in CATV head end systems and up converter applications



Frequency Multipliers								
Part Number	Min Freq RF (MHz)	Max Freq RF (MHz)	Min Output (MHz)	Max Output (MHz)	Input power (dB)	Multiply Factor	Conversion Loss (dB)	Package
FM-105-PIN ♦	10	750	20	1500	24	2	12	RH-3
FM-104-PIN ♦	75	1500	150	3000	24	2	10	FP-3
FM-107-PIN ♦	5	2400	10	4800	10	2	11	FP-2
FMS-109-PIN ♦	5	2400	10	4800	10	2	11	SF-1
SFD25H	5	2400	10	4800	23	2	12	SMT
SFD25	5	2400	10	4800	10	2	11.5	SMT
CSFD25H ♦	10	2400	20	4800	23	2	12	SMT
CSFD25 ♦	10	2400	20	4800	10	2	11.5	SMT
FD25 ♦	5	2400	10	4800	10	2	11.5	TO-8
FD25C ♦	5	2400	10	4800	10	2	11.5	Conn
FD25H ♦	5	2400	10	4800	23	2	12	TO-8
FD25HC ♦	5	2400	10	4800	23	2	12	Conn
FD25E ♦	5	2400	10	4800	10	2	11.5	Flatpack
SFD26	50	3300	100	6600	10	2	13	SMT
FD26C ♦	50	3300	100	6600	110	2	13	Conn
CSFD26 ♦	50	3300	100	6600	10	2	13.5	SMT
FD26	50	3300	100	6600	10	2	13	TO-8
XX1002-QH	2500	6000	5000	12000	3	2	13	4 mm PQFN-24
FDC2310 ♦	1500	8000	3000	16000	10	2	11	Open Carrier
FDC2710 ♦	3500	8000	7000	16000	10	2	11.2	Open Carrier
FD93C ♦	2000	9000	4000	18000	12	2	12	Conn
FD93 ♦	2000	9000	4000	18000	12	2	12	Versapac
FD93H	2000	9000	4000	18000	19	2	12	Versapac
FD93HC ♦	2000	9000	4000	18000	19	2	12	Conn
CGY2770UH	11000	11500	—	—	—	8	—	Die
FDZ5013 ♦	3000	12000	6000	24000	13	2	12	Versapac
FDZ5013C ♦	3000	12000	6000	24000	13	2	12	Conn
MAFC-004403	8000	12000	16000	24000	0	2	17	4 mm QFN
MAFC-010511	8000	12000	16000	24000	0	—	17	3 mm PQFN-16
XX1010-QT	14625	15000	29250	30000	4.5	2	14	3 mm QFN-16
XX1007-BD	13500	17000	27000	34000	8	2	12	Die
XX1007-QT	13500	17000	27000	34000	8	2	10	3 mm PQFN-16
XX1000-QT	7500	22500	15000	45000	6	2	12	3 mm QFN-16
XX1000-BD	7500	25000	15000	50000	0	2	13	Die

Hybrid Mixers							
Part Number	Min Freq RF/LO (MHz)	Max Freq RF/LO (MHz)	Min Freq IF (MHz)	Max Freq IF (MHz)	LO Drive (dB)	Conversion Loss/Gain (dB)	Package
MDS-222-PIN ♦	0.2	200	0.2	200	7	7.5	SF-1
MAC-50-PIN ♦	0.2	200	0	200	7	6	TO-5-2
M6D-50 ♦	0.05	200	0	200	7	7	Relay Can
SM6D	0.05	200	0	200	7	7	SMT
MAC-51-PIN ♦	5	500	0	500	7	7	TO-5-2
MDS-223-PIN ♦	10	500	10	500	7	7	SF-1
MD-161-PIN ♦	1	500	0	500	13	8	FP-2
SM6V	0.4	500	0	500	7	6.5	SMT
M9BC ♦	0.5	500	0	500	17	7	Relay Can
MIH ♦	180	620	0	200	7	7	SMA Relay Can

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Hybrid Mixers (continued)							
Part Number	Min Freq RF/LO (MHz)	Max Freq RF/LO (MHz)	Min Freq IF (MHz)	Max Freq IF (MHz)	LO Drive (dB)	Conversion Loss/Gain (dB)	Package
M6EH ♦	5	750	0	500	20	7.5	Relay Can
SM6EH	5	750	0	500	20	7.5	SMT
SM2E	10	1000	0	600	20	8	SMT
M2EC ♦	10	1000	0	600	20	8	SMA
M2E	10	1000	0	600	20	8	TO-8
MD-148-PIN ♦	10	1500	10	1500	10	6	FP-2
MDS-158-PIN ♦	5	1500	—	—	7	9	SF-1
MD-160-PIN ♦	1	1500	1	1000	13	9	RH-3
MDS-148-PIN	10	1500	10	1500	10	6	SF-1
MD-158-PIN ♦	5	1500	—	1000	7	7	FP-2
MD-149-PIN ♦	10	1500	10	1500	7	7.5	FP-2
MDS-149-PIN ♦	10	1500	10	1500	7	6	SF-1
CSM1-17	10	1500	1	500	17	7.5	SMT
M9HC ♦	10	1500	0	600	20	8	SMA
M4A ♦	10	1500	0	1000	7	7.5	Flatpack
SM4A	10	1500	0	1000	7	7.5	SMT
M2AC ♦	10	1500	0	800	7	7.5	SMA
CSM1-13	10	1500	1	500	13	7.5	SMT
SM4B ♦	10	1500	0	1000	13	7.5	SMT
M2BC ♦	10	1600	0	800	13	7.5	SMA
M2B ♦	10	1600	0	800	13	7.5	TO-8
CSM1-10	10	2000	1	500	10	7.5	SMT
M2TC ♦	10	2400	1	1000	13	8	SMA
SM4G ♦	800	2400	0	1500	7	7.5	SMT
CSM2-10	10	2800	10	2000	10	8.5	SMT
CSM2-17	10	2800	10	2000	17	8.5	SMT
CSM2-13	10	2800	10	2000	13	8.5	SMT
MD-123-PIN ♦	10	3000	10	3000	7	8	FP-2
SM4T17	1	3400	1	2000	17	8	SMT
SM4TH	1	3400	1	2000	23	8	SMT
M8T ♦	1	3400	1	2000	10	7	TO-8
M8TC ♦	1	3400	1	2000	10	7	SMA
M8TH ♦	1	3400	1	2000	23	7.5	TO-8
CSM4T17	1	3400	1	2000	17	8	SMT
CSM4TH	1	3400	1	2000	23	8	SMT
SM4T	1	3400	1	2000	10	8	SMT
M8THC ♦	1	3400	1	2000	23	7.5	SMA
CSM4T	1	3400	1	2000	10	8	SMT
M4TH ♦	1	3400	1	2000	23	8	Flatpack
MDC-169-SMA ♦	1	3500	1	3500	10	10	C-7
MDS-169-PIN ♦	1	3500	5	1500	10	8	SF-1
MD-189-PIN ♦	1	3500	1	3500	23	8	FP-2
MDS-189-PIN ♦	1	3500	1	3500	23	8	SF-1
MD-169-PIN ♦	1	3500	1	3500	10	10	FP-2
M2GC ♦	800	3500	0	1500	7	8	SMA
M2G	800	3500	0	1500	7	8	TO-8
MDC-179-SMA ♦	1	4000	5	1500	7	10.5	C-7

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Hybrid Mixers (continued)							
Part Number	Min Freq RF/LO (MHz)	Max Freq RF/LO (MHz)	Min Freq IF (MHz)	Max Freq IF (MHz)	LO Drive (dB)	Conversion Loss/Gain (dB)	Package
MD-179-PIN ♦	1	4000	5	1500	7	10.5	FP-2
M8H-3 ♦	3700	4200	0	2000	7	5	TO-8
MC2110 ♦	3400	4700	0	1000	10	6.2	Open Carrier
CSM5TH	50	4800	50	3000	23	7	SMT
CSM5T17	50	4800	50	3000	17	7.8	SMT
CSM5T	50	4800	50	3000	10	7.2	SMT
SM5T17	50	5000	50	3000	17	7.5	SMT
SM5TH	50	5000	50	3000	23	7.7	SMT
SM5T	50	5000	50	3000	10	7.5	SMT
MZ6310C ♦	250	5500	0	1500	10	7	SMA
M63C ♦	2500	5500	0	1500	9	5.5	SMA
M8HC-7 ♦	2400	6000	0	2000	7	6	SMA
M8H-7 ♦	2400	6000	0	2000	7	6	TO-8
MDC-162-SMA ♦	1000	7000	10	2000	13	6	C-2
MY63 ♦	2500	7000	0	15000	9	5.8	Versapac
MY63C ♦	2500	7000	0	15000	9	5.8	SMA
M63H ♦	2500	7500	0	1500	20	6	Minpac
MY63H ♦	2500	7500	0	1500	20	6	Versapac
MY63HC ♦	2500	7500	0	1500	20	6	SMA
M63HC ♦	2500	7500	0	1500	20	6	SMA
MC2307 ♦	2200	8000	0	2000	7	7	Open Carrier
MY76H ♦	4500	8500	0	2000	20	7	Versapac
MY76HC ♦	4500	8500	0	2000	20	7	SMA
M76H ♦	4500	8500	0	2000	20	7	Minpac
MY76C ♦	4500	9500	0	2000	10	6	SMA
M76 ♦	4500	9500	0	2000	10	6	Minpac
M76C ♦	4500	9500	0	2000	10	6	SMA
MY76 ♦	4500	9500	0	2000	10	6	Versapac
MC4113 ♦	2000	10000	0	2000	13	7.5	Open Carrier
MC4120 ♦	2000	10000	0	2000	20	7.5	Open Carrier
MC4107 ♦	2000	10000	0	2000	7	7.5	Open Carrier
MY84 ♦	1800	10000	0	1000	9	6.5	Versapac
MY84C ♦	1800	10000	0	1000	9	6.5	SMA
MY77 ♦	8000	12500	0	2500	10	5.5	Versapac
M77C ♦	8000	12500	0	2500	10	5.5	SMA
MY77C ♦	8000	12500	0	2500	10	5.5	SMA
M14A ♦	6000	14000	0	2000	7	6.5	SMA
MC2710 ♦	10000	15000	0	2000	10	6	Open Carrier
MC2707 ♦	10000	15000	0	2000	7	7	Open Carrier
M67C ♦	9000	15000	0	2500	10	6.5	SMA
MC2720 ♦	10000	15000	0	2000	20	6	Open Carrier
MC3013 ♦	20000	16000	1000	8000	13	8	Open Carrier
MY85C ♦	2000	18000	0	1000	7	8	SMA
MZ7407C ♦	6000	18000	0	3000	7	6.5	SMA
M88H ♦	2000	18000	2000	8000	21	8	Minpac
MZ8810C ♦	2000	18000	1000	8000	10	7.5	SMA
M85 ♦	2000	18000	0	1000	7	8	Minpac

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Hybrid Mixers (continued)							
Part Number	Min Freq RF/LO (MHz)	Max Freq RF/LO (MHz)	Min Freq IF (MHz)	Max Freq IF (MHz)	LO Drive (dB)	Conversion Loss/Gain (dB)	Package
MZ8813 ♦	2000	18000	1000	8000	13	7	Versapac
MY83H ♦	2	18000	30	5000	20	8.5	Versapac
MZ7407 ♦	6000	18000	0	3000	7	6.5	Versapac
M83	1000	18000	30	5000	13	7.5	Minpac
M74 ♦	7000	18000	0	3000	10	6.5	Minpac
MY88HC ♦	1000	18000	1000	8000	21	8	SMA
M93C ♦	2000	18000	30	4000	10	8	SMA
MZ7410 ♦	6000	18000	0	3000	10	6.5	Versapac
MY88C ♦	2000	18000	1000	8000	13	8	SMA
M83C ♦	1000	18000	30	5000	13	7.5	SMA
M89C ♦	1000	18000	1000	8000	10	8	SMA
M79HC ♦	5000	18000	0	3000	20	7.5	SMA
M79H ♦	5000	18000	0	3000	20	7.5	Minpac
MY93C ♦	2000	18000	30	4000	10	8	SMA
MY93 ♦	2000	18000	30	4000	10	8	Versapac
MY89 ♦	2000	18000	2000	8000	10	8	Versapac
M85C ♦	2000	18000	0	1000	7	8	SMA
M88HC ♦	2000	18000	2000	8000	21	8	SMA
MY88	2000	18000	1000	8000	13	8	Versapac
MY89C ♦	2000	18000	2000	8000	10	8	SMA
MZ9310 ♦	2000	18000	30	5000	10	7.5	Versapac
MZ7420C ♦	6000	18000	0	3000	20	7.5	SMA
M79C ♦	5000	18000	0	3000	10	7	SMA
MZ7410C ♦	6000	18000	0	3000	10	6.5	SMA
M88C ♦	2000	18000	1000	8000	13	8	SMA
MY83HC ♦	2	18000	30	5000	20	8.5	SMA
M86C ♦	3500	18000	0	3000	7	7	SMA
MY82 ♦	2000	18000	30	5000	13	7.5	Versapac
M80C ♦	4000	18000	0	3000	7	6.5	SMA
MY82C ♦	2000	18000	30	5000	13	7.5	SMA
M74C ♦	7000	18000	0	3000	10	6.5	SMA
MY85 ♦	2000	18000	0	1000	7	8	Versapac
M50A ♦	2000	18000	2000	18000	10	8	Minpac
MZ7420 ♦	6000	18000	0	3000	20	7.5	Versapac
MZ9313 ♦	2000	18000	30	5000	13	7	Versapac
MZ9313C ♦	2000	18000	30	5000	13	7	SMA
M87C ♦	500	19000	30	5000	13	9	SMA
MY87 ♦	500	19000	30	5000	13	10.5	Versapac
MY87C ♦	500	19000	30	5000	13	10.5	SMA
MC4507 ♦	4000	20000	0	4000	7	7.5	Open Carrier
MC4513 ♦	4000	20000	0	4000	13	7.5	Open Carrier
MC4510 ♦	4000	20000	0	4000	10	7.5	Open Carrier
MY52 ♦	2000	24000	100	5000	10	8	Versapac
MY51 ♦	2000	24000	1000	15000	10	8	Versapac
MY51C ♦	2000	24000	1000	15000	10	8	SMA
MY52C ♦	2000	24000	100	5000	10	8	SMA
M52C ♦	2000	24000	100	5000	10	8	SMA

Note: Part numbers are RoHS compliant. ♦ indicates non-RoHS compliant.

Detailed specifications can be found quickly on our website at [macom.com](http://macom.com) by typing the part number into the search box. All specifications are subject to change.

Hybrid Mixers (continued)							
Part Number	Min Freq RF/LO (MHz)	Max Freq RF/LO (MHz)	Min Freq IF (MHz)	Max Freq IF (MHz)	LO Drive (dB)	Conversion Loss/Gain (dB)	Package
M51C ♦	2000	24000	1000	15000	10	8	SMA
MY50AC ♦	2000	26000	1000	12000	10	8	SMA
MY50 ♦	2000	26000	1000	15000	10	8	Versapac
MZ5010C ♦	2000	26000	1	15000	10	8.5	SMA
MY50A ♦	2000	26000	1000	12000	10	8	Versapac
M53C ♦	2000	26000	100	6000	10	8	SMA
M50C ♦	2000	26000	1000	15000	10	8	SMA
MZ5010 ♦	2000	26000	1	15000	10	8.5	Versapac
MY50C ♦	2000	26000	1000	15000	10	8	SMA

Receivers/Down Converters							
Part Number	Min Freq (MHz)	Max Freq (MHz)	Conversion Gain (dB)	Noise Figure (dBm)	Image Rejection (dBm)	LO Input Power (dBm)	Package
XR1011-QH	45000	10500	13	1.8	20	5	4 mm QFN-24
XR1015-QH	10000	16000	12	2.5	20	5	4 mm QFN-24
XR1019-QH	27500	33400	13	2.5	20	4	4 mm QFN-24
XR1008-QB	37000	40000	9	3.5	18	2	7 mm SMT
MADC-011010	37400	40000	13	3.8	25	4	4 mm QFN-24
MADC-010736	40500	43500	12	3.5	20	2	6 mm SMD-13
MADC-011021	71000	86000	12	5	-20	-5	8 mm SM

Transceivers							
Part Number	Description	Op Freq (GHz)	Output Power (mW)	Op Current (mA)	F Bandwidth	Package	
MACS-007801-0M1R10	Mono Transceiver	24.125 +/-25 MHz	8	175	10 Hz - 1 kHz	Die Cast Waveguide	
MACS-007802-0M1R10	Stereo Transceiver	24.125 +/-25 MHz	8	175	10 Hz - 1 kHz	Die Cast Waveguide	
MACS-007801-0M1RM0	Mono Transceiver	24.125 +/-25 MHz	5	90	10 Hz - 1 kHz	Die Cast Waveguide	
MACS-007802-0M1RS0	Stereo Transceiver	24.125 +/-25 MHz	5	90	10 Hz - 1 kHz	Die Cast Waveguide	
MACS-007800-0M1R00	Local Oscillator	24.150 +/-25 MHz	5	90	—	Die Cast Waveguide	

Up Converters							
Part Number	Description	Min Freq (MHz)	Max Freq (MHz)	Gain (dBm)	OIP3 (dBm)	Package	
MAUC-010506	Up Converter	17680	23620	14	35	4 mm PQFN-24	
MAUC-011003	Up Converter	27500	33400	12	32	4 mm PQFN-24	
XU1019-QH	Up Converter	37000	40000	7	27	4 mm PQFN-24	
MAMF-011142	Up Converter	71000	86000	30	—	SMT	

Mixers							
Part Number	Min Freq RF/LO (MHz)	Max Freq RF/LO (MHz)	Min Freq IF (MHz)	Max Freq IF (MHz)	Conversion Loss/Gain (dBm)	LO Drive (dBm)	Package
CGY2180UH	700	3700	0	1700	-7	15	Die
CGY2181UH	1000	4500	0	2500	-7	—	Die
CGY2183UH	100	6000	0	3000	11	-5	Die
CGY2184UH	100	6000	0	3000	18	0	Die
MAMX-011044-DIE	2500	9000	0	3500	7.5	18	Bare Die
MAMX-011044	2500	9000	0	3500	8.5	18	4 mm QFN-24
CGY2182UH	3000	10000	0	3000	-7	—	Die
MAMX-011035	5500	19000	0	6000	6	15	3 mm AQFN-12
MAMX-011067	5000	20000	0	6000	6	15	3 mm PQFN-12
MAMX-011023	5000	25000	4000	2300	9	-2	1.5 x 1.2 mm TDFN-6

Note: Part numbers are RoHS compliant. ♦ indicates non-RoHS compliant.

Detailed specifications can be found quickly on our website at [macom.com](http://macom.com) by typing the part number into the search box. All specifications are subject to change.

Mixers (continued)							
Part Number	Min Freq RF/LO (MHz)	Max Freq RF/LO (MHz)	Min Freq IF (MHz)	Max Freq IF (MHz)	Conversion Loss/ Gain (dBm)	LO Drive (dBm)	Package
MAMX-011040	8000	26000	0	4000	8	14	4 mm AQFN-24
MAMX-011075	8000	26000	0	4000	9	14	4 mm AQFN-24
MAMX-011040-DIE	8000	26000	0	4000	8	—	Bare Die
MAMX-011075	8000	26000	0	4000	8	—	4 mm AQFN-24
MAMX-011009	14000	32000	0	7000	-10	—	1.5 x 1.2 mm TDFN-6
MAMX-011021	5000	35000	0	4500	8	14	1.5 x 1.2 mm TDFN-6
MAMX-011071	8000	36000	0	10000	9.5	—	3 mm PQFN-12
MAMX-011066	5000	37000	0	4500	8	20	1.5 x 1.2 mm TDFN-6
XM1001-BD	12000	40000	0	4000	8	—	Die
XM1003-BD	32000	42000	0	4000	12	—	Die
MAMX-011116	27000	42000	0	5000	9	13	2 mm PDFN-8
MAMX-011097	27000	42000	0	5000	9	23	2 mm PDFN-8
MAMX-011036-DIE	8000	43000	0	10000	8	15	Die
MAMX-011036	8000	43000	0	10000	8.5	—	3 mm AQFN-12
CGY2460UH	40500	43500	5000	6000	33	—	Die
MAMX-011043	15000	45000	0	10000	9	15	4 mm QFN-24
MAMX-011043-DIE	15000	45000	0	10000	9	16	Bare Die
MAMX-011037-DIE	18000	46000	0	20000	6.5	—	Die
XM1002-BD	34000	46000	0	4000	9	—	Die
MAMX-011054	18000	46000	0	20000	6.5	—	3 mm AQFN-12
MAMX-011074	18000	46000	0	20000	7	—	3 mm PQFN-12
MAMX-011122	17000	53000	0	20000	8	—	3 mm 12-Lead QFN
MAMX-011088	17000	55000	0	20000	8	15	3 mm AQFN-12
MAMX-011088-DIE	17000	64000	0	20000	8	—	1.3 x 1.0 mm Die
CGY2470UH	92000	96000	5100	6000	-3	—	Die
CGY2471UH	92000	96000	5200	6000	-10	—	Die

Note: Part numbers are RoHS compliant.

Detailed specifications can be found quickly on our website at [macom.com](http://macom.com) by typing the part number into the search box. All specifications are subject to change.

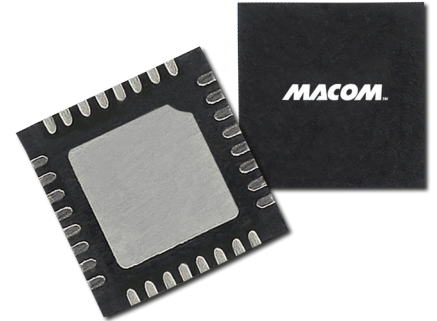


## FREQUENCY GENERATION

### Leading-edge Solutions for Challenging Communications Needs

MACOM voltage controlled oscillators (VCOs) generate frequency in aerospace and defense, point-to-point microwave backhaul, and other commercial communications applications. IC VCOs support a variety of applications operating between the 500 to 14400 MHz frequency range.

Featuring low phase noise, stable performance over temperature, low power consumption, and highly linear tuning, MACOM's VCOs provide leading edge solutions for challenging communications needs.



#### VCOs

- > Low phase noise
- > Wide tuning range
- > Low power consumption
- > Bandwidths greater than 10%
- > RoHs compliant package

#### NLTL GaAs Comb Generators

- > Superior phase noise performance up to -18 dBc/Hz better than a SRD
- > Usable harmonics out to 50 GHz
- > Available in SMT or connectorized packages

**Voltage Controlled Oscillators (VCOs)**

Part Number	Min Freq (MHz)	Max Freq (MHz)	Phase Noise at 10 kHz Offset (Vt = 5 V)(dBc/Hz)	Phase Noise at 100 kHz Offset (Vt = 5 V)(dBc/Hz)	Pout at Fo (dBm)	DC Current (mA)	Package
MAOC-011030	5458	6129	-93	-117	14	185	5 mm PQFN-32
MAOC-009259	5700	6400	-93	-117	12	190	5 mm PQFN-32
MAOC-009260	6100	7000	-92	-117	8.5	205	5 mm PQFN-32
MAOC-009261	7100	7900	-93	-116	10	180	5 mm PQFN-32
MAOC-009262	7400	8210	-92	-117	14	170	5 mm PQFN-32
MAOC-009263	7800	8700	-90	-115	10.5	180	5 mm PQFN-32
MAOC-010334	8400	9250	-88	-115	10	168	5 mm PQFN-32
MAOC-009264	8800	9800	-88	-115	9	185	5 mm PQFN-32
MAOC-009871	9200	10200	-86	-113	7	185	5 mm PQFN-32
MAOC-009265	9400	10800	-86	-113	8.5	175	5 mm PQFN-32
MAOC-009266	10200	11300	-87	-114	8.5	200	5 mm PQFN-32
MAOC-009872	11000	11800	-83	-112	7	165	5 mm PQFN-32
MAOC-009267	11200	12600	-82	-112	6	175	5 mm PQFN-32
MAOC-009269	11400	12800	-83	-110	5	180	5 mm PQFN-32
MAOC-009270	12200	13800	-78	-107	6.5	165	5 mm PQFN-32
MAOC-009268	12700	14200	-79	-108	9	165	5 mm PQFN-32
MAOC-011027	13400	14400	-79	-108	8	205	5 mm PQFN-32

**NLTL GaAs Comb Generators**

Part Number	Power Min (dBm)	Power Max (dBm)	Output Harmonics 1	Output Harmonics 2	Output Harmonics 3	Package
MLPNC-7100S1-SMA800 <b>S</b>	18 @ 75 MHz	24 @ 250 MHz	-15 @ 1 GHz	-18 @ 2 GHz	-24 @ 4 GHz	SMA800
MLPNC-7100S1-SMT580	18 @ 75 MHz	24 @ 250 MHz	-15 @ 1 GHz	-18 @ 2 GHz	-24 @ 4 GHz	SMT580
MLPNC-7100-SMA850 <b>S</b>	20 @ 100 MHz	24 @ 400 MHz	-8 @ 4 GHz	-18 @ 12 GHz	-35 @ 20 GHz	SMA850
MLPNC-7102S1-SMA800 <b>S</b>	18 @ 300 MHz	24 @ 700 MHz	-10 @ 4 GHz	-15 @ 8 GHz	-22 @ 12 GHz	SMA800
MLPNC-7102S1-SMT580	18 @ 300 MHz	24 @ 700 MHz	-10 @ 4 GHz	-15 @ 8 GHz	-22 @ 12 GHz	SMT580
MLPNC-7102-SMA800 <b>S</b>	19 @ 300 MHz	24 @ 700 MHz	-8 @ 4 GHz	-16 @ 12 GHz	-20 @ 20 GHz	SMA800
MLPNC-7102-SMT680	19 @ 300 MHz	24 @ 700 MHz	-8 @ 4 GHz	-16 @ 12 GHz	-20 @ 20 GHz	SMT680
MLPNC-7103-SMA800 <b>S</b>	19 @ 600 MHz	24 @ 1500 MHz	-5 @ 6 GHz	-15 @ 18 GHz	-20 @ 30 GHz	SMA800
MLPNC-7103-SMT680	19 @ 600 MHz	24 @ 1500 MHz	-5 @ 6 GHz	-15 @ 18 GHz	-20 @ 30 GHz	SMT680
MLPNC-7103S1SMA800 <b>S</b>	18 @ 600 MHz	24 @ 1500 MHz	-10 @ 4 GHz	-8 @ 8 GHz	-20 @ 15 GHz	SMA800
MLPNC-7103S1SMT580	18 @ 600 MHz	24 @ 1500 MHz	-10 @ 4 GHz	-8 @ 8 GHz	-20 @ 15 GHz	SMT580

**Low Noise Gain Block Amplifiers**

Part Number	Description	Min Freq (MHz)	Max Freq (MHz)	Gain (dB)	Noise Figure (dB)	OIP3 (dBm)	Bias Voltage (V)	Bias Current (mA)	Package
MAAM-011229-CQ3	Broadband Low Noise	50	4000	19	1.3	38	5	80	3 mm CQFN-12
MAAM-011252-CQ3	Broadband Low Noise	30	8000	19.5	1.4	34	5	65	3 mm CQFN-12

Note: Part numbers are RoHS compliant. **S** indicates these parts are also available with Space and Hi-Rel Screening & Qualification. Detailed specifications can be found quickly on our website at [macom.com](http://macom.com) by typing the part number into the search box. All specifications are subject to change.



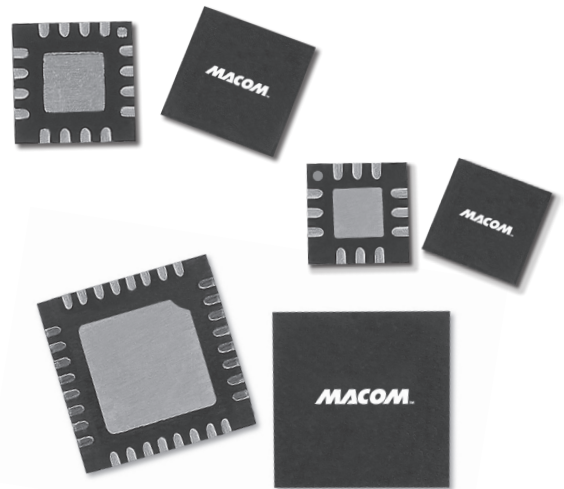


## INTEGRATED IC & MODULES

### Integrating Size, Weight, Power and Cost for Next Generation Applications

MACOM's multifunctional modules are designed to provide customers with an affordable, highly integrated unit while delivering reliability and performance.

Applications such as radar and commercial 5G face size constraints and the need for higher frequency necessitates multifunction integration. From MACOM, one can expect an even higher level of integration of RF and microwave chipsets. In the data center and optical transport world, integrated products will provide data conversion and data transport solutions coupled with RF and microwave solutions to provide a very high level of integration that will ultimately drive optimal affordability and reliability.



#### Radar Core Chips

- > Designed for communication radar and weather applications
- > Ideal for high levels of integration on a single IC
- > Includes "common path" circuit which incorporates a 4-Bit digital attenuator, a 6-Bit digital phase shifter, and a T/R SPDT switch
- > RoHS compliant

#### 5G Switch LNA Modules

- > Multifunction MMIC includes a SPDT switch and LNA with by-pass mode for RDX path
- > Compact surface mount module
- > Ideally suited for base stations and for use on the front end of WLAN 802.11a modules where small size is critical

#### High Power Switch and Integrated Bias Module

- > High power broadband PIN SPDT switch with 5 V power management chip for 0.7 – 6 GHz TDD-LTE applications
- > Integrated bias controller utilizes a boost circuit
- > Requires only a single 5 V supply
- > Single Tx/Rx control signal is compatible with 1.8 V or 3.3 V logic

## INTEGRATED IC & MODULES

### Radar Core Chips

Part Number	Min Freq (GHz)	Max Freq (GHz)	Transmit Gain (dB)	Transmit P1dB (dBm)	Receive Gain (dB)	Receive Noise Figure (dBm)	Package
MAMF-011182	5.4	5.9	22	22	22	1.5	7 mm PQFN-44
MAMF-011015	8	11	11	23	24	2	7 mm PQFN-44
CGY2179UH	10.7	12.75	12	3	—	1.9	Die
CGY2175AHV	4500	6500	—	20	—	—	QFN
CGY2175AUH	4500	6500	—	20	—	—	Die
CGY2170YHV	8000	12000	5.8	12	5.8	—	QFN
CGY2170YUH	8000	12000	6	11	6	—	Die
CGY2179HV	10700	12750	12	3	—	1.9	QFN
CGY2330UH	12000	15000	—	—	—	—	Die
CGY2351UH	26500	30500	—	—	—	—	Die
CGY2350UH	34000	36000	3	—	—	—	Die

### TR Chips

Part Number	Description	Min Frequency	Max Frequency	Tx POUT	Rx NF	Bias Voltage	Bias Current	Package Type
CGY2750UH	26 – 34 GHz 2 W GaN T/R Chip	26	34	36	2.7	12	0.45	Die
CGY2760UH	37 – 40 GHz GaN T/R Chip	37	40	35	3.5	12	1.3	Die

### High Power Switch and Integrated Bias Module

Part Number	Min Frequency	Max Frequency	Transmit Input P0.1dB CW (dBm)	Transmit Input P0.1dB CW (dBm)	Receive Insertion Loss(dB)	Receive Isolation (dB)
MAMF-011070	0.03	6	50.5	0.3	0.4	43

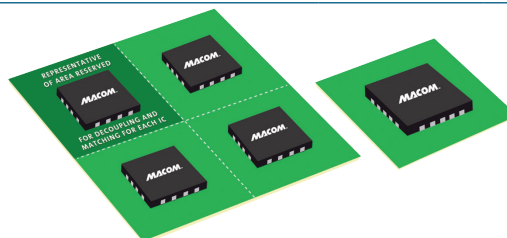
### 5G Switch LNA Work Modules

Part Number	Min Frequency(GHz)	Max Frequency(GHz)	Tx Input P0.1dB CW(dBm)	Tx Insertion Loss(dB)	Rx Gain(dB)	Rx Noise Figure (NF)(dB)	Package
MAMF-011144	2.3	3.8	—	0.3	38	1.25	6 mm QFN-40
MAMF-011069	1.8	3.9	44	0.5	33	1.2	5 mm PQFN32
MAIA-011002	0.4	4	50	0.15	34	0.8	5 mm HQFN-32
MAMF-011145	2.3	4.2	42	0.25	38	1.25	6 mm QFN-40
MAIA-011004	0.4	5	50	0.17	34	1	5 mm HQFN-32
MAMF-011119	1	6	40.5	0.4	35	1.2	6 mm QFN-20
MAMF-011156	1	6	40.6	0.3	35	0.9	3 mm QFN-16
MAMF-011038	5	6	31	0.9	12	2.2	2 mm STQFN-12
MAMF-011126	1	6	40.5	0.35	34	1.4	6 mm QFN-20
MAMF-011133	2	6	42	0.35	35	1.2	6 mm QFN-40
MAMF-011138	2	6	42	0.35	35	1.2	6 mm QFN-40
MAMF-011139	1.4	6	51	0.4	34	1.2	5 mm 32-Lead
MAMF-011149	1	6	40.5	0.35	34	1.2	3 mm QFN-16

### 5G Transmit/Receive Front End Modules

Part Number	Min Frequency (GHz)	Max Frequency (GHz)	Transmit Gain (dB)	Transmit P1dB (dB)	RX Gain (dB)	RX Noise Figure (dB)	Package
MAMF-011099	24.25	29.5	21	28	24	3.6	6.5 mm AQFN

16 x 16 = 256 mm square  
4 ICs in 4 mm x 4 mm Packages  
2 mm Clearance for Decoupling



9 x 9 = 81 mm square (70% reduction in size)  
1 Multifunction IC in 5 mm x 5 mm Package  
2 mm Clearance for Decoupling

Note: Part numbers are RoHS compliant.

Detailed specifications can be found quickly on our website at [macom.com](http://macom.com) by typing the part number into the search box. All specifications are subject to change.

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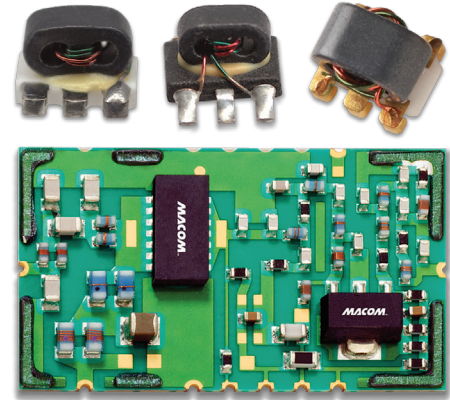
## PASSIVES

### A Variety of Solutions for A&D and Communications

MACOM offers a variety of passive solutions for a wide range of A&D, wireless, and wireline communication applications. Passive components include transformers, capacitors, dividers/combiners, couplers, and filters/diplexers.

#### MACOM KV CAPS.

Silicon high voltage capacitors are high-density, high-working voltage silicon capacitors which employ a novel topology that essentially folds the parallel plates of the capacitors into three-dimensional structures, producing greater capacitance per unit area of die footprint than that of a simple parallel plate capacitor.



#### Bias Networks

MACOM offers 1800 to 40000 MHz bias networks suitable for DC biasing of PIN diode control circuits.

- > Functions as RF to DC decoupling networks, as well as a DC return
- > Can also be used as bi-directional reactive couplers for Schottky detector circuits in multi-market applications

#### Couplers

> Used extensively in a range of A&D, wireless, and wireline communications applications. MACOM offers connectorized and surface mount devices with a broad range of coupling values

#### Hybrid Couplers

- > Products available in subsets of the 2 – 3000 MHz frequency range
- > Available as TO-Cans, flatpacks, surface mount, and connectorized

#### Directional Couplers

- > Coupling values of 6 dB to 30 dB
- > Products available in subsets of the 2 MHz to 18 GHz frequency range
- > 75  $\Omega$  products available for CATV, DTV, and DBS applications

#### Power Dividers/Combiners

Used in a range of A&D, wireless, and wireline communications applications.

- > 50  $\Omega$  and 75  $\Omega$  devices
- > Products available in subsets of 400 kHz to 26 GHz frequency range
- > 2, 3, 4, 5, 6, and 8 channel versions available

#### Transformers/Baluns

MACOM offers many standard transformers used for a variety of wireless, wireline, and A&D communications applications.

- > Standard impedance ratios up to 4:1
- > Balanced/unbalanced versions
- > 50  $\Omega$  and 75  $\Omega$  nominal impedance devices available
- > Surface mount, flat pack and connectorized packages

#### Filters/Diplexers

MACOM offers a variety of highpass, lowpass, and diplex filter components and assemblies used in common wireless communications standards and CATV, DBS, and DTV applications.

- > 50  $\Omega$  and 75  $\Omega$  diplexers
- > Multi-chip and MMIC products
- > Low cost surface mount packaging

#### Capacitors

- > Suitable for DC blocking and RF bias networks in a variety of control and filter circuits
- > Capacitance-temperature coefficient provides <200 ppm/°C
- > Insertion loss <0.1 dB at 15 GHz
- > Ideal for chip and wire/ribbon microwave high performance circuits

**MACOM KV CAPS. 200 V**

Product	Capacitance Tolerance	Capacitance Value (pF)	Package Type	Working Voltage (V)	Die Size (mil sq.)	Package
MKVC-2A02R7	+/-1	2.7	Waffle & Gel	200	15	ODS-1438
MKVC-2A03R0	+/-1	3	Waffle & Gel	200	15	ODS-1438
MKVC-2A03R3	+/-1	3.3	Waffle & Gel	200	15	ODS-1438
MKVC-2A03R6	+/-1	3.6	Waffle & Gel	200	15	ODS-1438
MKVC-2A03R9	+/-1	3.9	Waffle & Gel	200	15	ODS-1438
MKVC-2A04R3	+/-1	4.3	Waffle & Gel	200	15	ODS-1438
MKVC-2A04R7	+/-1	4.7	Waffle & Gel	200	15	ODS-1438
MKVC-2A05R1	+/-1	5.1	Waffle & Gel	200	15	ODS-1438
MKVC-2A05R6	+/-1	5.6	Waffle & Gel	200	15	ODS-1438
MKVC-2A06R2	+/-1	6.2	Waffle & Gel	200	15	ODS-1438
MKVC-2A06R8	+/-1	6.8	Waffle & Gel	200	15	ODS-1438
MKVC-2A07R5	+/-1	7.5	Waffle & Gel	200	15	ODS-1438
MKVC-2A08R2	+/-1	8.2	Waffle & Gel	200	15	ODS-1438
MKVC-2A09R1	+/-1	9.1	Waffle & Gel	200	21	ODS-1439
MKVC-2A10R0	+/-1	10	Waffle & Gel	200	21	ODS-1439
MKVC-2A11R0	+/-1	11	Waffle & Gel	200	21	ODS-1439
MKVC-2A12R0	+/-1	12	Waffle & Gel	200	21	ODS-1439
MKVC-2A13R0	+/-1	13	Waffle & Gel	200	21	ODS-1439
MKVC-2A15R0	+/-1	15	Waffle & Gel	200	21	ODS-1439
MKVC-2A16R0	+/-1	16	Waffle & Gel	200	21	ODS-1439
MKVC-2A18R0	+/-1	18	Waffle & Gel	200	21	ODS-1439
MKVC-2A20R0	+/-1	20	Waffle & Gel	200	21	ODS-1439
MKVC-2A22R0	+/-1	22	Waffle & Gel	200	21	ODS-1439
MKVC-2A24R0	+/-1	24	Waffle & Gel	200	21	ODS-1439
MKVC-2A27R0	+/-1	27	Waffle & Gel	200	21	ODS-1439
MKVC-2A30R0	+/-1	30	Waffle & Gel	200	21	ODS-1439
MKVC-2A33R0	+/-1	33	Waffle & Gel	200	21	ODS-1439
MKVC-2A36R0	+/-1	36	Waffle & Gel	200	21	ODS-1439
MKVC-2A39R0	+/-1	39	Waffle & Gel	200	21	ODS-1439
MKVC-2A43R0	+/-1	43	Waffle & Gel	200	21	ODS-1439
MKVC-2A47R0	+/-1	47	Waffle & Gel	200	21	ODS-1439
MKVC-2A51R0	+/-1	51	Waffle & Gel	200	21	ODS-1439
MKVC-2A56R0	+/-1	56	Waffle & Gel	200	21	ODS-1439
MKVC-2A62R0	+/-1	62	Waffle & Gel	200	32	ODS-1440
MKVC-2A68R0	+/-1	68	Waffle & Gel	200	32	ODS-1440
MKVC-2A75R0	+/-1	75	Waffle & Gel	200	32	ODS-1440
MKVC-2A82R0	+/-1	82	Waffle & Gel	200	32	ODS-1440
MKVC-2A91R0	+/-1	91	Waffle & Gel	200	32	ODS-1440
MKVC-2A0100	+/-1	100	Waffle & Gel	200	32	ODS-1440
MKVC-2A0110	+/-1	110	Waffle & Gel	200	32	ODS-1440
MKVC-2A0120	+/-1	120	Waffle & Gel	200	32	ODS-1440
MKVC-2A0130	+/-1	130	Waffle & Gel	200	32	ODS-1440
MKVC-2A0150	+/-1	150	Waffle & Gel	200	32	ODS-1440
MKVC-2A0160	+/-1	160	Waffle & Gel	200	32	ODS-1440
MKVC-2A0180	+/-1	180	Waffle & Gel	200	32	ODS-1440
MKVC-2A0200	+/-1	200	Waffle & Gel	200	32	ODS-1440
MKVC-2A0220	+/-1	220	Waffle & Gel	200	32	ODS-1440

Note: Part numbers are RoHS compliant.

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**MACOM KV CAPS. 200 V** (continued)

Product	Capacitance Tolerance	Capacitance Value (pF)	Package Type	Working Voltage (V)	Die Size (mil sq.)	Package
MKVC-2A0240	+/-1	240	Waffle & Gel	200	32	ODS-1440
MKVC-2A0270	+/-1	270	Waffle & Gel	200	40	ODS-1441
MKVC-2A0300	+/-1	300	Waffle & Gel	200	40	ODS-1441
MKVC-2A0330	+/-1	330	Waffle & Gel	200	40	ODS-1441
MKVC-2A0360	+/-1	360	Waffle & Gel	200	40	ODS-1441
MKVC-2A0390	+/-1	390	Waffle & Gel	200	40	ODS-1441
MKVC-2A0430	+/-1	430	Waffle & Gel	200	40	ODS-1441
MKVC-2A0470	+/-1	470	Waffle & Gel	200	40	ODS-1441
MKVC-2A0510	+/-1	510	Waffle & Gel	200	50	ODS-1442
MKVC-2A0560	+/-1	560	Waffle & Gel	200	50	ODS-1442
MKVC-2A0620	+/-1	620	Waffle & Gel	200	50	ODS-1442
MKVC-2A0680	+/-1	680	Waffle & Gel	200	50	ODS-1442
MKVC-2A0750	+/-1	750	Waffle & Gel	200	50	ODS-1442
MKVC-2A0820	+/-1	820	Waffle & Gel	200	50	ODS-1442
MKVC-2A0910	+/-1	910	Waffle & Gel	200	50	ODS-1442
MKVC-2A1000	+/-1	1000	Waffle & Gel	200	64	ODS-1443
MKVC-2A1100	+/-1	1100	Waffle & Gel	200	64	ODS-1443
MKVC-2A1200	+/-1	1200	Waffle & Gel	200	64	ODS-1443
MKVC-2A1300	+/-1	1300	Waffle & Gel	200	64	ODS-1443
MKVC-2A1500	+/-1	1500	Waffle & Gel	200	64	ODS-1443
MKVC-2A1600	+/-1	1600	Waffle & Gel	200	64	ODS-1443
MKVC-2A1800	+/-1	1800	Waffle & Gel	200	100	ODS-1444
MKVC-2A2000	+/-1	2000	Waffle & Gel	200	100	ODS-1444
MKVC-2A2200	+/-1	2200	Waffle & Gel	200	100	ODS-1444
MKVC-2A2400	+/-1	2400	Waffle & Gel	200	100	ODS-1444
MKVC-2A2700	+/-1	2700	Waffle & Gel	200	100	ODS-1444

**MACOM KV CAPS. 500 V**

Product	Capacitance Tolerance	Capacitance Value (pF)	Package Type	Working Voltage (V)	Die Size (mil sq.)	Package
MKVC-5A05R1	+/-1	5.1	Waffle & Gel	500	32	ODS-1445
MKVC-5A05R6	+/-1	5.6	Waffle & Gel	500	32	ODS-1445
MKVC-5A06R2	+/-1	6.2	Waffle & Gel	500	32	ODS-1445
MKVC-5A06R8	+/-1	6.8	Waffle & Gel	500	32	ODS-1445
MKVC-5A07R5	+/-1	7.5	Waffle & Gel	500	32	ODS-1445
MKVC-5A08R2	+/-1	8.2	Waffle & Gel	500	32	ODS-1445
MKVC-5A09R1	+/-1	9.1	Waffle & Gel	500	32	ODS-1445
MKVC-5A10R0	+/-1	10	Waffle & Gel	500	32	ODS-1445
MKVC-5A11R0	+/-1	11	Waffle & Gel	500	32	ODS-1445
MKVC-5A12R0	+/-1	12	Waffle & Gel	500	32	ODS-1445
MKVC-5A13R0	+/-1	13	Waffle & Gel	500	32	ODS-1445
MKVC-5A15R0	+/-1	15	Waffle & Gel	500	32	ODS-1445
MKVC-5A16R0	+/-1	16	Waffle & Gel	500	32	ODS-1445
MKVC-5A18R0	+/-1	18	Waffle & Gel	500	32	ODS-1445
MKVC-5A20R0	+/-1	20	Waffle & Gel	500	32	ODS-1445
MKVC-5A22R0	+/-1	22	Waffle & Gel	500	32	ODS-1445
MKVC-5A24R0	+/-1	24	Waffle & Gel	500	32	ODS-1445
MKVC-5A27R0	+/-1	27	Waffle & Gel	500	32	ODS-1445

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**MACOM KV CAPS. 500 V** (continued)

Product	Capacitance Tolerance	Capacitance Value (pF)	Package Type	Working Voltage (V)	Die Size (mil sq.)	Package
MKVC-5A30R0	+/-1	30	Waffle & Gel	500	32	ODS-1445
MKVC-5A33R0	+/-1	30	Waffle & Gel	500	32	ODS-1445
MKVC-5A36R0	+/-1	36	Waffle & Gel	500	32	ODS-1445
MKVC-5A39R0	+/-1	39	Waffle & Gel	500	40	ODS-1446
MKVC-5A43R0	+/-1	43	Waffle & Gel	500	40	ODS-1446
MKVC-5A47R0	+/-1	47	Waffle & Gel	500	40	ODS-1446
MKVC-5A51R0	+/-1	51	Waffle & Gel	500	40	ODS-1446
MKVC-5A56R0	+/-1	56	Waffle & Gel	500	40	ODS-1446
MKVC-5A62R0	+/-1	62	Waffle & Gel	500	40	ODS-1446
MKVC-5A68R0	+/-1	68	Waffle & Gel	500	40	ODS-1446
MKVC-5A75R0	+/-1	75	Waffle & Gel	500	40	ODS-1446
MKVC-5A82R0	+/-1	82	Waffle & Gel	500	40	ODS-1446
MKVC-5A91R0	+/-1	91	Waffle & Gel	500	40	ODS-1446

**MACOM KV CAPS. 1000 V**

Product	Capacitance Tolerance	Package Type	Voltage (V)	Value (pF)	Package
MKVC-1A03R6	+/-5%	Tape & Reel	1000	3.6	3.4 x 2.5 x 0.9 mm
MKVC-1A03R9	+/-5%	Tape & Reel	1000	3.9	3.4 x 2.5 x 0.9 mm
MKVC-1A04R7	+/-5%	Tape & Reel	1000	4.7	3.4 x 2.5 x 0.9 mm
MKVC-1A05R6	+/-5%	Tape & Reel	1000	5.6	3.4 x 2.5 x 0.9 mm
MKVC-1A06R8	+/-5%	Tape & Reel	1000	6.8	3.4 x 2.5 x 0.9 mm
MKVC-1A07R5	+/-5%	Tape & Reel	1000	7.5	3.4 x 2.5 x 0.9 mm
MKVC-1A08R2	+/-5%	Tape & Reel	1000	8.2	3.4 x 2.5 x 0.9 mm
MKVC-1A10R0	+/-5%	Tape & Reel	1000	10	3.4 x 2.5 x 0.9 mm
MKVC-1A11R0	+/-5%	Tape & Reel	1000	11	3.4 x 2.5 x 0.9 mm
MKVC-1A13R0	+/-5%	Tape & Reel	1000	13	3.4 x 2.5 x 0.9 mm
MKVC-1A15R0	+/-5%	Tape & Reel	1000	15	3.4 x 2.5 x 0.9 mm
MKVC-1A18R0	+/-5%	Tape & Reel	1000	18	3.4 x 2.5 x 0.9 mm
MKVC-1A20R0	+/-5%	Tape & Reel	1000	20	3.4 x 2.5 x 0.9 mm
MKVC-1A24R0	+/-5%	Tape & Reel	1000	24	3.4 x 2.5 x 0.9 mm
MKVC-1A27R0	+/-5%	Tape & Reel	1000	27	3.4 x 2.5 x 0.9 mm
MKVC-1A33R0	+/-5%	Tape & Reel	1000	33	3.4 x 2.5 x 0.9 mm
MKVC-1A36R0	+/-5%	Tape & Reel	1000	36	3.4 x 2.5 x 0.9 mm
MKVC-1A39R0	+/-5%	Tape & Reel	1000	39	3.4 x 2.5 x 0.9 mm
MKVC-1A47R0	+/-5%	Tape & Reel	1000	47	3.4 x 2.5 x 0.9 mm
MKVC-1A51R0	+/-5%	Tape & Reel	1000	51	3.4 x 2.5 x 0.9 mm
MKVC-1A62R0	+/-5%	Tape & Reel	1000	62	3.4 x 2.5 x 0.9 mm
MKVC-1A75R0	+/-5%	Tape & Reel	1000	75	3.4 x 2.5 x 0.9 mm
MKVC-1A0100	+/-5%	Tape & Reel	1000	100	3.4 x 2.5 x 0.9 mm
MKVC-1A0110	+/-5%	Tape & Reel	1000	110	4.3 x 3.0 x 0.9 mm
MKVC-1A0150	+/-5%	Tape & Reel	1000	150	4.3 x 3.0 x 0.9 mm
MKVC-1A0160	+/-5%	Tape & Reel	1000	160	4.3 x 3.0 x 0.9 mm
MKVC-1A0200	+/-5%	Tape & Reel	1000	200	4.3 x 3.0 x 0.9 mm
MKVC-1A0270	+/-5%	Tape & Reel	1000	270	4.3 x 3.0 x 0.9 mm

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**Bias Networks**

Part Number	Min Freq (MHz)	Max Freq (MHz)	Insertion Loss (dB)	Isolation Loss (dB)	Package
MABT-011000-14230G	200	1800	0.2	35	Die
MABT-011000-14230W	200	1800	0.2	35	Die
MABT-011000-14230P	200	1800	0.2	35	Die
MABT-011000-14235P	200	1800	0.2	35	Die
MA4BN1840-1	18000	40000	0.2	35	Die
MA4BN1840-2	18000	40000	0.2	35	Die

**Couplers**

Part Number	Description	Min Freq (MHz)	Max Freq (MHz)	Coupling, Nom (dB)	Isolation (dB)	Input Power (dBm)	L (dB)	Impedance (Ω)	Package
JHS-113-PIN ♦	Quad Hybrid	7	14	3	28	36	—	50	SF-1
JHS-114-PIN ♦	Quad Hybrid	20	40	3	28	37	—	50	SF-1
JH-114-PIN ♦	Quad Hybrid	20	40	3	30	37	—	50	FP-2
JH-133-PIN ♦	Quad Hybrid	20	40	3	28	37	—	50	TO-8-2
JHS-115-PIN ♦	Quad Hybrid	40	80	3	30	30	—	50	SF-1
JH-115-PIN ♦	Quad Hybrid	40	80	3	30	30	—	50	FP-2
MACP-010507-CH0160	Coupler, 17 dB	5	120	17	38	27	0.5	75	Ceramic
JH-119-PIN ♦	Quad Hybrid	80	160	3	33	36	—	50	FP-2
JHS-119-PIN ♦	Quad Hybrid	80	160	3	33	36	—	50	SF-1
HH-106-PIN ♦	Hybrid Junction	2	200	3	30	30	—	50	FP-2
JH-121-PIN ♦	Quad Hybrid	100	200	3	25	36	—	50	FP-2
HHS-109-PIN	Hybrid Junction	5	200	3	40	27	—	50	SF-1
HH-109-PIN ♦	Hybrid Junction	5	200	3	40	27	—	50	FP-2
JHS-121-PIN	Quad Hybrid	100	200	3	25	36	—	50	SF-1
MACP-011047	Coupler, 14 dB	5	300	14	30	27	0.35	75	FR4
JH-136-PIN ♦	Quad Hybrid	175	350	3	28	36	—	50	FP-2
CHS-137-PIN ♦	Bi-Directional	1	400	20	40	35	—	50	SF-1
JHS-142-PIN ♦	Quad Hybrid	200	400	3	30	37	—	50	SF-1
MACP-007984-MDC201	Coupler, 20 dB	350	450	20	38	24	0.3	50	Ceramic
CHS-134-PIN ♦	Bi-Directional	10	500	11	31	30	—	50	SF-1
CH-134-PIN ♦	Bi-Directional	10	500	11	31	30	—	50	FP-2
JHS-139-PIN ♦	Quad Hybrid	250	500	3	30	36	—	50	SF-1
HH-110-PIN ♦	Hybrid Junction	10	500	3	37	30	—	50	FP-2
JH-139-PIN ♦	Quad Hybrid	250	500	3	30	36	—	50	FP-2
HHS-110-PIN	Hybrid Junction	10	500	3	40	30	—	50	SF-1
MACPCC0002	Bi-Directional 17 dB Coupler	960	824	17	32	33	—	50	SOIC-8
MACP-009821-CG0650	Coupler, 16 dB	5	862	16	33	24	1.1	75	FR4
MACP-010382-CFOA40	Coupler, 15 dB	4	862	15	33	24	0.7	75	FR4
MACP-010383-CH0A40	Coupler, 17 dB	4	862	17	35	24	0.6	75	FR4
MACP-010389-CE0880	Coupler, 14 dB	4	862	14	38	24	1	75	FR4
ELDC-10	Coupler 10 dB, 75 Ohm	5	870	10	28	24	—	50	FR4
MACP-009598-C80160	Coupler, 9 dB	5	900	9	26	24	1.9	75	Ceramic
CH-132-BNC ♦	Bi-Directional	1	1000	20	40	—	—	50	C-8-132
2031-6330-00 ♦	Stripline 180° Hybrid	500	1000	3	25	45	—	50	Conn
CH-140-PIN ♦	Directional	5	1000	20	40	35	—	50	FP-2
MACP-007486-CH0010	Coupler, 17 dB	5	1000	17	38	24	0.6	75	FR4
MACP-007490-CA0010	Coupler, 10.5 dB	5	1000	11	30	24	1.3	75	FR4
MACP-008125-CK07F0	Coupler, 20 dB	5	1000	20	34	24	0.5	75	FR4

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Couplers (continued)									
Part Number	Description	Min Freq (MHz)	Max Freq (MHz)	Coupling, Nom (dB)	Isolation (dB)	Input Power (dBm)	L (dB)	Impedance (Ω)	Package
MACP-008311-CE0370	Coupler, 14 dB	5	1000	14	39	24	1	75	FR4
MACP-008764-CH0370	Coupler, 17 dB	5	1000	17	39	24	1.3	75	FR4
MACP-009404-C80370	Coupler, 8 dB	5	1000	8	25	24	1.5	75	FR4
MACP-009596-CA0160	Coupler, 10 dB	5	1000	10	30	24	1.3	75	Ceramic
MACP-009736-CD0160	Coupler, 13 dB	5	1000	13	28	24	1.3	75	Ceramic
MACP-009943-CH07F0	Coupler, 17 dB	5	1000	17	37	24	0.6	75	FR4
MACP-009944-CK07F0	Coupler, 20 dB	5	1000	20	30	24	0.5	75	FR4
MACP-010718-CG09E0	Coupler, 17 dB	40	1002	17	35	24	0.6	75	Ceramic
MACP-007727-CI07B0	Coupler, 18 dB	5	1200	18	26	24	1	75	FR4
MACP-007741-CG09E0	Coupler, 17 dB	5	1200	17	32	24	0.8	75	Ceramic
MACP-009011-C80370	Coupler, 8 dB	5	1200	8	25	24	1.8	75	FR4
MACP-009730-C60370	Coupler, 6 dB	5	1200	6	16	24	2.5	75	FR4
MACP-009945-CH0670	Coupler, 18 dB	5	1200	18	33	24	1.3	75	FR4
MACP-010249-CI08A0	Coupler, 18 dB	5	1200	18	32	24	0.6	75	SOT
MACP-010250-C808A0	Coupler, 8 dB	5	1200	9	24	28	1.6	75	SOT
MACP-010414-CA0370	Coupler, 10 dB	5	1200	10	21	24	1.3	75	FR4
MACP-010446-C80370	Coupler, 8 dB	5	1200	8	21	24	1.9	75	FR4
MACP-011029	Coupler, 17.5 dB	5	1218	17.5	30	27	0.6	75	FR4
MACP-011010	Coupler, 12 dB	5	1225	12	20	24	1.6	75	FR4
MACP-011014	Coupler, 17.5 dB	5	1225	17	36	27	0.65	75	FR4
MACP-011032	Coupler, 7 dB	5	1225	7	17	27	1.8	75	FR4
MACP-011033	Coupler, 8 dB	5	1225	8	18	27	1.5	75	FR4
MACP-011035	Coupler, 12 dB	5	1225	12	29	27	1.5	75	FR4
MACP-011036	Coupler, 16 dB	5	1225	16	34	27	1	75	FR4
MACP-011037	Coupler, 10 dB	5	1225	10	24	27	1.5	75	FR4
MACP-011038	Coupler, 16 dB	5	1225	16	33	32	0.9	75	FR4
MACP-011045	Coupler, 23 dB	5	1225	23	39	40	0.6	50	FR4
MACP-011050	Coupler, 9 dB	5	1225	9	42	33	1.6	75	FR4
MACP-011051	Coupler, 7.5 dB	5	1225	7.5	42	33	2	75	FR4
MACP-011054	Coupler, 9 dB	5	1225	9	42	33	1.6	75	FR4
MACP-011055	Coupler, 15.2 dB	5	1225	15.2	37	32	0.9	75	FR4
MACP-011056	Coupler, 16 dB	5	1225	16	43	33	0.7	75	FR4
MACP-011062	Coupler, 12.5 dB	5	1225	12.5	42	33	0.95	75	FR4
MACP-011015	Coupler, 8 dB	40	1250	8	27	24	1.8	75	FR4
MACP-011058	Coupler, 10 dB	5	1250	10	42	33	1.5	75	FR4
MACP-011059	Coupler, 12 dB	5	1250	12	32	33	0.95	75	FR4
MACP-011034	Coupler, 10 dB	5	1255	7	30	27	1.35	75	FR4
MACP-011013	Coupler, 20 dB	5	1500	20	27	27	0.9	75	FR4
2031-6331-00 ♦	Stripline 180° Hybrid	1000	2000	3	25	45	—	50	Conn
2025-6002-10 ♦	Stripline Directional	500	2000	10	28	47	—	50	Conn
2035-6364-00 ♦	Air Dielectric 90° Hybrid	1000	2000	3	20	47	—	50	Conn
2032-6344-00 ♦	Stripline 90° Hybrid	1000	2000	3	22	45	—	50	Conn
H-9-N	Hybrid Junction	2	2000	4	40	44	—	50	Conn
2025-6004-20 ♦	Stripline Directional	500	2000	20	42	47	—	50	Conn
2020-6607-30 ♦	Directional Mini Octave	1000	2000	30	55	47	—	50	Conn
JH-141-PIN ♦	High-Freq Quad Hybrid	1000	2000	3	27	44	—	50	FP-2
HH-128-PIN ♦	Hybrid Junction	20	2000	3	35	27	—	50	FP-3

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Couplers (continued)									
Part Number	Description	Min Freq (MHz)	Max Freq (MHz)	Coupling, Nom (dB)	Isolation (dB)	Input Power (dBm)	L (dB)	Impedance (Ω)	Package
2020-6605-10 ♦	Directional Mini Octave	1000	2000	10	35	47	—	50	Conn
MACPCC0001	Bi-Directional 17 dB Coupler	1700	2000	17	34	33	—	50	SOIC-8
2020-6606-20 ♦	Directional Mini Octave	1000	2000	20	45	47	—	50	Conn
MACP-011068	Coupler, 17.3 dB	5	2000	17.3	26	33	1.1	75	FR4
MACP-010381-C70880	Coupler, 7 dB	5	2400	7	21	24	2.5	75	FR4
MACP-011086	Coupler, 14 dB	5	3000	14	25	3	—	50	SMT
H-183-4-N ♦	Hybrid Junction	30	3000	5	20	37	—	50	Conn
MACP-011031	Coupler, 14 dB	5	3250	14	36	27	1.8	75	FR4
MACP-011074	14 dB Couplers	5	3250	14	36	30	1	75	SMT
2032-6345-00 ♦	Stripline 90° Hybrid	2000	4000	3	22	45	—	50	Conn
2020-6609-10 ♦	Directional Mini Octave	2000	4000	10	32	47	—	50	Conn
2020-6614-20 ♦	Directional Mini Octave	2600	5200	20	40	47	—	50	Conn
2020-6615-30 ♦	Directional Mini Octave	2600	5200	30	50	47	—	50	Conn
2032-6347-00 ♦	Stripline 90° Hybrid	4000	8000	3	20	45	—	50	Conn
2020-6616-06 ♦	Directional Mini Octave	4000	8000	6	28	47	—	50	Conn
2031-6334-00 ♦	Stripline 180° Hybrid	4000	8000	3	20	45	—	50	Conn
2020-6618-20 ♦	Directional Mini Octave	4000	8000	20	40	47	—	50	Conn
2020-6617-10 ♦	Directional Mini Octave	4000	8000	10	30	47	—	50	Conn
2020-6619-30 ♦	Directional Mini Octave	4000	8000	30	50	47	—	50	Conn
2025-6012-20 ♦	Stripline Directional	2000	8400	20	40	47	—	50	Conn
2025-6010-10 ♦	Stripline Directional	2000	8400	10	28	47	—	50	Conn
2025-6009-06 ♦	Stripline Directional	2000	8400	6	24	47	—	50	Conn
2026-6001-10 ♦	Stripline Directional	1000	12400	10	28	47	—	50	Conn
2020-4018-20 ♦	Directional Mini Octave	7000	12400	20	38	—	—	50	Conn
2025-6016-20 ♦	Stripline Directional	4000	12400	20	35	47	—	50	Conn
2031-6335-00 ♦	Stripline 180° Hybrid	8000	12400	3	17	45	—	50	Conn
2020-6623-30 ♦	Directional Mini Octave	7000	12400	30	47	47	—	50	Conn
2020-6622-20 ♦	Directional Mini Octave	7000	12400	20	38	47	—	50	Conn
2025-6014-10 ♦	Stripline Directional	4000	12400	10	25	47	—	50	Conn
2032-6371-00 ♦	Stripline 90° Hybrid	2000	18000	3	20	47	—	50	Conn
2025-6018-10 ♦	Stripline Directional	6000	18000	10	26	47	—	50	Conn
2025-6017-06 ♦	Stripline Directional	6000	18000	6	21	47	—	50	Conn
2026-6007-10 ♦	Stripline Directional	1000	18000	10	25	47	—	50	Conn
2026-6010-10 ♦	Stripline Directional	500	18000	10	25	47	—	50	Conn
2031-6339-00 ♦	Stripline 180° Hybrid	7000	18000	3	14	43	—	50	Conn
2032-6374-00 ♦	Stripline 90° Hybrid	6500	18000	3	18	45	—	50	Conn
2026-6009-20 ♦	Stripline Directional	1000	18000	20	37	47	—	50	Conn
2026-6004-10 ♦	Stripline Directional	2000	18000	10	25	47	—	50	Conn
2020-6624-06 ♦	Directional Mini Octave	7000	18000	6	21	47	—	50	Conn
2020-6626-20 ♦	Directional Mini Octave	7000	18000	20	35	47	—	50	Conn
2020-6627-30 ♦	Directional Mini Octave	7000	18000	30	45	47	—	50	Conn
2020-6628-06 ♦	Directional Mini Octave	12400	18000	6	21	47	—	50	Conn
2025-6019-16 ♦	Stripline Directional	6000	18000	16	32	47	—	50	Conn

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Power Dividers/Combiners									
Part Number	Min Freq (MHz)	Max Freq (MHz)	Channels (#)	Amplitude Balance (dB)	Phase Bal (°)	Isolation (dB)	Max Input Power (dBm)	Impedance (Ω)	Package
M3H-50-PIN ♦	1	100	3	0.2	1	30	30	50	TO-5
MTH-50-PIN ♦	1	100	2	0.1	1	30	30	50	TO-5-1
MAPD-008762-ES0001	120	160	2	1	1	20	30	50	FR4
MAPD-009850-HW1268	112	168	2	1	1	18	30	50	FR4
THV-50-N ♦	2	200	2	0.2	1	30	33	50	Conn
THV-50-TNC ♦	2	200	2	0.2	1	30	33	50	Conn
THV-50-BNC ♦	2	200	2	0.2	1	30	33	50	Conn
THV-50-SMA ♦	2	200	33	0.2	1	30	33	50	Conn
MAPD-008109-C30040	5	200	3	0.1	1	30	30	75	FR4
M3V-50-PIN ♦	50	300	3	0.2	2	25	30	50	TO-5
DS-310-PIN ♦	0	300	4	0.2	4	25	30	50	FP-5
DS-117-PIN ♦	1	300	3	0.3	4	20	30	50	FP-3
DS-308-BNC ♦	1	300	3	0.3	4	20	30	50	C-8
MAPD-011026	5	300	3	0.1	0.6	22	27	75	FR4
TU-50-N ♦	20	400	2	0.2	1	35	33	50	Conn
TU-50-SMA ♦	20	400	2	0.2	1	35	33	50	Conn
DSS-113-PIN ♦	0	400	2	0.2	1	25	30	50	SF-1
DS-113-PIN ♦	0	400	2	0.2	1	25	30	50	FP-2
MTV-50-PIN ♦	40	400	2	0.2	2	30	30	50	TO-5-1
TU-50-BNC ♦	20	400	33	0.2	1	35	33	50	Conn
DS-112-PIN ♦	10	500	4	0.2	5	25	30	50	FP-5
DSS-333-PIN ♦	10	500	2	0.2	2	25	30	50	SF-1
DS-318-PIN ♦	5	500	2	0.2	2	18	30	50	RH-1
DS-309-BNC ♦	2	500	8	0.2	2	30	33	50	C-18
DS-319-PIN ♦	10	500	2	0.2	1	25	30	50	TO-8-2
DS-109-PIN ♦	10	500	2	0.2	1	25	30	50	FP-2
DS-312-BNC ♦	10	500	4	0.2	2	25	30	50	C-14
MAPD-007249-ESML21	5	500	2	0.2	1	25	30	50	Ceramic
DS-328-PIN ♦	3	700	3	0.3	3	20	30	50	TO-8-2
MAPD-008072-ESSM26	5	900	2	0.1	0.1	20	30	50	Ceramic
MAPDCC0017	824	960	6	0.2	6	20	30	50	SOW-16
MAPDCC0005	824	960	3	0.6	2	15	30	50	SOIC-8
MAPDCC0009	824	960	4	0.3	3	20	30	50	SOIC-8
MAPDCC0001	824	960	2	0.1	0.5	15	30	50	SOIC-8
MAPDCC0011	824	960	2	0.1	3	13	30	50	SOT-26
MAPDCC0021	824	960	8	0.4	5	20	30	50	SSOP-20
H-81-4-SMA ♦	5	1000	2	0.5	2.5	25	33	50	Conn
T-1000-TNC ♦	10	1000	2	0.1	1	25	33	50	Conn
H-81-4-N ♦	5	1000	2	0.5	2.5	25	33	50	Conn
T-1000-BNC ♦	10	1000	2	0.1	1	25	33	50	Conn
DSS-327-PIN ♦	5	1000	2	0.3	3	16	30	50	SF-1
T-1000-SMA ♦	10	1000	2	0.1	1	25	33	50	Conn
T-1000-N ♦	10	1000	2	0.1	1	25	33	50	Conn
DS-323-PIN ♦	25	1000	3	0.4	4	24	30	50	FP-3
DS-324-PIN ♦	25	1000	4	0.3	6	20	30	50	FP-5
DS-327-PIN ♦	5	1000	2	0.2	3	20	30	50	FP-2
ELPD-20-1	5	1000	2	0.5	4	22	30	50	SM-139

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Power Dividers/Combiners (continued)

Part Number	Min Freq (MHz)	Max Freq (MHz)	Channels (#)	Amplitude Balance (dB)	Phase Bal (°)	Isolation (dB)	Max Input Power (dBm)	Impedance (Ω)	Package
MAPD-010362-C20FA0	5	1000	2	0.4	3	19	24	75	FR4
MAPD-010038-C209C0	5	1000	2	0.3	0.3	30	30	75	FR4
MAPD-009918-C209C0	5	1000	2	0.3	0.9	26	30	75	FR4
MAPD-009278-5T1000	5	1000	2	0.2	1	16	24	50	FR4
MAPD-008812-0003HW	5	1000	3	0.2	2	20	24	50	FR4
MAPD-008108-C202C0	5	1000	2	0.1	0.8	18	30	75	Ceramic
MAPD-007246-ES4700	2	1000	4	0.2	5	20	30	50	FR4
MAPDCT0033	5	1000	2	0.4	0	22	30	75	FR4
MAPDCT0030	5	1000	2	0.2	1	20	30	75	SOT
MAPDCT0029	5	1000	2	0.3	1	14	30	75	FR4
MAPDCT0028	5	1000	4	0.3	0.5	20	30	75	FR4
MAPDCT0027	5	1000	2	0.3	1	15	30	75	FR4
MAPD-011020	5	1200	2	0	0.6	19	30	75	FR4
MAPD-010281-C2W024	5	1200	2	0.2	1.3	—	30	75	FR4
MAPD-010047-C2W24M	5	1200	2	0.2	1.3	—	30	75	FR4
MAPD-009492-C2W180	5	1200	2	1.3	1.3	—	17	75	FR4
MAPDCT0032	5	1200	3	0.3	3	20	24	75	FR4
MAPDCT0024	5	1200	2	0.3	2.1	—	14	75	FR4
MAPDCT0017	46	1200	3	0.3	3	20	24	75	SM-4
MAPD-011053	5	1218	2	0.3	3	41	33	75	FR4
MAPD-011050	5	1218	2	0.4	1.5	27	27	75	FR4
MAPD-011039	5	1218	2	0.6	2.5	26	30	75	FR4
MAPD-010274-C209C0	5	1218	2	0.2	0.6	16	30	75	FR4
MAPD-011052	5	1225	2	0.3	0	27	27	75	FR4
MAPD-011051	5	1225	2	0.5	5	27	27	75	FR4
MAPD-011040	5	1225	2	0.3	5	17	30	75	FR4
MAPD-011035	5	1225	2	0.5	5	17	30	75	FR4
MAPD-011032	5	1250	2	0.2	0.4	18	27	75	SOT
DS-331-PIN ♦	750	1500	2	0.2	6	10	30	50	TO-8
MAPD-011027	5	1500	3	0.3	6	18	27	75	FR4
MAPD-011002	5	1600	2	0.3	0.7	26	30	75	FR4
MAPD-010638-C2WSOT	5	1600	2	0.3	1	23	24	75	FR4
MAPDCC0003	1510	1660	2	0.1	1	15	30	50	SOIC-8
MAPDCC0004	1700	1900	2	0.1	2	15	30	50	SOIC-8
MAPDCC0002	1850	1990	2	0.1	1	15	30	50	SOIC-8
MAPDCC0006	1850	1990	3	0.3	7	12	30	50	SOIC-8
2089-6406-00 ♦	500	2000	4	0.4	6	20	36	50	Conn
DS-4-4-BNC ♦	2	2000	4	1	5	30	30	50	Conn
H-8-4-SMA ♦	2	2000	2	0.1	2.5	25	33	50	Conn
2089-6206-00 ♦	500	2000	2	0.3	4	20	36	50	Conn
2089-6201-00 ♦	1000	2000	2	0.2	4	20	33	50	Conn
DS-4-4-SMA ♦	2	2000	4	1	5	30	30	50	Conn
2089-6801-00 ♦	1000	2000	8	0.8	8	20	38	50	Conn
2089-6401-00 ♦	1000	2000	4	0.4	6	20	36	50	Conn
DSS-313-PIN ♦	10	2000	2	0.3	4	23	24	50	SF-1
DS-4-4-N ♦	2	2000	4	1	5	30	30	50	Conn
DS-313-PIN ♦	10	2000	2	0.3	4	23	24	50	FP-2

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**Power Dividers/Combiners (continued)**

Part Number	Min Freq (MHz)	Max Freq (MHz)	Channels (#)	Amplitude Balance (dB)	Phase Bal (°)	Isolation (dB)	Max Input Power (dBm)	Impedance (Ω)	Package
MAPDCC0018	1700	2000	6	0.5	8	18	30	50	SOW-16
DS-409-4BNC ♦	10	2000	4	0.5	5	25	37	50	Conn
DS-808-4BNC ♦	20	2000	8	0.6	5	20	37	50	Conn
DS-409-4SMA ♦	10	2000	4	0.5	5	25	37	50	Conn
DS-808-4SMA ♦	20	2000	8	0.6	5	20	37	50	Conn
DS-808-4N ♦	20	2000	8	5	0.6	20	37	50	Conn
DS-409-4TNC ♦	10	2000	4	0.5	5	25	37	50	Conn
DS-808-4TNC ♦	20	2000	8	0.6	5	20	37	50	Conn
MAPDCC0014	1700	2000	4	0.8	5	18	30	50	SOIC-16
MAPD-007530-000100	1700	2000	2	0.2	1.5	16	30	50	SOT-26
MAPD-011007	5	2150	2	0.3	1	30	27	75	FR4
MAPD-010424-C20C80	5	2400	2	0.2	5	6	24	75	FR4
MAPDCT0026	5	2400	2	0.8	2	10	30	75	FR4
MAPDCC0010	2200	2500	2	0.1	2	22	30	50	SOT-25
MAPD-008957-CT0012	1	2700	2	0.5	2	12	30	50	FR4
2089-6402-00 ♦	2000	4000	36	0.4	6	20	36	50	Conn
2089-6202-00 ♦	2000	4000	2	0.2	4	20	33	50	Conn
2089-6203-00 ♦	4000	8000	2	0.2	6	20	33	50	Conn
2089-6403-00 ♦	4000	8000	4	0.4	8	20	36	50	Conn
2089-6807-00 ♦	2000	8000	8	1.2	16	15	41	50	Conn
2089-6207-00 ♦	2000	8000	2	0.3	8	18	36	50	Conn
2089-6404-00 ♦	8000	12400	4	0.5	8	18	36	50	Conn
2089-6204-00 ♦	8000	12400	2	0.2	6	20	33	50	Conn
2089-6808-00 ♦	2000	18000	8	1.8	24	15	45	50	Conn
2089-6805-00 ♦	12400	18000	8	0.8	24	15	40	50	Conn
2089-6405-00 ♦	12400	18000	4	0.5	8	15	38	50	Conn
2090-6205-00 ♦	2000	18000	2	0.3	5	23	46	50	Conn
2090-6414-00 ♦	1000	18000	4	1	12	18	47	50	Conn
2089-6209-00 ♦	4000	18000	2	0.3	8	17	36	50	Conn
2089-6410-00 ♦	7000	18000	4	0.5	12	15	38	50	Conn
2089-6409-00 ♦	4000	18000	4	0.5	12	15	39	50	Conn
2090-6304-00 ♦	500	18000	3	0.5	—	18	49	50	Conn
2089-6208-00 ♦	2000	18000	2	0.3	8	17	40	50	Conn
2090-6214-00 ♦	1000	18000	2	0.4	5	22	47	50	Conn
2089-6408-00 ♦	2000	18000	4	0.5	12	17	20	50	Conn

**Transformers/Baluns**

Part Number	Description	Min Freq (MHz)	Max Freq (MHz)	Impedance Ratio	Insertion Loss (dB)	Impedance (Ω)	Package
MABA-009807-CF4010	Flux Coupled Balun, sealed cover	0	3	1:4	1	50	Ceramic
MABA-011006	Flux Coupled Unun	8	8	1:20	0.9	50	FR4
MABA-009412-CF1BC0	Flux Coupled Balun, CT on both sides	1	50	1:1	0.4	75	FR4 8
MABA-010411-CT1160	Transmission Line Balun	30	60	1:1	0.8	75	SOT
MABA-011017	Flux Coupled Balun, Step Down	5	85	2:1	0.5	75	SOT
MABA-010181-CF9A40	Flux Coupled Balun	5	90	1:9	1.3	75	FR4
MABA-008282-CFGA40	Flux Coupled Balun	5	90	1:16	1.5	75	FR4
MABA-011073	Flux Coupled Balun	1	100	1:1	0.3	75	SOT
MABA-010655-CF1A40	Flux Coupled Transformer, Ethernet	1	100	1:1	0.3	50	FR4

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Transformers/Baluns (continued)							
Part Number	Description	Min Freq (MHz)	Max Freq (MHz)	Impedance Ratio	Insertion Loss (dB)	Impedance ( $\Omega$ )	Package
MABA-010061-CF4FA0	Flux Coupled Balun	5	100	1:4	1.2	75	SOT
MABA-009776-CF28A0	Flux Coupled Unun, Step Down	5	100	2:1	0.4	75	FR4
MABA-009573-CF1A40	Flux Coupled Balun	5	100	1:1.77	0.3	75	FR4
MABA-008124-CF1FA0	Flux Coupled Balun	5	100	1:1	0.7	75	SOT
MABA-008570-ETC414	Flux Coupled Unun	3	110	1:4	0.3	50	Ceramic
MABA-009650-CF1160	Flux Coupled Balun	5	120	1:1	0.4	75	Ceramic
MABA-009005-CF1A40	Flux Coupled Balun	5	120	1:1	0.2	75	FR4
MABA-008965-CF1160	Flux Coupled Balun	5	120	1:1	0.2	75	Ceramic
MABA-011026	Flux Coupled Balun	5	200	1:1	0.5	75	SOT
MABA-011002	Flux Coupled Balun, Step Down	5	200	4:1	1	75	FR4
MABA-010400-CT18A0	Transmission Line Balun, with Tertiary Winding	40	200	1:1	0.4	75	SOT
MABA-009836-CF48A0	Flux Coupled Balun	5	200	1:4	0.5	50	SOT
MABA-009594-CF18A0	Flux Coupled Balun	5	200	1:1	0.4	75	SOT
MABA-009572-CF18A0	Flux Coupled Balun	5	200	1:1	0.5	75	SOT
MABA-009274-TC11T2	Flux Coupled Balun	0	200	1:1	0.5	50	Ceramic
MABA-008482-CF1A40	Flux Coupled Balun	5	200	1:1.78	0.4	75	FR4
MABA-008354	Flux Coupled Balun, Step Down	5	200	4:1	1.1	75	FR4
MABA-008260-CF4A40	Flux Coupled Balun	5	200	1:4	0.8	75	FR4
MABA-007532-CF18A0	Flux Coupled Balun	5	200	1:1	0.4	75	SOT
ETC1-IT-2TR	Flux Coupled Balun	0	200	1:1	0.3	50	Ceramic
MABAES0060	Flux Coupled Balun	0	200	1:1	1	50	Ceramic
MABACT0071	Flux Coupled Balun	3	200	1:1	0.5	75	FR4
MABACT0068	Flux Coupled Balun	5	200	1:2	0.4	75	FR4
MABACT0062	Flux Coupled Balun	3	200	1:1	0.5	75	Ceramic
MABACT0048	Flux Coupled Balun	5	200	1:2	0.4	75	FR4
MABACT0018	Flux Coupled Balun	5	200	1:4	0.7	50	SOT
MABACT0012	Flux Coupled Balun	3	200	1:1	0.8	75	Ceramic
MABA-007488-CT9550	Transmission Line Balun	5	220	1:9	0.8	75	FR4
MABAES0008	Flux Coupled Balun	3	250	1:4	0.6	50	Ceramic
MABA-011064	Flux Coupled Balun, Step Down	5	300	4:1	1.5	75	SOT
MABA-011063	Flux Coupled Balun, Step Down	5	300	2:1	0.8	75	SOT
MABA-011062	Flux Coupled Balun	1	300	1:2	0.6	75	SOT
MABA-011056	Flux Coupled Balun, Step Down	5	300	2:1	0.8	75	SOT
MABA-011050	Flux Coupled Balun	5	300	1:2	0.6	75	FR4
MABA-011040	Flux Coupled Balun	1	300	1:6	0.6	50	SOT
MABA-011039	Flux Coupled Balun	1	300	1:4	0.7	75	SOT
MABA-011038	Flux Coupled Balun	1	300	1:3	0.6	50	SOT
MABA-009852-CF1A40	Flux Coupled Balun	5	300	1:1	0.2	75	FR4
MABA-009250-CT0068	Flux Coupled Balun	3	300	1:2	0.7	50	Ceramic
MABA-011020	Flux Coupled Balun	1	350	1:4	0.8	50	Ceramic
MABA-009387-ES0040	Flux Coupled Balun	1	350	1:2	1.6	50	SOT
MABA-007766-CF28A0	Flux Coupled Balun	5	350	1:1.5	1.4	50	SOT
MABA-007493-CF4160	Flux Coupled Balun	1	350	1:4	1.6	50	Ceramic
MABA-007237-ETC410	Flux Coupled Balun	1	350	1:4	1.2	50	Ceramic
MABACT0067	Flux Coupled Balun	1	350	1:4	1.3	50	FR4
TP-104-PIN ♦	Pulse	1	400	4:01	0.4	50	FP-1
MABA-010721-CF1670	Transmission Line Balun, with Center Tap	5	400	1:1	0.5	75	FR4

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**Transformers/Baluns** (continued)

Part Number	Description	Min Freq (MHz)	Max Freq (MHz)	Impedance Ratio	Insertion Loss (dB)	Impedance (Ω)	Package
MABA-009126-ET11SM	Flux Coupled Unun, Sealed Cover	0	400	1:1	1	50	Ceramic
ETC36-1T-2TR	Flux Coupled Balun	5	400	1:36	12	50	Ceramic
TP-102-PIN	Pulse Transformer	1	500	4:01	0.4	50	FP-1
MABA-010143-FLUX18	Flux Coupled Balun	2	500	1:8	1	50	Ceramic
MABA-009947-CF3160	Flux Coupled Balun	0	500	1:3	0.7	50	Ceramic
MABA-009484-ETC31T	Flux Coupled Balun	2	500	1:3	0.7	50	Ceramic
MABA-009180-500MHZ	Flux Coupled Balun	0	500	1:1	1	50	Ceramic
ETC1-1T-5	Transmission Line Balun, with Tertiary Winding	2	500	1:1	2	50	Ceramic
MABA-009298-CT48A0	Flux Coupled Balun, Wide Bandwidth	1	650	1:4	1.5	50	SOT
MABAES0031	Flux Coupled Balun, Wide Bandwidth	1	650	1:4	1	50	SOT
MABACT0064	Flux Coupled Balun	1	650	1:4	1.5	50	SOT
MABA-009488-61HWCA	Flux Coupled Balun	3	800	1:4	1	50	FR4
ETC4-1-2TR	Flux Coupled Balun, Wide Bandwidth	2	800	1:4	1.2	50	Ceramic
MABAES0061	Flux Coupled Balun, Wide Bandwidth	2	800	1:4	1.2	50	Ceramic
ETC1-1-6	Transmission Line Balun, with Tertiary Winding	760	960	1:1	0.2	50	Ceramic
TP-105-PIN ♦	Pulse Transformer	0.5	1000	1.4:1	0.4	50	FP-1
TP-103-PIN ♦	Pulse Transformer	0.5	1000	4:01	0.4	50	FP-1
MABA-011037	Transmission Line Balun, Low Profile	2	1000	1:4	0.7	50	FR4
MABA-011032	Transmission Line Balun	40	1000	1:3	1	75	SOT
MABA-011016	Transmission Line Balun, with Center Tap	5	1000	1:1	0.8	50	Ceramic
MABA-010463-CA2A40	Auto Transformer	20	1000	1:1.77	1.2	75	Ceramic
MABA-010449-CA2A40	Auto Transformer	5	1000	1:2	0.8	75	FR4
MABA-009711-ETK2MM	Transmission Line Balun, Low Profile	2	1000	1:4	0.7	50	FR4
MABA-009092-CT1A40	Transmission Line Balun	5	1000	1:1.33	0.7	75	FR4
MABA-008752-TC1P57	Auto Transformer	2	1000	1:1.5	0.4	50	Ceramic
MABA-008639-TC41T7	Transmission Line Balun	6	1000	1:4	3	50	Ceramic
MABA-007569-ETK42T	Transmission Line Balun	2	1000	1:4	0.3	50	Ceramic
ETC1.5-4	Auto Transformer	5	1000	1:1.5	1	75	Ceramic
MABACT0066	Transmission Line Balun	5	1000	1:4	1.3	50	SOT
MABACT0063	Auto Transformer	5	1000	1:1.5	0.5	75	Ceramic
MABA-010245-CT1160	Transmission Line Balun	46	1002	1:1	0.4	75	Ceramic
TP-108-PIN ♦	Flux Coupled Balun	350	1125	2.5:1	0.8	50	FP-1
MABA-011086	Transmission Line Balun	5	1200	1:1	1.3	75	FR4
MABA-011058	Transmission Line Balun, with Tertiary Winding	50	1200	1:1	0.6	75	FR4
MABA-011051	Transmission Line Balun, with Tertiary Winding	5	1200	1:1.33	2.9	75	FR4
MABA-011031	Transmission Line Balun	5	1200	1:1	0.2	75	FR4
MABA-011029	Transmission Line Balun	5	1200	1:2	1.5	75	FR4
MABA-011027	Transmission Line Balun	5	1200	1:3	2.1	75	FR4
MABA-011015	Transmission Line Balun	45	1200	1:2.78	1.7	75	FR4
MABA-011014	Transmission Line Balun	45	1200	1:1	0.9	75	FR4
MABA-011010	Transmission Line Balun, with Tertiary Winding	5	1200	1:1.33	0.95	75	FR4
MABA-010441-CT38A0	Transmission Line Balun	5	1200	1:3	1.1	75	FR4
MABA-010392-CT18A0	Transmission Line Balun	5	1200	1:1	0.7	50	SOT
MABA-010321-CT1A43	Transmission Line Balun, with Tertiary Winding	50	1200	1:1	0.7	75	FR4
MABA-010321-CT1A42	Transmission Line Balun, with Tertiary Winding	50	1200	1:1	0.7	75	FR4
MABA-010314-CT1370	Transmission Line Balun	5	1200	1:1	0.9	75	FR4
MABA-010268-CT4160	Transmission Line Balun	5	1200	1:4	0.7	50	Ceramic

Note: Part numbers are RoHS compliant. ♦ indicates non-RoHS compliant.

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Transformers/Baluns (continued)							
Part Number	Description	Min Freq (MHz)	Max Freq (MHz)	Impedance Ratio	Insertion Loss (dB)	Impedance (Ω)	Package
MABA-010238-CT4A80	Transmission Line Balun	5	1200	1:2	1.3	75	FR4
MABA-010129-CT4A40	Transmission Line Balun	5	1200	1:4	0.7	50	SOT
MABA-009691-CT1881	Transmission Line Balun	5	1200	1:1	0.2	75	FR4
MABA-009602-ES2922	Transmission Line Balun, with Tertiary Winding	50	1200	1:1	0.8	50	Ceramic
MABA-009232-CT4A4B	Transmission Line Balun	5	1200	1:4	1	50	FR4
MABA-009231-CT1A4B	Transmission Line Balun	5	1200	1:1	0.7	50	FR4
MABA-009210-CT1760	Transmission Line Balun, with Tertiary Winding	50	1200	1:1	0.6	75	FR4
MABA-008979-CF0290	Transmission Line Balun, with Tertiary Winding	50	1200	1:1	0.7	75	SOT
MABA-008483-CT1760	Transmission Line Balun, with Tertiary Winding	50	1200	1:1	0.63	75	FR4
MABA-007748-CT1160	Transmission Line Balun, with Tertiary Winding	5	1200	1:1	0.6	75	Ceramic
MABA-007681-CT2010	Transmission Line Balun	5	1200	1:2	0.6	75	FR4
MABAES0029	Transmission Line Balun, with Tertiary Winding	50	1200	1:1	1	75	SOT
MABACT0069	Transmission Line Balun, with Tertiary Winding	50	1200	1:1	0.8	75	SOT
MABACT0061	Auto Transformer	5	1200	1:4	1.6	50	Ceramic
MABACT0060	Transmission Line Balun, with Tertiary Winding	5	1200	1:1	0.7	50	FR4
MABACT0043	Transmission Line Balun	5	1200	1:1	0.5	75	SOT
MABA-011103	Auto Transformer	40	1215	1:1.77	2.8	75	Ceramic
MABA-011104	Auto Transformer	5	1218	1:1.5	0.4	75	Ceramic
MABACT0040	Transmission Line Balun, with center tap	5	1218	1:1	1.1	75	FR4
MABA-011094	Transmission Line Balun	5	1225	1:1	0.9	75	Ceramic
MABA-011085	Transmission Line Balun, with Tertiary Winding	5	1225	1:1	0.4	75	FR4
TP-101-PIN ♦	Pulse Transformer	0	1500	1.6:1	0.4	50	FP-1
TPX-75-4N ♦	50/75 Ohm	10	1500	1.5:1	0.3	50/75	Conn
MABA-010247-2R1250	Transmission Line Balun	1	1600	1:2	1.5	50	FR4
MABA-011112	Transmission Line Balun	5	1800	1:1	0.9	75	FR4
MABA-011113	Transmission Line Balun	5	1800	1:2	0.7	75	FR4
MABA-010374-CT4A40	Transmission Line Balun	10	1900	1:4	1.8	75	FR4
MABA-010386-CA3A40	Auto Transformer	5	2400	1:3	3	75	FR4
MABA-010012-ES4302	Transmission Line Balun	30	2500	1:4	1.8	50	Ceramic
MABA-011047	Transmission Line Balun	5	3000	1:1	0.7	50	Ceramic
MABA-010125-TC1113	Transmission Line Balun	5	3000	1:1	1.5	50	Ceramic
MABA-009822-715254	Transmission Line Balun	5	3000	1:1	0.3	50	Ceramic
MABA-008757-CT1160	Transmission Line Balun	5	3000	1:1	2	75	Ceramic
MABA-007871-CT1A40	Transmission Line Balun	5	3000	1:1	0.6	50	FR4
MABA-007327-CT1A40	Transmission Line Balun	5	3000	1:1	1.6	75	FR4
MABA-007236-C16423	Transmission Line Balun	500	3000	1:4	3	50	Ceramic
MABA-007159-000000	Transmission Line Balun	5	3000	1:1	0.3	50	Ceramic
ETC1-1-13	Transmission Line Balun	5	3000	1:1	0.3	50	Ceramic
ETC1.6-4-2-3	Transmission Line Balun	500	3000	1:4	0.2	50	Ceramic
MABACT0065	Transmission Line Balun	500	3000	1:4	0.2	50	Ceramic
MABACT0059	Transmission Line Balun	5	3000	1:1	2	75	Ceramic
MABACT0039	Transmission Line Balun	5	3000	1:1	1.3	75	SOT
MABA-011042	Transmission Line Balun	2500	3200	1:1	0.9	50	Ceramic
MABA-011100	Transformer Balun	20	4000	1:2	1.5	50	SMT
MABA-011082	Transmission Line Balun, with Tertiary Winding	5	8000	1:1	1.4	50	SMT
MABA-011108	Transmission Line Balun, with Tertiary Winding	5	10000	1:1	1.4	50	SMT
MABA-011118	Transmission Line Balun	10	10000	1:2	1.9	50	SMT

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**Transformers/Baluns (continued)**

Part Number	Description	Min Freq (MHz)	Max Freq (MHz)	Impedance Ratio	Insertion Loss (dB)	Impedance (Ω)	Package
MABA-000001-75KIT1	CATV Transformer Designer's™ Kit	—	—	—	—	75	SMT
MABA-000001-50KIT1	Transformer Designer's Kit	—	—	—	—	50	SMT

**Integrated Passive Devices**

Part Number	Description	Min Freq (MHz)	Max Freq (MHz)
MAFL-011126	Equalizer, 6 dB 20 GHz	0	20
MAFL-011127	Equalizer, 9 dB 20 GHz	0	20
MAFL-011128	Equalizer, 12 dB 20 GHz	0	20
MAFL-011126-DIE	Equalizer, 6 dB 20 GHz	0	20
MAFL-011127-DIE	Equalizer, 9 dB 20 GHz	0	20
MAFL-011128-DIE	Equalizer, 12 dB 20 GHz	2	20
MAPD-011062-DIE	Power Divider Bare Die 2 – 20 GHz	2	20
MAPD-011062	Power Divider, 2 Way, 2 – 20 GHz, 3 mm PQFN	2	20
MABA-011125	Balun, 1:2, 2 – 220 GHz, 3 mm PQFN	2	20
MACP-011088	17 dB Bi-Directional Coupler 2 – 28 GHz	2	18

**MNS Chip Capacitors**

Part Number	Capacitance (pF)	Standoff Voltage (V)	Chip Style	Package
MA4M3010 <b>S</b>	10	200	350	Die
MA4M2020 <b>S</b>	20	200	132	Die
MA4M3030 <b>S</b>	30	200	352	Die
MA4M1050 <b>S</b>	50	100	132	Die
MA4M3050 <b>S</b>	50	200	354	Die
MA4M1100 <b>S</b>	100	100	199	Die
MA4M3100 <b>S</b>	100	50	358	Die
MA4M3150 <b>S</b>	150	50	359	Die

**MNOS Series Capacitors**

Part Number	Type	Capacitance Range Min (pF)	Range (pF)	Capacitance Dvw Min (V)	R Min (Ω)	TCC Typ (ppm/+°C)	Package
MBC50-0.2B14 <b>S</b>	Beam Lead	0.16	0.24	50	1000	55	B14
MBC50-1.0B14 <b>S</b>	Beam Lead	0.8	1.2	50	1000	55	B14
MBC50-1B12 <b>S</b>	Beam Lead	0.8	1.2	50	1000	55	B12
MBC50-1.5B14 <b>S</b>	Beam Lead	1.2	1.8	50	1000	55	B14
MBC50-2.0B14 <b>S</b>	Beam Lead	1.6	2.4	50	1000	55	B14
MBC50-2B12 <b>S</b>	Beam Lead	1.6	2.4	50	1000	55	B12
MBC50-3B12 <b>S</b>	Beam Lead	2.4	3.6	50	1000	55	B12
MBC50-4B12 <b>S</b>	Beam Lead	3.2	4.8	50	1000	55	B12
MBC50-6B12 <b>S</b>	Beam Lead	4.8	7.2	50	1000	55	B12
MBC50-8B12 <b>S</b>	Beam Lead	6.4	9.6	50	1000	55	B12
MBC50-10B12 <b>S</b>	Beam Lead	8	12	50	1000	55	B12
MBC50-15B12 <b>S</b>	Beam Lead	12	18	50	1000	55	B12
MBC50-20B12 <b>S</b>	Beam Lead	16	24	50	1000	55	B12
MBC50-33B13 <b>S</b>	Beam Lead	26.4	39.6	50	1000	55	B13
MBC50-47B13 <b>S</b>	Beam Lead	37.6	56.4	50	1000	55	B13

Note: Part numbers are RoHS compliant. **S** indicates these parts are also available with Space and Hi-Rel Screening & Qualification. Detailed specifications can be found quickly on our website at [macom.com](http://macom.com) by typing the part number into the search box. All specifications are subject to change.

**MNOS Series Capacitors**

Part Number	Type	Capacitance Range Min (pF)	Range (pF)	Capacitance Dv <sub>w</sub> Min (V)	R Min (Ω)	TCC Typ (ppm/+°C)	Package
MBC50-68B13 <b>S</b>	Beam Lead	54.4	81.6	50	1000	55	B13
MBC50-82B13 <b>S</b>	Beam Lead	65.6	96	50	1000	55	B13
MBC50-100B13 <b>S</b>	Beam Lead	80	120	50	1000	55	B13
MC2DXXX010-010 <b>S</b>	Chips	0.1	5	50	1000	55	Die
MC2SXXX010-010 <b>S</b>	Chips	0.25	8	50	1000	55	Die
MC2SXXX011-011 <b>S</b>	Chips	1	12	50	1000	55	B12
MC2DXXX015-015 <b>S</b>	Chips	1.5	15	50	1000	55	Die
MC2RXXX010-015 <b>S</b>	Chips	2	20	50	1000	55	Die
MC2SXXX015-015 <b>S</b>	Chips	3	30	50	1000	55	Die
MC2SXXX016-016 <b>S</b>	Chips	3	35	50	1000	55	Die
MC2RXXX015-020 <b>S</b>	Chips	5	42	50	1000	55	Die
MC2DXXX020-020 <b>S</b>	Chips	5	50	50	1000	55	Die
MC2SXXX020-020 <b>S</b>	Chips	5	55	50	1000	55	Die
MC2SXXX022-022 <b>S</b>	Chips	5	60	50	1000	55	Die
MC2RXXX015-032 <b>S</b>	Chips	5	62	50	1000	55	Die
MC2SXXX025-025 <b>S</b>	Chips	10	100	50	1000	55	Die
MC2RXXX022-042 <b>S</b>	Chips	15	120	50	1000	55	Die
MC2SXXX030-030 <b>S</b>	Chips	10	120	50	1000	55	Die
MC2SXXX035-035 <b>S</b>	Chips	15	150	50	1000	55	Die
MC2SXXX040-040 <b>S</b>	Chips	20	200	50	1000	55	Die
MC2SXXX050-050 <b>S</b>	Chips	25	250	50	1000	55	Die
MC2SXXX055-055 <b>S</b>	Chips	25	300	50	1000	55	Die
MC2SXXX060-060 <b>S</b>	Chips	35	375	50	1000	55	Die
MC2SXXX070-070 <b>S</b>	Chips	50	550	50	1000	55	Die
MC2SXXX080-080 <b>S</b>	Chips	70	700	50	1000	55	Die
MC2RXXX097-107 <b>S</b>	Chips	100	999	50	1000	55	Die
MC2RXXX099-138 <b>S</b>	Chips	100	999	50	1000	55	Die
MC2SXXX100-100 <b>S</b>	Chips	100	999	50	1000	55	Die
MC2RXXX127-145 <b>S</b>	Chips	200	1800	50	1000	55	Die
MC2RXXX142-160 <b>S</b>	Chips	200	2200	50	1000	55	Die
MC2B0.8020-020 <b>S</b>	Binary Chip	1.2	1.8	50	1000	55	C20
MC2B002020-020 <b>S</b>	Binary Chip	3	4.5	50	1000	55	C20
MC2B004020-020 <b>S</b>	Binary Chip	6.4	9.6	50	1000	55	C20
MC2B008020-020 <b>S</b>	Binary Chip	12	18	50	1000	55	C20
MC2B016020-020 <b>S</b>	Binary Chip	24	36	50	1000	55	C20

**High Q MNOS Series Chip Capacitors: 9000 Series VB >50 V & 9100 Series VB >100 V**

Part Number	Capacitance (pF)	Working Voltage (V)	Chip Size + .002"	Package
902R0 thru 9010R <b>S</b>	2 to 10	50	0.010" x 0.010" x 0.005"	Die
9011R thru 9029R <b>S</b>	11 to 29	50	0.015" x 0.015" x 0.005"	Die
9030R thru 9049R <b>S</b>	30 to 49	50	0.020" x 0.020" x 0.006"	Die
9050R thru 9099R <b>S</b>	50 to 99	50	0.030" x 0.030" x 0.006"	Die
90100 thru 90199R <b>S</b>	100 to 199	50	0.040" x 0.040" x 0.008"	Die
90200 thru 90399R <b>S</b>	200 to 399	50	0.050" x 0.050" x 0.008"	Die
90400 thru 90600R <b>S</b>	400 to 600	50	0.070" x 0.070" x 0.008"	Die
910R1 thru 911R9 <b>S</b>	0.1 to 1.9	100	0.010" x 0.010" x 0.005"	Die
912R0 thru 919R9 <b>S</b>	2 to 9.9	100	0.015" x 0.015" x 0.005"	Die

Note: Part numbers are RoHS compliant. **S** indicates these parts are also available with Space and Hi-Rel Screening & Qualification. Detailed specifications can be found quickly on our website at [macom.com](http://macom.com) by typing the part number into the search box. All specifications are subject to change.

**High Q MNOS Series Chip Capacitors: 9000 Series VB >50 V & 9100 Series VB >100 V**

Part Number	Capacitance (pF)	Working Voltage (V)	Chip Size + .002"	Package
9110R thru 9129R <b>S</b>	10 to 29	100	0.020" x 0.020" x 0.006"	Die
9130R thru 9149R <b>S</b>	30 to 49	100	0.030" x 0.030" x 0.006"	Die
9150R thru 9199R <b>S</b>	50 to 99	100	0.040" x 0.040" x 0.008"	Die
91100 thru 91199 <b>S</b>	100 to 199	100	0.050" x 0.050" x 0.008"	Die
91200 thru 91399 <b>S</b>	200 to 399	100	0.070" x 0.070" x 0.008"	Die

**Beam Lead Capacitors: 9000 Series VB >50 V**

Part Number	Capacitance Range (pf)	Package
90100ROM <b>S</b>	100 + 20%	14-4
9010ROM <b>S</b>	10 + 20%	14-3
9015ROM <b>S</b>	15 + 20%	14-3
901R0 thru 901R5 <b>S</b>	1 to 1.5	14-1
901R0 thru 902R2 <b>S</b>	1 to 2.2	14-2
9022ROM <b>S</b>	22 + 20%	14-3
902R2 thru 904R7 <b>S</b>	2.2 to 4.7	14-2
9033ROM <b>S</b>	33 + 20%	14-3
9047ROM <b>S</b>	47 + 20%	14-4
905R6M <b>S</b>	5.6 + 20%	14-2
9068ROM <b>S</b>	68 + 20%	14-4
906R8M <b>S</b>	6.8 + 20%	14-2
9082ROM <b>S</b>	82 + 20%	14-4
908R2M <b>S</b>	8.2 + 20%	14-2
90R1 thru 90R9 <b>S</b>	0.1 to 0.9	14-1
90R5 thru 90I0R <b>S</b>	0.5 to 1	14-2

**Binary Chip Capacitors**

Part Number	PAD 1 (pF)	PAD 2 (pF)	PAD 3 (pF)	PAD 4 (pF)	Total (pF)	Chip Size
9115R0K-BOO	1	2	4	8	15	0.020 x 0.020
9115R0K-BSP-1	1	2	4	8	15	0.030 x 0.020
911R5K-BSP-3	0.1	0.2	0.4	0.8	1.5	0.015 x 0.015
9122R5K-BOO	1.5	3	6	12	22.5	0.020 x 0.020
9122R5K-BSP-1	1.5	3	6	12	22.5	0.030 x 0.020
913R0K-BSP-3	0.2	0.4	0.8	1.6	3	0.015 x 0.015
913R7K-BOO	0.25	0.5	1	2	3.75	0.020 x 0.020
913R7K-BSP-1	0.25	0.5	1	2	3.75	0.030 x 0.020
913R7K-BSP-3	0.25	0.5	1	2	3.75	0.015 x 0.015
915R6K-BSP-3	0.35	0.75	1.5	3	5.6	0.015 x 0.015
917R5K-BOO	0.5	1	2	4	7.5	0.020 x 0.020
917R5K-BSP-1	0.5	1	2	4	7.5	0.030 x 0.020

**DC Floating/RF Bypass Mounting Capacitors: 9100 & 9000 Series**

Part Number	Capacitance Range (pF)	Chip Size A	Chip Size B	Pad Size D	Pad Size E	Customer Specified Field D
SP49 <b>S</b>	5 – 50	0.014	0.034	0.011	0.031	0.005 – 0.020
SP84 <b>S</b>	7 – 70	0.02	0.04	0.016	0.03	0.005 – 0.020
SP51 <b>S</b>	8 – 80	0.015	0.045	0.013	0.043	0.005 – 0.020
SP14 <b>S</b>	9 – 90	0.02	0.04	0.016	0.036	0.005 – 0.020
SP34 <b>S</b>	9 – 90	0.024	0.034	0.02	0.03	0.005 – 0.020
SP6 <b>S</b>	10 – 100	0.014	0.055	0.012	0.053	0.005 – 0.020

Note: Part numbers are RoHS compliant. **S** indicates these parts are also available with Space and Hi-Rel Screening & Qualification.

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**DC Floating/RF Bypass Mounting Capacitors: 9100 & 9000 Series**

Part Number	Capacitance Range (pF)	Chip Size A	Chip Size B	Pad Size D	Pad Size E	Customer Specified Field D
SP89 S	12 – 120	0.02	0.06	0.014	0.055	0.005 – 0.020
SP80 S	13 – 130	0.016	0.065	0.014	0.063	0.005 – 0.020
SP12 S	14 – 140	0.02	0.055	0.018	0.053	0.005 – 0.020
SP87 S	15 – 150	0.013	0.12	0.009	16	0.005 – 0.020
SP81 S	17 – 170	0.015	0.09	0.013	0.088	0.005 – 0.020
SP22 S	24 – 240	0.025	0.08	0.021	0.075	0.005 – 0.020
SP88 S	25 – 250	0.021	0.121	0.015	0.115	0.005 – 0.020
SP48 S	29 – 290	0.035	0.065	0.031	0.061	0.005 – 0.020
SP64 S	75 – 750	0.055	0.102	0.051	0.098	0.005 – 0.020
SP120 S	90 – 900	0.055	0.12	0.05	0.115	0.005 – 0.020
SP7 S	100 – 1000	0.085	0.085	0.081	0.081	0.005 – 0.020
SP2 S	150 – 1500	0.11	0.11	0.1	0.1	0.005 – 0.020
SP68 S	175 – 1750	0.101	0.124	0.097	0.12	0.005 – 0.020
SP1 S	200 – 2000	0.11	0.14	0.1	0.13	0.005 – 0.020
SP5 S	200 – 1000	0.1	0.1	0.095	0.095	0.005 – 0.020
SP20 S	200 – 2000	0.12	0.14	0.11	0.13	0.005 – 0.020
SP29 S	200 – 2000	0.121	0.121	0.115	0.115	0.005 – 0.020
SP38 S	200 – 2000	0.094	0.152	0.091	0.148	0.005 – 0.020
SP39 S	200 – 2000	0.12	0.134	0.11	0.13	0.005 – 0.020
SP40 S	200 – 2000	0.107	0.134	0.103	0.13	0.005 – 0.020
SP77 S	300 – 3000	0.118	0.175	0.114	0.171	0.005 – 0.020
SP52 S	300 – 3000	0.13	0.17	0.124	0.164	0.005 – 0.020
SP104 S	350 – 3500	0.142	0.171	0.138	0.167	0.005 – 0.020
SP111 S	350 – 3500	0.143	0.18	0.138	0.167	0.005 – 0.020
SP37 S	350 – 3500	0.151	0.168	0.147	0.164	0.005 – 0.020
SP44 S	350 – 3500	0.14	0.17	0.135	0.165	0.005 – 0.020
SP55 S	360 – 3600	0.117	0.22	0.113	0.216	0.005 – 0.020

**Filters/Diplexers**

Part Number	Description	Min Freq (MHz)	Max Freq (MHz)	Insertion Loss (dB)	Rejection (dB)	Crossover Freq (dB)	Package
MAFL-011082	Reflectionless Low Pass Filter	5	684		0.75	24	Surface Mount
MAFLCT0066	CATV Diplex Filter	5	870	0.8	46	30/46	SMT
MAFLCT0083	CATV Diplex Filter	5	860	0.9	59	65/94	—
MAFLES0102	CATV Diplex Filter	5	870	1	45	42/54	—
MAFL-011013	Broadband CATV Diplexer 5 – 42/54 – 1000 MHz	5	1000	0.5	50	42/54	SMT
MAFL-009511-CD0A10	CATV Diplex Filter 5 – 42/52 – 1000 MHz	5	1000	0.5	55	42/52	SM-161
MAFL-007529-CD0550	CATV Diplex Filter	5	1000	0.5	—	36/48	30 x 30 mm
MAFL-009055-CD4254	Broadband CATV Diplexer	5	1000	0.5	55	42/54	SMT
MAFL-007988-CD0550	CATV Diplex Filter 5 – 65/88 – 1000 MHz	5	1000	0.5	50	65/88	SM-85
MAFL-009593-CD0A10	CATV Diplex Filter	5	1000	1	57	65/86	SMT
MAFL-010467-CD0B20	CATV Diplexer	5	1002	1.5	60	65/108	SMT
MAFL-011024	Broadband CATV Diplexer	5	1002	0.5	50	85/108	SMT
MAFL-011025	Broadband CATV Diplexer 5 – 65/108 – 1002 MHz	5	1002	0.5	50	65/108	SMT
MAFL-011015	CATV Diplex Filter 5 – 42/54 – 1002 MHz	5	1002	0.5	—	42/54	SMT
MAFL-011014	CATV Diplex Filter 5 – 65/88 – 1002 MHz	5	1002	0.5	55	65/88	SMT
MAFL-011027	Vertical Plug-in	5	1002	1.2	45	85/102	—
MAFLCT0068	CATV Diplex Filter 5 – 42/54 – 1100 MHz	5	1100	1.2	50	42/54	SMT
MAFL-008098-CD0550	CATV Diplex Filter 5 – 42/54 – 1100 MHz	5	1100	0.5	50	42/54	SM-85

Note: Part numbers are RoHS compliant. **S** indicates these parts are also available with Space and Hi-Rel Screening & Qualification.

Detailed specifications can be found quickly on our website at [macom.com](http://macom.com) by typing the part number into the search box. All specifications are subject to change.

Filters/Diplexers (continued)

Part Number	Description	Min Freq (MHz)	Max Freq (MHz)	Insertion Loss (dB)	Rejection (dB)	Crossover Freq (dB)	Package
MAFL-011078	CATV Diplex Filter 5 - 42/54 - 1218 MHz	5	1218	0.5	50	42/54	30 x 30 mm
MAFL-011047	Plug-and-Play Horizontal Filter, 5 - 42/54 - 1218 MHz	5	1218	1	—	42/54	31 x 27.8 mm
MAFL-011048	Plug-and-Play Horizontal Filter	5	1218	1	—	42/54	31 x 27.8 mm
MAFL-011049	Plug-and-Play Horizontal Filter, 5 - 65/86 - 1218 MHz	5	1218	1	—	65/85	31 x 27.8 mm
MAFL-011050	Plug-and-Play Horizontal Filter, 5 - 65/86 - 1218 MHz	5	1218	1	—	65/85	31 x 27.8 mm
MAFL-011051	Plug-and-Play Horizontal Filter, 5 - 85/102 - 1218 MHz	5	1218	1.4	—	85/102	31 x 27.8 mm
MAFL-011052	Plug-and-Play Horizontal Filter	5	1218	1.4	—	85/102	31 x 27.8 mm
MAFL-011053	Plug-and-Play Horizontal Filter, 5 - 204/258 - 1218 MHz	5	1218	1	—	204/258	31 x 27.8 mm
MAFL-011054	Plug-and-Play Horizontal Filter	5	1218	1	—	204/258	31 x 27.8 mm
MAFL-011055	Surface Mount DOCSIS 3.1 Diplex Filter, 5 - 42/54 - 1218 MHz	5	1218	0.5	50	42/54	30 x 30 mm
MAFL-011057	Surface Mount DOCSIS 3.1 Diplex Filter, 5 - 85/102 - 1218 MHz	5	1218	0.5	50	85/102	30 x 30 mm
MAFL-011059	Plug-and-Play Vertical Filter	5	1218	1	—	42/54	50.8 x 19.05 mm
MAFL-011060	Plug-and-Play Vertical Filter	5	1218	1	—	65/85	50.8 x 19.05 mm
MAFL-011061	Plug-and-Play Vertical Filter	5	1218	1	—	85/102	50.8 x 19.05 mm
MAFL-011062	Plug-and-Play Vertical Filter	5	1218	1	—	204/258	50.8 x 19.05 mm
MAFL-011077	CATV Diplex Filter	5	1218	1.4	50	85/102	SMT
MAFL-011081	Surface Mount DOCSIS 3.1 Diplex Filter, 5 - 204/208 MHz	5	1218	0.5	50	204/208	SMT
MAFLCT0081	CATV Bandpass Filter 50 - 870/975 - 1025/1125 - 1425 MHz	50	1425	1.1	56	870/1125	SMT
MAFL-009217-CD0ACO	CATV Diplex Filter 5 - 864/1128 - 1525 MHz	5	1525	1	44	864/1128	SMT
MAFL-008070-CLOAD0	CATV MoCA Low Pass Filter 50 - 870/ 975 - 1525 MHz	50	1525	1.8	30	—	SMT
MAFL-010464-CD0B20	CATV Diplexer 35 x 25 mm, SMT	5	1525	1.8	60	42/88	SMT
MAFL-010101-CB0AD0	MoCA Band Pass Filter 1125 - 1550 MHz	1125	1550	1.7	40	1125/1550	SMT
MAFL-009906-CLOAD0	MoCA Low Pass Filter 5 - 1550 MHz	5	1550	1	32	—	SMT
MAFL-010256-CB0AD0	MoCA Band Pass Filter 1125 - 1550 MHz	1125	1550	1.7	38	1125/1550	SMT
MAFL-008290-CD0ACO	CATV Diplex Filter 5 - 1002/1125 - 1550 MHz	5	1550	1.7	40	1002/1125	SMT
MAFL-010412-CLOAD0	MoCA Low Pass Filter	5	1550	1.5	37	5 - 1002	15 x 15 mm
MAFL-011018	MoCA Triplex Filter 5 - 42/54 - 1002/1125 - 1675 MHz	5	1675	1.2	70	42/54 & 1002/1125	SMT
MAFL-011023	MoCA Triplex Filter 5 - 65/88 - 1002/1125 - 1675 MHz	5	1675	1.2	50	65/88 & 1002/1125	SMT
MAFL-011026	MoCA Triplex Filter 5 - 85/105 - 1002/1125 - 1675 MHz	5	1675	1.2	70	85/105 & 1002/1125	SMT
MAFL-009272-CD0ACO	Diplexer	5	1675	1.7	40	1002/1125	SM-172
MAFL-010140-CTOC60	MoCA Triplex Filter 5 - 2000 MHz	5	2000	1.5	62	42/52 & 1002/1125	SMT
MAFL-010608	SAT Diplexer	350	3000	2.5	35	875/950	Tape & Reel
MAFL-010670-CB0AD0	MoCA Band Pass Filter 500 - 3000 MHz	350	3000	2	50	650/875	SMT
MAFL-010639-CB0AD0	MoCA Band Pass Filter 500 - 3000 MHz	500	3000	2	40	650/875	SM-173
MAFL-009478-CD0ACO	MoCA Diplex Filter	50	3000	1.5	40	870/950	SMT
MAFL-010609	SAT Triplexer	500	4500	2.5	40	1450/1650 & 2150/2500	SMT

Note: Part numbers are RoHS compliant.

Detailed specifications can be found quickly on our website at [macom.com](http://macom.com) by typing the part number into the search box. All specifications are subject to change.



SMALL SIGNAL TRANSISTORS

Small signal transistors are essential components in electronic circuits that amplify small signals with low power. They are commonly used in applications such as amplifiers, oscillators, mixers, and filters. MACOM offers a wide selection of small signal transistors all in Die form with a wide range of specifications.

Silicon Bipolar

Part Number	Description	Gain BW FT (GHz)	Gain SS @ 1 GHz (dB)	Gain SS @ 2 GHz (dB)	Noise Figure @ 1 GHz (dB)	Noise Figure @ 2 GHz (dB)	Current Gain (hFE)	Maximum Power Dissipation (mW)	Package
MATB-056800-ODIEWO	NPN Silicon Medium Power Oscillator Die	4.2	TBD	6	—	—	60	1500	Die
MATB-046100-ODIEWO	NPN Silicon Medium Power Microwave BJT	5.5	10	9	2	—	120	3750	Die
MATB-068100-ODIEWO	NPN Silicon High Frequency Die	9	15	12	1.2	1.6	100	200	Die
MATB-004200-ODIEWO	NPN Silicon Medium Power Microwave BJT	9	—	11.5	—	3	150	600	Die
MATB-085600	NPN Silicon High Frequency Die	7	—	7	1.1	2.1	120	700	Die
MATB-024300-ODIEWO	NPN Silicon Medium Power Oscillator Die	10	4.3	TBD	—	—	100	2750	Die
MATB-006305-ODIEWO	NPN Silicon 3V Low Current Low Noise Die	11	11	7	1.5	2.2	100	30	Die
MATB-006325-ODIEWO	NPN Silicon 3V Low Current Low Noise Die	11	12	7	1.5	—	100	150	Die
MATB-006310-ODIEWO	NPN Silicon 3V Low Current Low Noise Die	14	12	7	1.5	—	100	60	Die

Silicon MMIC Gain Blocks

Part Number	Description	Noise Figure @ 1 GHz (dB)	Power Gain @ 0.1 GHz (dB)	3 dB Bandwidth (GHz)	1 dB Gain Compression @ 1 GHz (dBm)	IP3 (dBm)	ABS Max Current (mA)	Typical Operating Voltage (V)	Typical Operating Current (mA)	Package
MAAM-011006-ODIEWO	MMIC Silicon Gain Block	3	20.5	1	3	14.5	50	3.5	16	Die
MAAM-011008-ODIEWO	MMIC Silicon Gain Block	3	32.5	—	12.5	27	80	7.8	36	Die
MAAM-011011-ODIEWO	MMIC Silicon Gain Block	3.5	12.5	1	17.5	30	80	5.5	60	Die
MAAM-011007-ODIEWO	MMIC Silicon Gain Block	4.5	13.5	2	5.5	19	60	4	22	Die
MAAM-011041-ODIEWO	MMIC Silicon Gain Block	5.5	15.5	1.6	10	23	80	3.3	35	Die
MAAM-011003-ODIEWO	MMIC Silicon Gain Block	6	12.5	2	10	23	80	5	35	Die
MAAM-011009-ODIEWO	MMIC Silicon Gain Block	6	8	4.5	11.5	23	80	7.8	35	Die
MAAM-011004-ODIEWO	MMIC Silicon Gain Block	6.5	8.5	2.8	12.5	25.5	100	5.25	50	Die

Note: Part numbers are RoHS compliant.

Detailed specifications can be found quickly on our website at [macom.com](http://macom.com) by typing the part number into the search box. All specifications are subject to change.



## SPACE & HIGH-RELIABILITY

### Discrete Components, MMICs, and Integrated Modules

MACOM continues to build upon our legacy of providing high-reliability semiconductor products to the Aerospace and Defense industry by adding to our product portfolio and capabilities. MACOM's standard line of RF and microwave components provides solutions to meet the requirements commonly found on airborne applications, high MTBF ground-based equipment, and space applications.

From our DLA-Certified and US Trusted Foundry in Lowell, Massachusetts, we continue to improve our ability to provide the highest quality aerospace and defense products.

When program screening requirements call for more than MACOM's standard catalog screening, custom screening programs can be created by adding screening options or by generating a program-specific sequence.

### MACOM's Space & High-Reliability Evolution

**Watkins Johnson Company/Stellex Microwave Systems/Tyco Electronics/Anzac/ RHG/Phoenix Microwave/Metelics/Micrometrics/Hi-Rel Components & MACOM**

#### 1960s

> Pioneered production of TWT's for Pioneer, Voyager, and DSCS satellites

#### 1970s

> First solid state flight qualified production amplifiers and mixers

#### 1980s/1990s/through today

> Participated in more than 85 programs (USA & International)

> Provided hundreds of space qualified solid state space component models

#### High-Reliability Catalog Screened Products

> 40+ year history of proven Hi-Rel manufacturing processes supporting both thin film & solder circuit assemblies

> Same proven manufacturing processes as used in equivalent component designs for custom military and space programs

> Long established cost effective standardized screening programs for catalog products available in a variety of hermetically sealed metal package styles

> Available for screening: hybrid amplifiers, hybrid mixers, switches, diodes

> MACOM has an extensive "in-house" environmental screening capability

> US Screening Lab to perform specific environmental test requirements

> Working to expand our partner network

> Custom environmental screening plans available for hermetically-sealed, packaged products (MIL-PRF-19500, MIL-PRF-38534, MIL-DTL- 28837B, MIL-STD-202, etc.)

Please contact your local sales representative to discuss any environmental screening options.

## General Purpose Gain Block Hybrid Amplifiers

Part Number	Min Frequency (MHz)	Max Frequency (MHz)	Gain (dB)	OIP3 (dBm)	Package
EA54	5	250	27	16	TO-5
A75-2	5	250	21	19	TO-8
CA181	10	250	16.5	35	Connectorized-SMA
SMA181	10	250	16.5	35	SMT
A181	10	250	16.5	35	TO-8
CA79	5	300	14	38	Connectorized-SMA
A79	5	300	14	38	TO-8
SMA79	5	300	14	38	SMT
A56	5	400	26	27	TO-8
EA2	5	400	13.5	21	TO-5
SMA87	10	400	14	33	SMT
A87	10	400	14	33	TO-8
CA87	10	400	14	33	Connectorized-SMA
SMPA511	10	500	12.7	40	SMT
AMC-151-SMA	5	500	12	36	Connectorized-SMA
SMRA89	5	500	26.5	35	SMT
SMA74-2	5	500	26	10	SMT
A5	5	500	14.8	22	TO-8
EA54-2	5	500	29.5	20	TO-5
A74-2	5	500	26	10	TO-8
A72	5	500	15	26	TO-8
SMA72	5	500	15	26	SMT
A77	5	500	16.5	30	TO-8
A88	5	500	18.7	30	TO-8
SMA77	5	500	16.5	30	SMT
SMA88	5	500	18.7	30	SMT
RA89	5	500	26.5	35	TO-8
A54	5	500	15.5	21	TO-8
CA77	5	500	16.5	30	Connectorized-SMA
CRA89	5	500	26.5	35	Connectorized-SMA
AMC-146-SMA	10	500	21	35	Connectorized-SMA
MAAM-007502-SPA512	10	500	18	40	SMTO-8
PA511	10	500	12.7	40	TO-8
A57	10	500	14.7	28	TO-8
SMA57	10	500	14.7	28	SMT
SMA513	10	500	20	30	SMT
A55	10	500	14.7	24	TO-8
RA89-1	10	500	30	36	TO-8
SMRA89-1	10	500	30	36	SMT
PA512	10	500	18	40	TO-8
CRA89-1	10	500	30	36	Connectorized-SMA
MAAM-007502-CPA512	10	500	18	40	Connectorized-SMA
MAAM-008200-000A83	10	500	30	10	TO-8
SMPA511	10	500	12.7	40	SMT
SMA77-1	5	600	16	30	SMT
A77-1	5	600	16	30	TO-8
CA77-1	5	600	16	30	Connectorized-SMA

Note: Part numbers are RoHS compliant.

Detailed specifications can be found quickly on our website at [macom.com](http://macom.com) by typing the part number into the search box. All specifications are subject to change.



## General Purpose Gain Block Hybrid Amplifiers (continued)

Part Number	Min Frequency (MHz)	Max Frequency (MHz)	Gain (dB)	OIP3 (dBm)	Package
A5-6	6	600	15.5	21	TO-8
SMA5-6	6	600	16	21	SMT
A59-1	10	700	10.5	36	TO-8
SMA59-1	10	700	10.5	36	SMT
A89	50	800	22	30	TO-8
SMA89	100	800	22	30	SMT
AMC-184-SMA	5	1000	20	20	Connectorized-SMA
AMC-145-SMA	10	1000	10.7	32	Connectorized-SMA
CA17	10	1000	12	27	Connectorized-SMA
CA1021	10	1000	26	26	Connectorized-SMA
CRA69	10	1000	25	34	Connectorized-SMA
CRA66	10	1000	37	30	Connectorized-SMA
CA66-1	10	1000	27.5	28	Connectorized-SMA
SMA1021	10	1000	26	26	SMT
RA66	10	1000	37	30	TO-8
SMRA69	10	1000	25	34	SMT
SMA17	10	1000	12	27	SMT
A17	10	1000	12	27	TO-8
A66-1	10	1000	27.5	28	TO-8
SMA66-1	10	1000	27.5	28	SMT
RA69	10	1000	25	34	TO-8
A19-1	10	1000	11.5	35	TO-8
CA19-1	10	1000	11.5	35	Connectorized-SMA
A1021	10	1000	26	26	TO-8
SMRA66	10	1000	37	30	SMT
AMC-155-SMA	300	1000	12.3	30	Connectorized-SMA
CA66	10	1200	23.5	28	Connectorized-SMA
CA64	10	1200	26	20	Connectorized-SMA
SMA66	10	1200	23.5	28	SMT
SMA64	10	1200	26	20	SMT
A64	10	1200	26	20	TO-8
A66	10	1200	23.5	28	TO-8
CA24	5	1500	10	21	TO-8
A24	5	1500	20	21	TO-8
SMA24	5	1500	20	21	SMT
A27	5	1500	8.5	28	TO-8
SMA28	10	1500	11	29	SMT
CA26	10	1500	20.5	27	Connectorized-SMA
SMA29-1	10	1500	9	32	SMT
A26	10	1500	20.5	27	TO-8
A28	10	1500	11	29	TO-8
A29-1	10	1500	9	32	TO-8
SMA26	10	1500	20.5	27	SMT
CA28	10	1500	11	29	Connectorized-SMA
CA29-1	10	1500	9	32	Connectorized-SMA
A38	10	2000	9.5	30	TO-8
CA38	10	2000	9.5	30	Connectorized-SMA

Note: Part numbers are RoHS compliant.

Detailed specifications can be found quickly on our website at [macom.com](http://macom.com) by typing the part number into the search box. All specifications are subject to change.



## General Purpose Gain Block Hybrid Amplifiers (continued)

Part Number	Min Frequency (MHz)	Max Frequency (MHz)	Gain (dB)	OIP3 (dBm)	Package
SMA39	10	2000	7.5	34	SMT
SMA35	10	2000	10	21	SMT
A39	10	2000	7.5	34	TO-8
SMA38	10	2000	9.5	30	SMT
SMA37	10	2000	10	28	SMT
A37	10	2000	10	28	TO-8
A35	10	2000	10	21	TO-8
CA35	10	2000	10	21	Connectorized-SMA
CRA36	100	2000	24	22	Connectorized-SMA
SMA36	100	2000	16.5	23	SMT
RA36	100	2000	24	22	TO-8
A34	100	2000	16	18	TO-8
A36	100	2000	16.5	23	TO-8
SMRA36	100	2000	24	22	SMT
SMA34	100	2000	16	18	SMT
SMPA2010	200	2000	10	33	SMT
CA36-1	100	2300	16.2	23	Connectorized-SMA
A36-1	100	2300	16.2	23	TO-8
SMA36-1	100	2300	16.2	23	SMT
A33-1	2	2400	9	19	TO-8
SMA33-1	2	2400	9	19	SMT
CA33-1	2	2400	9	19	Connectorized-SMA
CA3010	0	2500	9.5	35	Connectorized-SMA
MAAM-007947-CA3602	100	2600	15	30	Connectorized-SMA
A36-2	100	2600	15	30	TO-8
SMA36-2	100	2600	15	30	SMT
PA38-2	200	2600	8.5	33	TO-8
SMPA38-2	200	2600	8.5	33	SMT
A43	100	3200	11.5	21	TO-8
SMA43	100	3200	11.5	21	SMT
CPA48	1000	4000	16	34	Connectorized-SMA
RA46	0	4000	25.5	30	TO-8
SMPA48	1000	4000	16	34	SMT
PA48	1000	4000	16	34	TO-8
SMRA46	1000	4000	25.5	30	SMT
SMRA62	2000	6000	16	28	SMT
AM42-0039	5900	7100	33	45	CR-15
AM42-0007	14000	14500	22	41	R380/CR15
AM42-0002	14000	14500	22	39	R380/CR15

## Low Noise Hybrid Amplifiers

Part Number	Min Freq (MHz)	Max Freq (MHz)	Gain (dB)	Noise Figure (mA)	OIP3 (dBm)	Package
AMC-162-SMA	10	100	12.5	1.5	30	Connectorized-SMA
AMS-162-PIN	10	100	12.5	1.5	30	SF-1
AM-162-PIN	10	100	12.5	1.1	32	TO-8
A101	5	100	17	3	36	TO-8
SMA101	5	100	17	3	36	SMT

Note: Part numbers are RoHS compliant.

Detailed specifications can be found quickly on our website at [macom.com](http://macom.com) by typing the part number into the search box. All specifications are subject to change.

Low Noise Hybrid Amplifiers (continued)

Part Number	Min Freq (MHz)	Max Freq (MHz)	Gain (dB)	Noise Figure (mA)	OIP3 (dBm)	Package
MAAM-007844-OCA801	10	200	27.3	2	28	Connectorized-SMA
A80-1	10	200	27.3	2	28	TO-8
SMA80-1	10	200	27.3	2	28	SMT
A82-1	20	250	19	2.8	26	TO-8
SMA82-1	20	250	19	2.8	26	SMT
CA82	20	250	25	2.8	31	Connectorized-SMA
SMA82	20	250	25	2.8	31	SMT
SMA81-1	20	250	25	2.5	27	SMT
SMA81	20	250	24.5	2.6	28	SMT0-8
A81-1	20	250	25	2.5	27	TO-8
A70-3	20	250	8	2.8	40	TO-8
A82	20	250	25	2.8	31	TO-8
A81	20	250	25.5	3	28	TO-8
SMA70-1	10	250	8	1.8	28	SMT
CA83-1	10	250	35.5	2.5	9	Connectorized-SMA
SMA70	10	250	8	1.6	24	SMT
A70-1	10	250	8	1.8	28	TO-8
CA231	10	250	26	1.7	22	Connectorized-SMA
A231	10	250	26	1.7	22	TO-8
A70	10	250	8	1.6	24	TO-8
SMA83-1	10	250	35.5	2.5	9	SMT
SMA231	10	250	26	1.7	22	SMT
CA70-2	10	250	8	2.2	38	Connectorized-SMA
A70-2	10	250	8	2.2	38	TO-8
A83-1	10	250	35.5	2.5	9	TO-8
A74-1	5	250	31	4.5	21	TO-8
SMA70-3	15	300	8	2.8	40	SMT0-8
SMA87-2	10	300	16	2.9	24	SMT
A87-2	10	300	16	2.9	24	TO-8
SMA70-2	10	300	8	2.2	38	SMT0-8
CA78	5	300	14	3.5	35	Connectorized-SMA
A78	5	300	14	3.5	35	TO-8
SMA78	5	300	14	3.5	35	SMT
PAW1027	35	350	38.5	3.7	43	SOT115J
CA87-1	10	400	16	3.4	31	Connectorized-SMA
SMA411	10	400	15.8	3	24	SMT
SMA87-1	10	400	16	3.4	31	SMT
A87-1	10	400	16	3.4	31	TO-8
A411	10	400	15.8	3	24	TO-8
MAAM-008199-000A51	10	400	15	2.7	10	TO-8
EA1	5	400	14	4.3	13	TO-5
CA81-2	20	500	24.5	3	28	Connectorized-SMA
SMA81-2	20	500	24.5	3	28	SMT
A80	20	500	29	2.3	27	TO-8
A81-2	20	500	24.5	3	28	TO-8
A81-3	20	500	17	4	20	TO-8
CA511	10	500	17	3.4	33	Connectorized-SMA

Note: Part numbers are RoHS compliant.

Detailed specifications can be found quickly on our website at [macom.com](http://macom.com) by typing the part number into the search box. All specifications are subject to change.

Low Noise Hybrid Amplifiers (continued)

Part Number	Min Freq (MHz)	Max Freq (MHz)	Gain (dB)	Noise Figure (mA)	OIP3 (dBm)	Package
CA531	10	500	31.7	2	14	Connectorized-SMA
CA180	10	500	16.5	3.4	33	Connectorized-SMA
SMA75-3	10	500	20.5	1.7	16	SMT
A75-3	10	500	20.5	1.7	16	TO-8
A531	10	500	31.7	2	14	TO-8
A180	10	500	16.5	3.4	33	TO-8
A511	10	500	17	3.4	33	TO-8
SMA180	10	500	16.5	3.4	33	SMT
MAAM-007272-SMA514	5	500	28	4	32	SMT0-8
CA180	10	500	16.5	3.4	33	Connectorized-SMA
MAAM-007272-OCA515	5	500	27.5	3.5	33	Connectorized-SMA
CA74	5	500	30	3	20	Connectorized-SMA
AMC-147-SMA	5	500	17	3.4	33	Connectorized-SMA
AMC-143-SMA	5	500	15.8	2.5	20	Connectorized-SMA
AM-131-PIN	5	500	11.5	4	34	TO-8
AMC-123-SMA	5	500	10	5.5	30	Connectorized-SMA
MAAM-007272-SMA515	5	500	27.5	3.5	33	SMT0-8
A515	5	500	27.5	3.5	33	TO-8
CA75	5	500	21	2.1	21	Connectorized-SMA
CA76	5	500	28	3	28	Connectorized-SMA
A76	5	500	28	3	28	TO-8
SMA59	5	500	11.5	4.3	36	SMT
SMA75	5	500	21	2.1	21	SMT
SMA74	5	500	30	3	20	SMT
SMA58	5	500	11.5	4	34	SMT
EA53-2	5	500	19	3.6	24	TO-5
A74	5	500	30	3	20	TO-8
SMA73	5	500	32	3.5	15	SMT
A58	5	500	11.5	4	34	TO-8
SMA1	5	500	16	2.4	11	SMT
A1	5	500	16	2.4	11	TO-8
A73	5	500	32	3.5	15	TO-8
A75	5	500	21	2.1	21	TO-8
SMA76	5	500	28	3	28	SMT
SMA76-1	5	500	27.5	3	26	SMT
A59	5	500	11.5	4.3	36	TO-8
A76-1	5	500	27.5	3	26	TO-8
A514	5	500	28	4	32	TO-8
MAAM-007272-OCA514	5	500	28	4	32	Connectorized-SMA
SMA80	10	550	29	2.3	27	SMT0-8
SMA67-1	10	600	15	3.7	30	SMT
CA67-1	10	600	15	3.7	30	Connectorized-SMA
A67-1	10	600	15	3.7	30	TO-8
A611	5	700	15	3.2	24	TO-8
SMA611	5	700	15	3.2	24	SMT
A67	10	800	14	4	30	TO-8
CA66-3	10	1000	26	3	13	Connectorized-SMA

Note: Part numbers are RoHS compliant.

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## Low Noise Hybrid Amplifiers (continued)

Part Number	Min Freq (MHz)	Max Freq (MHz)	Gain (dB)	Noise Figure (mA)	OIP3 (dBm)	Package
SMA66-3	10	1000	26	3	13	SMT
SMA1031	10	1000	28.5	2.7	22	SMT
A12	10	1000	16	2.8	22	TO-8
A66-3	10	1000	26	3	13	TO-8
A1031	10	1000	28.5	2.7	22	TO-8
A18-1	10	1000	14.7	3.8	30	TO-8
CA18-1	10	1000	14.7	3.8	30	Connectorized-SMA
SMA18-1	10	1000	14.7	3.8	30	SM
AMC-176-SMA	5	1000	13.2	4	27	Connectorized-SMA
A11	5	1000	14.7	3.1	10	TO-8
SMA11-2	5	1000	16	2.5	10	SMT
A63	5	1000	16	3	15	TO-8
AMC-182-SMA	5	1000	28.2	3.5	20	Connectorized-SMA
SMA63	5	1000	16	3	15	SMT
CA1212	100	1200	14	1.8	29	Connectorized-SMA
A1212	100	1200	14	1.8	29	TO-8
SMA1212	100	1200	14	1.8	29	SMT
MAAM-008198-SMA162	10	1200	13	3.5	18	SMT-TO-8
SMA1211	10	1200	14	2.8	20	SMT
CA12	10	1200	14	2.8	20	Connectorized-SMA
A1211	10	1200	14	2.8	20	TO-8
MAAM-008198-OCA162	10	1200	13	3.5	18	Connectorized-SMA
CA28-2	10	1500	14	3.5	24	Connectorized-SMA
A28-2	10	1500	14	3.5	24	TO-8
SMA28-2	10	1500	14	3.5	24	SMT
A25-1	2	1500	13.5	3	22	TO-8
PA38	200	2000	10	4	34	TO-8
CPA38	200	2000	10	4	34	Connectorized-SMA
SMPA38	200	2000	10	4	34	SMT
CA32	100	2000	13	2.1	32	Connectorized-SMA
SMA32	100	2000	13	2.1	32	SMT
SMA32-1	100	2000	11.5	2.5	25	SMT
A32-1	100	2000	11.5	2.5	25	TO-8
A32	100	2000	13	2.1	32	TO-8
CA32-1	100	2000	11.5	2.5	25	Connectorized-SMA
A31-1	10	2000	11.5	3.5	9	TO-8
MAAM-007501-OA2002	20	2700	11.5	2.5	40	TO-8
MAAM-007501-CA2002	20	2700	11.5	2.5	40	Connectorized-SMA
MAAM-007501-SA2002	20	2700	11.5	2.5	40	SMT-TO-8
SMA45	1000	4000	17.5	4	29	SMT
CA45	1000	4000	17.5	4	29	Connectorized-SMA
A45-1	1000	4000	17.5	4	26	TO-8
SMA4012	1000	4000	18	3.5	26	SMT
A4012	1000	4000	18	3.5	26	TO-8
A4011	1000	4000	15.5	2	29	TO-8
SMA45-1	1000	4000	17.5	4	26	SMT
A45	1000	4000	17.5	4	29	TO-8

Note: Part numbers are RoHS compliant.

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## Low Noise Hybrid Amplifiers (continued)

Part Number	Min Freq (MHz)	Max Freq (MHz)	Gain (dB)	Noise Figure (mA)	OIP3 (dBm)	Package
SMA4011	1000	4000	15.5	2	29	SMT
A61	2000	6000	7.5	3.2	25	TO-8
A6011	2000	6000	14.8	1.5	30	TO-8
SMA61	2000	6000	7.5	3.2	25	SMT
CA6011	2000	6000	14.8	1.5	30	Connectorized-SMA
SMA6011	1500	6000	14.8	1.5	30	SMT0-8

## Mixers

Part Number	Min Freq RF/RO (MHz)	Max Freq RF/RO (MHz)	Min Freq IF (MHz)	Max Freq IF (MHz)	Package
M6D-50	0.05	200	0	200	Relay Header
MAC-50-PIN	0.2	200	0	200	TO-5
MDS-222-PIN	0.2	200	0.2	200	SF-1
SM6D	0.05	200	0	200	SMT
M6E-50	5	500	0	500	Relay Header
M9BC	0.5	500	0	500	Relay Header
MAC-51-PIN	5	500	0	500	TO-5
MD-161-PIN	1	500	0	500	FP-2
MDS-223-PIN	10	500	10	500	SF-1
SM6V	0.4	500	0	500	SMT
M1H	180	620	0	200	SMA
M6EH	5	750	0	500	Relay Header
SM6EH	5	750	0	500	SMT
M2E	10	1000	0	600	TO-8
M2EC	10	1000	0	600	SMA
SM2E	10	1000	0	600	SMT
M2AC	10	1500	0	800	SMA
M4A	10	1500	0	1000	Flatpack-SMT
M9H	10	1500	0	600	TO-8
M9HC	10	1500	0	600	SMA
MD-148-PIN	10	1500	10	1500	FP-2
MD-149-PIN	10	1500	10	1500	FP-2
MD-149-PIN	102	1500	102	1500	FPO2
MD-160-PIN	1	1500	1	1000	RH-3
MDS-148-PIN	10	1500	10	1500	SF-1
MDS-149-PIN	10	1500	10	1500	SF-1
MDS-158-PIN	5	1500	—	—	SF-1
SM4A	10	1500	0	1000	SMT
SM4B	10	1500	0	1000	SMT
M2B	10	1600	0	800	TO-8
M2BC	10	1600	0	800	SMA
M2TC	10	2400	1	1000	SMA
SM4G	800	2400	0	1500	SMT
MD-123-PIN	10	3000	10	3000	FP-2
M4TH	1	3400	1	2000	Flatpack-SMT
M8T	1	3400	1	2000	TO-8
M8TC	1	3400	1	2000	SMA
M8TH	1	3400	1	2000	TO-8

Note: Part numbers are RoHS compliant.

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Mixers (continued)					
Part Number	Min Freq RF/RO (MHz)	Max Freq RF/RO (MHz)	Min Freq IF (MHz)	Max Freq IF (MHz)	Package
M8THC	1	3400	1	2000	SMA
SM4T	1	3400	1	2000	SMT
SM4T17	1	3400	1	2000	SMT
SM4TH	1	3400	1	2000	SMT
M2G	800	3500	0	1500	TO-8
M2GC	800	3500	0	1500	SMA
MD-169-PIN	1	3500	1	3500	FP-2
MD-189-PIN	1	3500	1	3500	FP-2
MDC-169-SMA	1	3500	1	3500	C-7
MDS-169-PIN	1	3500	5	1500	SF-1
MDS-189-PIN	1	3500	1	3500	SF-1
MD-179-PIN	1	4000	5	1500	FP-2
MDC-179-SMA	1	4000	5	1500	C-7
M8H-3	3700	4200	0	2000	TO-8
SM5T	50	5000	50	3000	SMT
SM5T17	50	5000	50	3000	SMT
SM5TH	50	5000	50	3000	SMT
M63C	2500	5500	0	1500	SMA
MZ6310C	250	5500	0	1500	SMA
M8H-7	2400	6000	0	2000	TO-8
M8HC-7	2400	6000	0	2000	SMA
MDC-162-SMA	1000	7000	10	2000	C-2
MY63	2500	7000	0	15000	Versapac
MY63C	2500	7000	0	15000	SMA
M63H	2500	7500	0	1500	Minpac
M63HC	2500	7500	0	1500	SMA
MY63H	2500	7500	0	1500	Versapac
MY63HC	2500	7500	0	1500	SMA
M76H	4500	8500	0	2000	Minpac
M76HC	4500	8500	0	2000	SMA
MY76H	4500	8500	0	2000	Versapac
MY76HC	4500	8500	0	2000	SMA
M76	4500	9500	0	2000	Minpac
M76C	4500	9500	0	2000	SMA
MY76	4500	9500	0	2000	Versapac
MY76C	4500	9500	0	2000	SMA
MY84	1800	10000	0	1000	Versapac
MY84C	1800	10000	0	1000	SMA
M77C	8000	12500	0	2500	SMA
MY77	8000	12500	0	2500	Versapac
MY77C	8000	12500	0	2500	SMA
M14A	6000	14000	0	2000	SMA
M67C	9000	15000	0	2500	SMA
M50A	2000	18000	2000	18000	Minpac
M50AC	2000	18000	2000	18000	SMA
M74	7000	18000	0	3000	Minpac
M74C	7000	18000	0	3000	SMA

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Mixers (continued)

Part Number	Min Freq RF/RO (MHz)	Max Freq RF/RO (MHz)	Min Freq IF (MHz)	Max Freq IF (MHz)	Package
M79C	5000	18000	0	3000	SMA
M79H	5000	18000	0	3000	Minpac
M79HC	5000	18000	0	3000	SMA
M80C	4000	18000	0	3000	SMA
M83	1000	18000	30	5000	Minpac
M83C	1000	18000	30	5000	SMA
M85	2000	18000	0	1000	Minpac
M85C	2000	18000	0	1000	SMA
M86C	3500	18000	0	3000	SMA
M88C	2000	18000	1000	8000	SMA
M88H	2000	18000	2000	8000	Minpac
M79C	5000	18000	0	3000	SMA
M79H	5000	18000	0	3000	Minpac
M79HC	5000	18000	0	3000	SMA
M80C	4000	18000	0	3000	SMA
M83	1000	18000	30	5000	Minpac
M83C	1000	18000	30	5000	SMA
M85	2000	18000	0	1000	Minpac
M85C	2000	18000	0	1000	SMA
M86C	3500	18000	0	3000	SMA
M88C	2000	18000	1000	8000	SMA
M88H	2000	18000	2000	8000	Minpac
M88HC	2000	18000	2000	8000	SMA
M89C	1000	18000	1000	8000	SMA
M93C	2000	18000	30	4000	SMA
MY82	2000	18000	30	5000	Versapac
MY82C	2000	18000	30	5000	SMA
MY83H	2	18000	30	5000	Versapac
MY83HC	2	18000	30	5000	SMA
MY85	2000	18000	0	1000	Versapac
MY85C	2000	18000	0	1000	SMA
MY88	2000	18000	1000	8000	Versapac
MY88C	2000	18000	1000	8000	SMA
MY88HC	1000	18000	1000	8000	SMA
MY89	2000	18000	2000	8000	Versapac
MY89C	2000	18000	2000	8000	SMA
MY93	2000	18000	30	4000	Versapac
MY93C	2000	18000	30	4000	SMA
MZ7407	6000	18000	0	3000	Versapac
MZ7407C	6000	18000	0	3000	SMA
MZ7410	6000	18000	0	3000	Versapac
MZ7410C	6000	18000	0	3000	SMA
MZ7420	6000	18000	0	3000	Versapac
MZ7420C	6000	18000	0	3000	SMA
MZ8810C	2000	18000	1000	8000	SMA
MZ8813	2000	18000	1000	8000	Versapac
MZ9310	2000	18000	30	5000	Versapac

Note: Part numbers are RoHS compliant.

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## Mixers (continued)

Part Number	Min Freq RF/RO (MHz)	Max Freq RF/RO (MHz)	Min Freq IF (MHz)	Max Freq IF (MHz)	Package
MZ9310C	2000	18000	30	5000	SMA
MZ9313	2000	18000	30	5000	Versapac
MZ9313C	2000	18000	30	5000	SMA
M87C	500	19000	30	5000	SMA
MY87	500	19000	30	5000	Versapac
MY87C	500	19000	30	5000	SMA
M51C	2000	24000	1000	15000	SMA
M52C	2000	24000	100	5000	SMA
MY51	2000	24000	1000	15000	Versapac
MY51C	2000	24000	1000	15000	SMA
MY52	2000	24000	100	5000	Versapac
MY52C	2000	24000	100	5000	SMA
M50C	2000	26000	1000	15000	SMA
M53C	2000	26000	100	6000	SMA
MY50	2000	26000	1000	15000	Versapac
MY50A	2000	26000	1000	12000	Versapac
MY50AC	2000	26000	1000	12000	SMA
MY50C	2000	26000	1000	15000	SMA
MZ5010	2000	26000	1	15000	Versapac
MZ5010C	2000	26000	1	15000	SMA

## Power Dividers

Part Number	Min Freq (MHz)	Max Freq (MHz)	Channels (#)	Amplitude Balance (dB)	Phase Balance (°)	Isolation (dB)	Max Input Power (dBm)	Package
M3H-50-PIN	1	100	3	0.2	1	30	30	TO-5
DS-310-PIN	0	300	4	0.2	4	25	30	FP-5
M3V-50-PIN	50	300	3	0.2	2	25	30	TO-5
DS-113-PIN	0	400	2	0.2	1	25	30	FP-2
DSS-113-PIN	0	400	2	0.2	1	25	30	SF-1
DS-318-PIN	5	500	2	0.2	1	18	30	RH-1
DS-109-PIN	10	500	2	0.2	1	25	30	FP-2
DSS-333-PIN	10	500	2	0.2	2	25	30	SF-1
DS-319-PIN	10	500	2	0.2	1	25	30	TO-8
DS-112-PIN	10	500	3	0.2	2	25	30	TO-5
DS-328-PIN	3	700	3	0.3	3	20	30	TO-8
DSS-327-PIN	5	1000	2	0.2	3	20	30	FP-2
DSS-333-PIN	5	1000	2	0.2	3	20	30	FP-2
DS-323-PIN	25	1000	3	0.4	4	24	30	FP-3
DS-324-PIN	25	1000	4	0.3	6	20	30	FP-5
DS-331-PIN	750	1500	2	0.2	6	10	30	TO-8
DS-313-PIN	10	2000	2	0.3	4	23	24	FP-2
DSS-313-PIN	10	2000	2	0.3	4	23	24	SF-1

## Varactor Tuning Diodes

Part Number	Gamma	Total Capacitance (pF)	Quality Factor @ 50 MHz, Min	Breakdown Voltage (V)	Package
MA46600-134	0.5	0.3	8000	30	ODS-134 Die
MA46603-134	0.5	0.6	6500	30	ODS-134 Die
MA46H070-1056	0.75	0.6	4500	20	ODS-1056

Note: Part numbers are RoHS compliant.

Detailed specifications can be found quickly on our website at [macom.com](http://macom.com) by typing the part number into the search box. All specifications are subject to change.

## Varactor Tuning Diodes (continued)

Part Number	Gamma	Total Capacitance (pF)	Quality Factor @ 50 MHz, Min	Breakdown Voltage (V)	Package
MA46H071-1056	0.75	1	4500	20	ODS-1056
MA46416-134	1.5	1.8	2500	18	ODS-134 Die
MA46H072-1056	0.75	3	3000	20	ODS-105
MA46H073-1056	0.75	5	2200	20	ODS-1056

## Multiplier Step Recovery Diodes

Part Number	Total Capacitance Min (pF)	Total Capacitance Max (pF)	Reverse Voltage (V)	Lifetime (Typ vs Min) (ns)	Tt (Typ vs Max) (ps)	Package
MMDB35-B11	0.13	0.2	16	4	35	B11
MMDB45-B11	0.11	0.2	25	8	40	B11
MMDB30-B11	0.15	0.25	14	4	30	B11
MSD700	0.2	0.4	15	8	60	Die/Various
MSD710	0.2	0.4	20	11	70	Die/Various
MSD720	0.2	0.4	30	17	100	Die/Various
MMD837-C11	0.2	0.4	20	5	70	Die
MMD840-C11	0.2	0.4	15	7	70	Die
MMD837-H27	0.32	0.52	20	5	70	H27
MMD837-T86	0.38	0.58	20	5	70	T86
MMD840-H27	0.32	0.52	15	7	70	H27
MMD840-T86	0.38	0.58	15	7	70	T86
MSD701	0.4	0.6	15	8	60	Die/Various
MSD711	0.4	0.6	20	11	70	Die/Various
MSD731	0.4	0.6	40	21	150	Die/Various
MMD835-C11	0.3	0.7	15	10	70	Die
MMD0840-A15	—	0.75	15	—	—	A15
MSD722	0.6	0.8	30	17	100	Die/Various
MMD0151-A15	—	0.8	15	—	100	A15
MMD832-C11	0.4	0.8	20	10	80	Die
MMD835-H20	0.42	0.92	15	10	70	H20
MMD832-H20	0.58	0.98	20	10	60	H20
MMD832-T86	0.58	0.98	20	10	60	T86
MMD835-T86	0.48	0.98	15	10	70	T86
MSD703	0.8	1	15	8	60	Die/Various
MSD723	0.8	1	30	17	100	Die/Various
MSD733	0.8	1	40	21	150	Die/Various
MMD830-H20	0.68	1.18	25	15	80	H20
MMD830-T86	0.68	1.18	25	10	80	T86
MSD724	1	1.4	30	17	100	Die/Various
MMD820-C12	1	1.7	40	30	100	Die
MMD820-H20	1.18	1.88	40	30	100	H20
MMD820-T86	1.18	1.88	40	30	100	T86
MMD810-T86	1.68	2.68	50	40	250	T86
MSD726	2	3	30	17	100	Die/Various
MSD736	2	3	40	21	150	Die/Various
MMD0815-A15	—	4.15	50	—	320	A15

Note: Part numbers are RoHS compliant.

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PIN Switch and Attenuator Diodes								
Part Number	Min Freq (MHz)	Max Freq (MHz)	CW Power Dissipation (W)	Total Capacitance (pF)	Resistance ( $\Omega$ )	TI (ns)	Breakdown Voltage Min (V)	Package
MMP7078	0.1	100	—	1	0.5	2500	400	Die/Various
MA4P606-36	1	500	20	0.99	0.7	4000	1000	ODS-36
MA4P504-255	1	500	7.5	0.4	0.6	1000	500	ODS-255
MA4P505-255	1	500	10.7	0.55	0.5	2000	500	ODS-255
MA4P606-30	1	500	15	0.8	0.7	4000	1000	ODS-30
MA4P604-255	1	500	15	0.6	1	3000	1000	ODS-255
MA4P607-296	1	500	25	2.35	0.4	5000	1000	ODS-296
MA4P504-186	1	500	7.5	0.4	0.6	1000	500	ODS-186
MA4P504-30	1	500	7.5	0.4	0.6	1000	500	ODS-30
MA4P506-30	1	500	13.6	0.95	0.3	3000	500	ODS-30
MA4P506-31	1	500	13.6	0.95	0.3	3000	500	ODS-31
MADP-000015-000030	1	500	15	0.55	0.4	2000	500	ODS-30
MA47266-146	1	1000	0.5	1.5	0.6	4000	200	ODS-146
MA4P606-4	1	1000	1	0.7	0.7	4000	1000	ODS-4
MA47047-54	1	1000	0.3	0.3	1.5	1000	200	ODS-54
MA4P606-131	1	1000	15	0.6	0.7	4000	1000	ODS-131 Die
MADP-000488-13740W	100	1500	15	0.16	1.6	4000	900	ODS-1374 Die
MADP-000135-01340W	100	1500	50	0.15	1.2	440	200	ODS-134 Die
MADP-000165-01340W	100	2000	50	0.06	2.5	200	200	ODS-134 Die
MADP-042508-130600	50	2000	1.3	0.6	0.9	310	100	ODS-1306 Die
MADP-042505-130600	50	2000	1.3	0.6	0.8	210	80	ODS-1306 Die
MA4P404-30	5	2000	7.5	0.4	0.6	1000	250	ODS-30
MPN3001	—	2000	—	0.25	1	—	200	A15
MA4P604-30	1	2500	15	0.5	1	3000	1000	ODS-30
MADP-000506-014400	1	4000	10	0.7	0.3	100	500	ODS-144
MADP-042405-130600	50	4000	1.3	0.27	0.8	210	80	ODS-1306 Die
MA4P505-36	1	4000	15	0.55	0.5	2000	500	ODS-36
MA4P303-186	20	4000	0.3	0.35	1.5	200	200	ODS-186
MA4P203-30	30	4000	5	0.35	1.5	100	100	ODS-30
MA4P203-1056	30	4000	0.3	0.35	1.5	100	100	ODS-1056
MA4P303-120	20	4000	5	0.35	1.5	200	200	ODS-120
MA4P506-131	1	4000	13.6	0.7	0.3	3000	500	ODS-131 Die
MA4P202-120	50	4000	0.3	0.25	2.5	60	100	ODS-120
MPN7302-H20	500	6000	1	0.26	1.2	8	20	H20
MPN7306-H20	100	6000	1	0.26	1.2	50	70	H20
MPN7312A-H20	20	6000	1	0.26	1.2	150	120	H20
MPN7312B-H20	20	6000	1	0.36	0.8	250	120	H20
MPN7315-H20	10	6000	1	0.26	1.2	180	150	H20
MPN7320-H20	5	6000	1	0.2	3	120	150	H20
MPN7345	5	6000	4	0.3	0.3	500	300	C40
MPN7360	1	6000	10	0.8	0.2	2500	600	C37
MPN7370	1	6000	10	2	0.2	5000	700	C39
MPN7380	1	6000	10	0.4	0.3	2500	800	C38
MPN7420	1	6000	2.5	0.06	1	1000	400	C12
MPN7453A	1	6000	3	0.1	0.7	700	300	C22
MPN7453B	1	6000	3	0.15	0.6	2500	400	C22
MPN7453C	1	6000	3	0.18	0.4	1000	300	C22

Note: Part numbers are RoHS compliant.

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## PIN Switch and Attenuator Diodes (continued)

Part Number	Min Freq (MHz)	Max Freq (MHz)	CW Power Dissipation (W)	Total Capacitance (pF)	Resistance ( $\Omega$ )	TI (ns)	Breakdown Voltage Min (V)	Package
MADP-042308-130600	50	6000	1	0.14	1.3	280	100	ODS-1306 Die
MADP-042305-130600	50	6000	1	0.14	1.3	180	80	ODS-1306 Die
MA4P505-131	1	6000	10.7	0.35	0.5	2000	500	ODS-131 Die
MADP-017015-1314	1	6000	5	0.32	0.7	1300	115	ODS-1314 Die
MADP-017025-1314	1	6000	5	0.23	1	2300	1335	ODS-1314 Die
MADP-030015-13140P	1	6000	11.5	0.78	0.5	1600	115	ODS-1314 Die
MADP-030025-1314	1	6000	11.5	0.5	0.7	2800	135	ODS-1314 Die
MMP7024	1	6000	—	0.25	0.5	60	70	Die/Various
MMP7092	1	6000	—	0.2	0.6	1000	500	Die/Various
MMP7023	1	8000	—	0.2	0.7	60	70	Die/Various
MNP0012A	5	8000	1	0.18	0.6	650	350	C22p
MNP0012A-T54P	5	8000	0.25	0.36	0.6	650	350	T54p
MNP0012A-T55P	5	8000	0.25	0.31	0.6	650	350	T55p
MNP0012A-T89P	5	8000	0.25	0.43	0.6	650	350	T89p
MA4P504-144	1	8000	7.5	0.4	0.6	1000	500	ODS-144
MA4P604-131	1	8000	15	0.3	1	3000	1000	ODS-131 Die
MA47222	1	8000	3.8	0.4	1.6	160	150	ODS-144
MA47223	1	8000	7.5	0.4	0.6	1000	500	ODS-144
MA47418-134	5	10000	6	0.15	3	1000	200	ODS-134 Die
MA47416-132	DC	10000	5	0.15	6	2000	200	ODS-132 Die
MA4P504-132	1	10000	7.5	0.2	0.6	1000	500	ODS-132 Die
MA4P404-132	5	10000	7.5	0.2	0.7	600	250	ODS-132 Die
MNP0014	1	10000	1.5	0.12	1.3	750	500	C22p
MNP0014-T54P	1	10000	0.1	0.32	0.8	750	450	T54p
MNP0014-T55P	1	10000	0.1	0.25	0.8	750	450	T55p
MNP0014-T89P	1	10000	0.1	0.37	0.8	750	450	T89p
MMP7022	1	10000	—	0.15	0.9	60	70	Die/Various
MPN7302	500	12000	1	0.08	1.2	8	20	C11
MPN7306	100	12000	1	0.08	1.2	50	70	C12
MPN7312B	20	12000	1	0.18	0.8	250	120	C12
MPN7320	5	12000	1	0.02	3	120	150	C01
MMP7011	200	12000	—	0.15	0.8	10	25	Die/Various
MNP0008-T54P	100	12000	0.25	0.28	2	150	100	T54p
MNP0008-T55P	100	12000	0.25	0.21	2	150	100	T55p
MNP0008-T89P	100	12000	0.25	0.33	2	150	100	T89p
MNP0010-T54P	10	12000	0.25	0.28	2	300	150	T54p
MNP0010-T55P	10	12000	0.25	0.21	2	300	150	T55p
MNP0010-T89P	10	12000	0.25	0.33	2	300	150	T89p
MNP0012	5	12000	1	0.08	3.5	350	300	C12p
MNP0012-T54P	5	12000	0.25	0.28	3.5	350	300	T54p
MNP0012-T55P	5	12000	0.25	0.21	3.5	350	300	T55p
MNP0012-T89P	5	12000	0.25	0.33	3.5	350	300	T89p
MMP7021	1	14000	—	0.1	1	60	70	Die/Various
MADP-042908-130600	50	16000	0.8	0.06	3.1	230	100	ODS-1306 Die
MADP-042905-130600	50	16000	0.8	0.06	3.1	140	80	ODS-1306 Die
MADP-000402-12530G	50	18000	1	0.04	5	200	1000	ODS-1253 Die
MADP-000402-12530P	50	18000	1	0.04	4.5	200	70	ODS-1253 Die

Note: Part numbers are RoHS compliant.

104 Detailed specifications can be found quickly on our website at [macom.com](http://macom.com) by typing the part number into the search box. All specifications are subject to change.

## PIN Switch and Attenuator Diodes (continued)

Part Number	Min Freq (MHz)	Max Freq (MHz)	CW Power Dissipation (W)	Total Capacitance (pF)	Resistance (Ω)	TI (ns)	Breakdown Voltage Min (V)	Package
MADP-064908-131000	50	18000	1	0.05	5	200	100	ODS-1310 Die
MA4PBL027	100	18000	0.2	0.03	4	150	90	Beam Lead Die
MA4P7493-134	50	18000	2.5	0.05	1.8	80	150	ODS-134 Die
MA4SPS402	50	18000	1	0.04	5	200	100	ODS-1253 Die
MMP7025	1	18000	—	0.03	1.9	100	100	Die/Various
MMP7020	1	18000	—	0.05	1.2	60	70	Die/Various
MA4P161-134	100	18000	2.3	0.1	1.5	150	100	ODS-134 Die
MA4P203-134	30	18000	5	0.15	1.5	100	100	ODS-134 Die
MA4P303-134	20	18000	5	0.15	1.5	200	200	ODS-134 Die
MMPN080045	2000	20000	—	—	—	—	200	C50
MA4SPS552	50	26000	1	0.06	1.7	2500	200	ODS-1270
MA4SPS502	1	26000	35	0.14	2.4	2800	275	ODS-1270
MA4SPS302	1	26000	0.8	0.4	1.3	460	100	SURMOUNT™ Die
MMPN080150	2000	35000	—	—	—	—	200	C51
MA4AGBLP912	100	40000	0.1	0.02	4	5	50	Beam Lead Die
MA4GP022	100	40000	0.3	0.15	1	20	50	ODS-277
MA4GP030	100	40000	0.3	0.06	2	25	100	ODS-277
MMSPN050-C53	1000	40000	40	—	0.6	4000	200	C53
MMSPN050-C54	1000	40000	40	—	0.6	4000	200	C54

## PIN Limiter Diodes

Part Number	Incident Power, Max (W)	Thermal Resistance	Junction Capacitance (pF)	Resistance (Ω)	Lifetime (ns)	Vb (V)	Package
MADL-04L401-0113W0	—	25	0.3	1.2	800	—	ODS-134 Die
MLP7100	50	100	0.2	1.5	5	20 - 45	Die/Various
MLP7140	50	100	0.12	2	7	30 - 40	Die/Various
MLP7130	50	120	0.12	2	5	15 - 30	Die/Various
MADL-000011-13880G	80	175	0.18	2.1	10	—	ODS-13880G Die
MA4L011-31	80	175	0.36	2.1	10	—	ODS-31
MA4L011-186	80	175	0.33	2.1	10	—	ODS-186
MA4L011-134	80	175	0.18	2.1	10	—	ODS-134 Die
MA4L011-1056	80	175	0.38	2.1	10	—	ODS-1056
MA4L011-30	80	175	0.36	2.1	10	—	ODS-30
MA4L011-32	80	175	0.48	2.1	10	—	ODS-32
MADL-011021-14210G	90	175	0.2	2.1	10	—	ODS-1056
MADL-000021-003000	90	175	0.38	2.1	10	—	ODS-30
MA4L022-120	90	175	0.32	2	10	—	ODS-120
MA4L022-1056	90	175	0.39	2	10	—	ODS-1056
MA4L022-30	90	175	0.37	2	10	—	ODS-30
MA4L022-186	90	175	0.34	2	10	—	ODS-186
MA4L021-134	90	175	0.2	2.1	10	—	ODS-134 Die
MA4L022-134	90	175	0.19	2	10	—	ODS-134 Die
MA4L021-120	90	175	0.33	2.1	10	—	ODS-120
MA4L021-1056	90	175	0.4	2.1	10	—	ODS-1056
MA4L021-31	90	175	0.38	2.1	10	—	ODS-31
MA4L022-32	90	175	0.49	2	10	—	ODS-32
MLP7101	100	80	0.5	1.2	10	20 - 45	Die/Various
MLP7102	100	55	0.7	1	10	20 - 45	Die/Various

Note: Part numbers are RoHS compliant.

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**PIN Limiter Diodes** (continued)

Part Number	Incident Power, Max (W)	Thermal Resistance	Junction Capacitance (pF)	Resistance (Ω)	Lifetime (ns)	Vb (V)	Package
MLP7131	100	80	0.2	1.5	5	15 – 30	Die/Various
MLP7141	100	70	0.2	1.5	7	30 – 60	Die/Various
MADL-011010-01340W	125	150	0.24	1.5	15	—	ODS-134
MADL-000031-13880G	125	150	0.21	2.1	20	—	ODS-1388
MA4L032-186	125	150	0.35	2.5	15	—	ODS-186
MA4L031-31	125	150	0.39	2	20	—	ODS-31
MA4L031-186	125	150	0.36	2	20	—	ODS-186
MA4L031-134	125	150	0.21	2	20	—	ODS-134 Die
MA4L032-1056	125	150	0.4	2.5	15	—	ODS-1056
MA4L032-134	125	150	0.2	2.5	15	—	ODS-134 Die
MA4L031-1056	125	150	0.41	2	20	—	ODS-1056
MA4L032-31	125	150	0.38	2.5	15	—	ODS-31
MA4L032-32	125	150	0.5	2.5	15	—	ODS-32
MADL-000032-003000	125	150	0.21	2.1	20	—	ODS-3000
MADL-011011-01340W	200	150	0.17	2.3	10	—	ODS-134
MADL-000062-13880G	200	150	0.15	2.5	10	—	ODS-13880G Die
MADL-000062-105600	200	150	0.35	2.5	10	—	ODS-1056
MA4L062-134	200	150	0.15	2.5	10	—	ODS-134 Die
MLP7110	200	80	0.2	1.5	10	45 – 75	Die/Various
MADL-000101-13880G	250	30	0.15	2	90	—	ODS-13880G Die
MA4L101-134	250	30	0.15	2	90	—	ODS-134 Die
MA4L101-186	250	30	0.3	2	90	—	ODS-186
MA4L101-30	250	30	0.33	2	90	—	ODS-30
MLP7111	400	60	0.5	1.2	15	45 – 75	Die/Various
MADL-000301-01340W	500	30	0.2	1.5	200	—	ODS-134 Die
MA4L301-1056	500	30	0.4	1.5	200	—	ODS-1056
MA4L301-31	500	30	0.38	1.5	200	—	ODS-31
MADL-000301-13870G	500	30	0.2	1.5	200	—	ODS-1370
MADL-011052-14280W	500	36	0.19	2	222	—	ODS-134 Die
MLP7112	795	40	0.7	1	20	45 – 75	Die/Various
MA4L401-1056	1000	25	0.5	1.2	800	—	ODS-1056
MA4L401-31	1000	25	0.48	1.2	800	—	ODS-31
MA4L401-134	1000	25	0.3	1.2	800	—	ODS-134 Die
MA4L401-30	1000	25	0.48	1.2	800	—	ODS-30
MA4L401-120	1000	25	0.43	1.2	800	—	ODS-32
MADL-000401-13870G	1000	25	0.3	1.2	800	—	ODS-13870G Die
MLP7120	1000	40	0.2	1.5	50	120 – 180	Die/Various
MLP7121	2000	20	0.6	1	50	120 – 180	Die/Various
MLP7122	4000	15	0.8	0.5	100	120 – 180	Die/Various

**Schottky Mixer and Detector Diodes**

Part Number	Min Freq (MHz)	Max Freq (MHz)	Total Capacitance (pF)	Dynamic Resistance (Ω)	Vf (mV)	Vb (V)	Package
MA4E932A-186	DC	18	—	0.25	—	1	ODS-186
MA4E932B-186	DC	18	—	0.25	—	1	ODS-186
MA4E929B-119	DC	18	—	0.25	—	1	ODS-119
MA4E929A-119	DC	18	—	0.25	—	15	ODS-119
MA4E932A-186	DC	18	—	0.25	—	1	ODS-186

Note: Part numbers are RoHS compliant.

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## Schottky Mixer and Detector Diodes (continued)

Part Number	Min Freq (MHz)	Max Freq (MHz)	Total Capacitance (pF)	Dynamic Resistance ( $\Omega$ )	Vf (mV)	Vb (V)	Package
MA4E932B-186	DC	18	—	0.25	—	1	ODS-186
MA4E929B-119	DC	18	—	0.25	—	1	ODS-119
MA4E929A-119	DC	18	—	0.25	—	15	ODS-119
MGR700	DC	1000	1.2	—	—	8	Die/Various
MGR703	DC	1000	1	—	—	20	Die/Various
MGR705	DC	1000	1.2	—	—	70	Die/Various
MNM201	DC	2600	0.2	20	0.4	3	Die/Various
MNM207	DC	2600	0.14	20	0.425	4	Die/Various
MNM212	DC	2600	0.21	20	0.475	5	Die/Various
1N5711	DC	3000	1.2	2	—	70	ODS-54
1N5711	DC	3000	1.2	2	—	70	ODS-54
MA4E2812-54	DC	3000	1.2	—	—	20	ODS-57
MA4E2811	DC	3000	1.2	—	—	15	ODS-56
MA40261	DC	3000	—	0.32	—	70	ODS-186
MA4E2812-54	DC	3000	1.2	—	—	20	ODS-57
MA4E2811	DC	3000	1.2	—	—	15	ODS-56
MA40261	DC	3000	—	0.32	—	70	ODS-186
MZB600-32	DC	8000	0.2	3500	0.3	3	CS32
MSS20-054-C15	DC	8000	0.2	80	—	0.8	C15P
MSS20-054-H27	DC	8000	0.35	80	—	0.8	H27
MSS20-054-T86	DC	8000	0.41	80	—	0.8	T86p
MSS20-055-C15	DC	8000	0.2	80	—	0.8	C15P
MSS20-055-H27	DC	8000	0.35	80	—	0.8	H27
MSS20-055-T86	DC	8000	0.41	80	—	0.8	T86p
MZB604-B11	DC	8000	0.2	5000	0.3	4	B11
MA40205-119	DC	10000	—	—	0.32	—	3
MA4E931Z2-1261A	DC	10000	—	—	—	—	Die
MA40201-119	DC	10000	0.32	—	—	—	ODS-119
MA40264	DC	10000	0.32	—	—	3	ODS-186
MA40205-119	DC	10000	—	—	0.32	—	ODS-119
MA40201-119	DC	10000	0.32	—	—	—	ODS-119
MA40264	DC	10000	0.32	—	—	3	ODS-186
MSS39-148-H20	DC	12000	0.33	—	—	3.5	H20
MSS39-152-B10B	DC	12000	0.18	—	—	3.5	B10Bp
MSS20-046-T86	DC	12000	0.31	80	—	0.8	T86p
MSS39-048-P55	DC	12000	0.3	—	—	5	P55p
MSS39-048-P86	DC	12000	0.32	—	—	5	P86p
MSS20-047-T86	DC	12000	0.31	80	—	0.8	T86p
MSS20-050-C15	DC	12000	0.15	80	—	0.8	C15P
MSS20-050-H27	DC	12000	0.3	80	—	0.8	H27
MSS20-050-T86	DC	12000	0.36	80	—	0.8	T86p
MSS20-051-C15	DC	12000	0.15	80	—	0.8	C15P
MSS20-051-H27	DC	12000	0.3	80	—	0.8	H27
MSS20-051-T86	DC	12000	0.36	80	—	0.8	T86p
MSS20-054-0805-2	DC	12000	0.3	80	—	0.8	0805-2
MA40215-120	DC	16000	0.32	—	—	5	ODS-1200
MADS-011030-14280W	DC	16000	0.33	6.5	100	3.5	Die

Note: Part numbers are RoHS compliant.

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## Schottky Mixer and Detector Diodes (continued)

Part Number	Min Freq (MHz)	Max Freq (MHz)	Total Capacitance (pF)	Dynamic Resistance ( $\Omega$ )	Vf (mV)	Vb (V)	Package
MA40215-120	DC	16000	0.32	—	—	5	ODS-1200
MADS-011030-14280W	DC	16000	0.33	6.5	100	3.5	Die
MSS20-046-C15	DC	18000	0.1	80	—	0.8	C15P
MSS20-046-H27	DC	18000	0.25	80	—	0.8	H27
MSS20-047-C15	DC	18000	0.1	80	—	0.8	C15P
MSS20-047-H27	DC	18000	0.25	80	—	0.8	H27
MSS30 PCR46-B47	DC	18000	0.13	22	—	2	B47
MSS30 PCR53-B47	DC	18000	0.25	15	—	2	B47
MSS30-046-C15	DC	18000	0.12	18	—	2	C15
MSS30-046-P55	DC	18000	0.3	18	—	2	P55
MSS30-046-P86	DC	18000	0.33	18	—	2	P86
MSS30-050-C15	DC	18000	0.18	15	—	2	C15
MSS30-050-P55	DC	18000	0.35	15	—	2	P55
MSS30-050-P86	DC	18000	0.38	15	—	2	P86
MSS30-142-B10B	DC	18000	0.1	22	—	2	B10B
MSS30-142-H20	DC	18000	0.31	22	—	2	H20
MSS30-148-B10B	DC	18000	0.15	15	—	2	B10B
MSS30-148-H20	DC	18000	0.36	15	—	2	H20
MSS30-154-B10B	DC	18000	0.25	12	—	2	B10B
MSS30-154-H20	DC	18000	0.46	12	—	2	H20
MSS30-242-B20	DC	18000	0.1	22	—	2	B20
MSS30-242-H30	DC	18000	0.31	22	—	2	H30
MSS30-248-B20	DC	18000	0.15	15	—	2	B20
MSS30-248-H30	DC	18000	0.36	15	—	2	H30
MSS30-254-H30	DC	18000	0.46	12	—	2	H30
MSS30-346-B21	DC	18000	0.3	16	—	2	B21
MSS30-346-H20	DC	18000	0.5	16	—	2	H20
MSS30-442-B41	DC	18000	0.1	22	—	4	B41
MSS30-442-B42	DC	18000	0.1	22	—	2	B42
MSS30-442-H40	DC	18000	0.1	22	—	2	H40
MSS30-448-B41	DC	18000	0.15	15	—	2	B41
MSS30-448-B42	DC	18000	0.15	15	—	2	B42
MSS30-448-H40	DC	18000	0.35	15	—	2	H40
MSS30-454-B40	DC	18000	0.25	12	—	2	B40
MSS30-454-H40	DC	18000	0.46	12	—	2	H40
MSS30-B46-B45	DC	18000	0.125	25	—	2	B45
MSS30-B46-H40	DC	18000	0.35	25	—	2	H40
MSS30-B53-B45	DC	18000	0.25	15	—	2	B45
MSS30-B53-H40	DC	18000	0.46	15	—	2	H40
MSS30-CR46-H40	DC	18000	0.33	22	—	2	H40
MSS30-CR46-H40	DC	18000	0.33	22	—	2	H40
MSS30-CR53-B49	DC	18000	0.25	15	—	2	B49
MSS30-PCB46-B48	DC	18000	0.12	20	—	2	B48
MSS39-045-C15	DC	18000	0.1	—	—	5	C15p
MSS39-045-P86	DC	18000	0.27	—	—	5	P86p
MSS39-144-H27	DC	18000	0.24	—	—	3.5	H27
MSS39-146-H27	DC	18000	0.25	—	—	3.5	H27

Note: Part numbers are RoHS compliant.

Detailed specifications can be found quickly on our website at [macom.com](http://macom.com) by typing the part number into the search box. All specifications are subject to change.

## Schottky Mixer and Detector Diodes (continued)

Part Number	Min Freq (MHz)	Max Freq (MHz)	Total Capacitance (pF)	Dynamic Resistance ( $\Omega$ )	Vf (mV)	Vb (V)	Package
MSS39-148-B10B	DC	18000	0.12	—	—	3.5	B10Bp
MSS39-152-H20	DC	18000	0.36	—	—	3.5	H20
MSS40-045-C15	DC	18000	0.12	15	—	3	C15
MSS40-045-P55	DC	18000	0.28	15	—	3	P55
MSS40-045-P86	DC	18000	0.3	15	—	3	P86
MSS40-048-C15	DC	18000	0.15	15	—	3	C15
MSS40-048-P86	DC	18000	0.33	15	—	3	P86
MSS40-141-B10B	DC	18000	0.1	22	0.42	3	B10B
MSS40-141-H20	DC	18000	0.3	18	0.42	3	H20
MSS40-148-B10B	DC	18000	0.15	17	0.4	3	B10B
MSS40-155-0402	DC	18000	0.38	14	0.38	3	O402
MSS40-155-H20	DC	18000	0.51	14	0.38	3	H20
MSS40-244-B20	DC	18000	0.12	22	0.44	3	B20
MSS40-248-B20	DC	18000	0.15	17	0.44	3	B20
MSS40-448-B42	DC	18000	0.15	17	0.4	3	B42
MSS40-448-H40	DC	18000	0.36	15	0.4	3	H40
MSS40-455-B40	DC	18000	0.3	17	0.38	3	B40
MSS40-455-H40	DC	18000	0.32	14	0.38	3	H40
MSS40-B46-B45	DC	18000	0.13	25	0.47	3	B45
MSS40-B53-B45	DC	18000	0.25	15	0.43	3	B45
MSS40-CR46-B49	DC	18000	0.125	22	0.47	3	B49
MSS40-CR46-H40	DC	18000	0.35	15	—	3	H40
MSS40-PCB46-B48	DC	18000	0.12	20	0.47	3	B48
MSS40-PCR46-B47	DC	18000	0.13	22	0.47	3	B47
MSS50-046-P55	DC	18000	0.28	20	—	4	P55
MSS50-146-B10B	DC	18000	0.12	18	0.5	4	B10B
MSS50-146-H20	DC	18000	0.34	18	0.5	4	H20
MSS50-448-B40	DC	18000	0.25	14	0.5	4	B40
MSS50-448-E45	DC	18000	0.36	10	0.5	4	E45
MSS50-448-H40	DC	18000	0.48	10	0.5	4	H40
MSS50-B46-B45	DC	18000	0.13	20	0.5	4	B45
MSS50-B46-H40	DC	18000	0.35	20	—	4	H40
MSS50-B53-B45	DC	18000	0.25	15	0.5	4	B45
MSS50-B53-E45	DC	18000	0.36	15	0.5	4	E45
MSS50-B53-H40	DC	18000	0.48	15	—	4	H40
MSS50-CR53-B49	DC	18000	0.25	15	0.5	4	B49
MSS50-CR53-H40	DC	18000	0.46	15	0.5	4	H40
MSS50-PCR53-B48	DC	18000	0.25	15	0.5	4	B47
MA4E2513L-1289	DC	26000	0.12	10	—	3	ODS-1289
MA4E2508H-1112	DC	26000	0.24	6	—	5	ODS-1112
MA4E2501L-1290	DC	26000	0.12	10	—	5	ODS-1290
MA4E2532M-1113	DC	26000	0.16	10	—	5	ODS-1113
MA4E2508M-1112	DC	26000	0.24	12	—	5	ODS-1112
MA4E2514L-1116	DC	26000	0.12	16	—	3	ODS-1116
MA4E2508L-1112	DC	26000	16	0.24	—	5	ODS-1112
MA4E2514M-1116	DC	26000	0.12	12	—	3	ODS-1116
MA4E2502H-1246	DC	26000	0.12	11	—	3	ODS-1246

Note: Part numbers are RoHS compliant.

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## Schottky Mixer and Detector Diodes (continued)

Part Number	Min Freq (MHz)	Max Freq (MHz)	Total Capacitance (pF)	Dynamic Resistance ( $\Omega$ )	Vf (mV)	Vb (V)	Package
MA4E2502M-1246	DC	26000	0.12	12	—	3	ODS-1246
MA4E2513L-1289	DC	26000	0.12	10	—	3	ODS-1289
MA4E2508H-1112	DC	26000	0.24	6	—	5	ODS-1112
MA4E2501L-1290	DC	26000	0.12	10	—	5	ODS-1290
MA4E2532M-1113	DC	26000	0.16	10	—	5	ODS-1113
MA4E2502L-1246	DC	26000	0.12	16	—	3	ODS-1246
MA4E2508M-1112	DC	26000	0.24	12	—	5	ODS-1112
MA4E2514L-1116	DC	26000	0.12	16	—	3	ODS-1116
MA4E2508L-1112	DC	26000	16	0.24	—	5	ODS-1112
MA4E2514M-1116	DC	26000	0.12	12	—	3	ODS-1116
MA4E2502H-1246	DC	26000	0.12	11	—	3	ODS-1246
MA4E2502M-1246	DC	26000	0.12	12	—	3	ODS-1246
MA4E2502L-1246	DC	26000	0.12	16	—	3	ODS-1246
MSS39-146-B10B	DC	26000	0.1	—	—	3.5	B10Bp
MSS39-144-B10B	DC	40000	0.08	—	—	3.5	B10Bp
MSS20-146-B10D	DC	40000	0.12	80	—	0.8	B10D
MSS20-140-B10D	DC	40000	0.08	80	—	0.8	B10D
MSS20-141-B10D	DC	40000	0.08	80	—	0.8	B10D
MSS20-142-0402	DC	40000	0.1	80	—	0.8	0402
MSS20-142-B10D	DC	40000	0.1	80	—	0.8	B10D
MSS20-143-B10D	DC	40000	0.1	80	—	0.8	B10D
MSS20-145-B10D	DC	40000	0.12	80	—	0.8	B10D
MSS25-141-B10D	DC	40000	0.08	65	—	3	B10D
MSS25-143-B10D	DC	40000	0.1	60	—	3	B10D
MSS25-145-B10D	DC	40000	0.12	52	—	3	B10D
MSS25-047-C15c	DC	40000	0.1	65	—	3	C15c
MSS25-049-C15c	DC	40000	0.12	52	—	3	C15c
MA4E2039	DC	60000	0.05	4	—	4.5	Beam Lead
MA4E2040	DC	60000	0.05	4	—	4.5	Beam Lead
MA4E2037	DC	60000	0.05	4	—	4.5	Beam Lead
MGS901	DC	60000	0.06	7	—	5	Beam Lead
MGS902	DC	60000	0.1	7	—	—	Beam Lead
MGS903	DC	60000	0.06	7	—	5	Beam Lead
MGS904	DC	60000	0.06	7	—	—	B85
MGS904A	DC	60000	0.08	5	—	—	B85
MGS905	DC	60000	0.06	7	—	5	B86
MGS906	DC	60000	0.04	14	—	10	B90
MGS907	DC	60000	0.04	14	—	—	B85
MGS907A	DC	60000	0.06	12	—	—	B85
MGS908	DC	60000	0.04	14	—	10	B86
MGS909	DC	60000	0.1	21	—	15	B90
MGS910	DC	60000	0.1	21	—	—	B87
MGS912	DC	60000	0.03	28	—	20	B89
MA4E2039	DC	60000	0.05	4	—	4.5	Beam Lead
MA4E2040	DC	60000	0.05	4	—	4.5	Beam Lead
MA4E2037	DC	60000	0.05	4	—	4.5	Beam Lead

Note: Part numbers are RoHS compliant.

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Switches						
Part Number	Min Freq (MHz)	Max Freq (MHz)	Insertion Loss (dB)	Isolation (dB)	Input IP3 (dBm)	Package
<b>SPST</b>						
MASW-001150-1316	45	2500	0.3	65	40	Die
MA4SW110	50	26500	0.6	48	40	HMIC Die
MA4AGSW1A	50	50000	1.2	48	—	Die
MA4AGSW1	50	50000	0.2	43	—	Die
<b>SPDT</b>						
SW-313-PIN	50	3000	0.8	52	46	CR-2
SW-226-PIN	0	4000	1	48	46	CR-2
SW-228-PIN	0	4000	0.7	42	46	CR-2
MASW-010647	8000	10500	0.8	37	60	Die
MASW-011021	6000	14000	0.7	34	60	SURMOUNT™ Die
MASW-002102-13580	2	18000	1.8	55	40	Die
MASW-011108-DIE	6000	18000	0.6	44	—	Die
MASW-002103-1363	50	20000	0.8	38	40	SURMOUNT™ Die
MA4SW210B-1	2000	26000	1.2	48	40	Die
MASW-011052	2000	26000	0.8	50	43	Die
MA4SW210	50	26500	0.6	52	40	HMIC Die
MASW-002100-1191	50	26500	0.3	65	40	Die
MASW-011144-DIE	20000	40000	65	30	—	Die
MASW-010646	26000	40000	0.6	39	60	Die
MASW-011036	26000	40000	0.7	40	60	Die
MA4AGSW2	50	50000	0.6	46	—	Die
MASW-011111-DIE	80000	100000	0.8	25	—	Die
<b>SP3T</b>						
MASW-011053	2000	18000	0.8	50	48	Die
MASW-003102-13590	2000	18000	0.8	50	40	Die
MASW-003103-1364	50	20000	0.8	40	40	SURMOUNT™ Die
MA4SW310B-1	2000	26000	1.2	47	40	Die
MA4SW310	50	26500	0.8	48	40	Die
MASW-003100-1192	50	26500	0.3	65	40	Die
MA4AGSW3	50	50000	0.6	48	—	Die
MASW-011029	75000	100000	1.3	33	—	Die
<b>SP4T</b>						
MA4SW410B-1	2000	18000	0.8	48	40	Die
MASW-004102-12760	2	18000	1.5	50	40	Die
MASW-004240-13170	10	24000	2.5	50	—	Die
MASW-004103-1365	50	20000	0.8	50	63	SURMOUNT™ Die
MA4SW410	50	26500	0.7	48	40	Die
MASW-004100-1193	50	26500	0.3	65	40	Die
MASW-011087	27000	30000	0.85	50	55	Die
MA4AGSW4	50	50000	0.8	42	40	Die
<b>SP5T</b>						
MA4SW510B-1	2000	18000	0.9	40	40	Die
MASW-005102-13600	2000	18000	0.9	40	40	Die
MA4SW510	50	26500	0.9	38	40	Die
MASW-005100-1194	50	26500	0.9	38	40	Die
MASW-006102-13610	50	26500	0.3	65	40	Die

Note: Part numbers are RoHS compliant.

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**Switches** (continued)

Part Number	Min Freq (MHz)	Max Freq (MHz)	Insertion Loss (dB)	Isolation (dB)	Input IP3 (dBm)	Package
MASW-010351	10	4000	1.4	57	50	4 mm PQFN-24
MA4AGSW5	50	50000	1.1	47	40	Die

**SP6T**

MA4SW610B-1	2000	18000	1.3	45	40	Die
MASW-006102-13610	50	26500	1.3	45	40	Die

**SP8T**

MA4AGSW8-1	50	50000	1.5	37	40	Die
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**Phase Detectors**

Part Number	SRD VBR Min (V)	SRD CJ Typ (pF)	SRD TL Typ (ns)	SRD TT Max (ps)	Cap CT Typ (pF)	SD CJ Typ (pF)	SD VF Typ	SD RD Typ (mV)	FMW Typ (GHz)	Package
MSPD1000-H50	15	1	35	95	20	0.4	270	7	0.5	H50
MSPD1012-H50	15	0.5	10	70	2.5	0.18	270	9	12	H50
MSPD2018-H50	15	0.35	5	55	0.6	0.1	430	16	22	H50

**MNS Chip Capacitors**

Part Number	Capacitance (pF)	Standoff Voltage (V)	Chip Style	Package
MA4M3010	10	200	350	Die
MA4M2020	20	200	132	Die
MA4M3030	30	200	352	Die
MA4MI050	50	100	132	Die
MA4M3050	50	200	354	Die
MA4M1100	100	100	199	Die
MA4M3100	100	50	358	Die
MA4M3150	150	50	359	Die

**MNOS Series Capacitors**

Part Number	Type	Capacitance Range Min (pF)	Range (pF)	Capacitance Dvw Min (V)	R Min (Ω)	TCC Typ (ppm/+°C)	Package
MBC50-0.2B14	Beam Lead	0.16	0.24	50	1000	55	B14
MBC50-1.0B14	Beam Lead	0.8	1.2	50	1000	55	B14
MBC50-1B12	Beam Lead	0.8	1.2	50	1000	55	B12
MBC50-1.5B14	Beam Lead	1.2	1.8	50	1000	55	B14
MBC50-2.0B14	Beam Lead	1.6	2.4	50	1000	55	B14
MBC50-2B12	Beam Lead	1.6	2.4	50	1000	55	B12
MBC50-3B12	Beam Lead	2.4	3.6	50	1000	55	B12
MBC50-4B12	Beam Lead	3.2	4.8	50	1000	55	B12
MBC50-6B12	Beam Lead	4.8	7.2	50	1000	55	B12
MBC50-8B12	Beam Lead	6.4	9.6	50	1000	55	B12
MBC50-10B12	Beam Lead	8	12	50	1000	55	B12
MBC50-15B12	Beam Lead	12	18	50	1000	55	B12
MBC50-20B12	Beam Lead	16	24	50	1000	55	B12
MBC50-33B13	Beam Lead	26.4	39.6	50	1000	55	B13
MBC50-47B13	Beam Lead	37.6	56.4	50	1000	55	B13
MBC50-68B13	Beam Lead	54.4	81.6	50	1000	55	B13
MBC50-82B13	Beam Lead	65.6	96	50	1000	55	B13
MBC50-100B13	Beam Lead	80	120	50	1000	55	B13
MC2DXXX010-010	Chips	0.1	5	50	1000	55	Die
MC2SXXX010-010	Chips	0.25	8	50	1000	55	Die

Note: Part numbers are RoHS compliant.

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MNOS Series Capacitors (continued)							
Part Number	Type	Capacitance Range Min (pF)	Range (pF)	Capacitance Dvw Min (V)	R Min (Ω)	TCC Typ (ppm/+°C)	Package
MC2SXXX011-011	Chips	1	12	50	1000	55	B12
MC2DXXX015-015	Chips	1.5	15	50	1000	55	Die
MC2RXXX010-015	Chips	2	20	50	1000	55	Die
MC2SXXX015-015	Chips	3	30	50	1000	55	Die
MC2SXXX016-016	Chips	3	35	50	1000	55	Die
MC2RXXX015-020	Chips	5	42	50	1000	55	Die
MC2DXXX020-020	Chips	5	50	50	1000	55	Die
MC2SXXX020-020	Chips	5	55	50	1000	55	Die
MC2SXXX022-022	Chips	5	60	50	1000	55	Die
MC2RXXX015-032	Chips	5	62	50	1000	55	Die
MC2SXXX025-025	Chips	10	100	50	1000	55	Die
MC2RXXX022-042	Chips	15	120	50	1000	55	Die
MC2SXXX030-030	Chips	10	120	50	1000	55	Die
MC2SXXX035-035	Chips	15	150	50	1000	55	Die
MC2SXXX040-040	Chips	20	200	50	1000	55	Die
MC2SXXX050-050	Chips	25	250	50	1000	55	Die
MC2SXXX055-055	Chips	25	300	50	1000	55	Die
MC2SXXX060-060	Chips	35	375	50	1000	55	Die
MC2SXXX070-070	Chips	50	550	50	1000	55	Die
MC2SXXX080-080	Chips	70	700	50	1000	55	Die
MC2RXXX097-107	Chips	100	999	50	1000	55	Die
MC2RXXX099-138	Chips	100	999	50	1000	55	Die
MC2SXXX100-100	Chips	100	999	50	1000	55	Die
MC2RXXX127-145	Chips	200	1800	50	1000	55	Die
MC2RXXX142-160	Chips	200	2200	50	1000	55	Die
MC2B0.8020-020	Binary Chip	1.2	1.8	50	1000	55	C20
MC2B002020-020	Binary Chip	3	4.5	50	1000	55	C20
MC2B004020-020	Binary Chip	6.4	9.6	50	1000	55	C20
MC2B008020-020	Binary Chip	12	18	50	1000	55	C20
MC2B016020-020	Binary Chip	24	36	50	1000	55	C20

**High Q MNOS Series Chip Capacitors: 9000 Series VB >50 V & 9100 Series VB >100 V**

Part Number	Capacitance (pF)	Working Voltage	Chip Size + .002"	Package
902R0 thru 9010R	2 - 10	50	0.010" x 0.010" x 0.005"	Die
9011R thru 9029R	11 - 29	50	0.015" x 0.015" x 0.005"	Die
9030R thru 9049R	30 - 49	50	0.020" x 0.020" x 0.006"	Die
9050R thru 9099R	50 - 99	50	0.030" x 0.030" x 0.006"	Die
0100 thru 0199R	100 - 199	50	0.040" x 0.040" x 0.008"	Die
90200 thru 90399R	200 - 399	50	0.050" x 0.050" x 0.008"	Die
90400 thru 90600R	400 - 600	50	0.070" x 0.070" x 0.008"	Die
910R1 thru 911R9	0.1 - 1.9	100	0.010" x 0.010" x 0.005"	Die
912R0 thru 919R9	2 - 9.9	100	0.015" x 0.015" x 0.005"	Die
9110R thru 9129R	10 - 29	100	0.020" x 0.020" x 0.006"	Die
9130R thru 9149R	30 - 49	100	0.030" x 0.030" x 0.006"	Die
9150R thru 9199R	50 - 99	100	0.040" x 0.040" x 0.008"	Die
91100 thru 91199	100 - 199	100	0.050" x 0.050" x 0.008"	Die
91200 thru 91399	200 - 399	100	0.070" x 0.070" x 0.008"	Die

Note: Part numbers are RoHS compliant. Detailed specifications can be found quickly on our website at [macom.com](http://macom.com) by typing the part number into the search box. All specifications are subject to change.

**Beam Lead Capacitors: 9000 Series VB >50 V**

Part Number	Capacitance Range (pF)	Package
90100ROM S	100 + 20%	14-4
9010ROM S	10 + 20%	14-3
9015ROM S	15 + 20%	14-3
901R0 thru 901R5 S	1 to 1.5	14-1
901R0 thru 902R2 S	1 to 2.2	14-2
9022ROM S	22 + 20%	14-3
902R2 thru 904R7 S	2.2 to 4.7	14-2
9033ROM S	33 + 20%	14-3
9047ROM S	47 + 20%	14-4
905R6M S	5.6 + 20%	14-2
9068ROM S	68 + 20%	14-4
906R8M S	6.8 + 20%	14-2
9082ROM S	82 + 20%	14-4
908R2M S	8.2 + 20%	14-2
90R1 thru 90R9 S	0.1 to 0.9	14-1
90R5 thru 90I0 S	0.5 to 1	14-2

**DC Floating/RF Bypass Mounting Capacitors: 9100 & 9000 Series**

Part Number	Capacitance Range (pF)	Chip Size A	Chip Size B	Pad Size D	Pad Size E	Customer Specified Field D
SP49	5 - 50	0.014	0.034	0.011	0.031	0.005 - 0.020
SP84	7 - 70	0.02	0.04	0.016	0.03	0.005 - 0.020
SP51	8 - 80	0.015	0.045	0.013	0.043	0.005 - 0.020
SP14	9 - 90	0.02	0.04	0.016	0.036	0.005 - 0.020
SP34	9 - 90	0.024	0.034	0.02	0.03	0.005 - 0.020
SP6	10 - 100	0.014	0.055	0.012	0.053	0.005 - 0.020
SP89	12 - 120	0.02	0.06	0.014	0.055	0.005 - 0.020
SP80	13 - 130	0.016	0.065	0.014	0.063	0.005 - 0.020
SP12	14 - 140	0.02	0.055	0.018	0.053	0.005 - 0.020
SP87	15 - 150	0.013	0.12	0.009	16	0.005 - 0.020
SP81	17 - 170	0.015	0.09	0.013	0.088	0.005 - 0.020
SP22	24 - 240	0.025	0.08	0.021	0.075	0.005 - 0.020
SP88	25 - 250	0.021	0.121	0.015	0.115	0.005 - 0.020
SP48	29 - 290	0.035	0.065	0.031	0.061	0.005 - 0.020
SP64	75 - 750	0.055	0.102	0.051	0.098	0.005 - 0.020
SP120	90 - 900	0.055	0.12	0.05	0.115	0.005 - 0.020
SP7	100 - 1000	0.085	0.085	0.081	0.081	0.005 - 0.020
SP2	150 - 1500	0.11	0.11	0.1	0.1	0.005 - 0.020
SP68	175 - 1750	0.101	0.124	0.097	0.12	0.005 - 0.020
SP1	200 - 2000	0.11	0.14	0.1	0.13	0.005 - 0.020
SP5	200 - 1000	0.1	0.1	0.095	0.095	0.005 - 0.020
SP20	200 - 2000	0.12	0.14	0.11	0.13	0.005 - 0.020
SP29	200 - 2000	0.121	0.121	0.115	0.115	0.005 - 0.020
SP38	200 - 2000	0.094	0.152	0.091	0.148	0.005 - 0.020
SP39	200 - 2000	0.12	0.134	0.11	0.13	0.005 - 0.020
SP40	200 - 2000	0.107	0.134	0.103	0.13	0.005 - 0.020
SP77	300 - 3000	0.118	0.175	0.114	0.171	0.005 - 0.020
SP52	300 - 3000	0.13	0.17	0.124	0.164	0.005 - 0.020

Note: Part numbers are RoHS compliant.

Detailed specifications can be found quickly on our website at [macom.com](http://macom.com) by typing the part number into the search box. All specifications are subject to change.

**DC Floating/RF Bypass Mounting Capacitors: 9100 & 9000 Series**

Part Number	Capacitance Range (pF)	Chip Size A	Chip Size B	Pad Size D	Pad Size E	Customer Specified Field D
SP104	350 – 3500	0.142	0.171	0.138	0.167	0.005 – 0.020
SP111	350 – 3500	0.143	0.18	0.138	0.167	0.005 – 0.020
SP37	350 – 3500	0.151	0.168	0.147	0.164	0.005 – 0.020
SP44	350 – 3500	0.14	0.17	0.135	0.165	0.005 – 0.020
SP55	360 – 3600	0.117	0.22	0.113	0.216	0.005 – 0.020

**NLTL GaAs Comb Generators**

Part Number	Power Min (dBm)	Power Max (dBm)	Output Harmonics 1	Output Harmonics 2	Output Harmonics 3	Package
MLPNC-7102-SMA800	19 @ 300 MHz	24 @ 700 MHz	-8 @ 4 GHz	-16 @ 12 GHz	-20 @ 20 GHz	SMA800
MLPNC-7103-SMA800	19 @ 600 MHz	24 @ 1500 MHz	-5 @ 6 GHz	-15 @ 18 GHz	-20 @ 30 GHz	SMA800
MLPNC-7100S1-SMA800	18 @ 75 MHz	24 @ 250 MHz	-15 @ 1 GHz	-18 @ 2 GHz	-24 @ 4 GHz	SMA800
MLPNC-7100-SMA850	18 @ 100 MHz	24 @ 400 MHz	-8 @ 4 GHz	-18 @ 12 GHz	-35 @ 20 GHz	SMA850
MLPNC-7102S1-SMA800	18 @ 300 MHz	24 @ 700 MHz	-10 @ 4 GHz	-15 @ 8 GHz	-22 @ 12 GHz	SMA800
MLPNC-7103S1-SMA800	18 @ 600 MHz	24 @ 1500 MHz	-10 @ 4 GHz	-8 @ 8 GHz	-20 @ 15 GHz	SMA800

**True Time Delay**

Part Number	Description	Min Frequency (MHZ)	Max Frequency (MHZ)	Bit Count	Min Delay (ns)	Full Delay (ns)	Insertion Loss (dB)	CTRL Interface	Package
CGY2393SUH	6 – 18 GHz 5 Bit True Time Delay	6000	18000	5	10	310	6	0/+4	Die
CGY2394SUH	6 – 18 GHz 1 Bit True Time Delay	6000	18000	1	330	330	6	0/+4	Die

Note: Part numbers are RoHS compliant.

Detailed specifications can be found quickly on our website at [macom.com](http://macom.com) by typing the part number into the search box. All specifications are subject to change.

## **Appendix and Part Number Index**

**Package Selection Guide**

**Decibels-Volts-Watts Conversion Table**

**Wavelength and Frequency**

**Part Number Index**

**Plastic Leadless Packages**

Package	Approx Outline Dimensions (mm)	
1 mm X1-DFN-6LD	1 x 1 x 0.45	
1.2 x 1.5 TDFN-6LD	1.2 x 1.5 x 0.75	
1.5 x 1.2 TDFN-6LD	1.5 x 1.2 x 0.75	
2 mm STDFN-8LD	2 x 2 x 0.55	
2 mm STQFN-12LD	2 x 2 x 0.55	
2 x 2.5 mm STQFN-14LD	2 x 2.5 x 0.55	
3 mm PQFN-12LD/16LD	3 x 3 x 0.9	
3 mm TQFN-12LD/16LD	3 x 3 x 0.75	
3 mm HQFN-16LD	3 x 3 x 1.5	
4 mm PQFN-16LD/20LD/24LD	4 x 4 x 0.9	
4 mm TQFN-16LD/20LD	4 x 4 x 0.75	
4 mm HQFN-8LD/16LD/20LD	4 x 4 x 1.5	
4 x 5 mm PQFN-28LD	4 x 5 x 0.9	
4 x 6 mm PQFN-32LD	4 x 6 x 0.9	
4 x 7 mm PQFN-36LD	4 x 7 x 0.9	
5 mm PQFN-20LD/24LD/28LD/32LD/40LD	5 x 5 x 0.9	
5 mm HQFN-32LD	5 x 5 x 0.9	
5 x 7 mm PQFN-40LD	5 x 7 x 0.9	
5 x 8 mm PQFN-52LD	5 x 8 x 0.9	
6 mm PQFN-28LD/40LD/48LD	6 x 6 x 0.9	
7 mm PQFN-13LD/16LD/32LD/44LD	7 x 7 x 0.9	
7 mm HQFN-16LD/32LD	7 x 7 x 1.5	

**Plastic Leadless Packages**

Package	Approx Outline Dimensions (mm)	
SC-79	0.8 x 1.6 x 0.6	
SOD-323	1.3 x 2.5 x 1.1	
SOD-23	2.9 x 2.4 x 1	
SOD-25	2.9 x 2.8 x 1.3	
SOD-26	2.9 x 2.8 x 1.3	

**Plastic Leadless Packages (continued)**

Package	Approx Outline Dimensions (mm)	
SOT-89	4.5 x 4 x 1.5	
SOT-143	2.9 x 2.4 x 1	
SC70 3LD (SOT-323)	2 x 2.1 x 1	
SC70 6LD (SOT-363)	2 x 2.1 x 1	
SOIC-8/SOIC-8EP	4.9 x 6 x 1.6	
SOIC-14	8.7 x 6 x 1.6	
SOIC-16	9.9 x 6 x 1.6	
SOW-16	10.3 x 10.3 x 2.5	
SOW-24	15.4 x 10.3 x 2.5	
TSSOP-16	5 x 6.4 x 1.1	
SSOP-20	7.2 x 7.8 x 1.9	
MSOP-8	3 x 4.9 x 1	
MSOP-8EP	3 x 4.9 x 1	
MSOP-10/MSOP-10EP	3 x 4.9 x 1	
QSOP-16	4.9 x 6 x 1.6	
QSOP-24	8.7 x 6 x 1.6	
QSOP-28	9.9 x 6 x 1.6	

**Ceramic**

CQFN-12	3.0 x 3.0 x 1.55	
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# PACKAGE SELECTION GUIDE



## Ceramic/Chip Diode Packages

Package	Approx Outline Dimensions (mm)	
30 Ceramic	3.2 diameter x 5.7	
134 Die O.	4 x 0.4 x 0.2	
186 Ceramic	11.2 x 2.5 x 1.1	
401 Axial Lead	2.3 diameter x 55	
1027 Ceramic	8 diameter x 6.9	
1056 Ceramic	1.9 x 1.9 x 1	
1072 Ceramic	2.4 x 2.4 x 3.4	
1073 Ceramic	12.3 diameter x 10	
1038 Ceramic	8 diameter x 17	
1080 Ceramic	8 diameter x 22.2	
1082 Ceramic	8 diameter x 19.8	
1088 Ceramic	2.4 x 1.3 x 1	
1246 SURMOUNT™	1.2 x 0.5 x 0.2	

## Metal/Ceramic Packages

Package	Approx Outline Dimensions (mm)	
CR2-6LD	18.3 x 11.3 x 1.3	
CR2	18.3 x 17.1 x 1.3	
CR3	16.2 x 4.6 x 1.6	
CR4	12.4 x 12.4 x 1.6	
CR5	8.9 x 8.0 x 1.6	
CR6	11.4 x 8.9 x 1.6	
CR12	11.4 x 11.4 x 2.0	
CR13	16.5 x 11.4 x 2.0	
CR15	17.8 x 11.4 x 2	
CR16	9.8 x 8.3 x 1.5	
1000017733	23.5 x 13.8 x 2	

# PACKAGE SELECTION GUIDE



## Metal/Ceramic Packages (continued)

Package	Approx Outline Dimensions (mm)	
MOD2	20.3 x 15 x 6.6	
MOD3	20.3 x 15 x 4.8	
SMA-AMP	23.4 x 27.9 x 13.3	
SMA-MXR	22.9 x 22.9 x 14	
SMT-01	11.4 x 11.4 x 4.3	
SMT-02	10 x 13 x 4	
SMT-88	13.4 x 13.4 x 4.3	
SMT-88F	11.4 x 11.4 x 4.3	
TO-8-01	12.7 diameter x 11	
TO-8-02	12.7 diameter x 9.7	

## Metal/Ceramic Packages (continued)

Package	Approx Outline Dimensions (mm)	
TO-8-03	15.2 diameter x 9.7	
CSM	12.5 x 9.4 x 4.8	
FP	13 x 9.8 x 3.6	
MOD1	14.2 x 13.2 x 4.8	

## Passives Packages

Package	Approx Outline Dimensions (mm)	
SM-2	12.5 x 9.4 x 6.4	
SM-4	12.4 x 9.4 x 5.8	
SM-22	3.8 x 3.8 x 3.8	
SM-55	7.1 x 6.4 x 3.6	
SM-85	30 x 30 x 9	
SM-89	8 x 6.4 x 0.15	
SM-138	4.2 x 5.3 x 3.9	
SM-152	4.2 x 5.3 x 4.3	

## Transistor Packages

Package	Approx Outline Dimensions (mm)	
P-237 Ceramic	20 x 15 x 4	
P-238 Ceramic	34 x 19.6 x 4	
P-239 Ceramic	21 x 1 x 4	
355E-01, Style 1 Ceramic	23 x 21 x 5	
368-03, Style 2 Ceramic	38 x 50 x 9	
PHI214-M Series Ceramic	23 x 10 x 4.5	
P-8TF	20.8 x 6.4 x 3.5	
P-51H	22.9 x 10.2 x 5.5	
P-94C	22.9 x 10.2 x 5.5	

## Transistor Packages (continued)

Package	Approx Outline Dimensions (mm)	
P-94D	22.9 x 10.2 x 4.2	
P-94I	22.9 x 10.2 x 4.2	
P-154C	25.4 x 15.2 x 5.1	
Pallet	50.8 x 35.8 x 7	

## GaN Packages

Package	Approx Outline Dimensions (mm)	
<b>Ceramic</b>		
AC-200B-2	13.97 x 8.13 x 3.1	
AC-200S-2	5.18 x 8.13 x 3.1	
AC-360B-2	20.32 x 10.92 x 3.86	
AC-360S-2	9.65 x 10.92 x 3.86	

# PACKAGE SELECTION GUIDE



## GaN Packages (continued)

Package	Approx Outline Dimensions (mm)	
AC-400S-2	10.16 x 14.96 x 4.11	
AC-780B-2	34.04 x 19.43 x 3.6	
AC-780S-2	20.57 x 19.43 x 3.6	
AC-780B-4	34.04 x 19.43 x 3.36	
AC-780S-4	20.57 x 19.43 x 3.62	
AC-1230B-4	41.28 x 19.61 x 4.42	
AC-1230S-4	32.26 x 19.61 x 4.42	

## Plastic

3 x 6 mm PDFN-14	6.0 x 3.0 x 1.0	
SOIC-EP	4.9 x 6.1 x 1.47	

## GaN Packages (continued)

Package	Approx Outline Dimensions (mm)	
4 mm PQFN-24	4.0 x 4.0	
5 x 6 mm PDFN-8	6.0 x 5.0	
5 x 7 mm PDFN-40	4.0 x 4.0	
TO-272-2	23.62 x 11.18 x 2.59	
TO-272-4	23.62 x 14.1 x 2.59	
TO-272S-2	17.25 x 11.18 x 2.59	
TO-272S-2B	17.25 x 11.18 x 2.59	
TO-272S-4	17.25 x 11.18 x 2.59	
TO-272S-4I	17.25 x 11.18 x 2.59	

# DECIBELS — VOLTS — WATTS CONVERSION TABLE



## 50-Ω System Terminated

dBm	V	Po	dBm	V	Po	dBm	mV	Po	dBm	V	Po
53	100	200 W	—	—	—						
50	70.7	100 W	0	0.225	1 mW	-49	0.8	—	-97	3.2	—
49	64	80 W	-1	0.2	0.8 mW	-50	0.71	.01 μW	-98	2.9	—
48	58	64 W	-2	0.18	0.64 mW	-51	0.64	—	-99	2.51	—
47	50	50 W	-3	0.16	0.5 mW	-52	0.57	—	-100	2.25	0.1 pW
46	44.5	40 W	-4	0.141	0.4 mW	-53	0.5	—	-101	2	—
45	40	32 W	-5	0.125	0.32 mW	-54	0.45	—	-102	1.8	—
44	32.5	25 W	-6	0.115	0.25 mW	-55	0.4	—	-103	1.6	—
43	32	20 W	-7	0.1	0.2 mW	-56	0.351	—	-104	1.41	—
42	28	16 W	-8	0.09	0.16 mW	-57	0.32	—	-105	1.27	—
41	26.2	12.5 W	-9	0.08	0.125 mW	-58	0.286	—	-106	1.18	—
40	22.5	10 W	-10	0.071	0.1 mW	-59	0.251	—	—	—	—
39	20	8 W	-11	0.064	—	-60	0.225	0.001 μW	dBm	nV	—
38	18	6.4 W	-12	0.058	—	-61	0.2	—	-107	1000	—
37	16	5 W	-13	0.05	—	-62	0.18	—	-108	900	—
36	14.1	4 W	-14	0.045	—	-63	0.16	—	-109	800	—
35	12.5	3.2 W	-15	0.04	—	-64	0.141	—	-110	710	0.01 pW
34	11.5	2.5 W	-16	0.0355	—	—	-111	640	—	—	—
33	10	2 W	—	dBm	μV	—	-112	580	—	—	—
32	9	1.6 W	dBm	mV	—	-65	128	—	-113	500	—
31	8	1.25 W	-17	31.5	—	-66	115	—	-114	450	—
30	7.1	1 W	-18	28.5	—	-67	100	—	-115	400	—
29	6.4	800 mW	-19	25.1	—	-68	90	—	-116	355	—
28	5.8	640 mW	-20	22.5	.01 mW	-69	80	—	-117	825	—
27	5	500 mW	-21	20	—	-70	71	0.1 nW	-118	285	—
26	4.45	400 mW	-22	17.9	—	-71	65	—	-119	251	—
25	4	320 mW	-23	15.9	—	-72	58	—	-120	225	0.001 pW
24	3.55	250 mW	-24	14.1	—	-73	50	—	-121	200	—
23	3.2	200 mW	-25	12.8	—	-74	45	—	-122	180	—
22	2.8	160 mW	-26	11.5	—	-75	40	—	-123	160	—
21	2.52	125 mW	-27	10	—	-76	35	—	-124	141	—
20	2.25	100 mW	-28	8.9	—	-77	32	—	-125	128	—
19	2	80 mW	-29	8	—	-78	29	—	-126	117	—
18	1.8	64 mW	-30	7.1	.001 mW	-79	25	—	-127	100	—
17	1.6	50 mW	-31	6.25	—	-80	22.5	0.01 nW	-128	90	—
16	1.41	40 mW	-32	5.8	—	-81	20	—	-129	80	0.1 fW
15	1.25	32 mW	-33	5	—	-82	18	—	-130	71	—
14	1.15	25 mW	-34	4.5	—	-83	16	—	-131	61	—
13	1	20 mW	-35	4	—	-84	11.1	—	-132	58	—
12	0.9	16 mW	-36	3.5	—	-85	12.9	—	-133	50	—
11	0.8	12.5 mW	-37	3.2	—	-86	11.5	—	-134	45	—
10	0.71	10 mW	-38	2.85	—	-87	10	—	-135	40	—
9	0.64	8 mW	-39	2.5	—	-88	9	—	-136	35	—
8	0.58	6.4 mW	-40	2.25	1 μW	-89	8	—	-137	33	—
7	0.5	5 mW	-41	2	—	-90	7.1	0.001 nW	-138	29	—
6	0.445	4 mW	-42	1.8	—	-91	6.1	—	-139	25	—
5	0.4	3.2 mW	-43	1.6	—	-92	5.75	—	-140	23	0.01 fW
4	0.355	2.5 mW	-44	1.4	—	-93	5	—	—	—	—
3	0.32	2 mW	-45	1.25	—	-94	4.5	—	—	—	—
2	0.28	1.6 mW	-46	1.18	—	-95	4	—	—	—	—
1	0.252	1.25 mW	-47	1	—	-96	3.51	—	—	—	—
—	—	—	-48	0.9	—	—	—	—	—	—	—

**Frequency Band Designations**

Previous Frequency Designations	P	L	S	C	X	Ku	K	Ka					
Current Frequency Designations	C	D	E	F	G	H	I	J	K				
	0.5	1.0	2.0	3.0	4.0	6.0	8.0	10.0	12.4	18.0	20.0	26.5	40.0
	Frequency (GHz)												

**Wavelength and Frequency**

For all forms of wave, the velocity, wavelength, and frequency are related such that

$$\lambda F \sqrt{\epsilon_r \mu_r} = c$$

- λ = wavelength in meters (m)
- F = frequency in hertz (Hz)
- ε<sub>r</sub> = relative dielectric constant of propagation medium
- c = velocity of light (300,000,000 m/s)
- μ<sub>r</sub> = relative permeability of propagation medium

The dielectric constant (ε) is a property of the medium in which the wave propagates. The value of ε is defined as 1.000 for a perfect vacuum, and very nearly 1.0 for dry air (typically 1.006). In most practical applications, the value of ε in dry air is taken to be 1.000.

For mediums other than air or vacuum, however, the velocity of propagation is slower, and the value of ε relative to a vacuum is higher. Teflon®, for example, can be made with dielectric constant values (ε) from about 2 to 11.

**Frequency vs Wavelength**

Frequency	Wavelength
1 MHz	300 meters (m)
10 MHz	30 m
100 MHz	3 m
300 MHz	1 m – 100 centimeters (cm)
1 GHz	30 cm
10 GHz	3 cm
100 GHz	3 millimeters (mm)
300 GHz	1 mm – 10 <sup>-3</sup> m
3 x 10 <sup>14</sup>	1 micron – 10 <sup>-6</sup> m



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913R0K-BSP-3	87	2690-1009	54	A70-3	28, 95	CA36-1	27, 94
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913R7K-BSP-3	87	2690-1015	54	A74	25, 28, 29, 95, 96	CA64	26, 93
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917R5K-BOO	87	9011R thru 9029R	86, 113	A74-2	25, 92	CA66-1	26, 93
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2020-6605-10	78	9030R thru 9049R	86, 113	A75-3	29, 96	CA70-2	28, 95
2020-6606-20	78	9033R0M	87, 114	A76	28, 96	CA74	28, 96
2020-6607-30	77	9047R0M	87, 114	A76-1	29, 96	CA75	28, 96
2020-6609-10	78	9050R thru 9099R	86, 113	A77	25, 92	CA76	28, 96
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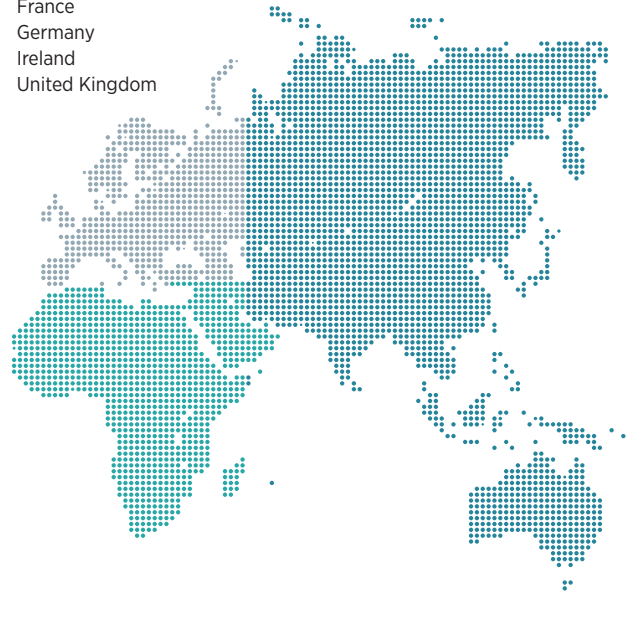
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**MACOM Technology Solutions Inc.**  
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