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Contact our worldwide sales offices, authorized representatives, and industry-leading distributors to request samples, test boards, and application support.

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**www.macom.com/purchases**

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MACOM™

# 2015 Product Selection Guide

MACOM™
*Partners from RF to Light*


2015 Product Selection Guide

MACOM's 2015 Product Selection Guide features our catalog of 3,000+ products. Inside are detailed product specifications designed to help engineers quickly evaluate and select the right products to differentiate their designs. We've expanded our selection guide to include our key technologoes to further assist you in your selection process.

We have more than sixty years of hands-on experience designing and building analog semiconductor technology across the RF, microwave, millimeterwave, and photonic spectrum. Our team works with you, engineer-to-engineer, to identify solutions and inspire success in markets from Aerospace to Automotive, Infrastructure to Industrial, and Military to Medical.

Additional product information can be found on our website at 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: http://www.macom.com/contact

MACOM's broad portfolio of products, combined with our global organization of expert engineers, can help you solve the world's most demanding wireless and wireline application challenges.

# Contents



MACOM™

*Partners from RF to Light*

# Why MACOM?

## Partners from RF to Light

MACOM (**www.macom.com**) is a leading supplier of high performance analog RF, microwave, millimeterwave and photonic semiconductor products that enable next-generation Internet and modern battlefield applications. Recognized for its broad catalog portfolio of technologies (GaN, GaAs, InP, SiGe, HMIC™, and Silicon) and products, MACOM serves diverse markets, including high speed optical, satellite, radar, wired and wireless networks, industrial, medical, and mobile devices. A pillar of the semiconductor industry, we thrive on more than 60 years of solving our customers' most complex problems, serving as a true partner for applications ranging from RF to Light.

Headquartered in Lowell, Massachusetts, MACOM is certified to the ISO9001 international quality standard and ISO14001 environmental management standard. MACOM has 26 design centers and sales offices throughout North America, Europe, Asia and Australia.

## 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 multi-function 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, SiPh, SiGe, 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 from RF to millimeterwave frequencies
- One of the broadest selections of standard and custom products in the industry

## Why MACOM?

### Commercial, Industrial and Military Products

This guide features our catalog of 3,000+ 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 management needs, and offer the experience and attention to detail that ensure success.

### Quality and Reliability

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

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

### How to Purchase

**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 at **http://www.macom.com/purchases** 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 **www.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 www.macom.com for more information.**

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# MACOM Markets and Applications

## Aerospace & Defense

- Avionics and Air Traffic Control
- Communication
- Electronic Warfare
- Hi-Rel and Space
- Radar

## Wireless Networking and Communication

- Global Positioning Systems
- Wireless Backhaul
- Wireless LAN (WiFi)
- Wireless Infrastructure

## Industrial, Scientific and Medical

- Healthcare
- Industrial
- Test and Measurement

## Optical Networking

- Client Side
- Datacenter
- FTTx
- Line Side
- Metro

**Broadcast Video**

- Cameras
- Distribution Ampliers
- Format Conversion
- Monitors
- Routers and Switches

**Enterprise Solutions**

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

**Surveillance**

- Cameras
- DRVs

**Wired Broadband**

- CATV Head-End
- CATV HFC Infrastructure
- CATV/Satellite Set Top Box
- FTTx Infrastructure

**Recognized for our broad portfolio of technologies and products, MACOM serves a range of diverse markets and thrives on more than 60 years of solving our customers' most complex problems. MACOM as a true partner for applications ranging from RF to Light.**

**For more in-depth information, visit www.macom.com/applications**

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## 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 & medical, test and measurement, CATV and wired broadband, and wireless networking.*

## 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, global positioning system, CATV and wired broadband, wireless backhaul, aerospace and defense, and satellite communication.*

## 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, and aerospace and defense.*

## 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 centers; mobile backhaul; access networks and metro markets; and modulator drivers for 100G and 400G coherent networks, metro networks, and data centers.*

# MACOM Technologies

## Gallium Nitride (GaN)

Having taken a leadership role, MACOM is driving the commercialization of GaN into mainstream applications. Offering the RF and microwave industry's only portfolio of both GaN on Si and GaN on SiC products, and spanning a wide range of package options for pulsed and continuous wave applications, we have firmly established ourselves as leaders across all GaN variants and all end market applications. *Key applications include industrial, scientific and medical, civil and military radar, and communications.*

## Silicon Photonics (SiPh)

MACOM is focused on integrated silicon microphotonics. These technologies enable high performance optics with low power in small form factors. Silicon microphotonics 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.*

## 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, and global positioning systems.*

## 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, and chip and wire high frequency microwave applications.*

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

**For more in-depth information, visit www.macom.com/technologies**

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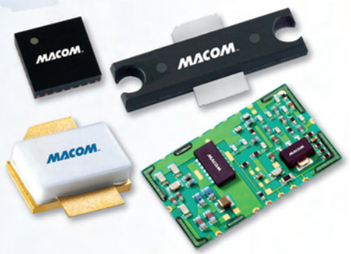
# MACOM RF Power Products

## Next generation high power semiconductor technology

MACOM offers a broad range of RF power transistor products—bare die/discrete devices, modules, and pallets designed to operate from 1 MHz to 3.5 GHz. Our high power transistors are ideal for communications, avionics, radar, and industrial, scientific, and medical applications. MACOM's product portfolio provides both standard and custom solutions using bipolar, MOSFET, and Gallium Nitride (GaN) technologies.




### GaN on SiC

> Discrete devices, modules, and pallets designed to operate from 1 MHz to 3.5 GHz
> Excellent RF performance, power, gain, gain flatness, efficiency, and ruggedness, utilizing a 0.5 micron HEMT process

### GaN on Si

> Discrete transistors and integrated amplifiers utilizing a 0.5 micron HEMT process
> Includes a broad range of RF power transistor products as discrete devices and modules
> Designed to operate from 1 MHz to 6 GHz
> Excellent RF performance, power, gain, gain flatness, efficiency, and ruggedness

### Hybrid Amplifiers

> Optimized for commercial air traffic control and military radar applications
> New surface mount technology (SMT) laminate packaged modules
> Supports standard surface mount assembly for high-volume manufacturing
> Improves assembly yield and lowers component count
> Available for the S-, L- and avionics bands

### 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 ensures high performance and long term reliability

### MOSFET

> TMOS and DMOS RF power MOSFET transistor products as discrete devices from 1 MHz to 1.0 GHz
> All gold metallization fabrication processes ensures high performance and long term reliability

### GaN Pallets

> Optimized for commercial air traffic control and military radar applications
> Support 50 ohm in and out impedances
> Benefits include improved assembly yield, lower component count, and reduced touch labor
> Available for the S-band

## RF Power Transistors GaN on SiC: Pulsed

| Part Number | Min Freq (MHz) | Max Freq (MHz) | Operating Voltage (V) | Output Power (W) | Min. Gain (dB) | Pulse Width (µs) | Duty Cycle (%) | Test Freq (MHz) | Package Type and/or Size |
|---|---|---|---|---|---|---|---|---|---|
| MATR-GCHJ04-022050 | 1 | 4000 | 50 | 15 | 15 | 3000 | 10 | 1200-1400 | Die (0.75 x 0.90 x 0.10) |
| MATR-GCHJ04-066050 | 1 | 4000 | 50 | 50<br>60 | 11.3<br>18 | 1000 | 10 | 2700-3500<br>1030-1090 | Die (0.75 x 1.70 x 0.10) |
| MAGX-000025-150000 | 1 | 2500 | 50 | 150 | 18 | 300 | 20 | 1200-1400 | P-256 |
| MAGX-000040-00500P | 1 | 4000 | 50 | 5 | 13<br>11 | 1000<br>3000 | 10<br>20 | 1600 | SOT-89 |
| MAGX-000035-01000P | 1 | 3500 | 50 | 10 | 14.8<br>14 | 1000<br>3000 | 10<br>20 | 1600 | 3 x 6 mm DFN-14 |
| MAGX-000035-01500P | 1 | 3500 | 50 | 15 | 19.5<br>14.2 | 1000<br>3000 | 10<br>20 | 1600<br>2600 | 3 x 6 mm DFN-14 |
| MAGX-000035-05000P | 1 | 3500 | 50 | 50 | 18<br>17 | 1000<br>3000 | 10 | 1600 | 3 x 6 mm DFN-14 |
| MAGX-000035-09000P | 1 | 3500 | 50 | 90 | 17.5<br>16.6 | 1000<br>3000 | 10 | 1600<br>1300 | 3 x 6 mm DFN-14 |
| MAGX-000035-015000 | 1 | 3500 | 50 | 15 | 15.5<br>15 | 1000<br>3000 | 10<br>20 | 1200-1400 | P-260 |
| MAGX-000035-01500S | 1 | 3500 | 50 | 15 | 15.5<br>15 | 1000<br>3000 | 10<br>20 | 1200-1400 | P-254A |
| MAGX-000035-045000 | 1 | 3500 | 50 | 50<br>60 | 11.3<br>18 | 1000 | 10 | 2700-3500<br>1030-1090 | P-253 |
| MAGX-000912-125L00 | 960 | 1215 | 50 | 125 | 20 | 128 | 10 | | P-237 |
| MAGX-000912-250L00 | 960 | 1215 | 50 | 250 | 19 | 128 | 10 | | P-237 |
| MAGX-000912-500L00 | 960 | 1215 | 50 | 500 | 19.8 | 128 | 10 | | P-238 |
| MAGX-000912-500L0S | 960 | 1215 | 50 | 500 | 19.8 | 128 | 10 | | P-261 |
| MAGX-000912-650L00 | 960 | 1215 | 50 | 650 | 20.5 | 128 | 10 | | P-238 |
| MAGX-000912-650L0S | 960 | 1215 | 50 | 650 | 20.5 | 128 | 10 | | P-261 |
| MAGX-001090-600L00 | 1030 | 1090 | 50 | 600 | 21.4 | 32 | 2 | | P-238 |
| MAGX-001090-600L0S | 1030 | 1090 | 50 | 600 | 21.4 | 32 | 2 | | P-261 |
| MAGX-001090-700L00 | 1030 | 1090 | 50 | 700 | 20.5 | 32 | 6.4 | | P-238 |
| MAGX-001090-700L0S | 1030 | 1090 | 50 | 700 | 20.5 | 32 | 6.4 | | P-261 |
| MAGX-001214-125L00 | 1200 | 1400 | 50 | 125 | 19 | 300 | 10 | | P-237 |
| MAGX-001214-250L00 | 1200 | 1400 | 50 | 250 | 19 | 300 | 10 | | P-237 |
| MAGX-001214-500L00 | 1200 | 1400 | 50 | 500 | 19.2 | 300 | 10 | | P-238 |
| MAGX-001214-500L0S | 1200 | 1400 | 50 | 500 | 19.2 | 300 | 10 | | P-261 |
| MAGX-001214-650L00 | 1200 | 1400 | 50 | 650 | 19 | 300 | 10 | | P-238 |
| MAGX-001220-100L00 | 1200 | 2000 | 50 | 100 | 14 | 300 | 10 | | P-258 |
| MAGX-002731-100L00 | 2700 | 3100 | 50 | 100 | 12 | 500 | 10 | | P-258 |
| MAGX-002731-180L00 | 2700 | 3100 | 50 | 180 | 11 | 300 | 10 | | P-253 |
| MAGX-002731-180L0S | 2700 | 3100 | 50 | 180 | 11 | 300 | 10 | | P-259 |
| MAGX-003135-120L00 | 3100 | 3500 | 50 | 120 | 11.8 | 300 | 10 | | P-258 |

## RF Power Transistors GaN on SiC: CW

| Part Number | Min Freq (MHz) | Max Freq (MHz) | Operating Voltage (V) | Output Power (W) | Min. Gain (dB) | Duty Cycle (%) | Package Type |
|---|---|---|---|---|---|---|---|
| MAGX-000245-014000 | 1 | 2500 | 50 | 14 | 15.2 | 100 | P-260 |
| MAGX-000245-025000 | 1 | 2500 | 28 | 25 | 12 | 100 | P-253 |
| MAGX-000035-01000P | 1 | 3500 | 50 | 10 | 14.5 | 10 | 3 x 6 mm DFN-14 |
| MAGX-000035-010000 | 30 | 3500 | 50 | 10 | 19 | 100 | P-260 |
| MAGX-000035-01000S | 30 | 3500 | 50 | 10 | 19 | 100 | P-254A |
| MAGX-000040-00500P | 1 | 4000 | 50 | 4 | 10 | 10 | SOT-89 |

## RF Power Transistors GaN on Si: CW

| Part Number | Min Freq (MHz) | Max Freq (MHz) | Supply Voltage (V) | Output Power $P_{SAT}$ (W) | Gain (dB) | Test Freq (MHz) | Package |
|---|---|---|---|---|---|---|---|
| NPA1006 | 20 | 1000 | 28 | 12.5 | 14 | 900 | 6 x 5 mm DFN-8 |
| NPA1003QA | 20 | 1500 | 28 | 5 | 18 | 1000 | 4 mm PQFN-16 |
| NPT1010B | 1 | 2000 | 28 | 100 | 20 | 900 | Flange Ceramic |
| NPT1010P | 1 | 2000 | 28 | 100 | 20 | 900 | Flange Ceramic |
| NPT2022 | 1 | 2000 | 48 | 100 | 20 | 900 | TO272 |
| NPT2010 | 1 | 2200 | 48 | 100 | 17 | 2100 | Flange Ceramic |
| NPT2021 | 1 | 2500 | 48 | 45 | 12.8 | 2500 | TO272 |
| NPA1007 | 30 | 2500 | 28 | 10 | 11 | 2000 | 6 x 5 mm DFN-8 |
| NPT1007B | 1 | 2500 | 28 | 10 | 11 | 2000 | Flange Ceramic |
| NPT25100B | 1 | 2700 | 28 | 90 | 16 | 2500 | Flange Ceramic |
| NPT25100P | 1 | 2700 | 28 | 90 | 16 | 2500 | Flange Ceramic |
| NPA1008 | 20 | 2700 | 28 | 5 | 12 | 1900 | 4 x 4 mm PQFN-24 |
| NPT2020 | 1 | 3500 | 48 | 50 | 17 | 2100 | Flange Ceramic |
| NPT1015B | 1 | 3500 | 28 | 45 | 14 | 2500 | Flange Ceramic |
| NPT35050AB | 3300 | 3800 | 28 | 50 | 13 | 3500 | Flange Ceramic |
| NPT1012B | 1 | 4000 | 28 | 25 | 13 | 3000 | Flange Ceramic |
| NPTB00025AB | 1 | 4000 | 28 | 25 | 13 | 3000 | Flange Ceramic |
| NPTB00025B | 1 | 4000 | 28 | 25 | 13 | 3000 | Flange Ceramic |
| NPTB00050B | 1 | 4000 | 28 | — | — | — | Flange Ceramic |
| MAGX-011086 | 1 | 6000 | 28 | 4 | 9 | 5800 | 4 mm PQFN-24 |
| NPT2018 | 1 | 6000 | 48 | 12.5 | 17.5 | 2500 | 6 x 3 mm PDFN-14 |
| NPTB00004A | 1 | 6000 | 28 | 5 | 17 | 2500 | SOIC-8NE |
| NPTB00004D | 1 | 6000 | 28 | 5 | 17 | 2500 | SOIC-8NE |

## RF Power Transistors GaN on Si: Pulsed

| Part Number | Min Freq (MHz) | Max Freq (MHz) | Supply Voltage (V) | Output Power $P_{SAT}$ (W) | Gain (dB) | Test Freq (MHz) | Package |
|---|---|---|---|---|---|---|---|
| NPT1004D | 1 | 3000 | 28 | 45 | 11 | 2500 | SOIC-8 |
| NPT25015D | 1 | 3000 | 28 | 23 | 14 | 2500 | SOIC-8 |
| NPT2019 | 1 | 6000 | 48 | 25 | 16 | 2500 | 3 x 6 mm DFN-14 |
| NPT35015D | 3000 | 4000 | 28 | 18 | 11 | 3500 | SOIC-8 |

## RF Power Hybrid Amplifiers: GaN Amplifiers

| Part Number | Min Freq (MHz) | Max Freq (MHz) | Operating Voltage (V) | Output Power (W) | Gain (dB) | Pulse Width (µs) | Duty Cycle (%) | Package Type |
|---|---|---|---|---|---|---|---|---|
| MAMG-000305-050L0L | 380 | 480 | 50 | 50 | 28 | 300 | 10 | LGA2414 |
| MAMG-000305-050L0M | 380 | 480 | 50 | 50 | 28 | 300 | 10 | LGA2414 |
| MAMG-000912-090PSM | 960 | 1215 | 50 | 90 | 30 | 300 | 10 | LGA2414 |
| MAMG-001214-090PSM | 1200 | 1400 | 45 | 90 | 30.5 | 1000 | 10 | LGA2414 |
| MAMG-001215-090L0L | 1200 | 1450 | 45 | 90 | 30.5 | 1000 | 10 | LGA2414 |
| MAMG-001215-090L0M | 1200 | 1450 | 45 | 90 | 30.5 | 1000 | 10 | LGA2414 |
| MAMG-002735-085L0L | 2700 | 3500 | 50 | 85 | 23 | 1000 | 10 | LGA2414 |
| | | | | | 23 | 750 | 20 | |
| MAMG-002735-030L0L | 2700 | 3500 | 50 | 30 | 25.5 | 1000 | 10 | 7 x 7 mm PQFN-28 |
| | | | | | 20 | 750 | 20 | |

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.

## RF Power Transistors: Silicon Bipolar

| Part Number | Min Freq (MHz) | Max Freq (MHz) | Pout (W) | Gain (dB) | Efficiency (%) | Package Type |
|---|---|---|---|---|---|---|
| MRF421 | 1 | 30 | 100 | 10 | 40 | Flange Ceramic |
| MRF428 | 2 | 30 | 150 | 13 | 45 | Flange Ceramic |
| MRF429 | 2 | 60 | 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 |
| 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 |
| MRF313 | 100 | 400 | 1 | 15 | 45 | Flange Ceramic |
| MRF393 | 100 | 500 | 100 | 9.5 | 55 | Flange Ceramic |
| MRF392 | 100 | 400 | 125 | 10 | 55 | Flange Ceramic |
| MRF587 | 100 | 500 | — | 13 | — | 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 |
| 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 |
| 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 |
| MAPRST1030-1KS | 1030 | 1030 | 1000 | 8 | 45 | Flange Ceramic |
| PH1090-700B | 1030 | 1090 | 700 | 7.5 | 50 | Flange Ceramic |
| PH1090-15L | 1030 | 1090 | 15 | 9 | 40 | Flange Ceramic |
| PH1090-550S | 1030 | 1090 | 550 | 7.4 | 55 | Flange Ceramic |
| PH1090-175L | 1030 | 1090 | 175 | 8.3 | 55 | Flange Ceramic |
| PH1090-350L | 1030 | 1090 | 350 | 8 | 55 | Flange Ceramic |
| PH1090-75L | 1030 | 1090 | 75 | 9 | 45 | Flange Ceramic |
| PH1113-100 | 1100 | 1300 | 100 | 8 | 52 | Flange Ceramic |
| MAPR-001214-380M00 | 1200 | 1400 | 380 | 8.8 | 45 | Flange Ceramic |
| PH1214-3L | 1200 | 1400 | 3 | 5.7 | 40 | Flange Ceramic |
| PH1214-300M | 1200 | 1400 | 300 | 8.75 | 50 | Flange Ceramic |

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.

## RF Power Transistors: Silicon Bipolar (continued)

| Part Number | Min Freq (MHz) | Max Freq (MHz) | Pout (W) | Gain (dB) | Efficiency (%) | Package Type |
|---|---|---|---|---|---|---|
| PH1214-25L | 1200 | 1400 | 25 | 9.5 | 50 | Flange Ceramic |
| PH1214-55EL | 1200 | 1400 | 55 | 6.6 | 50 | Flange Ceramic |
| PH1214-0.85L | 1200 | 1400 | 0.85 | 9.3 | 30 | Flange Ceramic |
| PH1214-12M | 1200 | 1400 | 12 | 9 | 45 | Flange Ceramic |
| PH1214-30EL | 1200 | 1400 | 30 | 7.8 | 50 | Flange Ceramic |
| PH1214-25M | 1200 | 1400 | 25 | 9.5 | 50 | Flange Ceramic |
| PH1214-110M | 1200 | 1400 | 110 | 7.4 | 50 | Flange Ceramic |
| PH1214-2M | 1200 | 1400 | 2 | 7 | 45 | Flange Ceramic |
| PH1214-80M | 1200 | 1400 | 80 | 7.5 | 50 | Flange Ceramic |
| PH1214-100EL | 1200 | 1400 | 100 | 6 | 52 | Flange Ceramic |
| PH1214-6M | 1200 | 1400 | 6 | 7 | 45 | Flange Ceramic |
| PH1214-220M | 1200 | 1400 | 220 | 7.4 | 50 | Flange Ceramic |
| PH1214-40M | 1200 | 1400 | 40 | 8.5 | 50 | Flange Ceramic |
| MRF16006 | 1600 | 1640 | 6 | 7.4 | 40 | Flange Ceramic |
| PH1617-2 | 1600 | 1700 | 2 | 10 | 35 | Flange Ceramic |
| PH2226-50M | 2200 | 2600 | 50 | 8 | 45 | Flange Ceramic |
| PH2226-110M | 2200 | 2600 | 110 | 8 | 40 | Flange Ceramic |
| MAPR-002731-115M00 | 2700 | 3100 | 115 | 7.6 | 38 | Flange Ceramic |
| 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 |
| PH2729-8.5M | 2700 | 2900 | 8.5 | 8.1 | 35 | Flange Ceramic |
| PH2729-25M | 2700 | 2900 | 25 | 9.2 | 45 | Flange Ceramic |
| PH2731-5M | 2700 | 3100 | 5 | 7 | 30 | Flange Ceramic |
| PH2729-110M | 2700 | 2900 | 110 | 6.8 | 35 | Flange Ceramic |
| PH2731-20M | 2700 | 3100 | 20 | 8.2 | 45 | Flange Ceramic |
| PH2731-75L | 2700 | 3100 | 75 | 7 | 40 | Flange Ceramic |
| PH2856-160 | 2856 | 2856 | 160 | 7.5 | 40 | Flange Ceramic |
| PH2931-20M | 2900 | 3100 | 20 | 8.2 | 45 | Flange Ceramic |
| PH3134-30S | 3100 | 3400 | 30 | 7.5 | 35 | Flange Ceramic |
| PH3134-55L | 3100 | 3400 | 55 | 7.5 | 35 | Flange Ceramic |
| PH3134-20L | 3100 | 3400 | 20 | 7.5 | 35 | Flange Ceramic |
| PH3134-25M | 3100 | 3400 | 25 | 7.5 | 35 | Flange Ceramic |
| PH3135-65M | 3100 | 3500 | 65 | 7.5 | 35 | Flange Ceramic |
| PH3134-10M | 3100 | 3400 | 10 | 8 | 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 |
| PH3134-65M | 3100 | 3400 | 65 | 7.5 | 35 | Flange Ceramic |
| PH3135-20M | 3100 | 3500 | 20 | 7.5 | 35 | Flange Ceramic |

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.

## RF Power Transistors: MOSFET

| Part Number | Min Freq (MHz) | Max Freq (MHz) | Pout (W) | Gain (dB) | Efficiency (%) | Package Type |
|---|---|---|---|---|---|---|
| MRF176GU | 5 | 400 | 150 | 14 | 50 | Flange Ceramic |
| MRF151A | 5 | 175 | 150 | 13 | 40 | Flange Ceramic |
| MRF176GV | 5 | 225 | 200 | 17 | 55 | Flange Ceramic |
| MRF175LU | 5 | 400 | 100 | 10 | 55 | Flange Ceramic |
| MRF140 | 5 | 150 | 150 | 15 | 40 | Flange Ceramic |
| MRF175GU | 5 | 400 | 150 | 12 | 55 | Flange Ceramic |
| MRF141 | 5 | 175 | 150 | 18 | 40 | Flange Ceramic |
| MRF173CQ | 5 | 175 | 80 | 13 | 60 | Flange Ceramic |
| MRF136Y | 5 | 400 | 30 | 14 | 54 | Flange Ceramic |
| MRF148A | 5 | 175 | 30 | 18 | 40 | Flange Ceramic |
| MRF158 | 5 | 500 | 2 | 16 | 55 | Flange Ceramic |
| MRF174 | 5 | 200 | 125 | 9 | 50 | Flange Ceramic |
| MRF175GV | 5 | 225 | 200 | 14 | 65 | Flange Ceramic |
| MRF177 | 5 | 400 | 100 | 12 | 60 | Flange Ceramic |
| MRF173 | 5 | 175 | 80 | 11 | 60 | Flange Ceramic |
| MRF166C | 5 | 500 | 20 | 13.5 | 50 | Flange Ceramic |
| MRF166W | 5 | 500 | 40 | 14 | 50 | Flange Ceramic |
| MRF134 | 5 | 400 | 5 | 11 | 50 | Flange Ceramic |
| MRF151 | 5 | 175 | 150 | 13 | 40 | Flange Ceramic |
| MRF137 | 5 | 400 | 30 | 13 | 60 | Flange Ceramic |
| MRF150 | 5 | 150 | 150 | 17 | 45 | Flange Ceramic |
| MRF275G | 5 | 500 | 150 | 10 | 50 | Flange Ceramic |
| MRF160 | 5 | 500 | 4 | 16 | 55 | Flange Ceramic |
| MRF154 | 5 | 80 | 600 | 17 | 45 | Flange Ceramic |
| MRF275L | 5 | 500 | 100 | 8.8 | 55 | Flange Ceramic |
| MRF151G | 5 | 175 | 300 | 14 | 50 | Flange Ceramic |
| MRF157 | 5 | 80 | 600 | 21 | 45 | Flange Ceramic |
| MRF136 | 5 | 400 | 15 | 16 | 60 | Flange Ceramic |
| DU2880V | 30 | 175 | 80 | 13 | 60 | Flange Ceramic |
| DU2860T | 30 | 175 | 60 | 13 | 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 |
| 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 |
| MRF171A | 100 | 200 | 45 | 17 | 60 | Flange Ceramic |
| UF28100H | 100 | 500 | 100 | 10 | 50 | Flange Ceramic |
| UF2820R | 100 | 500 | 20 | 10 | 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 |

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.

## RF Power Transistors: MOSFET (continued)

| Part Number | Min Freq (MHz) | Max Freq (MHz) | Pout (W) | Gain (dB) | Efficiency (%) | Package Type |
|---|---|---|---|---|---|---|
| UF28100V | 100 | 500 | 100 | 10 | 50 | Flange Ceramic |
| UF28100M | 100 | 500 | 100 | 10 | 50 | Flange Ceramic |
| UF2840G | 100 | 500 | 40 | 10 | 50 | Flange Ceramic |
| UF28150J | 100 | 500 | 150 | 8 | 55 | Flange Ceramic |
| LF2802A | 500 | 1000 | 2 | 10 | 40 | Flange Ceramic |
| LF2805A | 500 | 1000 | 5 | 10 | 50 | Flange Ceramic |

## RF Power Hybrid Pallets: GaN Pallets

| Part Number | Min Freq (MHz) | Max Freq (MHz) | Operating Voltage (V) | Output Power (W) | Min. Gain (dB) | Pulse Width (µs) | Duty Cycle (%) | Package Size (mm) |
|---|---|---|---|---|---|---|---|---|
| MAPG-002729-350L00 | 2700 | 2900 | 50 | 400 | 11.5 | 300 | 10 | 50.8 x 22.9 x 5.8 |

## GaN and GaAs Device Bias Sequencer

| Supply Number | Positive Supply Voltage (V) | Positive Supply Current (mA) | Negative Supply Voltage (V) | Negative Supply Current (mA) | Output Gate Voltage (V) | Output Gate Current mA) | Pulse Enable TTL Voltage (V) | Package |
|---|---|---|---|---|---|---|---|---|
| MABC-001000-DP000L | 50 | 14 | -6 | -3 | 2.3 | -8 to 0 | 50 | SMJ2307 |
| MABC-001000-DPS00L | 50 | 14 | -6 | -3 | 0 | -8 to 0 | 50 | SMJ2307 |

## RF Power: Silicon Bipolar Pallets and Modules

| Part Number | Min Freq (MHz) | Max Freq (MHz) | Pout (W) | Gain (dB) | Efficiency (%) | Package Type |
|---|---|---|---|---|---|---|
| MAPM-020512-010C00 | 20 | 512 | 10 | 25 | 17 | Nickel Plated Aluminum Housing |
| PHA2729-300M | 2700 | 2900 | 300 | 7.5 | 36 | Pallet |
| PHA2731-140L | 2700 | 3100 | 140 | 7 | 35 | Pallet |
| MAPPST2933-190M | 2900 | 3300 | 190 | 7 | 35 | Pallet |
| MAPP-003134-150L00 | 3100 | 3400 | 150 | 8 | 36 | Pallet |
| MAPP-003134-180M00 | 3100 | 3400 | 180 | 7.5 | 36 | Pallet |
| PHA3135-130M | 3100 | 3500 | 130 | 7.4 | 35 | Pallet |

**See Appendix — page 90 for GaN Product Part Number Nomenclature Reference**

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.

# MACOM Optoelectronics

## Products to meet the growing demand for data capacity

MACOM supports a large portfolio of components and lasers for optical communications, from long haul core networks to FTTx access networks. The portfolio addresses the high performance analog interfaces between electrical and optical domains, and provides solutions to meet the demanding size, power, and signal integrity requirements of today's high speed networks— which are expanding to meet the continuously growing demand for data capacity. Ideal data center solutions—both short reach multi-mode applications and long reach single-mode fiber applications. These products include high performance modulator drivers, transimpedance amplifiers, clock/data recovery circuits, and FP & DFB lasers for enterprise and optical systems operating up to 100 Gbps and beyond. For FTTx, MACOM has the broadest portfolio of lasers, laser drivers, limiting amplifiers, and TIAs covering systems from EPON to XGPON.

### Clock and Data Recovery

- Removes jitter from signals in high data rate systems
- Offers design flexibility and cost-reduction features
- Uses Mindspeed signal conditioning technology for lower cost board materials and components with increased design margins
- Ideal for Ethernet, Fiber Channel, InfiniBand, SONET, PCIe, telecom, datacom, and enterprise applications

### Optical Modulator Drivers

- From 1 Gbps up to more than 100 Gbps,
- For high performance Mach-Zehnder modulators, externally modulated lasers (EML) and directly modulated lasers (DML)
- Solutions for FTTx and short range pluggable transceivers to ultra-long haul transponders for submarine applications
- Solutions for Data Center VCSEL based, multimode-fiber  applications
- Die and surface mount packages

### Laser and Modulator Drivers: FTTx

- Maximum signal integrity with minimum power dissipation in the smallest form factor
- Single, dual and quad channel models
- Applications from FTTx and short range pluggable transceivers to ultra-long haul transponders for submarines
- Packaging solutions include: GPPO modules, surface mount package, and bare die for integration in a TOSA

### Optical Post Amplifiers

- Convert differential or single-ended analog signals to high-speed digital outputs
- Available in a number of speeds, covering 155 Mbps to 12.5 Gbps applications

### Transimpedance Amplifiers (TIAs)

- For line and client side 10G, 40G and 100G fiber optic receivers
- Includes linear TIAs for long haul coherent receivers and limiting TIAs for shorter range NRZ based receivers
- Solutions for data center short wavelength, multimode-fiber applications
- Available in die form for integration with photo-detectors in an optical sub-assembly

## Clock and Data Recovery

| Part Number | Description | Max Data Rate (Gbps) | Supply Voltage | Channels (#) | Switch Matrix Size | Package Type and Size (mm) |
|---|---|---|---|---|---|---|
| MATA-37044 | Four Channel 25G / 28G CDR with Integrated TIA | 28.05 | 1.8 & 3.3 | 4 | — | Die |
| MALD-37045 | Four Channel 25G / 28G CDR with Integrated VCSEL Driver | 28.05 | 1.8 & 3.3 | 4 | — | Die |
| M21012 | 42 Mbps to 3.2 Gbps Quad Multi-Rate CDR | 3.2 | 1.8-3.3 | 4 x 4 | 4 x 4 | 10 x 10 72-pin QFN |
| M21050 | 3.2 Gbps Quad Duplex Multi-rate CDR | 3.2 | 1.8-2.5 | 8 x 8 | 8 x 8 | 10 x 10 72-pin QFN |
| M37040 | Four Channel 25G / 28G CDR with Integrated Limiting Amplifier | 28.05 | 2.5-1.8 | 4 | 1 x 2 | 7 x 7 48-pin LFGA |
| M37041 | Four Channel 25G / 28G CDR with Integrated Input Equalizer | 28.05 | 2.5-1.8 | 4 | 1 x 2 | 7 x 7 48-pin LFGA |
| M37046 | Four Channel 25G / 28G CDR Limiting Amplifier | 28.05 | 1.8 | 4 | — | 4 x 4.5 CSP |
| M37047 | Four Channel 25G / 28G CDR with Integrated EML Driver | 28.05 | 1.8 | 4 | — | 4 x 4.5 CSP |
| M37049 | Four Channel 25G / 28G CDR with Input Equalizer | 28.05 | 1.8 & 3.3 | 4 | — | 4 x 4.5 CSP |

## Client Side EML Drivers

| Part Number | Description | Application Data Rate (Gbps) | Channels (#) | Max Output Voltage (Vpp) | Rise/Fall Times (pS) | Package Type and Size (mm) | |
|---|---|---|---|---|---|---|---|
| MAOM-002207 | 28 Gbps EML Driver | 100 | 1 | 2.5 | 12 | Die | 1.045 x 0.945 |
| MAOM-003401 | Low Power, Quad Channel 28 Gbps EML Driver | 100 | 4 | 1.6 | 12 | SMD | 10 x 10 x 1.4 |
| MAOM-37051A | Quad Channel 28 Gbps CDR with EML Driver | 100 | 4 | 2.5 | 12 | SMD | 11 x 7 |
| MAOM-002203 | 28 Gbps EML Driver | 100 | 1 | 2.5 | 12 | SMD | 4 x 4 x 2.3 |
| MAOM-02204A | Quad Channel 28 Gbps EML Driver | 100 | 4 | 2.5 | 12 | SMD | 14 x 8 x 2.3 |
| MAOM-002200 | 28 Gbps EML Driver | 100 | 1 | 2.5 | 12 | SMD | 4 x 4 x 2.3 |
| M37047 | Four Channel 25G / 28G CDR with EML Driver | 100 | 4 | — | — | CSP | 4 x 4.5 |
| MAOM-003115 | 28 Gbps Linear EML Driver | 400 | 1 | 2 | — | SMD | 4 x 4 x 2.3 |
| MAOM-004115 | Quad Channel 28 Gbps Linear EML Driver | 400 | 4 | 2 | — | SMD | 14 x 8 x 2.3 |
| MAOM-001200 | 11.3 Gbps EML Driver | 11.3 | 1 | 3 | 27 | SMD | 4 x 4 |
| MAOM-001201 | 11.3 Gbps EML Driver | 11.3 | 1 | 2.3 | 27 | SMD | 3 x 3 |

## Client Side DML Drivers

| Part Number | Description | Max Data Rate (Gbps) | Channels (#) | Max Output Current (mApp) | Package |
|---|---|---|---|---|---|
| MAOM-002301 | 28 Gbps DML Driver | 28 | 1 | 70 | Die |
| MAOM-002304 | Quad Channel 28 Gbps DML Driver | 28 | 4 | 70 | 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.

## Line Side Modulator Drivers

| Part Number | Description | Max Data Rate (Gbps) | Channels (#) | Max Output Voltage (Vpp) | Rise/Fall Times (pS) | Package Type and Size (mm) |
|---|---|---|---|---|---|---|
| MAOM-003105 | Quad Channel 32 Gbps MZ Modulator Driver | 32 | 4 | 8 | 12 | Module 24.5 x 34.6 x 5.43 |
| MAOM-003104 | Quad Channel 32 Gbps MZ Modulator Driver | 32 | 4 | 8 | 11 | Module 25 x 40 x 6.5 |
| MAOM-002105 | 32 Gbps MZ Modulator Driver | | 32 | 1 | 8 12 | SMD 14.4 x 7 x 2.3 |
| MAOM-002103 | 32 Gbps MZ Modulator Driver | | 32 | 1 | 8 12 | SMD 14.4 x 7 x 2.3 |
| MAOM-003106 | Dual Channel 32 Gbps MZ Modulator Driver | 32 | 2 | 7.5 | 12 | SMD 10 x 10 x 2.3 |
| MAOM-003108 | Dual Channel 32 Gbps Linear MZ Modulator Driver | 32 | 2 | 6 | 12 | SMD 10 x 10 x 2.3 |
| MAOM-03404A | Quad Channel 32 Gbps Limiting Differential MZ Modulator Driver | 32 | 4 | 5 | 12.5 | SMD 14 x 9.1 x 2.3 |
| MAOM-003405 | Quad Channel 32 Gbps MZ Modulator Driver | 32 | 4 | 6.5 | 12.5 | SMD 13 x 19 x 2.3 |
| MAOM-003407 | Quad Channel 32 Gbps Linear MZ Modulator Driver | 32 | 4 | 6 | 12.5 | SMD 13 x 19 x 2.3 |
| MAOM-03409B | Quad Channel 32 Gbps Linear Differential Modulator Driver | 32 | 4 | 4 | 12.5 | SMD 14 x 9.1 x 2.3 |
| MAOM-003414 | Quad Channel 32 Gbps Linear MZ Modulator Driver | 32 | 4 | 6 | 12.5 | GPPO 41 x 29 x 6.4 |
| MAOM-003415 | Quad Channel 32 Gbps Limiting MZ Modulator Driver | 32 | 4 | 5 | 12.5 | SMD 14 x 9.1 x 2.5 |
| MAOM-003417 | Quad Channel 32 Gbps Linear MZ Modulator Driver | 32 | 4 | 4.5 | 12.5 | SMD 14 x 9.1 x 2.5 |
| MAOM-002108 | 28 Gbps Differential MZ Modulator Driver IC | 28 | 1 | 6.5 | 12 | SMD 4.7 x 6.5 x 2.3 |

## Lasers and Modulator Drivers: FTTx

| Part Number | Description | Max Data Rate (Gbps) | Supply Voltage (V) | Channels (#) | Max Output Mod Current (mA) | Package |
|---|---|---|---|---|---|---|
| M02097 | LED Driver/Limiting Amplifier | 0.5 | 3.3, 5 | 1 | 120 | 5 mm QFN |
| M02068 | 622 Mbps, Laser Driver | 1 | 3.3 | 1 | 85 | 4 mm BCC+24L |
| M02094 | VCSEL/FP Laser Driver | 2 | 3.3, 5 | 1 | 45 | 4 mm QFN |
| M02067 | Laser Driver | 2.1 | 3.3 | 1 | 85 | 4 mm QFN |
| M02066 | Laser Driver | 2.5 | 3.3 | 1 | 85 | 4 mm BCC+24L |
| M02090 | Burst Mode Laser Driver/Limiting Amplifier | 2.5 | 3.3 | 1 | 100 | 5 mm QFN |
| M02098 | Burst Mode Laser Driver/Limiting Amplifier | 2.5 | 3.3 | 1 | 100 | 5 mm QFN |
| M02077 | Laser Driver/Limiting Amplifier | 3.1 | 3.3 | 1 | 100 | 4 mm QFN |
| M02099 | Burst Mode Laser Driver/Limiting Amplifier + DDMI controller & APD DC-DC Controller | 3.1 | 3.3 | 1 | 100 | 4 mm QFN |
| M02100 | Burst Mode Laser Driver/Limiting Amplifier + DDMI controller & EEPROM | 3.1 | 3.3 | 1 | 100 | 4 mm QFN |
| M02069 | VCSEL Driver | 4.3 | 3.3, 5 | 1 | 45 | 4 mm QFN |
| M02061 | Laser Driver | 4.3 | 3.3, 5 | 1 | 2.5 | 4 mm QFN |
| M02170 | Laser Driver | 11.3 | 3.3 | 1 | 100 | 5 mm QFN |
| M02171 | Dual Loop VCSEL Driver | 11.3 | 3.3 | 1 | 25 | 5 mm QFN |
| M02172 | EML Driver | 11.3 | 3.3 | 1 | 2.5 | 5 mm QFN |
| M02076 | Laser Driver/Limiting Amplifier + DDMI controller & APD DC-DC Controller | 3.1 | 3.3 | 1 | 100 | 4 mm QFN |
| M02190 | DML Laser Driver/Limiting Amplifier with Integrated Tx/Rx CDR | 12.5 | *CONTACT MACOM* | | | |
| M02193 | DDMI Controller + EEPROM & APD DC-DC Controller | 12.5 | *CONTACT MACOM* | | | |
| M02180 | Burst Mode Laser Driver/Limiting Amplifier + Rx CDR + DDMI Controller + APD DC-DC Controller & EEPROM | 12.5 | *CONTACT MACOM* | | | |
| M02095 | 2.5 Gbps, 3.3/5 V Laser Driver/Limiting Amplifier | 1.25 | 3.3, 5 | 1 | 85 | 5 mm QFN |
| M02096 | 2.5 Gbps, 3.3/5 V Laser Driver/Limiting Amplifier | 4.3 | 3.3, 5 | 1 | 85 | 5 mm QFN |

## Optical Post Amplifers

| Part Number | Description | Max Data Rate (Gbps) | Supply Voltage (V) | Channels (#) | Input Sensitivity | Package |
|---|---|---|---|---|---|---|
| M02046 | 1.25 Gbps, 3.3 or 5V Post-Amplifier | 1.25 | 3.3, 5 | 1 | 12.8 | 5 x 6.2 mm QSOP |
| M02040 | 2.1 Gbps, 3.3 or 5V Post-Amplifier | 2.1 | 3.3, 5 | 1 | 2 | 3 mm QFN |
| M02050 | 3.2 Gbps, 3.3 or 5V Post-Amplifier | 2.5 | 3.3 | 1 | 13.5 | 3 mm QFN |
| M02142 | 11.3 Gbps Limiting Amplifier | 11.3 | 3.3 | 1 | 13 | 3 mm QFN |
| M02140 | 12.5 Gbps, Low Power Post-Amplifier | 12.5 | 3.3 | 1 | 8 | 4 mm QFN |
| M02044 | 622 Mbps Post-Amplifier | 0.622 | 3.3, 5 | 1 | 2.5 | 5 x 6.2 mm QSOP |

## Transimpedance Amplifiers: Communications

| Part Number | Description | Data Rate Max (Gbps) | Differential Transimpedance Gain (kohm) | Small Signal Bandwidth (GHz) | Input Overload Current (mA) | Input Referred Noise (IRN, RMS nA) | Optical Sensitivity with PIN (dBm) | Optical Sensitivity with APD (dBm) |
|---|---|---|---|---|---|---|---|---|
| M02006 | AGC Pre-Amplifier | 0.155 | 260 | 0.1 | 2.2 | 8 | -39 | — |
| M02007 | AGC Pre-Amplifier | 0.156 | 62 | 0.14 | 2.8 | 8 | -39 | — |
| M02009 | AGC Pre-Amplifier | 0.622 | 36 | 0.4 | 4.5 | 70 | -32 | — |
| M02011 | AGC Pre-Amplifier | 0.622 | 65 | 0.6 | 4 | 50 | -34 | — |
| M02016 | AGC Pre-Amplifier | 1.25 | 24 | 1 | 4 | 130 | -29l | — |
| M02026 | CMOS TIA with AGC | 1.25 | 112 | 1.05 | 4 | 120 | -31 | — |
| M02028 | CMOS TIA with AGC | 1.25 | 24 | 1.3 | 4 | 80 | -31 | — |
| M02036 | Burst Mode GPON OLT TIA | 1.25 | 3.8 | 0.8 | 2.5 | 170 | — | -35 |
| M02038 | Burst Mode GEPON OLT TIA | 1.25 | 8.5 | 0.85 | 4 | 350 | — | -34 |
| M02014 | AGC Pre-Amplifier | 2.488 | 11 | 1.4 | 4 | 250 | -26.5 | — |
| M02015 | AGC Pre-Amplifier | 2.488 | 9 | 1.4 | 4 | 290 | -26 | — |
| M02024 | AGC Pre-Amplifier | 2.488 | 51 | 1.27 | 4 | 180 | -28 | — |
| M02035 | Burst Mode OLT TIA | 2.488 | 3.6 | 1.7 | 1.5 | 250 | — | -33 |
| M02013 | AGC Pre-Amplifier | 3.125 | 10 | 2.4 | 4 | 475 | -23 | — |
| M02025 | CMOS TIA with AGC | 3.2 | 20 | 1.45 | 4 | 120 | -30 | — |
| M02020 | CMOS TIA with AGC | 4.25 | 3.6 | 3.4 | 4 | 550 | -23 | -29 |
| M02139 | TIA with AGC | 10.312 | 2.5 | 7.5 | 2.5 | 1500 | -20 | -27 |
| M02129 | TIA with AGC | 8.5 | 2 | 7.8 | 3 | 1200 | -18 | -25 |
| M02027 | Ultra High Sensitivity TIA with AGC | 3.125 | | | *CONTACT MACOM* | | | |
| M02029 | CMOS TIA with AGC | 3.125 | 10 | 1.85 | 4 | 130 | -35 | — |
| M02131 | TIA with AGC | 11.3 | | | | | | |
| M03002 | Low Power Single Channel TIA | 28 | | | *CONTACT MACOM* | | | |
| M03100 | Low Power 4x TIA in 250 µm space | 28 | | | *CONTACT MACOM* | | | |
| M03101 | Low Power 4x TIA in 500 µm space | 28 | | | *CONTACT MACOM* | | | |
| M03102 | Low Power 4x TIA in 750 µm space | 28 | | | *CONTACT MACOM* | | | |
| MATA-37044 | Four Channel 25G / 28G CDR with Integrated TIA | 28.05 | | | *CONTACT MACOM* | | | |
| MATA-03806 | Dual Channel Linear TIA | 32 | 10 | 25 | 3 | 17 | — | — |

## LED/Laser Drivers for Displays

| Part Number | Description | Current per Channel (mA) | Maximum Current (mA) | Channels (#) | Programmable Internal PWMI Generator | Integrated PMIC Control | Automatic Power Despeckle | Electronic Laser |
|---|---|---|---|---|---|---|---|---|
| M08886 | High Performance for Projection Displays | up to 2A | up to 4A | 3 | Yes | No | Yes | Yes |
| M08888 | High Performance for Projection Displays | 2A | up to 6A | 3 | Yes | No | Yes | No |
| M08889 | High Performance for Projection Displays | 2A | 2A | 3 | Yes | Yes | Yes | No |
| M08898 | For Panel-Based Projectors | 2A | up to 8A | 4 | Yes | No | No | No |
| M08890 | For Panel-Based Projectors | 2A | up to 6A | 3 | Yes | No | No | No |
| M09000 | For DLP/LCoS Displays | 1.2A | 1.2A | 3 | No | Yes | No | No |
| M09001 | For DLP/LCoS Displays | 1.2A | 1.2A | 3 | No | Yes | No | No |
| M08980 | For DLP/LCoS Displays | 1.2A | 1.2A | 3 | No | Yes | No | No |

# MACOM Silicon Photonics Technology

## Photonic chipset solutions for optimized power, size and cost

Silicon Photonics (SiPh) is an emerging technology that uses semiconductor-grade silicon as the platform for the integration of active and passive integrated photonic circuits along with electronic components on a single micro-chip. With the necessary expertise, the technology enables innovative solutions utilizing silicon optical circuits and micro-optics, while allowing the optimal integration of control electronics and system packaging.

MACOM is focused on integrated silicon microphotonics. These technologies combine high performance optics with low power and small size attributes. Silicon microphotonics in particular brings the benefits of high-density, low-cost and performance scalability, similar to silicon CMOS chip manufacturing.

### Key advantages

- High-index contrast for compact optical circuitry
- Strong optical effects due to the plasma dispersion effect
- High functionality covering a variety of devices, including switches, modulators, integrated photodetectors, couplers, and biosensors
- High-speed silicon (>50 Gbps) modulation
- Nanophotonic components: ring resonators, filters
- Integrated photodetectors
- Operation in the important telecom and datacom wavelength ranges (O- and C-Bands)

### Key applications

- 100G/400G Datacom: data centers and campus applications
- Telecom: metro and long-haul applications
- Functional passive optical elements including AWGs, optical filters, couplers, and splitters
- High performance active elements including VOAs and phase, amplitude and frequency modulators for advanced modulation formats
- Optical engines combining optics and electronics
- Radio over fiber transport and backhaul
- Transceiver products including embedded optical modules, transmitters/receivers, and active optical cables
- Optical switch fabrics
- Metrology and sensor applications
- Medical applications like DNA, glucose, molecular and cellular analysis sensors
- Military/aerospace/scientific sensor applications
- Emerging products like 3DICs/integrated optoelectronic chips
- Consumer: easy-to-use compact cabling for desktop PC, peripherals, home media servers and networked HDTVs
- High-performance computing and data center applications
- Professional video, digital signage, digital cinemas, and video recording

## Distributed Feedback Lasers

| Part Number | Description | Max Data Rate (Gbps) | Wavelength (nm) | Temp Options (°) | Package Type and Size |
|---|---|---|---|---|---|
| 131D-02E-KCT11-08 | 2.5G 1310 nm DFB NFF LD, 8 mW, Chip on Tape | 2.5 | 1310 | -20 to 85C | Die 300 x 265 x 100 |
| 131D-02E-KCT11 | 2.5G 1310 nm DFB NFF LD, Chip on Tape | 2.5 | 1310 | -20 to 85C | Die 300 x 265 x 100 |
| 131D-02E-LCT11 | 2.5G 1310 nm DFB Std LD, Chip on Tape | 2.5 | 1310 | -20 to 85C | Die 300 x 250 x 100 |
| 131D-02E-LCT11-07 | 2.5G 1310 nm DFB Std LD, 7 mW, Chip on Tape | 2.5 | 1310 | -20 to 85C | Die 300 x 250 x 100 |
| 131D-02E-LCT11-09 | 2.5G 1310 nm DFB Std LD, 9 mW, Chip on Tape | 2.5 | 1310 | -20 to 85C | Die 300 x 250 x 100 |
| 131D-02E-LCT11-10 | 2.5G 1310 nm DFB Std LD, 10 mW, Chip on Tape | 2.5 | 1310 | -20 to 85C | Die 300 x 250 x 100 |
| 131D-02I-KCT11 | 2.5G 1310 nm DFB NFF LD, Chip on Tape | 2.5 | 1310 | -40 to 85C | Die 300 x 265 x 100 |
| 131D-02I-LCT11 | 2.5G 1310 nm DFB Std LD, Chip on Tape | 2.5 | 1310 | -40 to 85C | Die 300 x 250 x 100 |
| 131D-02I-LCT11-07 | 2.5G 1310 nm DFB Std LD, 7 mW, Chip on Tape | 2.5 | 1310 | -40 to 85C | Die 300 x 250 x 100 |
| 131D-02J-LCT11-07 | 2.5G 1310 nm DFB Std LD, 7 mW, Chip on Tape | 2.5 | 1310 | -10 to 85C | Die 300 x 250 x 100 |
| 131D-02C-LCT11-20 | 2.5G 1310 nm DFB Std LD, 20 mW, Chip on Tape | 2.5 | 1310 | 0 to 70C | Die 300 x 250 x 100 |
| 131D-00G-LCG11-20CW | 1310 nm DFB LD 20 mW, Chip in Gel Pak | 10 | 1310 | -5 to 85C | Die 300 x 250 x 100 |
| 129D-10G-LCT11 | 10G CWDM DFB LD (WL -3.5/+2.5 nm), Chip on Tape | 10 | 1290 | -5 to 85C | Die 250 x 300 x 100 |
| 129D-10G-LCT11-S | 10G Hi-BW CWDM DFB LD, WL -3.5/+2.5 nm, Chip on Tape | 10 | 1290 | -5 to 85C | Die 250 x 300 x 100 |
| 127D-10G-LCT11 | 10G CWDM DFB LD (WL -3.5/+2.5 nm), Chip on Tape | 10 | 1270 | -5 to 85C | Die 250 x 300 x 100 |
| 127D-10G-LCG11-S | Hi-BW CWDM DFB LD,WL-3.5/+2.5 nm, Chip in Gel Pak | 10 | 1270 | -5 to 85C | Die 250 x 300 x 100 |
| 131D-10G-LCG11 | 10G CWDM DFB LD (WL -3.5/+2.5 nm), Chip in Gel Pak | 10 | 1310 | -5 to 85C | Die 250 x 300 x 100 |
| 131D-10G-LCG11-S | Hi-BW CWDM DFB LD, WL -3.5/+2.5 nm, Chip in Gel Pak | 10 | 1310 | -5 to 85C | Die 250 x 300 x 100 |
| 131D-10G-LCT11 | 10G CWDM DFB LD (WL -3.5/+2.5 nm), Chip on Tape | 10 | 1310 | -5 to 85C | Die 250 x 300 x 100 |
| 131D-10G-LCT11-S | 10G Hi-BW CWDM DFB LD, WL -3.5/+2.5 nm, Chip on Tape | 10 | 1310 | -5 to 85C | Die 250 x 300 x 100 |
| 127D-10G-LCT11-S | 10G Hi-BW CWDM DFB LD, WL-3.5/+2.5 nm, Chip on Tape | 10 | 1270 | -5 to 85C | Die 250 x 300 x 100 |
| 127D-10G-LCG11 | 10G CWDM DFB LD (WL -3.5/+2.5 nm), Chip in Gel Pak | 10 | 1270 | -5 to 85C | Die 250 x 300 x 100 |
| 133D-10G-LCG11 | 10G CWDM DFB LD (WL -3.5/+2.5 nm), Chip in Gel Pak | 10 | 1330 | -5 to 85C | Die 250 x 300 x 100 |
| 133D-10G-LCG11-S | Hi-BW CWDM DFB LD, WL-3.5/+2.5 nm, Chip in Gel Pak | 10 | 1330 | -5 to 85C | Die 250 x 300 x 100 |
| 133D-10G-LCT11 | 10G CWDM DFB LD (WL -3.5/+2.5 nm), Chip on Tape | 10 | 1330 | -5 to 85C | Die 250 x 300 x 100 |
| 133D-10G-LCT11-S | 10G Hi-BW CWDM DFB LD, WL-3.5/+2.5 nm, Chip on Tape | 10 | 1330 | -5 to 85C | Die 250 x 300 x 100 |
| 129D-10G-LCG11 | 10G CWDM DFB LD (WL -3.5/+2.5 nm), Chip in Gel Pak | 10 | 1290 | -5 to 85C | Die 250 x 300 x 100 |
| 129D-10G-LCG11-S | Hi-BW CWDM DFB LD, WL-3.5/+2.5 nm, Chip in Gel Pak | 10 | 1290 | -5 to 85C | Die 250 x 300 x 100 |
| 133D-25C-LCG11-S | 25G Hi-BW 1330 nm CWDM DFB LD, Chip in Gel Pak | 25 | 1330 | 0 to 70C | Die 250 x 250 x 100 |
| 127D-25B-LCG11-S | 25G Hi-BW 1270 nm CWDM DFB LD, Chip in Gel Pak | 25 | 1270 | 0 to 50C | Die 250 x 250 x 100 |
| 127D-25B-LCT11 | 25G 1270 nm CWDM DFB LD, Chip on Tape | 25 | 1270 | 0 to 50C | Die 250 x 250 x 100 |
| 127D-25B-LCT11-S | 25G Hi-BW 1270 nm CWDM DFB LD, Chip on Tape | 25 | 1270 | 0 to 50C | Die 250 x 250 x 100 |
| 127D-25C-LCG11 | 25G 1270 nm CWDM DFB LD, Chip in Gel Pak | 25 | 1270 | 0 to 70C | Die 250 x 250 x 100 |
| 129D-25B-LCG11-S | 25G Hi-BW 1290 nm CWDM DFB LD, Chip in Gel Pak | 25 | 1290 | 0 to 50C | Die 250 x 250 x 100 |
| 129D-25B-LCT11-S | 25G Hi-BW 1310 nm CWDM DFB LD, Chip on Tape | 25 | 1290 | 0 to 50C | Die 250 x 250 x 100 |
| 129D-25C-LCG11 | 25G 1290 nm CWDM DFB LD, Chip in Gel Pak | 25 | 1290 | 0 to 70C | Die 250 x 250 x 100 |
| 129D-25C-LCT11 | 25G 1290 nm CWDM DFB LD, Chip on Tape | 25 | 1290 | 0 to 70C | Die 250 x 250 x 100 |
| 131D-25B-LCG11-S | 25G Hi-BW 1310 nm CWDM DFB LD, Chip in Gel Pak | 25 | 1310 | 0 to 50C | Die 250 x 250 x 100 |
| 131D-25B-LCT11-S | 25G Hi-BW 1310 nm CWDM DFB LD, Chip on Tape | 25 | 1310 | 0 to 50C | Die 250 x 250 x 100 |
| 133D-25B-LCG11-S | 25G Hi-BW 1330 nm CWDM DFB LD, Chip in Gel Pak | 25 | 1330 | 0 to 50C | Die 250 x 250 x 100 |
| 133D-25B-LCT11 | 25G 1330 nm CWDM DFB LD, Chip on Tape | 25 | 1330 | 0 to 50C | Die 250 x 250 x 100 |
| 133D-25B-LCT11-S | 25G Hi-BW 1330 nm CWDM DFB LD, Chip on Tape | 25 | 1330 | 0 to 50C | Die 250 x 250 x 100 |
| 133D-25C-LCG11 | 25G 1330 nm CWDM DFB LD, Chip in Gel Pak | 25 | 1330 | 0 to 70C | Die 250 x 250 x 100 |
| 129D-25B-LCG11 | 25G 1290 nm CWDM DFB LD, Chip in Gel Pak | 25 | 1290 | 0 to 50C | Die 250 x 250 x 100 |
| 131D-25B-LCG11 | 25G 1310 nm CWDM DFB LD, Chip in Gel Pak | 25 | 1310 | 0 to 50C | Die 250 x 250 x 100 |

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.

## Distributed Feedback Lasers (continued)

| Part Number | Description | Max Data Rate (Gbps) | Wavelength (nm) | Temp Options (°) | Package Type and Size |
|---|---|---|---|---|---|
| 131D-25C-LBFA1 | 25G 1310 nm CWDM DFB LD | 25 | 1310 | 0 to 70C | Die 250 x 250 x 100 |
| 131D-25C-LCG11 | 25G 1310 nm CWDM DFB LD, Chip in Gel Pak | 25 | 1310 | 0 to 70C | Die 250 x 250 x 100 |
| 131D-25C-LCG11-S | 25G Hi-BW 1310 nm CWDM DFB LD, Chip in Gel Pak | 25 | 1310 | 0 to 70C | Die 250 x 250 x 100 |
| 133D-25B-LCG11 | 25G 1330 nm CWDM DFB LD, Chip in Gel Pak | 25 | 1330 | 0 to 50C | Die 250 x 250 x 100 |
| 127D-25B-LCG11 | 25G 1270 nm CWDM DFB LD, Chip in Gel Pak | 25 | 1270 | 0 to 50C | Die 250 x 250 x 100 |
| 1295-25B-LCT11-S | LAN WDM, 25G, Hi-BW, DFB LD, Chip on Tape | 25 | 1295.56 | 0 to 50C | Die 250 x 250 x 100 |
| 1300-25B-LCT11-S | LAN WDM, 25G, Hi-BW, DFB LD, Chip on Tape | 25 | 1300.05 | 0 to 50C | Die 250 x 250 x 100 |
| 1301-25B-LCT11-S | LAN WDM, 25G, Hi-BW, DFB LD, Chip on Tape | 25 | 1304.58 | 0 to 50C | Die 250 x 250 x 100 |
| 1309-25B-LCT11-S | LAN WDM, 25G, Hi-BW, DFB LD, Chip on Tape | 25 | 1309.14 | 0 to 50C | Die 250 x 250 x 100 |
| 1295-25B-LCG11-S | LAN WDM, 25G, Hi-BW, DFB LD, Chip in Gel Pak | 25 | 1295.56 | 0 to 50C | Die 250 x 250 x 100 |
| 1300-25B-LCG11-S | LAN WDM, 25G, Hi-BW, DFB LD, Chip in Gel Pak | 25 | 1300.05 | 0 to 50C | Die 250 x 250 x 100 |
| 1301-25B-LCG11-S | LAN WDM, 25G, Hi-BW, DFB LD, Chip in Gel Pak | 25 | 1304.58 | 0 to 50C | Die 250 x 250 x 100 |
| 1309-25B-LCG11-S | LAN WDM, 25G, Hi-BW, DFB LD, Chip in Gel Pak | 25 | 1309.14 | 0 to 50C | Die 250 x 250 x 100 |
| 131D-02E-KT5PB | DFB NFF, 2 mm Ball Lens 6.6 mm FL w/offset, Pinout B | 2.5 | 1310 | -20 to 85C | TO-Can TO56 |
| 131D-02E-KT5UB | DFB NFF, 2 mm Ball Lens Hi-Index 6.6 mm FL, Pinout B | 2.5 | 1310 | -20 to 85C | TO-Can TO56 |
| 131D-02E-KT5TB | 2.5G DFB NFF, 2 mm Ball Lens 6.6 mm FL, Pinout B | 2.5 | 1310 | -20 to 85C | TO-Can TO56 |
| T131D-02E-LT5AB-07 | 2.5G DFB Std, 7 mW, Asph Lens 7.5 mm FL, Pinout B | 2.5 | 1310 | -20 to 85C | TO-Can TO56 |
| 31D-02I-KT5TB | DFB NFF TO-Can, 2 mm Ball Lens 6.6 mm FL, Pinout B | 2.5 | 1310 | -40 to 85C | TO-Can TO56 |
| 131D-02I-LT5AB | 2.5G DFB Std TO-Can, Asph Lens 7.5 mm FL, Pinout B | 2.5 | 1310 | -40 to 85C | TO-Can TO56 |
| 131D-02I-LT5AB-07 | DFB Std TO-Can, 7 mW, Asph Lens 7.5 mm FL, Pinout B | 2.5 | 1310 | -40 to 85C | TO-Can TO56 |
| 131D-02I-LT5CB | 2.5G DFB Std TO-Can, Asph Lens 8.6 mm FL, Pinout B | 2.5 | 1310 | -40 to 85C | TO-Can TO56 |
| 131D-02I-KT5PB | 2.5G DFB NFF TO-Can, 2 mm Ball Lens, Pinout B | 2.5 | 1310 | -40 to 85C | TO-Can TO56 |
| 131D-02I-LT5MB | DFB Std TO-Can, 2 mm Ball Lens 6.7 mm FL, Pinout B | 2.5 | 1310 | -40 to 85C | TO-Can TO56 |
| 131D-02I-LT5MB-07 | DFB Std TO-Can, 7 mW, 2 mm Ball Lens 6.7 mm FL, Pinout B | 2.5 | 1310 | -40 to 85C | TO-Can TO56 |
| 131D-02I-LT5UB | DFB Std TO, 2 mm Ball Lens Hi-Index 6.6 mm FL, PinoutB | 2.5 | 1310 | -40 to 85C | TO-Can TO56 |
| 131D-02E-LT5DB | DFB Std TO, Asph Lens 7.5 mm FL w/offset, Pinout B | 2.5 | 1310 | -20 to 85C | TO-Can TO56 |
| 131D-10G-LT5CC | DFB TO-Can, WL +/-10 nm, Asph Lens 10.1 mm FL, Pinout C | 10 | 1310 | -5 to 85C | TO-Can TO56 |
| 131D-10G-LT5RC | DFB TO-Can, WL+/-10 nm, 2 mm Ball Lens 6 mm FL, Pinout C | 10 | 1310 | -5 to 85C | TO-Can TO56 |
| 131D-10G-LT5RC-S | Hi-BW DFB TO, WL+/-10 nm, 2 mm Ball Lens 6 mmFL, Pinout C | 10 | 1310 | -5 to 85C | TO-Can TO56 |
| 131D-10I-LT5RC-S | Hi-BW DFB TO, WL+/-10 nm, 2 mm Ball Lens 6 mmFL, Pinout C | 10 | 1310 | -40 to 85C | TO-Can TO56 |
| 127D-10G-LT5AC-S | 10G Hi-BW DFB TO-Can, Asph Lens 7.5 mm FL, Pinout C | 10 | 1270 | -5 to 85C | TO-Can TO56 |

* NFF = Narrow Far Field

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.

## Fabry-Perot Lasers

| Part Number | Description | Max Data Rate (Gbps) | Wavelength (nm) | Temp Options (°) | Package Type and Size |
|---|---|---|---|---|---|
| 131F-02I-LCT11 | 2.5G 1310 nm FP Std LD, Chip on Tape | 2.5 | 1310 | -40 to 85C | Die 250 x 300 x 100 |
| 155F-02I-LCT11 | 2.5G 1550 nm FP Std LD, Chip on Tape | 2.5 | 1550 | -40 to 85C | Die 300 x 250 x 100 |
| 131F-02I-LCT11-07 | 2.5G 1310 nm FP Std LD, 7 mW, Chip on Tape | 2.5 | 1310 | -40 to 85C | Die 250 x 300 x 100 |
| 131F-02I-LCT11-10 | 2.5G 1310 nm FP Std LD, Chip on Tape, 10 mW | 2.5 | 1310 | -40 to 85C | Die 250 x 300 x 100 |
| 131F-02I-KCT11 | 2.5G 1310 nm FP NFF LD, Chip on Tape | 2.5 | 1310 | -40 to 85C | Die 250 x 300 x 100 |
| 131F-02I-LCT11 | 2.5G 1310 nm FP Std LD, Chip on Tape | 2.5 | 1310 | -40 to 85C | Die 250 x 300 x 100 |
| 131F-10G-LCG11 | 10G 1310 nm FP Std LD, Chip in Gel Pack | 10 | 1310 | -5 to 85C | Die 250 x 250 x 100 |
| 131F-10G-LCT11 | 10G 1310 nm FP Std LD, Chip in Chip on Tape | 10 | 1310 | -5 to 85C | Die 250 x 250 x 100 |
| 131F-10I-LCT11-S | 10G Hi-BW 1310 nm FP LD, Chip on Tape | 10 | 1310 | -40 to 85C | Die 250 x 250 x 100 |
| 131F-10I-LCT11 | 10G 1310 nm FP LD, Chip on Tape | 10 | 1310 | -40 to 85C | Die 250 x 250 x 100 |
| 131F-02I-LT5LB | FP Std TO-Can, 1.5 mm Ball Lens, 6.35 FL, Pinout B | 2.5 | 1310 | -40 to 85C | TO-Can TO56 |
| 131F-02I-LT5MB-09 | 2.5G FP Std TO, 9 mW, 2 mm Ball Lens 6.7 mm FL, Pinout B | 2.5 | 1310 | -40 to 85C | TO-Can TO56 |
| 152F-02I-LT5FB | 2.5G FP TO-Can, Std, 1520 nm, Flat Window, Pinout B | 2.5 | 1520 | -40 to 85C | TO-Can TO56 |
| 152F-02I-LT5KB | FP TO-Can, Std, 1.5 mm Ball Lens 5.8 mm FL, Pinout B | 2.5 | 1520 | -40 to 85C | TO-Can TO56 |
| 152F-02I-LT5LB | FP TO-Can, Std, 1.5 mm Ball Lens 6.35 mm FL,Pinout B | 2.5 | 1520 | -40 to 85C | TO-Can TO56 |
| 152F-02I-LT5MB | FP TO-Can, Std, 2 mm Ball Lens 6.7 mm FL, Pinout B | 2.5 | 1520 | -40 to 85C | TO-Can TO56 |
| 131F-02I-LT5SB | FP TO-Can, Std, 1.5 mm Ball Lens 6.6 mm FL, Pinout B | 2.5 | 1310 | -40 to 85C | TO-Can TO56 |
| 155F-02I-LT5LB | FP TO-Can, Std, 1.5 mm Ball Lens 6.35 mm FL, Pinout B | 2.5 | 1550 | -40 to 85C | TO-Can TO56 |
| 155F-02I-LT5MB | FP TO-Can, Std, 2 mm Ball Lens 6.7 mm FL, Pinout B | 2.5 | 1550 | -40 to 85C | TO-Can TO56 |
| 143F-02I-LT5LB | FP Std TO-Can, 1.5 mm Ball Lens 6.35 mm FL, Pinout B | 2.5 | 1430 | -40 to 85C | TO-Can TO56 |
| 131F-02I-LT5FB | 2.5G 1310 nm FP Std TO-Can, Flat Window, Pinout B | 2.5 | 1310 | -40 to 85C | TO-Can TO56 |
| 131F-06I-LT5KC | 6G FP Std TO-Can, 1.5 mm Ball Lens 5.8 FL, Pinout B | 6 | 1310 | -40 to 85C | TO-Can TO56 |
| 131F-10I-LT5RC-S | 10G Hi-BW FP TO, 2 mm Ball Lens 6 mm FL, Pinout C | 10 | 1310 | -40 to 85C | TO-Can TO56 |
| 131F-10I-LT5RC | 10G FP Std TO-Can, 2 mm Ball Lens 6 mm FL, Pinout C | 10 | 1310 | -40 to 85C | TO-Can TO56 |
| 131F-10I-LT5K1C-S | Hi-BW FP TO, 1.5 mm Ball Lens 5.8 mm FL offset, Pinout C | 10 | 1310 | -40 to 85C | TO-Can TO56 |
| 131F-10I-LT5KC | 10G FP TO-Can, 1.5 mm Ball Lens 5.8 mm FL, Pinout C | 10 | 1310 | -40 to 85C | TO-Can TO56 |
| 131F-10I-LT5KC-S | 10G Hi-BW FP TO, 1.5 mm Ball Lens 5.8 mm FL, Pinout C | 10 | 1310 | -40 to 85C | TO-Can TO56 |

## APD and PIN

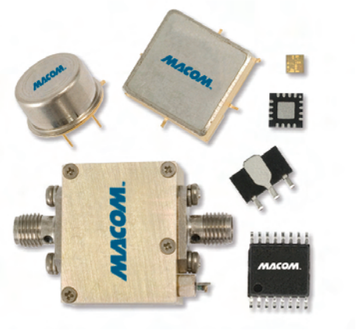
| Part Number | Description | Max Data Rate (Gbps) | Wavelength (nm) | Temp Options (°) | Package Type and Size |
|---|---|---|---|---|---|
| 131A-02I-ACT11 | APD Die, 2.5G, Chip on Tape | 2.5 | 1310 / 1550 | -40 to 85C | Die 300 x 300 x 150 |
| 131A-02I-ACG11 | APD Die, 2.5G, Chip in Gel Pak | 2.5 | 1310 / 1550 | -40 to 85C | Die 300 x 300 x 150 |
| 131P-10I-SCT11 | PIN Die, 10G, for S-TIA, Chip on Tape | 2.5 | 1310 / 1550 | -40 to 85C | Die 315 x 315 x 150 |
| 131P-10I-SCG11 | PIN Die, 10G, for S-TIA, Chip in Gel Pak | 2.5 | 1310 / 1550 | -40 to 85C | Die 315 x 315 x 150 |
| 131P-10I-QCT11 | PIN Die, 10G, Chip on Tape | 10 | 1310 / 1550 | -40 to 85C | Die 315 x 300 x 150 |
| 131P-10I-QCG11 | PIN Die, 10G, Chip in Gel Pak | 10 | 1310 / 1550 | -40 to 85C | Die 315 x 300 x 150 |

Note: Part numbers are RoHS compliant
Detailed specifications can be found quickly on our website at macom.com by typ-
ing

# MACOM 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 millimeter-wave 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 todays 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 Ω and 75 Ω 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 Ω 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 (dBc) | 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-008822 | 50 | 1100 | 3 | 4.5 | 4 | -60 | -63 | 120 / 5 | 2 mm PDFN-8 |
| MAAM-008970 | 950 | 2150 | 2 | 4.8 | 5 | — | — | 60 / 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-010263 | 50 | 1100 | 6 | 2 | 4.8 | -55 | -65 | 190 / 5 | 4 mm PQFN-24 |

## Amplifier Gain Blocks

| Part Number | Description | Min Freq (MHz) | Max Freq (MHz) | Gain (dB) | Output P1dB (dBm) | OIP3 (dBm) | Bias Current (mA) | Package |
|---|---|---|---|---|---|---|---|---|
| MAAM02350 | Wideband Amplifier | 200 | 3000 | 17 | 14 | 24 | 65 | Die |
| MAAM28000 | Wideband Amplifier | 2000 | 8000 | 17 | 14 | 24 | 60 | Die |
| XB1007-BD | Buffer Amplifier | 4000 | 11000 | 23.5 | 20 | 30 | 130 | Die |
| XB1008-BD | Buffer Amplifier | 10000 | 21000 | 18 | 20 | 30 | 130 | Die |
| XB1004-BD | Buffer Amplifier | 16000 | 30000 | 21 | 19 | 29 | 100 | Die |
| XB1006-BD | Buffer Amplifier | 18000 | 38000 | 21 | 15 | 25 | 25 | Die |
| XB1005-BD | Buffer Amplifier | 35000 | 45000 | 23 | 16 | 26 | 50 | Die |
| MAAM-009116 | Driver | 50 | 1000 | 18 | 22 | 40 | 180 | SOT-89 |
| MAAM-008198-00A162 | Cascadable, Hi Eff | 10 | 1200 | 13 | 6 | 18 | 15 | TO-8 |
| MAAMSS0045 | Hi Dyn Rge | 1400 | 2000 | 14 | 16 | 29 | 45 | SOIC-8EP |
| MAAM02350-A2 | Wideband Amplifier | 200 | 3000 | 18 | 14 | 24 | 65 | CR-3 |
| MAAM-009563 | Driver Amplifier | 250 | 3000 | 19.5 | 31 | 47 | 510 | SOIC-8EP |
| MAAM-009286 | Driver Amplifier | 250 | 4000 | 15.5 | 27 | 42 | 155 | SOT-89 |
| MAAM-009560 | Driver Amplifier | 250 | 4000 | 15 | 29 | 42 | 225 | SOT-89 |
| XF1001-SC | Packaged HFET | 0 | 6000 | 15.5 | 30 | 46.5 | 300 | SOT-89 |
| MAAM28000-A1 | Wideband Amplifier | 2000 | 8000 | 17 | 14 | 24 | 70 | CR-3 |
| MAAM28000-A1G | Wideband Amplifier | 2000 | 8000 | 17 | 14 | 24 | 70 | CR-10 |
| 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-011101 | Wideband Amplifier | 4000 | 20000 | 16 | 19 | 30 | 45 | 1.5 x 1.2 mm TDFN-6 |
| XB1008-QT | Buffer Amplifier | 10000 | 21000 | 17 | 18 | 32 | 100 | 3 mm PQFN-16 |
| 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-16 |
| MAAM-011109 | Wideband Amplifier | 100 | 40000 | 13 | 18 | 22 | 170 | 5 mm LGA-9 |
| XB1014-QT | Buffer Amplifier | 37000 | 40000 | 21 | 20 | 30.5 | 63 | 3 mm PQFN-16 |
| MAAM-010513 | Driver Amplifier | 40500 | 43500 | 23 | 23 | 32 | 400 | 5 mm LGA-12 |

## Power Amplifiers

| Part Number | Description | Min Freq (MHz) | Max Freq (MHz) | Gain (dB) | OIP3 (dBm) | Package |
|---|---|---|---|---|---|---|
| MAAM26100 | GaAs MMIC Power Amplifier | 2000 | 6500 | 19 | 39 | Die |
| XP1035-BD | Linear Power Amplifier | 5900 | 9500 | 26 | 39 | Die |
| MAAM71100 | Power, GaAs MMIC | 7000 | 11000 | 18 | 38 | Die |
| MAAP-015030 | 13 W Power Amplifier | 8500 | 11750 | 25 | — | Die |
| AM42-0007-DIE | Power, VSAT MMIC | 14000 | 14500 | 22 | 41 | Die |
| XP1013-BD | Power Amplifier | 17000 | 26000 | 20 | — | Die |
| MAAP-011139-DIE | Power Amplifier, 4 W | 29000 | 31000 | 24 | 42 | Die |
| MAAP-015036 | Power Amplifier | 8500 | 10500 | 17 | - | Die |
| MAAP-011140-DIE | 6 W Ka-band Power Amplifier | 28000 | 30000 | 25 | 46 | Die |
| MAAP-015016-DIE | 4 W Ka-band Power Amplifier | 32000 | 38000 | 18 | — | Die |
| XP1018-BD | Power Amplifier | 37000 | 42000 | 26 | 34 | Die |
| XP1005-BD | Power Amplifier | 35000 | 43000 | 26 | — | Die |
| MAAP-010168 | 10 W Power Amplifier | 500 | 3000 | 24 | — | Ceramic Flanged-10 |
| MAAP-010171 | 8 W Power Amplifier | 2500 | 3500 | 27.3 | — | 5 mm PQFN-20 |
| MAAP-011027 | 8 W Power Amplifier | 5200 | 5900 | 20 | — | 5 mm PQFN-20 |
| MAAM26100-B1 | Power | 2000 | 6000 | 19 | 39 | CR-2 |
| MAAM26100-P1 | Power | 2000 | 6000 | 20 | 40 | CR-15 |
| MAAP-010169 | 10 W Power Amplifier | 2000 | 6000 | 18 | — | Ceramic Flanged-10 |
| XP1039-QJ | 2.5 W Power Amplifier | 5600 | 7100 | 17 | 48 | 6 mm QFN-24 |
| XP1035-QH | 0.5 W Power Amplifier | 5900 | 9500 | 26 | 39 | 4 mm PQFN-24 |
| MAAP-008924 | 1.2 W Amplifier, Power | 10000 | 13300 | 21 | 42 | 5 mm PQFN-20 |
| MAAP-010517 | 3 W Power Amplifier | 14400 | 15400 | 24.5 | 41 | 5 mm PQFN-24 |
| XP1042-QT | 0.5 W Power Amplifier | 12000 | 16000 | 21 | 38 | 3 mm PQFN-16 |
| XP1043-QH | 1.5 W Power Amplifier | 12000 | 16000 | 21.5 | 41 | 4 mm PQFN-24 |
| MAAP-011145-STD | Power Amplifier, 2 W | 17650 | 19750 | 26 | 43 | 7 mm Cavity |
| MAAP-011170 | Power Amplifier | 37000 | 40000 | 27 | 38 | 7mm 16-lead SMD |
| XP1031-QK | 38 GHz Power Amplifier | 37000 | 40000 | 25 | 35.5 | 7 mm LGA-28 |
| XP1080-QU | 38 GHz Power Amplifier | 37000 | 40000 | 25 | 38 | 7 mm LGA-16 |
| MAAP-010512 | 42 GHz Power Amplifier | 40500 | 43500 | 22 | 38.4 | 7 mm LGA-16 |

## Linear Amplifiers

| Part Number | Description | Min Freq (MHz) | Max Freq (MHz) | Gain (dB) | OIP3 (dBm) | Package |
|---|---|---|---|---|---|---|
| MAAP-015035 | 12 W Power Amplifier | 8500 | 11500 | 36 | — | Die |
| XP1042-BD | Power Amplifier | 12000 | 16000 | 21 | 38 | Die |
| MAAP-015024 | Power Amplifier, 8 W | 14500 | 17500 | 21 | 27 | Die |
| XP1019-BD | Power Amplifier | 17000 | 24000 | 18 | 36 | Die |
| XP1027-BD | Power Amplifier | 27000 | 31000 | 21 | 43 | Die |
| XP1026-BD | Power Amplifier | 27000 | 32000 | 21 | 40 | Die |
| XP1003-BD | Power Amplifier | 27000 | 35000 | 15 | 34 | Die |
| XP1017-BD | Power Amplifier | 30000 | 36000 | 16 | 33 | Die |
| MAAP-011106 | Power Amplifier | 71000 | 86000 | 20 | 30 | Die |
| MAAM-011167 | Medium Power Amplifier | 71000 | 86000 | 18 | 27 | Die |
| MAAM-011117 | Broadband, Low Distortion | 50 | 2700 | 16 | 35 | 2 mm PDFN-8 |
| MAAP-011022 | 7 W Pulsed High Power Amplifier | 2700 | 3000 | 23 | — | 6 mm PQFN-28 |
| XP1044-QL | Power Amplifier Module | 4000 | 5900 | 18.5 | 47 | 7 mm SMD-28 |

Note: Part numbers are RoHS compliant ◆ indicates non-RoHS compliant
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All specifications are subject to change.

## Linear Amplifiers (continued)

| Part Number | Description | Min Freq (MHz) | Max Freq (MHz) | Gain (dB) | OIP3 (dBm) | Package |
|---|---|---|---|---|---|---|
| XP1050-QJ | 2.5 W Power Amplifier | 7100 | 8500 | 15.5 | 47 | 6 mm QFN-24 |
| MAAP-010518 | 2 W Power Amplifier | 18000 | 20000 | 21 | 40 | 5 mm QFN-24 |
| MAAP-011198 | 2 W Ka-band Power Amplifier | 29000 | 31000 | 24.5 | 37 | 5 mm QFN-32 |
| MAAP-011139 | 4 W Ka-band Power Amplifier | 29000 | 31000 | 23 | 43 | 5 mm QFN-32 |
| MAAM-011139 | Driver Amplifier | 27500 | 33400 | 21 | 32 | 4 mm QFN-24 |
| MAAP-010516 | 4 W Power Amplifier | 32000 | 38000 | 18 | — | 5 mm PQFN-24 |

## 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 |
|---|---|---|---|---|---|---|---|---|---|
| MAAM37000 | 3500 | 7000 | 17 | 1.8 | 24 | 14 | 4 | 75 | Die |
| MAAM71200 | 7500 | 12000 | 16.5 | 2.3 | 22 | 12 | 4 | 40 | Die |
| XL1002-BD | 20000 | 36000 | 23 | 2.6 | 16 | 4 | 5 | 85 | Die |
| XL1010-BD | 20000 | 38000 | 17 | 3 | — | — | 4 | 45 | Die |
| XL1000-BD | 20000 | 40000 | 20 | 2 | 16 | 9 | 3 | 35 | Die |
| MAAL-008624 | 400 | 500 | 21 | 0.9 | 28 | 17 | 5 | 60 | SOIC-8 |
| MAAL-008091 | 800 | 1000 | 15 | 1.2 | 30 | 17 | 5 | 60 | SOIC-8 |
| MAALSS0042 | 1500 | 1600 | 27 | 1.2 | 13 | 1 | 5 | 20 | SOIC-8 |
| MAALSS0044 | 1500 | 1600 | 21 | 1.6 | 19 | 6 | 5 | 8 | SOIC-8 |
| MAAL-010705 | 500 | 1600 | 19 | 0.5 | 32 | 19 | 4 | 60 | 2 mm PDFN-8 |
| MAALSS0048 | 1400 | 2000 | 17 | 1.6 | 13 | 1 | 3 | 7 | SOT-26 |
| MAAL-007673 | 1700 | 2000 | 20 | 1.7 | 19 | 7 | 5 | 8 | SOIC-8 |
| MAAL-007304 | 500 | 3000 | 25.5 | 0.7 | 19 | 7 | 3 | 12 | SOT-26 |
| MAAL-009120 | 70 | 3000 | 11 | 1.4 | 35 | 18 | 3 | 80 | SOT-363 |
| MAAL-010200 | 70 | 3000 | 11 | 1.4 | 36 | 17 | 3 | 77 | SOT-89 |
| MAAL-009053 | 800 | 3000 | 11 | 1.4 | 35 | 18 | 3 | 80 | SOT-363 |
| MAAL-010570 | 100 | 3500 | 16 | 0.75 | 34 | 18.8 | 5 | 15 | SOT-363 |
| MAAL-010704 | 100 | 3500 | 19.5 | 0.9 | 31.5 | 18 | 3 | 60 | SOT-363 |
| MAAL-010706 | 1400 | 4000 | 17.5 | 0.6 | 34.5 | 19 | 4 | 60 | 2 mm PDFN-8 |
| MAAL-011078 | 700 | 6000 | 23 | 0.35 | 33 | 17.5 | 3 | 50 | 2 mm PDFN-8 |
| MAAM37000-A1G | 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 |
| XL1007-QT | 3500 | 8000 | 12 | 2 | 25 | 8 | 3 | 40 | 3 mm QFN-16 |
| MAAM71200-H1 | 7500 | 12000 | 15.5 | 2.7 | 21 | 11 | 4 | 40 | Leadless Ceramic |
| MAAL-010528 | 8000 | 12000 | 20.2 | 1.6 | 26 | 14 | 4 | 60 | 3 mm PQFN |
| XL1010-QT | 20000 | 38000 | 17 | 3 | — | 6 | 4 | 45 | 3 mm QFN-16 |
| MAAL-011111 | 22000 | 38000 | 19 | 2.5 | — | 5 | 3 | 55 | 3 mm QFN-16 |

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## 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-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 |
| MAAM-010144 | Push Pull CATV Amplifier | 50 | 1000 | 20.5 | 43 | 325 | 8 | 4.2 | TSSOP-16 |
| 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-009455 | CATV Push Pull Amplifier | 50 | 1000 | 20.5 | 43 | 325 | 8 | 4.2 | 4 mm PQFN-20 |
| MAAM-009633 | Broadband CATV Amplifier | 50 | 1200 | 17 | 37 | 120 | 8 | 1.9 | 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 |
| 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-010355 | CATV Power Doubler Push Pull Amplifier | 45 | 1200 | 23.5 | 46 | 440 | 24 | 4.5 | TSSOP-16 |
| MAAM-011169 | CATV 75 Ω Push Pull Amplifier | 45 | 1200 | 25 | 54 | 480 | 12 | 4.4 | 5 x 7 mm PQFN40 |
| MAAM-011177 | Push Pull CATV Amplifier | 45 | 1200 | 26 | 43 | 265 | 24 | 4.0 | TSSOP-16 |
| MAAM-011191 | CATV Power Doubler Push Pull Amplifier | 45 | 1200 | 26 | 46 | 440 | 24 | 4.5 | TSSOP-16 |
| MAAM-011182 | 75 Ω, 8 V RF Amplifier | 45 | 1218 | 18 | 38 | 130 | 8 | 2.7 | 2 mm PDFN-8 |
| 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 |

## Distributed Amplifiers

| Part Number | Min Freq (MHz) | Max Freq (MHz) | Gain (dB) | Gain Flatness (dB) | Noise Figure (dB) | OIP3 (dBm) | Output P1dB (dBm) | Package |
|---|---|---|---|---|---|---|---|---|
| XD1008-BD | 0 | 40000 | 15 | 0.8 | 4.5 | 27 | 22 | Die |
| MAAM-015023-DIE | 18000 | 40000 | 26 | 0.5 | 6 | 30 | 21 | Die |
| XD1001-BD | 18000 | 50000 | 17 | 1 | 5 | 24 | 15 | Die |
| XD1002-BD | 50 | 50000 | 9 | 1.5 | 5 | 17 | 9 | Die |
| MAAM-011109 | 100 | 40000 | 13 | 18 | 3/5 | 22 | 18 | 5 mm LGA-9 |

## 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-007796 | Low Noise FTTx Amplifier | 50 | 1000 | 21 | 35 | 160 | 5 | 3.8 | 4 mm PQFN-20 |
| MAAM-007807 | CATV and 2nd Stage FTTx Amp | 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-010239 | Low Noise FTTx Amplifier | 50 | 1000 | 30 | 35 | 215 | 5 | 3.5 | 4 mm PQFN-20 |
| MAAM-010333 | Optical Node RF Amplifier | 50 | 1200 | 33 | — | 260 | 5 | — | 4 mm PQFN-24 |

## Variable Gain Amplifiers

| Part Number | Description | Min Freq (MHz) | Max Freq (MHz) | Gain (dB) | OIP3 (dBm) | Bias Current/Voltage mA/V | Package |
|---|---|---|---|---|---|---|---|
| MAAM-011122 | Differential CATV Variable Gain Amplifier | 5 | 300 | 37.5 | 42 | 280/8 | 7 mm PQFN-48 |
| MAAM-010399 | Differential Variable Gain Amplifier | 50 | 1100 | 28 | 48 | 900/6 | 5 x 7 mm PQFN-40 |
| MAAM-009320 | Variable Gain Amplifier with Analog Control | 400 | 2700 | 25.5 | 42 | 231/3,5 | 4 mm PQFN-24 |
| MAAM-011100 | Ultra Small Broadband Variable Gain Amplifier | 500 | 20000 | 12 | 25 | 70/+5.-5 | 1.5 x 1.2 mm TDFN-6 |

## Hybrid Amplifiers: Gain Block

| Part Number | Description | Min Freq (MHz) | Max Freq (MHz) | Gain (dB) | OIP3 (dBm) | Package |
|---|---|---|---|---|---|---|
| CA181 ◆ | Cascadable | 10 | 250 | 16.5 | 35 | Connectorized |
| SMA181 | Cascadable | 10 | 250 | 16.5 | 35 | SMT |
| EA54 | Cascadable, High Gain | 5 | 250 | 27 | 16 | TO-5 |
| A75-2 | Cascadable | 5 | 250 | 21 | 19 | TO-8 |
| A181 | Cascadable | 10 | 250 | 16.5 | 35 | TO-8 |
| CA79 | (non-RoHS) Cascadable | 5 | 300 | 14 | 38 | Connectorized |
| A79 | Cascadable | 5 | 300 | 14 | 38 | TO-8 |
| SMA79 | Cascadable | 5 | 300 | 14 | 38 | SMT |
| A56 | Cascadable, High Gain | 5 | 400 | 26 | 27 | TO-8 |
| SMA87 | Cascadable | 10 | 400 | 14 | 33 | SMT |
| A87 | Cascadable | 10 | 400 | 14 | 33 | TO-8 |
| CA87 ◆ | Cascadable | 10 | 400 | 14 | 33 | Connectorized |
| EA2 | Cascadable | 5 | 400 | 13.5 | 21 | TO-5 |
| AMC-146-SMA ◆ | Cascadable, High Linearity | 10 | 500 | 21 | 35 | Connectorized |
| AMC-151-SMA ◆ | Cascadable, High Dynamic Range | 5 | 500 | 12 | 36 | Connectorized |
| MAAM-007502-SPA512 | Cascadable, Medium Power | 10 | 500 | 18 | 40 | SMTO-8 |
| SMRA89 | Cascadable, High Gain | 5 | 500 | 26.5 | 35 | SMT |
| SMA74-2 | Cascadable, High Efficiency | 5 | 500 | 26 | 10 | SMT |
| SMPA511 | Cascadable, Medium Power | 10 | 500 | 12.7 | 40 | SMT |
| A5 | Cascadable Amplifier | 5 | 500 | 14.8 | 22 | TO-8 |
| PA511 | Cascadable, Medium Power | 10 | 500 | 12.7 | 40 | TO-8 |
| EA54-2 | Cascadable, High Gain | 5 | 500 | 29.5 | 20 | TO-5 |
| 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 |
| 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 |
| SMA54 | Cascadable | 5 | 500 | 15.5 | 21 | SMT |
| 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 |
| A513 | Cascadable | 10 | 500 | 20 | 30 | TO-8 |
| A5-5 | Cascadable | 5 | 500 | 15.5 | 21 | 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 |

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## Hybrid Amplifiers: Gain Block (continued)

| Part Number | Description | Min Freq (MHz) | Max Freq (MHz) | Gain (dB) | OIP3 (dBm) | Package |
|---|---|---|---|---|---|---|
| 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 |
| A11-2 | Cascadable | 5 | 1000 | 16 | 10 | TO-8 |
| AMC-145-SMA ◆ | Cascadable | 10 | 1000 | 10.7 | 32 | Connectorized |
| AM-177-PIN ◆ | Cascadable | 10 | 1000 | 12 | 35 | TO-8-1 12.7 dia. x 11 |
| 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-180-SMA ◆ | Cascadable | 5 | 1000 | 9.7 | 28 | 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 |
| 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 |

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## Hybrid Amplifiers: Gain Block (continued)

| Part Number | Description | Min Freq (MHz) | Max Freq (MHz) | Gain (dB) | OIP3 (dBm) | Package |
|---|---|---|---|---|---|---|
| SMA27 | Cascadable | 5 | 1500 | 8.5 | 28 | SMT |
| 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 |
| A36-1 | Cascadable | 100 | 2300 | 16.2 | 23 | TO-8 |
| SMA36-1 | Cascadable | 100 | 2300 | 16.2 | 23 | SMT |
| A33-1 | Cascadable | 2 | 2400 | 9 | 19 | TO-8 |
| SMA33-1 | Cascadable | 2 | 2400 | 9 | 19 | SMT |
| A35-1 | Cascadable | 2 | 2400 | 9 | 23 | TO-8 |
| CA33-1 ◆ | Cascadable | 2 | 2400 | 9 | 19 | Connectorized |
| SMA35-1 | Cascadable | 2 | 2400 | 9 | 23 | SMT |
| CA3010 ◆ | Cascadable | 0 | 2500 | 9.5 | 35 | Connectorized |
| MAAM-007947-CA3602 ◆ | Cascadable | 100 | 2600 | 15 | 30 | Connectorized |
| A36-2 | Cascadable | 100 | 2600 | 15 | 30 | TO-8 |
| SMA36-2 | Cascadable | 100 | 2600 | 15 | 30 | SMT |
| SMPA38-2 | Cascadable, Medium Power | 200 | 2600 | 8.5 | 33 | SMT |
| PA38-2 | Cascadable, Medium Power | 200 | 2600 | 8.5 | 33 | TO-8 |
| SMA43 | Cascadable | 100 | 3200 | 11.5 | 21 | SMT |
| A43 | Cascadable | 100 | 3200 | 11.5 | 21 | TO-8 |
| CPA48 ◆ | Cascadable, Medium Power | 1000 | 4000 | 16 | 34 | Connectorized |
| RA46 | Cascadable, High Gain | 1000 | 4000 | 25.5 | 30 | TO-8B |
| SMPA48 | Cascadable, Medium Power | 1000 | 4000 | 16 | 34 | SMT |
| PA48 | Cascadable, Medium Power | 1000 | 4000 | 16 | 34 | TO-8B |
| SMRA46 | Cascadable, High Gain | 1000 | 4000 | 25.5 | 30 | SMT |
| SMRA62 | Cascadable, High Gain | 2000 | 6000 | 16 | 28 | SMT |
| RA62 | Cascadable, High Gain | 2000 | 6000 | 16 | 28 | TO-8B |
| AM42-0040 | Power, VSAT MMIC | 5900 | 6400 | 30 | 42 | R380/CR15 |
| AM42-0039 | Power, C-Band VSAT | 5900 | 7100 | 33 | 45 | CR15 |
| AM42-0007 | Power, GaAs MMIC | 14000 | 14500 | 22 | 41 | R380/CR15 |
| AM42-0002 | Power, VSAT MMIC | 14000 | 14500 | 22 | 39 | R380 / CR15 |

Note: Part numbers are RoHS compliant ◆ indicates non-RoHS compliant
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All specifications are subject to change.

## 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, Hi Dyn Rge | 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-007844-0CA801 ◆ | 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 |
| A71 | Cascadable Amplifier | 5 | 200 | 18 | 2.1 | 10 | 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 |
| 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 SMTO-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 |
| AMC-119-SMA ◆ | Cascadable, High Linearity | 30 | 250 | 8 | 2.5 | 35 | Connectorized |
| 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 SMTO-8 |
| SMA70-3 | Cascadable, High Dynamic Range | 15 | 300 | 8 | 2.8 | 40 | Ceramic SMTO-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 | SMTO-8 |
| MAAM-007272-0CA515 ◆ | Cascadable, High Gain | 5 | 500 | 27.5 | 3.5 | 33 | Connectorized |
| CA74 ◆ | Cascadable, High Gain | 5 | 500 | 30 | 3 | 20 | Connectorized |

## Hybrid Amplifiers: Low Noise Amplifiers (continued)

| Part Number | Description | Min Freq (MHz) | Max Freq (MHz) | Gain (dB) | Noise Figure (mA) | OIP3 (dBm) | Package |
|---|---|---|---|---|---|---|---|
| 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 | SMTO-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 |
| PAW1027-1 ◆ | Ultra Linear Power, Multi Carrier | 35 | 500 | 38 | 4.2 | 43 | SOT115J |
| A76 | Cascadable, High Gain | 5 | 500 | 28 | 3 | 28 | TO-8 |
| CA531 ◆ | Cascadable | 10 | 500 | 31.7 | 2 | 14 | Connectorized |
| CA180 ◆ | Cascadable | 10 | 500 | 16.5 | 3.4 | 33 | Connectorized |
| SMA59 | Cascadable, High Dynamic Range | 5 | 500 | 11.5 | 4.3 | 36 | SMT |
| SMA81-2 | Cascadable | 20 | 500 | 24.5 | 3 | 28 | 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 |
| SMA531 | Cascadable | 10 | 500 | 31.7 | 2 | 14 | 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 |
| SMA53 | Cascadable | 10 | 500 | 15 | 3 | 16 | SMT |
| 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-007272-0CA514 | Cascadable, High Gain | 5 | 500 | 28 | 4 | 32 | Connectorized |
| A53 | Cascadable | 10 | 500 | 15 | 3 | 16 | TO-8 |
| 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 SMTO-8 |
| AM-160-PIN ◆ | Cascadable, Low Noise | 100 | 600 | 28.2 | 1.6 | 30 | TO-8 |
| AM-191-PIN ◆ | Cascadable | 100 | 600 | 23.5 | 2.5 | 32 | TO-8 |
| SMA67-1 | Cascadable, High Efficiency | 10 | 600 | 15 | 3.7 | 30 | SMT |

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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 |
|---|---|---|---|---|---|---|---|
| SMA611 | Cascadable, Low Noise, Low Volt | 5 | 700 | 15 | 3.2 | 24 | 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 |
| 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 |
| SMA67 | Cascadable, High Efficiency | 10 | 800 | 14 | 4 | 30 | SMT |
| 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 | Cascadable | 5 | 1000 | 16 | 2.5 | 10 | SMT |
| CA18-1 ◆ | Cascadable, High Dynamic Range | 10 | 1000 | 14.7 | 3.8 | 30 | Connectorized |
| 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 |
| SMA12 | Cascadable | 10 | 1000 | 16 | 2.8 | 22 | SMT |
| MAAM-008198-SMA162 | Cascadable, High Efficiency | 10 | 1200 | 13 | 3.5 | 18 | SMTO-8 |
| SMA21-1 | Cascadable | 5 | 1200 | 15.5 | 2.4 | 11 | SMT |
| 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-008198-0CA162 | Cascadable, High Efficiency | 10 | 1200 | 13 | 3.5 | 18 | Connectorized |
| A21-1 | Cascadable | 5 | 1200 | 15.5 | 2.4 | 11 | TO-8 |
| 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 |
| SMA25-1 | Cascadable | 2 | 1500 | 13.5 | 3 | 22 | 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, Hi Linearity | 100 | 2000 | 13 | 2.1 | 32 | Connectorized |
| SMA32 | Cascadable, Hi 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, Hi 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 |
| SMA31-1 | Cascadable | 10 | 2000 | 11.5 | 3.5 | 9 | SMT |

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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 |
|---|---|---|---|---|---|---|---|
| A33 | Cascadable | 10 | 2000 | 9.5 | 4.5 | 15 | TO-8 |
| A31-1 | Cascadable Amplifier | 10 | 2000 | 11.5 | 3.5 | 9 | TO-8 |
| SMPA38 | Cascadable, Medium Power | 200 | 2000 | 10 | 4 | 34 | SMT |
| MAAM-007501-0A2002 | 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 |
| CA4011 ◆ | Cascadable, Low Noise, Low Volt | 1000 | 4000 | 15.5 | 2 | 29 | Connectorized |
| CA45-1 ◆ | Cascadable | 1000 | 4000 | 17.5 | 4 | 26 | Connectorized |
| 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 |

## Hybrid Amplifiers: Limiting Amplifiers

| Part Number | Description | Max 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 |
| SMLA45 | Cascadable, Limiting Amplifier | 1000 | 4000 | 11.5 | Ceramic SMTO-8 |
| CL42 ◆ | Cascadable, Signal Limiter | 50 | 4000 | — | SMA |
| CLA45-1 ◆ | Cascadable, Limiting Amplifier | 1000 | 4000 | 14 | SMA |
| LA45-1 | Cascadable, Limiting Amplifier | 1000 | 4000 | 14 | TO-8 |
| LA45 | Cascadable, Limiting Amplifier | 1000 | 4000 | 11.5 | TO-8 |
| L42 | Cascadable, Signal Limiter | 50 | 4000 | — | TO-8 |
| SML42 | Cascadable, Signal Limiter | 50 | 4000 | — | SMT |
| SMLA45-1 | Cascadable, Limiting Amplifier | 800 | 4200 | 14 | Ceramic SMTO-8 |

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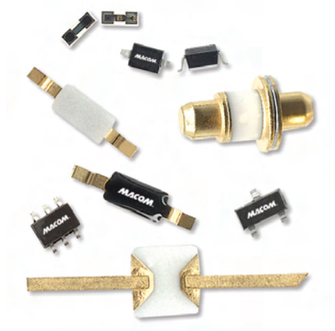
# MACOM Diodes

## 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.



### Varactor Tuning 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

### Varactor Multiplier Diodes

- Flip chip series for higher frequency millimeter wave 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

- CERMACHIP® series for microwave frequency 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 millimeter wave applications
- Surmount chipscale style diodes for surface mount high performance applications
- HIPAX series for high average power surface mount UHF applications
- Kilovolt series for high peak voltage HF and VHF applications
- HIPAX non-magnetic series for high average power MRI HF and VHF 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

- Broadband and high power switch circuits: silicon and GaAs PIN switch diodes
- Analog attenuator circuits: silicon PIN attenuator diodes
- High power limiter circuits: silicon PIN limiter diodes
- Detector and mixer circuits: GaAs and silicon Schottky diodes
- Multiplier circuits: GaAs and silicon Schottky diodes
- Filter and VCO circuits: GaAs and silicon varactor diodes

## 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 |
| MA46603-276 | 0.5 | 0.6 | 6500 | 30 | ODS-276 |
| MAVR-045436-0287AT | 0.5 | 4.7 | 1800 | 30 | ODS-287 |
| MAVR-045436-0287FT | 0.5 | 4.7 | 1800 | 30 | ODS-287 |
| MAVR-045438-0287AT | 0.5 | 6.8 | 1600 | 30 | ODS-287 |
| MAVR-045438-0287FT | 0.5 | 6.8 | 1600 | 30 | ODS-287 |
| MAVR-045439-0287AT | 0.5 | 8.2 | 1500 | 30 | ODS-287 |
| MAVR-045439-0287FT | 0.5 | 8.2 | 1500 | 30 | ODS-287 |
| MAVR-045440-0287AT | 0.5 | 10 | 1300 | 30 | ODS-287 |
| MAVR-045440-0287FT | 0.5 | 10 | 1300 | 30 | ODS-287 |
| MAVR-045441-0287AT | 0.5 | 12 | 1200 | 30 | ODS-287 |
| MAVR-045441-0287FT | 0.5 | 12 | 1200 | 30 | ODS-287 |
| MAVR-045445-0287AT | 0.5 | 27 | 900 | 30 | ODS-287 |
| MAVR-045446-0287AT | 0.5 | 33 | 750 | 30 | ODS-287 |
| MA46H070-1056 | 0.75 | 0.6 | 4500 | 20 | ODS-1056 |
| MA46H071-1056 | 0.75 | 1 | 4500 | 20 | ODS-1056 |
| MA46H071-1088 | 0.75 | 1 | 4500 | 20 | ODS-1088 |
| MA46H072-1056 | 0.75 | 3 | 3000 | 20 | ODS-1056 |
| MA46H073-1056 | 0.75 | 5 | 2200 | 20 | ODS-1056 |
| MA46451-120 | 1 | 0.7 | 4000 | 22 | ODS-120 |
| MA46452-134 | 1 | 1 | 3000 | 22 | ODS-134 Die |
| MA46461-186 | 1 | 4.7 | 1500 | 22 | ODS-186 |
| MA46H120 | 1 | 0.35 | 3000 | 15 | Flip Chip |
| MA46H146 | 1 | 0.06 | 15000 | 26 | Flip Chip |
| MA4ST1231-1141T | 1 | 4.7 | 1700 | 12 | ODS-1141 |
| MA4ST1241-1141T | 1 | 3.4 | 1200 | 12 | ODS-1141 |
| MAVR-000120-12030W | 1 | 0.35 | 3000 | 15 | Flip Chip |
| MAVR-000120-14110G | 1 | 0.35 | 3000 | 20 | Flip Chip |
| MAVR-000120-14110P | 1 | 0.35 | 3000 | 20 | Flip Chip |
| MAVR-000146-12030W | 1 | 0.06 | 15000 | 26 | Flip Chip |
| MAVR-000230-0287AT | 1 | 5 | 400 | 12 | ODS-287 |
| MAVR-000230-0287FT | 1 | 5 | 400 | 12 | ODS-287 |
| MAVR-000230-11410T | 1 | 5 | 400 | 12 | ODS-1141 |
| MAVR-000240-0287AT | 1 | 3.5 | 450 | 12 | ODS-287 |
| MAVR-000240-11410T | 1 | 3.5 | 450 | 12 | SOT |
| MAVR-000240-1146FT | 1 | 3.5 | 450 | 12 | ODS-1146 |
| MAVR-000250-0287AT | 1 | 2.7 | 450 | 12 | ODS-287 |
| MAVR-000250-0287FT | 1 | 2.7 | 450 | 12 | ODS-287 |
| MAVR-000250-11410T | 1 | 2.7 | 450 | 12 | ODS-1141 |
| MAVR-000250-1146FT | 1 | 2.7 | 450 | 12 | ODS-1146 |
| MAVR-000250-12790T | 1 | 2.7 | 450 | 12 | SC-79 |
| MAVR-000320-11410T | 1 | 28 | 300 | 12 | ODS-1141 |
| MAVR-000330-11410T | 1 | 13 | 350 | 12 | ODS-1141 |
| MAVR-000340-11410T | 1 | 9.5 | 350 | 12 | ODS-1141 |
| MAVR-000350-11410T | 1 | 6.2 | 400 | 12 | ODS-1141 |

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## Varactor Tuning Diodes (continued)

| Part Number | Gamma | Total Capacitance (pF) | Quality Factor @ 50 MHz, Min | Breakdown Voltage (V) | Package |
|---|---|---|---|---|---|
| MAVR-000401-0287AT | 1 | 10 | 250 | 22 | ODS-287 |
| MAVR-000401-0287FT | 1 | 10 | 250 | 22 | ODS-287 |
| MAVR-000403-0287AT | 1 | 15 | 250 | 22 | ODS-287 |
| MAVR-000403-0287FT | 1 | 15 | 250 | 22 | ODS-287 |
| MAVR-000404-0287AT | 1 | 18 | 175 | 22 | ODS-287 |
| MAVR-000404-0287FT | 1 | 18 | 175 | 22 | ODS-287 |
| MAVR-000405-0287AT | 1 | 22 | 175 | 22 | ODS-287 |
| MAVR-000405-0287FT | 1 | 22 | 175 | 22 | ODS-287 |
| MAVR-000407-0287AT | 1 | 33 | 150 | 22 | ODS-287 |
| MAVR-000407-0287FT | 1 | 33 | 150 | 22 | ODS-287 |
| MAVR-000409-0287AT | 1 | 47 | 150 | 22 | ODS-287 |
| MAVR-000409-0287FT | 1 | 47 | 150 | 22 | ODS-287 |
| MAVR-001230-12790T | 1 | 4.7 | 1700 | 12 | ODS-1279 |
| MAVR-001240-12790T | 1 | 3.4 | 1200 | 12 | ODS-1279 |
| MAVR-001320-11410T | 1 | 28.3 | 350 | 12 | ODS-1141 |
| MAVR-001320-1146FT | 1 | 28.3 | 350 | 12 | ODS-1146 |
| MAVR-001320-12790T | 1 | 28.3 | 350 | 12 | ODS-1279 |
| MAVR-001330-11410T | 1 | 13.2 | 530 | 12 | ODS-1141 |
| MAVR-001330-1146FT | 1 | 13.2 | 530 | 12 | ODS-1146 |
| MAVR-001330-12790T | 1 | 13.2 | 530 | 12 | ODS-1279 |
| MAVR-001340-11410T | 1 | 9.2 | 600 | 12 | ODS-1141 |
| MAVR-001340-1146FT | 1 | 9.2 | 600 | 12 | ODS-1146 |
| MAVR-001340-12790T | 1 | 9.2 | 600 | 12 | ODS-1279 |
| MAVR-001350-11410T | 1 | 5.9 | 690 | 12 | ODS-1141 |
| MAVR-001350-1146FT | 1 | 5.9 | 690 | 12 | ODS-1146 |
| MAVR-001350-12790T | 1 | 5.9 | 690 | 12 | ODS-1279 |
| MAVR-011005-12790T | 1 | 0.27 | — | 20 | SC-79 |
| MA46470-120 | 1.25 | 0.5 | 4000 | 22 | ODS-120 |
| MA46470-134 | 1.25 | 0.5 | 4000 | 22 | ODS-134 Die |
| MA46470-276 | 1.25 | 0.5 | 4000 | 22 | ODS-276 |
| MA46471-134 | 1.25 | 0.7 | 4000 | 22 | ODS-134 Die |
| MA46473-134 | 1.25 | 1.2 | 3000 | 22 | ODS-134 Die |
| MA46473-186 | 1.25 | 1.2 | 3000 | 22 | ODS-186 |
| MA46474-120 | 1.25 | 1.5 | 3000 | 22 | ODS-120 |
| MA46474-134 | 1.25 | 1.5 | 3000 | 22 | ODS-134 Die |
| MA46474-94 | 1.25 | 1.5 | 3000 | 22 | ODS-94 |
| MA46474-95 | 1.25 | 1.5 | 3000 | 22 | ODS-95 |
| MA46476-120 | 1.25 | 2 | 3000 | 22 | ODS-120 |
| MA46477-134 | 1.25 | 2.2 | 3000 | 22 | ODS-134 Die |
| MA46477-186 | 1.25 | 2.2 | 3000 | 22 | ODS-186 |
| MA46480-134 | 1.25 | 3.8 | 2000 | 22 | ODS-134 Die |
| MA46481-186 | 1.25 | 4.7 | 1500 | 22 | ODS-186 |
| MA46483-186 | 1.25 | 6.8 | 1500 | 22 | ODS-186 |
| MA46580-1209 | 1.25 | 0.5 | 3000 | 18 | ODS-1209 Die |
| MA46585-1209 | 1.25 | 0.5 | 3000 | 18 | ODS-1209 Die |

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## Varactor Tuning Diodes (continued)

| Part Number | Gamma | Total Capacitance (pF) | Quality Factor @ 50 MHz, Min | Breakdown Voltage (V) | Package |
|---|---|---|---|---|---|
| MA46H200-1056 | 1.25 | 0.6 | 3000 | 22 | ODS-1056 |
| MA46H201-1056 | 1.25 | 1 | 3000 | 22 | ODS-1056 |
| MA46H201-1088 | 1.25 | 1 | 3000 | 22 | ODS-1088 |
| MA46H202-1056 | 1.25 | 3 | 2000 | 22 | ODS-1056 |
| MA46H202-1088 | 1.25 | 3 | 2000 | 22 | ODS-1088 |
| MA46H203-1056 | 1.25 | 5 | 1500 | 22 | ODS-1056 |
| MA46H203-1088 | 1.25 | 5 | 1500 | 22 | ODS-1088 |
| MA46H204-1056 | 1.25 | 10 | 1500 | 22 | ODS-1056 |
| MA46H204-1088 | 1.25 | 10 | 1500 | 22 | ODS-1088 |
| MAVR-000202-12790T | 1.25 | 3 | 2000 | 22 | SC-79 |
| MAVR-000079-0287FT | 1.3 | 54.1 | 80 | 12 | ODS-287 |
| MAVR-000080-0287AT | 1.3 | 24.8 | 150 | 12 | ODS-287 |
| MAVR-000080-0287FT | 1.3 | 24.8 | 150 | 12 | ODS-287 |
| MAVR-000081-0287AT | 1.3 | 10.1 | 300 | 12 | ODS-287 |
| MAVR-000081-0287FT | 1.3 | 10.1 | 300 | 12 | ODS-287 |
| MAVR-000082-0287AT | 1.3 | 7.3 | 350 | 12 | ODS-287 |
| MAVR-000083-0287AT | 1.3 | 5 | 450 | 12 | ODS-287 |
| MAVR-000083-0287FT | 1.3 | 5 | 450 | 12 | ODS-287 |
| MA46413-120 | 1.5 | 1 | 2500 | 18 | ODS-120 |
| MA46416-134 | 1.5 | 1.8 | 2500 | 18 | ODS-134 Die |
| MA46418-120 | 1.5 | 2.7 | 1800 | 18 | ODS-120 |
| MA46418-30 | 1.5 | 2.7 | 1800 | 18 | ODS-30 |
| MA46H500-1056 | 1.5 | 0.6 | 2500 | 18 | ODS-1056 |
| MA46H501-1056 | 1.5 | 1 | 2500 | 18 | ODS-1056 |
| MA46H504-1056 | 1.5 | 10 | 1200 | 18 | ODS-1056 |

## Varactor Multiplier Diodes

| Part Number | Junction Capacitance min (pF) | Junction Capacitance max (pF) | Reverse Voltage (V) | Lifetime (ns) | Tt (pS) | Package |
|---|---|---|---|---|---|---|
| MAVR-044769-12790T | 0.8 | 1.2 | 30 | 50 | 150 | ODS-1279 |
| MA144769-287T | 0.8 | 1.2 | 30 | 50 | 150 | ODS-287 |
| MAVR-044767-12790T | 0.8 | 1.2 | 30 | 50 | 150 | SC-79 |
| MAVR-044769-0287FT | 0.8 | 1.2 | 30 | 50 | 150 | ODS-287 |
| MAVR-044767-0287AT | 3 | 4.5 | 30 | 500 | 600 | ODS-287 |

Note: Part numbers are RoHS compliant ◆ indicates non-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) | Dynamic Resistance (Ohm) | TI (ns) | Breakdown Votage Min (V) | Package |
|---|---|---|---|---|---|---|---|---|
| MA4PH611 | 500 | 0 | 10 | 1 | 0.4 | 5000 | 1000 | ODS-1091 |
| MA4P1450NM-1091T | 1 | 300 | 30 | 1.8 | 5 | 8 | 50 | ODS-1091* |
| MA4P1200NM-401T | 5 | 500 | 5.5 | 1.2 | 0.5 | 2000 | 50 | ODS-401* |
| MA4P1250NM-1072T | 5 | 500 | 18 | 0.8 | 0.5 | 2000 | 50 | ODS-1072* |
| MA4PK3004 | 0 | 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 | 1 | 500 | 20 | 0.99 | 0.7 | 4000 | 1000 | ODS-36 |
| MA4PK3001 | 0 | 500 | 75 | 4 | 0.2 | 65000 | 3000 | ODS-1084 |
| MA4P607-43 | 1 | 500 | 25 | 2 | 0.4 | 5000 | 100 | ODS-43 |
| MA4P504-255 | 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 | 0 | 500 | 75 | 4 | 0.2 | 65000 | 3000 | ODS-1073 |
| MA4PK2001 | 0 | 500 | 50 | 3.2 | 0.2 | 30000 | 2000 | ODS-1082 |
| MA4P505-255 | 1 | 500 | 10.7 | 0.55 | 0.4 | 2000 | 500 | ODS-255 |
| MA4PK3003 | 0 | 500 | 50 | 4 | 0.2 | 65000 | 3000 | ODS-1085 |
| MA4P4002B-402 | 0 | 500 | 12 | 2.2 | 0.5 | 20000 | 200 | ODS-402 |
| MA4PK3002 | 0 | 500 | 75 | 4 | 0.2 | 65000 | 3000 | ODS-1074 |
| MA4P4006B-402 | 0 | 500 | 12 | 2.2 | 0.5 | 20000 | 600 | ODS-402 |
| MA4P606-30 | 1 | 500 | 15 | 0.8 | 0.7 | 4000 | 1000 | ODS-30 |
| MA4PK2000 | 0 | 500 | 50 | 3.2 | 0.2 | 30000 | 2000 | ODS-1027 |
| MA4PK2002 | 0 | 500 | 50 | 3.2 | 0.2 | 30000 | 2000 | ODS-1048 |
| MA4PK2003 | 0 | 500 | 37.5 | 3.2 | 0.2 | 30000 | 2000 | ODS-1080 |
| MA4PK2004 | 0 | 500 | 37.5 | 3.2 | 0.2 | 30000 | 2000 | ODS-1038 |
| MA4P604-255 | 1 | 500 | 15 | 0.6 | 1 | 3000 | 1000 | ODS-255 |
| MA4P709-150 | 0 | 500 | 75 | 3.3 | 0.2 | 10000 | 1500 | ODS-150 |
| MA4P4301B-402 | 0 | 500 | 10 | 2 | 1 | 15000 | 100 | ODS-402 |
| MA4P1200-401T | 5 | 500 | 5.5 | 1.2 | 0.5 | 2000 | 50 | ODS-401 |
| MA4P4001B-402 | 0 | 500 | 12 | 2.2 | 0.5 | 20000 | 100 | ODS-402 |
| MA4P607-296 | 1 | 500 | 25 | 2.35 | 0.4 | 5000 | 1000 | ODS-296 |
| MA4P4302B-402 | 0 | 500 | 10 | 2 | 1 | 15000 | 200 | ODS-402 |
| MA4P7435NM-1091T | 0 | 1000 | 50 | 2.5 | 0.2 | 14000 | 1100 | ODS-1091* |
| MA4P7002B-401T | 1 | 1000 | 5 | 0.7 | 0.9 | 5000 | 200 | ODS-401 |
| 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* |
| MA4P1450-1091T | 0 | 1000 | 30 | 1.8 | 0.5 | 8 | 50 | ODS-1091 |
| 1N5719-54 | 1 | 1000 | 0.3 | 0.35 | 1.5 | 3000 | 100 | ODS-54 |
| MA4P4001F-1091T | 0 | 1000 | 7.5 | 2.2 | 0.5 | 20000 | 100 | ODS-1091 |
| MA4P4002F-1091T | 0 | 1000 | 7.5 | 2.2 | 0.5 | 20000 | 200 | ODS-1091 |
| MA47266-146 | 1 | 1000 | 0.5 | 1.5 | 0.6 | 3000 | 200 | ODS-146 |
| MA4P4301F-1091T | 0 | 1000 | 5 | 2 | 1 | 15000 | 100 | ODS-1091 |
| MA4P606-4 | 1 | 1000 | 1 | 0.7 | 0.7 | 4000 | 1000 | ODS-4 |
| MA4P4006F-1091T | 0 | 1000 | 7.5 | 2.2 | 0.5 | 20000 | 600 | ODS-1091 |
| MA4PH239-1079T | 0 | 1000 | 1 | 0.8 | 6 | 2000 | 200 | ODS-1079 |
| MA4P504-4 | 1 | 1000 | 1 | 0.35 | 0.6 | 1000 | 500 | ODS-4 |
| MA47047-54 | 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 | 1 | 1000 | 15 | 0.6 | 0.7 | 4000 | 1000 | ODS-131 Die |

* Non-magnetic

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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) | Dynamic Resistance (Ohm) | TI (ns) | Breakdown Votage Min (V) | Package |
|---|---|---|---|---|---|---|---|---|
| MA4P7101F-1072T | 1 | 1000 | 11.5 | 1 | 0.5 | 2500 | 100 | ODS-1072 |
| MA44781 | 10 | 1000 | 1.7 | 1.5 | 0.8 | 200 | 60 | ODS-1134 |
| MA4PH237-1079T | 1 | 1000 | 1 | 1.5 | 0.6 | 3000 | 200 | ODS-1079 |
| MA4P505-4 | 1 | 1000 | 15 | 0.55 | 0.4 | 2000 | 500 | ODS-4 |
| MA4P506-4 | 1 | 1000 | 1 | 0.85 | 0.3 | 3000 | 500 | ODS-4 |
| MA47208 | 1 | 1000 | 15 | 1.3 | 0.3 | 1300 | 1000 | ODS-114 |
| MA45471 | 10 | 1000 | 1.7 | 3.3 | — | 200 | 75 | ODS-1134 |
| MA4P7006B-401T | 1 | 1000 | 5 | 0.7 | 0.9 | 5000 | 600 | ODS-401 |
| MA4P7101B-401T | 1 | 1000 | 6 | 1 | 0.5 | 2500 | 100 | ODS-401 |
| MADP-000504-10720T | 0 | 1000 | 2.9 | 0.5 | 0.6 | 1000 | 500 | ODS-1072* |
| MADP-007417-1072T | 0 | 1000 | 12 | 0.7 | 0.8 | 6500 | 1000 | ODS-1072 |
| 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-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-000235-10720T | 0 | 1500 | 7.5 | 1.2 | 0.5 | 300 | 35 | ODS-1072* |
| MADP-000234-10720T | 0 | 1500 | 3 | 1.7 | 0.2 | 3000 | 500 | ODS-1072 |
| MA4P7418-1072T | 0 | 1500 | 11.5 | 0.8 | 1.2 | 7000 | 1100 | 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* |
| MA4P505-1072T | 0 | 1500 | 15 | 0.7 | 0.4 | 2000 | 500 | ODS-1072 |
| MA4P7002F-1072T | 0 | 1500 | 10 | 0.7 | 0.9 | 5000 | 200 | ODS-1072 |
| MA4P504-1072T | 0 | 1500 | 7.5 | 0.55 | 0.6 | 1000 | 500 | ODS-1072 |
| MA4P7006F-1072T | 0 | 1500 | 10 | 0.7 | 0.9 | 5000 | 600 | ODS-1072 |
| MA4P7102F-1072T | 0 | 1500 | 11.5 | 1 | 0.5 | 2500 | 200 | ODS-1072 |
| MA4P7104F-1072T | 0 | 1500 | 11.5 | 1 | 0.5 | 2500 | 400 | ODS-1072 |
| MA4P506-1072T | 0 | 1500 | 15 | 1 | 0.3 | 3000 | 500 | ODS-1072 |
| MA4P7001F-1072T | 0 | 1500 | 10 | 0.7 | 0.9 | 5000 | 100 | ODS-1072 |
| MA4P1250-1072T | 0 | 1500 | 18 | 0.9 | 0.5 | 2000 | 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 |
| MADP-011037-13900T | 50 | 2000 | 5 | 0.3 | 0.6 | 1000 | 400 | 3 mm HQFN-16 |
| 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 |
| MA4P404-31 | 5 | 2000 | 7.5 | 0.58 | 0.6 | 1000 | 250 | ODS-31 |
| MA4P404-258 | 5 | 2000 | 7.5 | 0.58 | 0.7 | 1000 | 250 | ODS-258 |
| MA4P404-30 | 5 | 2000 | 7.5 | 0.4 | 0.6 | 1000 | 250 | ODS-30 |
| MA4PH236-1072T | 10 | 2000 | 1 | 0.5 | 3 | 1500 | 600 | ODS-1072 |
| MA4P7433ST-1146T | 25 | 2500 | 0.2 | 0.47 | 1.5 | 200 | 75 | SOT-323 |
| MADP-007448-0287DT | 25 | 2500 | 0.3 | 0.37 | 2 | 400 | 100 | SOT-23 |
| MADP-007167-0287FT | 1 | 2500 | 0.3 | 0.42 | 16 | 3000 | 200 | SOT-23 |
| MADP-007167-0287BT | 1 | 2500 | 0.3 | 0.42 | 16 | 3000 | 200 | SOT-23 |
| MADP-007436-0287DT | 25 | 2500 | 0.2 | 1.12 | 0.5 | 200 | 75 | SOT-23 |
| MADP-007433-0287DT | 25 | 2500 | 0.3 | 0.42 | 1.5 | 200 | 75 | SOT-23 |
| MADP-007167-11410T | 1 | 2500 | 0.2 | 0.42 | 16 | 3000 | 200 | SOD-323 |
| MA4P7455CA-287T | 5 | 2500 | 0.3 | 0.35 | 3 | 1000 | 100 | SOT-23 |

* Non-magnetic

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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) | Dynamic Resistance (Ohm) | TI (ns) | Breakdown Votage Min (V) | Package |
|---|---|---|---|---|---|---|---|---|
| MADP-007167-0287GT | 1 | 2500 | 0.3 | 0.42 | 16 | 3000 | 200 | SOT-23 |
| MA4P7447ST-287T | 15 | 2500 | 0.3 | 1.32 | 0.6 | 1000 | 100 | SOT-23 |
| MA4P7436CK-287T | 25 | 2500 | 0.3 | 1.12 | 0.5 | 200 | 75 | SOT-23 |
| MA4P7455CA-1146T | 5 | 2500 | 0.2 | 0.47 | 3 | 1000 | 100 | SOT-323 |
| MADP-007448-12790T | 25 | 2500 | 0.2 | 0.35 | 2 | 400 | 100 | SC-79 |
| MADP-007167-0287DT | 1 | 2500 | 0.3 | 0.42 | 16 | 3000 | 200 | SOT-23 |
| MA4P7436ST-287T | 25 | 2500 | 0.3 | 1.12 | 0.5 | 200 | 75 | SOT-23 |
| MA4P7447CA-287T | 15 | 2500 | 0.3 | 1.32 | 0.6 | 1000 | 100 | SOT-23 |
| MADP-007448-0287BT | 25 | 2500 | 0.3 | 0.37 | 2 | 400 | 100 | SOT-23 |
| MADP-007448-1146GT | 25 | 2500 | 0.2 | 0.37 | 2 | 400 | 100 | SOT-323 |
| MA4P7455-287T | 5 | 2500 | 0.3 | 0.47 | 3 | 1000 | 100 | SOT-23 |
| MADP-007455-0287DT | 5 | 2500 | 0.3 | 0.47 | 3 | 400 | 100 | SOT-23 |
| MA4P7455ST-287T | 5 | 2500 | 0.3 | 0.47 | 3 | 1000 | 100 | SOT-23 |
| MA4P7436-1141T | 25 | 2500 | 0.2 | 1.11 | 0.5 | 200 | 75 | SOD-323 |
| MADP-007436-1146DT | 25 | 2500 | 0.2 | 1.12 | 0.5 | 200 | 75 | SOT-323 |
| MA4P7433ST-287T | 25 | 2500 | 0.3 | 0.47 | 1.5 | 200 | 75 | SOT-23 |
| MA4P7447-1141T | 15 | 2500 | 0.2 | 1.31 | 0.6 | 1000 | 100 | SOD-323 |
| MA4P7433CK-287T | 25 | 2500 | 0.3 | 0.47 | 1.5 | 200 | 75 | SOT-23 |
| MA4P7433-287T | 25 | 2500 | 0.3 | 0.47 | 1.5 | 200 | 75 | SOT-23 |
| MA4P7455CK-1146T | 5 | 2500 | 0.2 | 0.47 | 3 | 1000 | 100 | SOT-323 |
| MADP-007155-0287DT | 15 | 2500 | 0.3 | 1.32 | 0.6 | 1000 | 100 | SOT-23 |
| MA4P7447-287T | 15 | 2500 | 0.3 | 1.32 | 0.6 | 1000 | 100 | SOT-23 |
| MA4P7455CK-287T | 5 | 2500 | 0.3 | 0.35 | 3 | 1000 | 100 | SOT-23 |
| MA4P7433-1141T | 25 | 2500 | 0.2 | 0.46 | 1.5 | 200 | 75 | SOD-323 |
| MA4P7436-287T | 25 | 2500 | 0.3 | 1.12 | 0.5 | 200 | 75 | SOT-23 |
| MA4P7433CA-287T | 25 | 2500 | 0.3 | 0.47 | 1.5 | 200 | 75 | SOT-23 |
| MA4P7447CK-287T | 15 | 2500 | 0.3 | 1.32 | 0.6 | 1000 | 100 | SOT-23 |
| MA4P7436CK-1146T | 25 | 2500 | 0.2 | 1.12 | 0.5 | 200 | 75 | SOT-323 |
| MA4P604-258 | 1 | 2500 | 15 | 0.68 | 1 | 3000 | 1000 | ODS-258 |
| MA4P604-30 | 1 | 2500 | 15 | 0.5 | 1 | 3000 | 1000 | ODS-30 |
| MA4P7433-1146T | 25 | 2500 | 0.2 | 0.47 | 1.5 | 200 | 75 | SOT-323 |
| MA4P7433CA-1146T | 25 | 2500 | 0.2 | 0.47 | 1.5 | 200 | 75 | SOT-323 |
| MA4P7433CK-1146T | 25 | 2500 | 0.2 | 0.47 | 1.5 | 200 | 75 | SOT-323 |
| MA4P7436-1146T | 25 | 2500 | 0.2 | 1.12 | 0.5 | 200 | 75 | SC-70 (3L) |
| MA4P7436CA-1146T | 25 | 2500 | 0.2 | 1.12 | 0.5 | 200 | 75 | SOT-323 |
| MA4P7436CA-287T | 25 | 2500 | 0.3 | 1.12 | 0.5 | 200 | 75 | SOT-23 |
| MA4P7436ST-1146T | 25 | 2500 | 0.2 | 1.12 | 0.5 | 200 | 75 | SOT-323 |
| MA4P7447-1146T | 15 | 2500 | 0.2 | 1.32 | 0.6 | 1000 | 100 | SOT-323 |
| MA4P7455-1146T | 5 | 2500 | 0.2 | 0.47 | 3 | 1000 | 100 | SC-70 (3L) |
| MA4P7455ST-1146T | 5 | 2500 | 0.3 | 0.47 | 3 | 1000 | 100 | SOT-323 |
| MADP-007167-287AT | 1 | 2500 | 0.3 | 0.42 | 16 | 3000 | 200 | SOT-23 |
| MADP-007433-1146DT | 25 | 2500 | 0.3 | 0.42 | 1.5 | 200 | 75 | SOT-323 |
| MADP-007448-0287AT | 25 | 2500 | 0.3 | 0.37 | 2 | 400 | 100 | SOT-23 |
| MADP-007448-0287FT | 25 | 2500 | 0.3 | 0.37 | 2 | 400 | 100 | SOT-23 |
| MADP-007448-0287GT | 25 | 2500 | 0.3 | 0.37 | 2 | 400 | 100 | SOT-23 |
| MADP-007448-11410T | 25 | 2500 | 0.2 | 0.36 | 2 | 400 | 100 | SOD-323 |
| MADP-007448-1146BT | 25 | 2500 | 0.2 | 0.37 | 2 | 400 | 100 | SOT-323 |

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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) | Dynamic Resistance (Ohm) | TI (ns) | Breakdown Votage Min (V) | Package |
|---|---|---|---|---|---|---|---|---|
| MADP-007455-1146DT | 5 | 2500 | 0.2 | 0.42 | 3 | 1000 | 100 | SOT-323 |
| MADP-010633-13920T | 25 | 3000 | 6 | 0.4 | 0.6 | 1000 | 500 | ODS-1392 |
| 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 |
| MADP-000506-014400 | 1 | 4000 | 10 | 0.7 | 0.3 | 100 | 500 | ODS-144 |
| MADP-007433-0287HT | 25 | 4000 | 0.3 | 0.42 | 1.5 | 200 | 75 | SOT-23 |
| MADP-007433-12790T | 25 | 4000 | 0.2 | 0.4 | 1.5 | 200 | 75 | SC-79 |
| MADP-042405-130600 | 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 | SC-79 |
| MADP-007455-12790T | 5 | 4000 | 0.2 | 0.45 | 3 | 1000 | 100 | SC-79 |
| MA4P505-36 | 1 | 4000 | 15 | 0.55 | 0.4 | 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 |
| MA4P202-276 | 50 | 4000 | 0.3 | 0.25 | 2.5 | 60 | 100 | ODS-276 |
| MA4P506-131 | 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 |
| MADP-007167-0287HT | 1 | 4000 | 0.3 | 0.42 | 16 | 3000 | 200 | SOT-23 |
| MADP-042408-130600 | 50 | 4000 | 1.5 | 0.36 | 0.6 | 380 | 100 | ODS-1306 Die |
| MADP-007437-0287BT | 5 | 5000 | 0.3 | 0.42 | 6 | 2000 | 200 | SOT-23 |
| MADP-007437-0287DT | 5 | 5000 | 0.3 | 0.42 | 6 | 2000 | 200 | SOT-23 |
| MADP-007438-0287FT | 5 | 5000 | 0.2 | 0.42 | 10 | 3000 | 200 | SOT-23 |
| MADP-007438-0287DT | 5 | 5000 | 0.3 | 0.42 | 10 | 3000 | 200 | SOT-23 |
| MA4P7437-1141T | 5 | 5000 | 0.2 | 0.46 | 6 | 2000 | 200 | SOD-323 |
| MADP-007438-0287BT | 5 | 5000 | 0.3 | 0.42 | 10 | 3000 | 200 | SOT-23 |
| MA4P7437-287T | 5 | 5000 | 0.3 | 0.47 | 6 | 2000 | 200 | SOT-23 |
| MADP-007437-0287FT | 5 | 5000 | 0.3 | 0.42 | 6 | 2000 | 200 | SOT-23 |
| MA4P7455-1141T | 5 | 5000 | 0.2 | 0.46 | 3 | 1000 | 100 | SOD-323 |
| MA4P7438-287T | 5 | 5000 | 0.2 | 0.47 | 10 | 3000 | 200 | SOT-23 |
| MA4P7438-1141T | 5 | 5000 | 0.2 | 0.46 | 10 | 3000 | 200 | SOD-323 |
| MA4P7437CA-287T | 5 | 5000 | 0.3 | 0.47 | 6 | 2000 | 200 | SOT-23 |
| MA4P7438-1146T | 5 | 5000 | 0.2 | 0.47 | 10 | 3000 | 200 | SOT-323 |
| MA4P7438CA-287T | 5 | 5000 | 0.3 | 0.47 | 10 | 3000 | 200 | SOT-23 |
| MADP-042308-130600 | 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 | SC-79 |
| MADP-042305-130600 | 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 | 1 | 6000 | 10.7 | 0.35 | 0.4 | 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-030015-1314 | 1 | 6000 | 11.5 | 0.78 | 0.5 | 1600 | 115 | ODS-1314 Die |
| MADP-030025-1314 | 1 | 6000 | 11.5 | 0.5 | 0.6 | 2800 | 135 | ODS-1314 Die |
| MA4P504-144 | 1 | 8000 | 7.5 | 0.4 | 0.6 | 10 | 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 |

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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) | Dynamic Resistance (Ohm) | TI (ns) | Breakdown Votage Min (V) | Package |
|---|---|---|---|---|---|---|---|---|
| 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 | 0 | 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 |
| MADP-011028-14150T | 50 | 12000 | 4.3 | 0.24 | 3.4 | 2000 | 200 | 1.5 x 1.2 mm DFN-6 |
| MADP-011027-14150T | 50 | 12000 | 3.3 | 0.24 | 1.9 | 1000 | 100 | 1.5 x 1.2 mm DFN-6 |
| MADP-011029-14150T | 50 | 12000 | 7.5 | 0.31 | 1.5 | 1000 | 400 | 1.5 x 1.2 mm DFN-6 |
| 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 |
| MADP-064908-131000 | 50 | 18000 | 1 | 0.05 | 5 | 200 | 100 | ODS-1310 die |
| MA4PBL027 | 100 | 18000 | 0.2 | 0.03 | 4 | 5 | 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 |
| 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 |
| MA4FCP305 | 100 | 24000 | 0.2 | 0.06 | 2.1 | 25 | 40 | ODS-1269 Die |
| 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 |
| MADP-001907-13050P | 100 | 30000 | 0.5 | 0.03 | 4.2 | 4 | 50 | Flip Chip |
| MADP-000907-14020P | 100 | 30000 | 0.1 | 0.03 | 5.2 | 4 | 45 | Flip Chip |
| MADP-000907-14020W | 100 | 30000 | 0.1 | 0.03 | 5.2 | 4 | 45 | Flip Chip |
| MA4AGP907 | 100 | 30000 | 0.1 | 0.03 | 5.2 | 4 | 50 | Flip Chip |
| MA4FCP300 | 100 | 30000 | 0.2 | 0.03 | 2.6 | 140 | 70 | ODS-1269 Die |
| MA4GP907 | 100 | 30000 | 0.3 | 0.03 | 4.2 | 2 | 45 | Flip Chip |
| MA4AGFCP910 | 100 | 40000 | 0.1 | 0.02 | 5.2 | 4 | 75 | Flip Chip |
| MA4AGBLP912 | 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 | Beam Lead |
| MA4GP022 | 100 | 40000 | 0.3 | 0.15 | 1 | 20 | 50 | ODS-277 |
| MA4GP030 | 100 | 40000 | 0.3 | 0.06 | 2 | 25 | 100 | ODS-277 |

## PIN Limiter Diodes

| Part Number | Incident Power, Max (W) | Thermal Resistance | Junction Capacitance (pF) | Resistance | Lifetime (μs) | Package |
|---|---|---|---|---|---|---|
| MADL-011008 | 33 | 150 | 0.3 | 1.5 | 15 | 1.2 x 1.5 mm PDFN-6 |
| MADL-011021-14150T | 35 | 100 | 0.4 | 1.5 | 10 | 1.5 x 1.2 mm TDFN-6 |
| MADL-000011-13880G | 80 | 175 | 0.18 | 2.1 | 10 | ODS-134 / flying lead |
| MA4L011-31 | 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 | 80 | 175 | 0.33 | 2.1 | 10 | ODS-186 |
| MA4L011-134 | 80 | 175 | 0.18 | 2.1 | 10 | ODS-134 |
| MA4L011-1056 | 80 | 175 | 0.38 | 2.1 | 10 | ODS-1056 |

## PIN Limiter Diodes (continued)

| Part Number | Incident Power, Max (W) | Thermal Resistance | Junction Capacitance (pF) | Resistance | Lifetime (ns) | Package |
|---|---|---|---|---|---|---|
| MA4L011-30 | 80 | 175 | 0.36 | 2.1 | 10 | ODS-30 |
| MA4L011-32 | 80 | 175 | 0.48 | 2.1 | 10 | ODS-32 |
| MA4L011-54 | 80 | 175 | 0.24 | 2.1 | 10 | ODS-54 |
| MADL-011021-14210G | 90 | 175 | 0.2 | 2.1 | 10 | ODS-1421 |
| MADL-011009-01340W | 90 | 175 | 0.23 | 1.5 | 10 | ODS-134 |
| MADL-000021-003000 | 90 | 175 | 0.38 | 21 | 10 | ODS-30 |
| MA4L022-120 | 90 | 175 | 0.32 | 2 | 10 | ODS-120 |
| MA4L022-137 | 90 | 175 | 0.33 | 2 | 10 | ODS-137 |
| 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 |
| MA4L022-134 | 90 | 175 | 0.19 | 2 | 10 | ODS-134 |
| 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 |
| MADL-011010-01340W | 125 | 150 | 0.24 | 1.5 | 15 | ODS-134 |
| MADL-000031-13880G | 125 | 150 | 0.21 | 2.1 | 20 | ODS-134 / flying lead |
| 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 |
| MA4L032-1056 | 125 | 150 | 0.4 | 2.5 | 15 | ODS-1056 |
| MA4L032-134 | 125 | 150 | 0.2 | 2.5 | 15 | ODS-134 |
| MA4L031-1056 | 125 | 150 | 0.41 | 2 | 20 | ODS-1056 |
| MA4L032-31 | 125 | 150 | 0.38 | 2.5 | 15 | ODS-31 |
| MA4L031-36 | 125 | 150 | 0.39 | 2 | 20 | ODS-36 |
| MADL-000032-13870G | 125 | 150 | 0.2 | 2.5 | 10 | ODS-134 / flying lead |
| MADL-011011-01340W | 200 | 150 | 0.17 | 2.3 | 10 | ODS-134 |
| MADL-000062-13880G | 200 | 150 | 0.15 | 2.5 | 10 | ODS-134 / flying lead |
| MA4L062-134 | 200 | 150 | 0.15 | 2.5 | 10 | ODS-134 |
| MADL-000101-13880G | 250 | 30 | 0.15 | 2 | 90 | ODS-134 / flying lead |
| MA4L101-134 | 250 | 30 | 0.15 | 2 | 90 | ODS-134 |
| MA4L101-186 | 250 | 30 | 0.3 | 2 | 90 | ODS-186 |
| MA4L101-30 | 250 | 30 | 0.33 | 2 | 90 | ODS-30 |
| MADL-000301-01340W | 500 | 30 | 0.2 | 1.5 | 200 | ODS-134 |
| MA4L301-1056 | 500 | 30 | 0.4 | 1.5 | 200 | ODS-1056 |
| MA4L301-1249 | 500 | 30 | 0.32 | 1.5 | 200 | ODS-1249 |
| MA4L301-31 | 500 | 30 | 0.38 | 1.5 | 200 | ODS-31 |
| MADL-000301-13870G | 500 | 30 | 0.2 | 1.5 | 200 | ODS-134 / flying lead |
| 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 |
| 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-134 / flying lead |
| MADL-000062-105600 | 2000 | 150 | 0.35 | 2.5 | 10 | ODS-1056 |

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## Schottky Mixer and Detector Diodes

| Part Number | Min Frequency (MHz) | Max Frequency (MHz) | Total Capacitance (pF) | Resistance | Vf | Vb | Package |
|---|---|---|---|---|---|---|---|
| MA4E932A-186 | 0 | 18 | 0.25 | — | — | — | ODS-186 |
| MA4E932B-186 | 0 | 18 | 0.25 | — | — | — | ODS-186 |
| MA4E929B-119 | 0 | 18 | 0.25 | — | — | — | ODS-119 |
| MA4E929A-119 | 0 | 18 | 0.25 | — | — | — | ODS-119 |
| MADS-002811-00540T | 0 | 3000 | 1.2 | — | 0.41 | 15 | ODS-54 |
| 1N5711 | 0 | 3000 | 2 | — | 0.4 | 70 | ODS-54 |
| MA4E2812-54 | 0 | 3000 | 1.2 | — | 0.55 | 20 | ODS-54 |
| 1N5712 | 0 | 3000 | 1.2 | — | 0.6 | 20 | ODS-54 |
| MA4E2811 | 0 | 3000 | 1.2 | — | 0.41 | 15 | ODS-54 |
| MA40261-186 | 0 | 3000 | 0.32 | — | — | — | ODS-186 |
| MADS-005711-0054MT | 0 | 3000 | 2 | — | 0.41 | 70 | ODS-54 |
| MADS-005712-0054MT | 0 | 3000 | 1.2 | — | 0.55 | 20 | ODS-54 |
| MA4E2054C1-287T | 0 | 4000 | 0.3 | 17 | 0.25 | 3 | SOT-23 |
| MA4E1338B1-1146T | 0 | 4000 | 1 | — | 0.36 | 8 | SC-70 (3L) |
| MA4E1339A1-1141T | 0 | 4000 | 1.2 | — | 0.41 | 20 | SOD-323 |
| MADS-001340-12790T | 0 | 4000 | 2 | — | 0.41 | 70 | SC-79 |
| MA4E2200D1-287T | 0 | 4000 | 0.25 | — | 0.22 | 1.5 | SOT-23 |
| MADS-003000-1292LT | 0 | 4000 | 0.5 | 7 | 0.245 | — | ODS-1292 |
| MA4E1338A1-1141T | 0 | 4000 | 1 | — | 0.36 | 8 | SOD-323 |
| MA4E1340A1-287T | 0 | 4000 | 2 | — | 0.41 | 70 | SOT-23 |
| MADS-003000-1292HT | 0 | 4000 | 0.5 | 6 | 0.6 | — | ODS-1292 |
| MA4E2200A1-1141T | 0 | 4000 | 0.25 | — | 0.22 | 1.5 | SOD-323 |
| MA4E1340B1-1146T | 0 | 4000 | 2 | — | 0.41 | 70 | SC-70 (3L) |
| MADS-001339-12790T | 0 | 4000 | 1.2 | — | 0.41 | 20 | SC-79 |
| MADS-001338-12790T | 0 | 4000 | 1 | — | 0.36 | 8 | SC-79 |
| MA4E20541-1279T | 0 | 4000 | 0.3 | 17 | 0.25 | 3 | SC-79 |
| MADS-002200-12790T | 0 | 4000 | 0.25 | — | 0.22 | 1.5 | SC-79 |
| MA4E2200B1-287T | 0 | 4000 | 0.25 | — | 0.22 | 1.5 | SOT-23 |
| MA4E2054B1-1146T | 0 | 4000 | 0.3 | 17 | 0.25 | 3 | SC-70 (3L) |
| MA4E1339B1-287T | 0 | 4000 | 1.2 | — | 0.41 | 20 | SOT-23 |
| MA4E2054A1-287T | 0 | 4000 | 0.3 | 17 | 0.25 | 3 | SOT-23 |
| MA4E20541-1141T | 0 | 4000 | 0.3 | 17 | 0.25 | 3 | SOD-323 |
| MA4E1338A1-287T | 0 | 4000 | 1 | — | 0.36 | 8 | SOT-23 |
| MA4E1340A1-1141T | 0 | 4000 | 2 | — | 0.41 | 70 | SOD-323 |
| MA4E2054D1-287T | 0 | 4000 | 0.3 | 17 | 0.25 | 3 | SOT-23 |
| MA4E2054B1-287T | 0 | 4000 | 0.3 | 17 | 0.25 | 3 | SOT-23 |
| MA4E1338B1-287T | 0 | 4000 | 1 | — | 0.36 | 8 | SOT-23 |
| MA4E1339A1-1146T | 0 | 4000 | 1.2 | — | 0.41 | 20 | SC-70 (3L) |
| MA4E1339A1-287T | 0 | 4000 | 1.2 | — | 0.41 | 20 | SOT-23 |
| MA4E1339B1-1146T | 0 | 4000 | 1.2 | — | 0.41 | 20 | SC-70 (3L) |
| MA4E1340A1-1146T | 0 | 4000 | 2 | — | 0.41 | 70 | SC-70 (3L) |
| MA4E1340B1-287T | 0 | 4000 | 2 | — | 0.41 | 70 | SOT |
| 23MA4E2054A1-1146T | 0 | 4000 | 0.3 | 17 | 0.25 | 3 | SC-70 (3L) |
| MADS-011010-1415 | 0 | 6000 | 0.34 | 7 | 0.1 | 3 | 1.5 x 1.2 mm TDFN-6 |
| MA40205-119 | 0 | 10000 | 0.32 | — | — | — | ODS-119 |
| MA4E931Z2-1261A | 0 | 10000 | — | — | 0.15 | 3 | ODS-1261-DIE |
| MA4E2054L-1261 | 0 | 10000 | 0.15 | 17 | 0.25 | 3 | ODS-1261 |

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.

## Schottky Mixer and Detector Diodes (continued)

| Part Number | Min Frequency (MHz) | Max Frequency (MHz) | Total Capacitance (pF) | Resistance | Vf | Vb | Package |
|---|---|---|---|---|---|---|---|
| MA40201-119 | 0 | 10000 | 0.32 | — | — | — | ODS-119 |
| MA40143-213 | 0 | 10000 | 0.32 | — | — | — | ODS-213 |
| MA40215-276 | 0 | 10000 | 0.32 | — | — | — | ODS-276 |
| MA40208-276 | 0 | 10000 | 0.32 | — | — | — | ODS-276 |
| MA40147-213 | 0 | 10000 | 0.32 | — | — | — | ODS-213 |
| MA40264-186 | 0 | 10000 | 0.32 | — | — | — | ODS-186 |
| MADS-011010-1419 | 0 | 10000 | 0.15 | 7 | 0.15 | 3 | ODS-1419-DIE |
| MA40215-120 | 0 | 16000 | 0.32 | — | — | — | ODS-1200 |
| MADS-002545-1307MG | 0 | 18000 | 0.11 | 10 | 0.39 | 5 | ODS-1307 |
| MADS-002545-1307LG | 0 | 18000 | 0.11 | 11 | 0.305 | 5 | ODS-1307 |
| MADS-002545-1307HG | 0 | 18000 | 0.11 | 10 | 0.65 | 5 | ODS-1307 |
| MADS-002545-1307HT | 0 | 18000 | 0.11 | 10 | 0.65 | 5 | ODS-1307 |
| MADS-002545-1307LT | 0 | 18000 | 0.11 | 11 | 0.305 | 5 | ODS-1307 |
| MADS-002545-1307MT | 0 | 18000 | 0.11 | 10 | 0.39 | 5 | ODS-1307 |
| MADS-002502-1246HP | 0 | 26000 | 0.12 | 11 | 0.65 | 3 | ODS-1246 |
| MADS-002502-1246LP | 0 | 26000 | 0.12 | 16 | 0.3 | 3 | ODS-1246 |
| MADS-002502-1246MP | 0 | 26000 | 0.12 | 12 | 0.42 | 3 | ODS-1246 |
| MA4E2513L-1289 | 0 | 26000 | 0.12 | 10 | 0.3 | 3 | ODS-1289 |
| MA4E2508H-1112 | 0 | 26000 | 0.24 | 6 | 0.65 | 5 | ODS-1112 |
| MA4E2501L-1290 | 0 | 26000 | 0.12 | 10 | 0.3 | 3 | ODS-1290 |
| MA4E2532M-1113 | 0 | 26000 | 0.16 | 10 | 0.44 | 5 | ODS-1113 |
| MA4E2508M-1112 | 0 | 26000 | 0.24 | 12 | 0.42 | 5 | ODS-1112 |
| MA4E2514L-1116 | 0 | 26000 | 0.12 | 16 | 0.3 | 3 | ODS-1116 |
| MA4E2508L-1112 | 0 | 26000 | 0.24 | 16 | 0.3 | 5 | ODS-1112 |
| MA4E2514M-1116 | 0 | 26000 | 0.12 | 12 | 0.4 | 3 | ODS-1116 |
| MA4E2502H-1246 | 0 | 26000 | 0.12 | 11 | 0.65 | 3 | ODS-1246 |
| MA4E2502M-1246 | 0 | 26000 | 0.12 | 12 | 0.42 | 3 | ODS-1246 |
| MA4E2502L-1246 | 0 | 26000 | 0.12 | 16 | 0.3 | 3 | ODS-1246 |
| MA4E2039 | 0 | 60000 | 0.05 | 4 | 0.7 | 4.5 | Beam Lead |
| MA4E2040 | 0 | 60000 | 0.05 | 4 | 0.7 | 4.5 | Beam Lead |
| MA4E2037 | 0 | 60000 | 0.05 | 4 | 0.7 | 4.5 | Beam Lead |
| MADS-001317-1500AG | 0 | 80000 | 0.05 | 4 | 0.7 | 4.5 | ODS-1500 |
| MADS-001317-1500AP | 0 | 80000 | 0.05 | 4 | 0.7 | 4.5 | ODS-1500 |
| MA4E2160 | 0 | 80000 | 0.05 | 4 | 0.7 | 7 | ODS-1262 |
| MA4E1318 | 0 | 80000 | 0.09 | 4 | 0.7 | 4.5 | ODS-1197 |
| MA4E1317 | 0 | 80000 | 0.05 | 4 | 0.7 | 4.5 | ODS-1278 |
| MA4E1319-1 | 0 | 80000 | 0.05 | 4 | 0.7 | 4.5 | ODS-1199 |
| MA4E2038 | 0 | 80000 | 0.04 | 6.5 | 0.7 | 4.5 | Beam Lead |
| MA4E1319-2 | 0 | 80000 | 0.05 | 4 | 0.7 | 4.5 | ODS-1200 |
| MADS-001318-1197HP | 0 | 80000 | 0.09 | 4 | 0.7 | 4.5 | Tape and Reel |
| MADS-001317-1197HP | 0 | 80000 | 0.05 | 4 | 0.7 | 4.5 | Tape and Reel |
| MA4E1310 | 0 | 110000 | 0.04 | 7 | 0.7 | 7 | ODS-1278 |

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# MACOM 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. Our product portfolio covers a broad frequency spectrum from DC to 70 GHz using Silicon, AlGaAs and GaAs based technologies.

### Limiters
- Thin-film hybrid manufacturing for the highest levels of performance, repeatability, reliability, and cost-effectiveness
- Ideal for multi-market and A&D

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

### IQ Modulators/Demodulators
- For aerospace and defense, wireless, and broadband communications
- Connectorized, flat pack, drop-in and surface mount packages with a broad range of operating frequency ranges

### 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
- 10 MHz to 45 GHz
- 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, including 75 Ohm versions for CATV
- Typical applications include; CATV infrastructure, cellular infrastructure, handset gain control, radar systems, satellite radios and test equipment

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

## Limiters

| Part Number | Min Freq RF/LO (MHz) | Max Freq RF/LO (MHz) | Insertion Loss (dB) | Ave. Power (W) | Peak Power (W) | Leakage (mW) | Recovery Time (µs) | Package |
|---|---|---|---|---|---|---|---|---|
| 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 | 3.5 | SMT Hermetic |
| 2690-1005 ◆ | 2000 | 8000 | 1.1 | 1 | 100 | 50 | 100 | Coax |
| 2690-1007 ◆ | 2000 | 8000 | 1.3 | 3 | 1000 | 100 | 1000 | Coax |
| 2690-1013 ◆ | 2000 | 18000 | 2 | 1 | 100 | 50 | 100 | Coax |
| 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 |

## Power Detectors

| Part Number | Min Freq (MHz) | Max Freq (MHz) | Insertion Loss (dB) | Sensitivity (dBm) | Directivity (dB) | Max Power (dBm) | Package |
|---|---|---|---|---|---|---|---|
| MACP-010561 | 2000 | 6000 | 0.2 | -17 | 19 | 30 | 1.5 x 1.2 mm TDFN-6 |
| MACP-010562 | 6000 | 18000 | 0.3 | -17 | 19 | 30 | 1.5 x 1.2 mm TDFN-6 |
| MACP-010563 | 10000 | 30000 | 0.5 | -17 | 19 | 30 | 1.5 x 1.2 mm TDFN-6 |

## IQ Modulators / Demodulators

| Part Number | Min Freq RF/LO (MHz) | Max Freq RF/LO (MHz) | Min Freq IF (MHz) | Max Freq IF (MHz) | LO Carrier Sup (dB) | Harmonic Sup 3X IQ (dBc) | LO-RF Isol (dB) | Package |
|---|---|---|---|---|---|---|---|---|
| MAMO-008665-ES0018 | 105 | 115 | 0 | 5 | — | — | — | — |
| MAMO-008774-ES0019 | 0.2 | 200 | 0 | 200 | — | — | — | — |
| MAMO-007252-IN2960 | 0.05 | 200 | 0 | 200 | — | — | — | — |

## Digital Phase Shifters

| Part Number | Min Freq (MHz) | Max Freq (MHz) | Bit Count | LSB (°) | IIP3 (dBm) | RMS Phase (dBm) | Package |
|---|---|---|---|---|---|---|---|
| MAPS-011007 | 1200 | 1400 | 6-Bit | 5.6 | 48 | 2 | 4 mm PQFN-24 |
| MAPS-010143 | 1400 | 2400 | 4-Bit | 22.5 | 40 | 2 | 4 mm PQFN-24 |
| MAPS-010163 | 1400 | 2400 | 6-Bit | 5.6 | 40 | 3 | 4 mm PQFN-24 |
| MAPS-010144 | 2300 | 3800 | 4-Bit | 22.5 | 47 | 2.2 | 4 mm PQFN-24 |
| MAPS-010164 | 2300 | 3800 | 6-Bit | 5.6 | 45 | 3 | 4 mm PQFN-24 |
| MAPS-010145 | 3500 | 6000 | 4-Bit | 22.5 | 45 | 3 | 4 mm PQFN-24 |
| MAPS-010165 | 3500 | 6000 | 6-Bit | 5.6 | 40 | 4 | 4 mm PQFN-24 |
| MAPS-011008 | 5000 | 6000 | 6-Bit | 5.6 | 48 | 2 | 4 mm PQFN-24 |
| MAPS-010146 | 8000 | 12000 | 4-Bit | 22.5 | 40 | 5 | 4 mm PQFN-24 |
| MAPS-010166 | 8000 | 12000 | 6-Bit | 5.6 | 40 | 5 | 4 mm PQFN-24 |

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 Attenuators

| Part Number | Min Freq (MHz) | Max Freq (MHz) | Bit Count | Attenuator Range (dB) | LSB (dB) | Insertion Loss (dB) | IIP3 (dBm) | Package |
|---|---|---|---|---|---|---|---|---|
| MAAD-008866 | 50 | 1000 | 6 | 31.5 | 0.5 | 1.4 | 40 | 4 mm PQFN-24 |
| MAAD-010305 | 50 | 1100 | 1 | 15 | 15 | 0.3 | 50 | SOT-25 |
| MAADSS0009 | 0 | 2000 | 4 | 30 | 3 | 1.6 | 50 | SOIC-16 |
| MAATSS0015 | 0 | 2000 | 4 | 15 | 1 | 2 | 50 | SOIC-16 |
| AT-264-PIN | 500 | 2000 | 4 | 30 | 2 | 2.2 | 47 | TSSOP-16 |
| AT-357-SMA | 0 | 2000 | 5 | 31 | 1 | 6.5 | 47 | C-46 |
| MAATSS0021 | 50 | 2000 | 5 | 15.5 | 0.5 | 1.5 | 45 | SOIC-16 |
| AT-232-PIN | 0 | 2000 | 4 | 30 | 2 | 2.5 | 50 | CR-6 |
| AT-283-PIN | 5 | 2000 | 5 | 15.5 | 0.5 | 2.2 | 47 | CR-12 |
| AT-233-PIN | 5 | 2000 | 4 | 30 | 2 | 1.9 | 50 | CR-12 |
| AT-273-PIN | 5 | 2000 | 2 | 32 | 16 | 1.3 | 48 | CR-11 |
| AT-263-PIN | 5 | 2000 | 5 | 31 | 1 | 2.1 | 48 | CR-12 |
| MAATSS0020 | 50 | 2000 | 5 | 31 | 1 | 1.6 | 50 | TSSOP-20 |
| MAATSS0016 | 500 | 2000 | 4 | 30 | 2 | 2.2 | 47 | TSSOP-16 |
| MAATSS0018 | 100 | 2000 | 1 | 10 | 10 | 0.4 | 50 | SOT-25 |
| MAATSS0022 | 500 | 2500 | 5 | 15.5 | 0.5 | 1.8 | 46 | MSOP-10 |
| MAATSS0017 | 400 | 2500 | 5 | 15.5 | 0.5 | 2 | 47 | QSOP-16 |
| MAAD-009195-000100 | 50 | 3000 | 5 | 15.5 | 0.5 | 5.3 | 40 | CR-12 |
| MAAD-009194-000100 | 50 | 3000 | 5 | 31 | 1 | 5.3 | 41 | CR-12 |
| AT-213-PIN | 5 | 3000 | 4 | 15 | 1 | 1.6 | 50 | CR-11 |
| MAAD-009260-000100 | 50 | 3000 | 2 | 32 | 16 | 2.7 | 42 | CR-12 |
| MAAD-008790-000100 | 0 | 4000 | 5 | 31 | 1 | 5.5 | 37 | CSP-1 |
| MAAD-009170-000100 | 50 | 4000 | 5 | 15.5 | 0.5 | 5.2 | 40 | CSP-1 |
| MAATSS0019 | 500 | 4000 | 4 | 15 | 1 | 1.3 | 47 | TSSOP-16 |
| MAADCC0006 | 50 | 4000 | 4 | 15 | 1 | 2.5 | 48 | CSP-1 |
| MAADSS0018 | 2000 | 6000 | 5 | 15.5 | 0.5 | 2 | 42 | 3 mm PQFN-16 |
| MAAD-000523 | 700 | 6000 | 6 | 31.5 | 0.5 | 1.9 | 52 | 4 mm PQFN-24 |
| MAADSS0012 | 800 | 8000 | 1 | 21 | — | 0.6 | 41 | 2 mm PQFN-8 |
| MAAD-011021 | 0 | 30000 | 6 | 31.5 | 0.5 | 6 | 38 | 3 mm PQFN-16 |
| MAAD-011021-DIE | 0 | 40000 | 6 | 31.5 | 0.5 | 6 | 38 | Die |

## CMOS Switch Drivers

| Part Number | Type | Rise Time/Fall Time (ns) | Vcc (V) | Vee (-V) | Icc (mA) | Package |
|---|---|---|---|---|---|---|
| MADR-009151-000DIE | Single | 300 | 5 | -5 | 1 | Die |
| MADR-011007 | FET | 6 | — | -5 | — | 6 mm PQFN-48 |
| 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 |
| MADR-008888-000100 | PIN | 250 | 5 | 28 | 51 | LGA-23 |
| MADR-008851-000100 | PIN | 320 | 5 | 28 | 1 | LGA-23 |
| MADRCC0005 | Single | 25 | 5 | -5 | 1 | SO-8 |
| MADRCC0004 | Quad | 25 | 5 | -5 | — | SO-16 |
| MADR-007097-000100 | Single | 2 | 5 | -5 | 1 | SOIC-8 |
| MADRCC0006 | Single | 500 | 5 | -5 | — | SO-8 |
| MADRCC0007 | Quad | 500 | 5 | -5 | — | SOIC16 |
| SMLG1 | PIN | 30000 | 15 | 15 | — | SMT |
| MADRCC0002 ◆ | Dual | 5000 | 20 | — | — | CSP-9 |
| MADR-010574 | PIN | 2 | 3 | — | 170 | 7 mm PQFN-16 |
| MADR-007098-000100 | PIN | — | 5 | — | 1 | SOW-16 |
| MADR-007131-000100 | Dual Linearizer | — | 5 | — | 1 | CSP-9 |
| MADR-010410 | TR Module | 6 | 3 | 3 | — | 5 mm PQFN-40 |

## Digital 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 |
| AT10-0009 | 800 | 1000 | — | 38 | — | — | — | SOW-16 |
| MAAV-007092-000100 | 800 | 1000 | 3.6 | 34 | 40 | — | 30 | 6 mm PQFN-28 |
| MAAVSS0004 | 0 | 2000 | 7.2 | 35 | 36 | -3 | 0.02 | SOIC-14 |
| 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 |
| MAAVSS0005 | 0 | 2000 | 3.2 | 12 | 36 | -4 | 0.02 | SOT-143 |
| 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 |
| AT10-0017 | 1700 | 2000 | — | 35 | — | — | — | SOW-16 |
| MAAV-007091-000100 | 1700 | 2200 | 2.9 | 33 | 31 | — | 30 | 6mm PQFN-28 |
| MA4VAT2000-1277T | 1700 | 2200 | 1.2 | 24 | 21 | — | — | 3mm PQFN-16 |
| MAAVCC0002 | 1700 | 2200 | — | 35 | — | — | — | 6mm PQFN-28 |
| 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 |
| MAAVSS0007 | 500 | 3000 | 2.5 | 40 | 32 | +5 | 0.05 | SOIC-8 |
| 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 |
| MAAA2000G | 0 | 12000 | — | 40 | — | — | — | Die |
| MAAT-010521 | 5000 | 45000 | 2 | 40 | 30 | -2 | — | 3mm PQFN-16 |
| LG1** | — | — | — | — | — | — | — | TO-8 |
| LG30** | — | — | — | — | — | — | — | TO-8 |
| CLG1 | — | — | — | — | — | — | — | SMA |

**LG1 Linearizer is compatible with the G1 Attenuator. Yields linear attenuation (dB) for linear control voltage. Available in TO-8, SMT, SMA
**LG30 Linearizer is compatible with the G30 Attenuator. Yields linear attenuation (dB) for linear control voltage. Available in TO-8, SMT, SMA

## Multi-Function MMICs

| Part Number | Min Freq (MHz) | Max Freq (MHz) | Type | Rx Gain (dB) | Tx Gain (dB) | Attenuator Res (dB) | Package |
|---|---|---|---|---|---|---|---|
| MAMF-011015 | 8 | 11 | Transmit/Receive | 26 | 9 | 5.625 | 7 mm PQFN |
| MAIA-009579 | 2700 | 3500 | Receive Module | 23 | — | 1 | 7 mm PQFN |
| MAIA-010365 | 2700 | 3500 | Transmit Module | — | 10 | 1 | 7 mm PQFN |

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## Switches

| Part Number | Min Freq (MHz) | Max Freq (MHz) | Insertion Loss (dB) | Isolation (dB) | Input IP3 (dBm) | Package |
|---|---|---|---|---|---|---|
| **SPST** | | | | | | |
| MASW-001150-1316 | 45 | 2500 | 0.3 | 65 | 40 | Die |
| MASW6020G | 100 | 6000 | 0.9 | 45 | 46 | Die |
| MA4SW110 | 50 | 26500 | 0.6 | 48 | 40 | HMIC Die |
| MA4AGSW1A | 50 | 50000 | 1.2 | 48 | — | Die |
| MA4AGSW1 | 50 | 50000 | 0.2 | 43 | — | Die |
| MASW-008177 | 5 | 1000 | 0.6 | 53 | 52 | 3 mm PQFN-12 |
| MASWSS0162 | 50 | 2500 | 1 | 48 | 46 | SOIC-8 |
| SW-209-PIN | 0 | 3000 | 1.5 | 27 | 40 | CR-2,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 |
| **SPDT** | | | | | | |
| MASW2000 | 0 | 3000 | 0.4 | 45 | 53 | Die |
| MASW4030G | 50 | 4000 | 0.6 | 53 | 46 | Die |
| MASW-008206-000DIE | 2400 | 5800 | 0.7 | 30 | 54 | Die |
| MASW6010G | 200 | 6000 | 0.6 | 45 | 46 | Die |
| MASW6010 | 0 | 6000 | 0.5 | 52 | 46 | Die |
| MASW-009590 | 1000 | 8000 | 0.5 | 24 | 52 | Die |
| 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 |
| MASW20000 | 50 | 20000 | 1.4 | 58 | 43 | 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-001100-1190 | 50 | 26500 | 0.3 | 65 | 40 | Die |
| MASW-010646 | 26000 | 40000 | 0.6 | 39 | 60 | Die |
| MASW-011036 | 26000 | 40000 | 0.7 | 40 | 60 | Die |
| MASW-011068 | 20000 | 40000 | 0.7 | 28 | 55 | Die |
| MA4AGSW2 | 50 | 50000 | 0.6 | 46 | — | Die |
| 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 | 0 | 2500 | 1 | 45 | 44 | 3 mm PQFN-12 |
| MASWSS0180 | 50 | 2500 | 0.7 | 38 | 46 | SOIC-8 |
| MASWSS0157 | 50 | 2500 | 0.7 | 35 | 45 | SOIC-8 |
| MASW-007221 | 500 | 3000 | 0.4 | 22 | 52 | SC-70 (SOT-363) |
| MASW-008899 | 500 | 3000 | 0.3 | 24 | 48 | SC-70 (SOT-363) |
| MASW-007075-000100 | 0 | 3000 | 1.8 | 36 | 46 | SOW-24 |
| MASWSS0166 | 900 | 3000 | 0.4 | 21 | 55 | SC-70 (SOT-363) |
| MASWSS0151 | 0 | 3000 | 0.6 | 32 | 55 | SC-70 (SOT-363) |
| MASW-007072-000100 | 0 | 3000 | 0.6 | 30 | 46 | SOIC-16 |
| 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 |

## Switches (continued)

| Part Number | Min Freq (MHz) | Max Freq (MHz) | Insertion Loss (dB) | Isolation (dB) | Input IP3 (dBm) | Package |
|---|---|---|---|---|---|---|
| **SPDT (continued)** | | | | | | |
| 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-008075 | 50 | 3000 | 0.4 | 25 | 48 | SC-70 (SOT-363) |
| 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 |
| SW-226-PIN | 0 | 4000 | 1 | 48 | 46 | CR-2 |
| SW-227-PIN | 0 | 4000 | 1 | 50 | 46 | CR-2 |
| MASW-009588 | 500 | 4000 | 0.4 | 26 | 55 | 1 mm PDFN-6 |
| MASW-000932 | 10 | 4000 | 53 | 43 | 72 | 4 mm PQFN-16 |
| MASW-008543 | 10 | 4000 | 0.7 | 58 | 53 | MSOP-8 |
| MASW-008853 | 0 | 5000 | 0.2 | 25 | 56 | SC-70 (SOT-363) |
| MASW-011043 | 0 | 6000 | 0.6 | 30 | | 2 mm STQFN-12 |
| 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 | 29 | 52 | 3 mm PQFN-12 |
| MASWSS0093 | 50 | 6000 | 0.8 | 28 | 55 | 3 mm PQFN-12 |
| MASW-009444 | 200 | 6000 | 0 | 28 | 54 | 1 mm PDFN-6 |
| MASW-000936 | 50 | 6000 | 0.2 | 45 | 72 | 4 mm PQFN |
| MAMF-010614 | 5000 | 6000 | 0.9 | 19 | 10 | 2 mm STQFN-12 |
| MASW-007921 | 50 | 7000 | 0.7 | 30 | 58 | 2 mm PDFN-8 |
| MASW-007107 | 0 | 8000 | 0.5 | 30 | 54 | 2 mm PQFN-8 |
| MASW-011071• Absorbtive | 8000 | 10500 | 1 | 38 | 60 | 7 mm PQFN-44 |
| 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-011067• Absorbtive | 13000 | 20000 | 0.9 | 36 | 53 | 4 mm QFN-20 |
| **SP3T** | | | | | | |
| MASW-008902-000DIE | 2400 | 2500 | 0.6 | 25 | 55 | De |
| MASW-009276-001DIE | 1000 | 4000 | 0.7 | 27 | 55 | Die |
| 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-011074• Asymmetrical | 100 | 1000 | 0.45 | 57 | 60 | 12 mm WHQFN-28 |
| MASW-011041 | 50 | 1500 | 0.3 | 51 | 73 | 9 mm HQFN-20 |
| MASWSS0200 | 500 | 2500 | 0.6 | 24 | 61 | 3 mm PQFN-12 |

• Not yet realeased

## Switches (continued)

| Part Number | Min Freq (MHz) | Max Freq (MHz) | Insertion Loss (dB) | Isolation (dB) | Input IP3 (dBm) | Package |
|---|---|---|---|---|---|---|
| **SP3T (continued)** | | | | | | |
| MASWSS0199 | 0 | 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 | 0.5 | 22 | 54 | 2 mm PDFN-8 |
| MASW-008330 | 500 | 3000 | 0.3 | 24 | 50 | 2 mm PQFN-8 |
| MASWSS0191 | 500 | 3000 | 0.6 | 30 | 58 | 2 mm VTDFN-8 |
| MASW-010612 | 0 | 3500 | 0.6 | 21 | 54 | 1.5 mm PDFN-8 |
| MASW-009359 | 0 | 4000 | 0.6 | 27 | 65 | 2 mm STQFN-12 |
| MASW-009482 | 50 | 4000 | 0.7 | 23 | 65 | 2 mm STQFN-12 |
| **SP4T** | | | | | | |
| MA4AGSW4 | 50 | 50000 | 0.8 | 42 | 40 | Die |
| MA4SW410B-1 | 2000 | 18000 | 0.8 | 48 | 40 | Die |
| MA4SW410 | 50 | 26500 | 0.7 | 48 | 40 | Die |
| MASW4060G | 0 | 4000 | 1.3 | 50 | 46 | Die |
| MA4SW424B-1 | 10 | 24000 | 2.5 | 50 | — | Die |
| MASW-004102-12760 | 2 | 18000 | 1.5 | 50 | 40 | Die |
| MASW-004103-1365 | 50 | 20000 | 0.8 | 50 | 63 | Surmount Die |
| MASW-004100-1193 | 50 | 26500 | 0.3 | 65 | 40 | Die |
| MASW-004240-13170 | 10 | 24000 | 2.5 | 50 | — | Die |
| MASW-011087 | 27000 | 30000 | 0.85 | 50 | 55 | Die |
| MASW-011075• Asymmetrical | 100 | 1000 | 0.45 | 57 | 60 | 12 mm WHQFN-28 |
| MASW-011040 | 50 | 1500 | 0.3 | 51 | 73 | 9 mm HQFN-20 |
| MASWCC0010 | 0 | 4000 | 2.3 | 38 | 40 | CSP-2 |
| MASWCC0009 | 3 | 3000 | 1.4 | 42 | 46 | QSOP24 |
| MASW-007813-000000 | 500 | 3000 | 0.8 | 27 | 58 | 3 mm PQFN-16 |
| MASW-008566 | 50 | 3000 | 0.7 | 26 | 57 | 4 mm PQFN-16 |
| MASW-010350 | 10 | 4000 | 1.3 | 57 | 50 | 4 mm PQFN-24 |
| **SP5T** | | | | | | |
| 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 |
| MA4AGSW5 | 50 | 50000 | 1.1 | 47 | 40 | Die |
| MASW-010351 | 10 | 4000 | 1.4 | 57 | 50 | 4 mm PQFN-24 |
| **SP6T** | | | | | | |
| MASWSS0091 | 500 | 2500 | 0.5 | 45 | — | Die |
| MA4SW610B-1 | 2000 | 18000 | 1.3 | 45 | 40 | Die |
| MASW-006102-13610 | 50 | 26500 | 1.3 | 45 | 40 | Die |
| MASW-000105 | 500 | 2500 | 0.5 | 47 | 55 | 4 mm PQFN-20 |
| MASWCC0006 | 0 | 4000 | 2.1 | 25 | 40 | CSP-2 |
| **SP8T** | | | | | | |
| MA4AGSW8-1 | 50 | 50000 | 1.5 | 37 | 40 | Die |

• Not yet realeased

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# MACOM Frequency Conversion Products

## 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: Limiting

> 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 - 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 - 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 |
| 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 |
| 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 |
| 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 |
| FDZ5013 ◆ | 3000 | 12000 | 6000 | 24000 | 13 | 2 | 12 | Versapac |
| FDZ5013C ◆ | 3000 | 12000 | 6000 | 24000 | 13 | 2 | 12 | Conn |
| SFD26 | 50 | 3300 | 100 | 6600 | 10 | 2 | 13 | SMT |
| SFD25H | 5 | 2400 | 10 | 4800 | 23 | 2 | 12 | SMT |
| SFD25 | 5 | 2400 | 10 | 4800 | 10 | 2 | 11.5 | SMT |

## Active 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 |
|---|---|---|---|---|---|---|---|---|
| XX1001-BD | 18000 | 21000 | 36000 | 42000 | 0 | 2 | 26 | Die |
| XX1000-BD | 7500 | 25000 | 15000 | 50000 | 0 | 2 | 13 | Die |
| XX1007-BD | 13500 | 17000 | 27000 | 34000 | 8 | 2 | 12 | Die |
| MAFC-004403 | 8000 | 12000 | 16000 | 24000 | 0 | 2 | 17 | 4 mm QFN |
| MAFC-010511 | 8000 | 12000 | 16000 | 24000 | 0 | — | 17 | 3 mm PQFN-16 |
| XX1002-QH | 2500 | 6000 | 5000 | 12000 | 3 | 2 | 13 | 4 mm PQFN-24 |
| XX1010-QT | 14625 | 15000 | 29250 | 30000 | 4.5 | 2 | 14 | 3 mm QFN-16 |
| XX1007-QT | 13500 | 17000 | 27000 | 34000 | 8 | 2 | 10 | 3 mm PQFN-16 |
| XX1001-QK | 18000 | 21000 | 36000 | 42000 | 0 | 2 | 26 | 7 mm QFN-28 |
| XX1000-QT | 7500 | 22500 | 15000 | 45000 | 6 | 2 | 12 | 3 mm QFN-16 |

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## 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 |
| MD-108-PIN ◆ | 5 | 500 | 0 | 500 | 7 | 9 | RH-3 |
| 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 |
| M1H ◆ | 180 | 620 | 0 | 200 | 7 | 7 | SMA Relay can |
| 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 |

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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 |
|---|---|---|---|---|---|---|---|
| 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 |
| 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 |
| MC2410 ◆ | 4500 | 7000 | 0 | 2000 | 10 | 5.5 | Open Carrier |
| MC2413 ◆ | 4500 | 7000 | 0 | 2000 | 13 | 5.5 | Open Carrier |
| 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 |
| MC2310 ◆ | 2200 | 8000 | 0 | 2000 | 10 | 7 | Open Carrier |
| MC2320 ◆ | 2200 | 8000 | 0 | 2000 | 13 | 7 | Open Carrier |
| 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 |

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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 |
|---|---|---|---|---|---|---|---|
| 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 |
| 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 |
| MZ9310 ◆ | 2000 | 18000 | 30 | 5000 | 10 | 7.5 | SMA |
| MY82C ◆ | 2000 | 18000 | 30 | 5000 | 13 | 7.5 | SMA |

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.

## 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 |
|---|---|---|---|---|---|---|---|
| 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 |
| 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-BD | 4500 | 10500 | 14 | 1.6 | 20 | 5 | Die |
| XR1004-BD | 35000 | 45000 | 9 | 3.5 | 18 | 2 | Die |
| 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 |
| XR1020 | 32000 | 36000 | 14 | 3 | 20 | 4 | 4 mm QFN-24 |
| XR1008-QB | 37000 | 40000 | 9 | 3.5 | 18 | 2 | 7 mm SMT |
| MADC-010736 | 40500 | 43500 | 12 | 3.5 | 20 | 2 | 6 mm SMD-13 |

## Transceivers

| Part Number | Description | Op Freq (GHz) | Output Power (mW) | Op Current (mA) | IF Bandwidth | Package | |
|---|---|---|---|---|---|---|---|
| MACS-007801-0M1R10 | Mono Transceiver | 24.125 +/-25 MHz | 8 | 175 | 10 Hz to 1 kHz | Die Cast Waveguide | |
| MACS-007802-0M1R10 | Stereo Transceiver | 24.125 +/-25 MHz | 8 | 175 | 10 Hz to 1 kHz | Die Cast Waveguide | |
| MACS-007801-0M1RM0 | Mono Transceiver | 24.125 +/-25 MHz | 5 | 90 | 10 Hz to 1 kHz | Die Cast Waveguide | |
| MACS-007802-0M1RS0 | Stereo Transceiver | 24.125 +/-25 MHz | 5 | 90 | 10 Hz to 1 kHz | Die | |

## Up Converters

| Part Number | Description | Max Freq (MHz) | Max Freq (MHz) | Gain (dBm) | OIP3 (dBm) | Package |
|---|---|---|---|---|---|---|
| XU1009-BD | GaAs MMIC Transmitter | 18000 | 36000 | 35 | 25 | Die |
| XU1006-BD | Transmitter | 37000 | 40000 | 2 | 17 | Die |
| XU1004-BD | Transmitter | 32000 | 45000 | 5 | 14 | Die |
| MAUC-010506 | Up Converter | 17680 | 23620 | 14 | 35 | 4 mm PQFN-24 |
| MAUC-011003 | Up Converter | 27500 | 33400 | 12 | 32 | 4 mm PQFN-24 |
| XU1010-QH | Up Converter | 17000 | 34000 | — | 15 | 4 mm PQFN-24 |
| XU1019-QH | Up Converter | 37000 | 40000 | 7 | 27 | 4 mm PQFN-24 |
| XU1006-QB | GaAs Transmitter | 37000 | 40000 | 2 | 17 | 7 mm LGA-28 |
| MAUC-101515 | Up Converter | 40500 | 43000 | 11 | 30 | 6 mm LGA-13 |

## 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 |
|---|---|---|---|---|---|---|---|
| XM1001-BD | 12000 | 40000 | 0 | 4000 | 8 | — | Die |
| XM1003-BD | 32000 | 42000 | 0 | 4000 | 12 | — | Die |
| XM1002-BD | 34000 | 46000 | 0 | 4000 | 9 | — | Die |
| MAMX-007607-ELCM1H | 0.5 | 500 | 0.5 | 500 | 7.2 | 17 | SM-87 |
| MAMX-009722-25MHLP | 30 | 512 | — | — | 7.5 | 23 | SM-89 |
| MAMX-008786-ES0120 | 880 | 915 | 150 | 170 | 5.5 | 17 | SM-87 |
| MAMX-008782-ES0118 | 925 | 960 | 820 | 915 | 7 | 7 | SM-87 |
| MAMX-008611 | 800 | 1000 | 170 | — | 9.3 | -5 | SOT-26 |
| MAMX-008174-CXD860 | 1 | 1000 | 1 | 1000 | 7.5 | 7 | SM-134 |
| MAMXSS0012 | 800 | 1000 | 0 | 200 | 8 | 5 | SOT-25 |
| MAMXSS0011 | 800 | 1000 | 0 | 100 | 7.5 | 13 | SOIC-8 |
| MAMXES0115 | 5 | 1000 | 0 | 1000 | 7 | 7 | SM-89 |
| MA4EXP950H1-1277T | 850 | 1050 | 0 | 200 | 8.3 | 15 | 3 mm MLP |
| MAMX-090950-1277LT | 850 | 1050 | 0 | 400 | 8.2 | 7 | 3 mm MLP |
| MAMX-000950-1225MT | 700 | 1200 | 0 | 400 | 8.2 | 10 | 3 mm MLP |
| MA4EX950L1-1225T | 700 | 1200 | 0 | 400 | 8 | 5 | SOT-25 |
| MA4EX950H1-1225T | 700 | 1200 | 0 | 400 | 6.6 | 15 | SOT-25 |
| MAMX-000900-1061LT | 700 | 1400 | 0 | 400 | 6.7 | 7 | SOIC-8 |
| MAMX-007247-MRS5MH | 5 | 1500 | 5 | 1500 | 7.5 | 13 | SM-1 |
| MAMXSS0010 | 1700 | 2000 | 0 | 200 | 8.5 | 13 | SOIC-8 |
| MAMX-007253-ES0067 | 10 | 2000 | 10 | 800 | 8 | 10 | SM-2 |
| MAMXSS0013 | 1400 | 2100 | 0 | 500 | 8 | 5 | SOT-25 |
| MA4EXP190H1-1277T | 1725 | 2125 | 0 | 400 | 8.4 | 15 | 3 mm MLP |
| MAMX-009646-23DBML | 2 | 2200 | 2 | 2200 | 9 | 23 | SM-194 |
| MA4EX190H1-1225T | 1700 | 2300 | 0 | 500 | 6.6 | 15 | SOT-25 |
| MAMX-009239-001500 | 10 | 2500 | 10 | 2500 | 9 | 17 | SM-87 |
| MAMX-007238-CM25MH | 2 | 2500 | 2 | 2500 | 7.3 | 13 | SM-87 |
| MAMX-000240-1225MT | 1700 | 2500 | 0 | 500 | 5.5 | 10 | SOT-25 |
| MA4EX240L1-1225T | 1700 | 2500 | 0 | 400 | 7 | 5 | SOT-25 |
| MAMXES0117 | 80 | 2500 | 0 | 1000 | 7.34 | 17 | SM-2 |
| MA4EXP240L-1277T | 2300 | 2800 | 0 | 200 | 8.3 | 5 | 3 mm MLP |
| MA4EX600L1-1225T | 4200 | 6000 | 0 | 2000 | 5.8 | 15 | SOT-25 |
| MA4EX580L1-1225T | 4700 | 6000 | 0 | 1050 | 7.6 | 5 | SOT-25 |
| MAMX-000600-1225MT | 4200 | 6000 | 0 | 2000 | 6.5 | 10 | SOT-25 |
| MAMX-011009 | 14000 | 32000 | 0 | 7000 | 15 | -10 | 1.5 x 1.2 mm TDFN-6 |

# MACOM Passive Products

## 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.

### Bias Networks

MACOM offers 1800 - 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 multimarket 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 Ω products available for CATV, DTV, and DBS applications

### Power Dividers/Combiners

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

> 50 ohm and 75 ohm 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 Ω and 75 Ω 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 Ω and 75 Ω 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

## 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) | Package |
|---|---|---|---|---|---|---|---|
| JHS-113-PIN ◆ | Quad Hybrid | 7 | 14 | 3 | 28 | 36 | SF-1 |
| JHS-114-PIN ◆ | Quad Hybrid | 20 | 40 | 3 | 28 | 37 | SF-1 |
| JH-114-PIN ◆ | Quad Hybrid | 20 | 40 | 3 | 30 | 37 | FP-2 |
| JH-133-PIN ◆ | Quad Hybrid | 20 | 40 | 3 | 28 | 37 | TO-8-2 |
| JHS-115-PIN ◆ | Quad Hybrid | 40 | 80 | 3 | 30 | 30 | SF-1 |
| JH-115-PIN ◆ | Quad Hybrid | 40 | 80 | 3 | 30 | 30 | FP-2 |
| MACP-010507-CH0160 | Coupler, 17 Db | 5 | 120 | 17 | 38 | 24 | SMT |
| MACP-008249-CH09B0 | 17 dB Directional Coupler | 5 | 120 | 17 | 45 | 24 | SM-155 |
| JH-119-PIN ◆ | Quad Hybrid | 80 | 160 | 3 | 33 | 36 | FP-2 |
| JHS-119-PIN ◆ | Quad Hybrid | 80 | 160 | 3 | 33 | 36 | SF-1 |
| MACP-010121-B8180X | Coupler 19 dB, E-Series | 136 | 174 | 19 | 35 | 38 | SM-55B |
| HH-106-PIN ◆ | Hybrid Junction | 2 | 200 | 3 | 30 | 30 | FP-2 |
| JH-121-PIN ◆ | Quad Hybrid | 100 | 200 | 3 | 25 | 36 | FP-2 |
| HHS-109-PIN | Hybrid Junction | 5 | 200 | 3 | 40 | 27 | SF-1 |
| HH-109-PIN ◆ | Hybrid Junction | 5 | 200 | 3 | 40 | 27 | FP-2 |
| JHS-121-PIN | Quad Hybrid | 100 | 200 | 3 | 25 | 36 | SF-1 |
| JH-136-PIN ◆ | Quad Hybrid | 175 | 350 | 3 | 28 | 36 | FP-2 |
| CHS-137-PIN ◆ | Bi-Directional | 1 | 400 | 20 | 40 | 35 | SF-1 |
| JHS-142-PIN ◆ | Quad Hybrid | 200 | 400 | 3 | 30 | 37 | SF-1 |
| MACP-007984-MDC201 | Coupler 20 dB | 350 | 450 | 20 | 38 | 24 | SM-22 |
| CHS-134-PIN ◆ | Bi-Directional | 10 | 500 | 11 | 31 | 30 | SF-1 |
| CH-134-PIN ◆ | Bi-Directional | 10 | 500 | 11 | 31 | 30 | FP-2 |
| JHS-139-PIN ◆ | Quad Hybrid | 250 | 500 | 3 | 30 | 36 | SF-1 |
| HH-110-PIN ◆ | Hybrid Junction | 10 | 500 | 3 | 37 | 30 | FP-2 |
| JH-139-PIN ◆ | Quad Hybrid | 250 | 500 | 3 | 30 | 36 | FP-2 |
| HHS-110-PIN | Hybrid Junction | 10 | 500 | 3 | 40 | 30 | SF-1 |
| MACPCC0002 | Bi-Directional 17 dB Coupler | 960 | 824 | 17 | 32 | 33 | SOIC-8 |
| MACP-010389-CE0880 | Coupler, 14 dB | 4 | 862 | 14 | 38 | 24 | N/A |
| MACP-010383-CH0A40 | Coupler, 17 dB | 4 | 862 | 17 | 35 | 24 | N/A |
| MACP-009821-CG0650 | Coupler 16 dB, 75 Ohm | 5 | 862 | 16 | 33 | 24 | SM-101 |
| MACP-010382-CF0A40 | Coupler, 15 dB | 4 | 862 | 15 | 33 | 24 | N/A |
| EMDC-16-8-75 | Coupler 16 dB, 75 Ohm | 5 | 862 | 16 | 33 | 24 | SM-101 |
| MACPCT0038 | Coupler 17 dB, 75 Ohm | 5 | 870 | 17 | 42 | 24 | SM-103 |
| MACPES0004 | Coupler 10 dB, 75 Ohm | 5 | 870 | 10 | 30 | 24 | SM-132 |
| MACP-008248-CH0670 | Coupler 17 dB, 75 Ohm | 5 | 870 | 17 | 32 | 30 | SM-103-A |
| ELDC-10 | Coupler 10 dB, 75 Ohm | 5 | 870 | 10 | 28 | 24 | FR4 |
| MACP-009598-C80160 | Coupler 8 dB, 75 Ohm | 5 | 900 | 9 | 26 | 24 | SM-22 |
| MACP-009596-CA0160 | Coupler 10 dB, 75 Ohm | 5 | 1000 | 10 | 30 | 24 | SM-22 |
| MACP-009944-CK07F0 | CATV 20 dB Coupler | 5 | 1000 | 20 | 30 | 24 | SM-127 |
| MACP-009943-CH07F0 | CATV 17 db Directional Coupler | 5 | 1000 | 17 | 37 | 24 | SM-55A |
| MACP-009404-C80370 | Coupler 8 dB, 75 Ohm | 5 | 1000 | 8 | 25 | 24 | SM-55 |

## Couplers (continued)

| Part Number | Description | Min Freq (MHz) | Max Freq (MHz) | Coupling, Nom (dB) | Isolation (dB) | Input Power (dBm) | Package |
|---|---|---|---|---|---|---|---|
| MACPCT0039 | 10 dB, 75 Ohm | 5 | 1000 | 10 | 25 | 24 | SM-138 |
| CH-132-BNC ◆ | Bi-Directional | 1 | 1000 | 20 | 40 | — | C-8-132 |
| MACP-007486-CH0010 | 17 dB, 75 Ohm | 5 | 1000 | 17 | 38 | 24 | SM-1 |
| 2020-6602-20 ◆ | Directional Mini Octave | 500 | 1000 | 20 | 45 | 47 | Conn |
| MACP-008764-CH0370 | Coupler 17 dB, 75 Ohm | 5 | 1000 | 17 | 39 | 24 | SM-55 |
| MACP-007490-CA0010 | Coupler 10.5 dB, 75 Ohm | 5 | 1000 | 11 | 30 | 24 | SM-1 |
| MACP-008311-CE0370 | Coupler 14 dB, 75 Ohm | 5 | 1000 | 14 | 39 | 24 | SM-55 |
| MACP-008125-CK07F0 | Coupler 20 dB, 75 Ohm | 5 | 1000 | 20 | 34 | 24 | SM-127 |
| 2020-6600-06 ◆ | Directional Mini Octave | 500 | 1000 | 6 | 31 | 47 | Conn |
| 2020-6603-30 ◆ | Directional Mini Octave | 500 | 1000 | 30 | 55 | 47 | Conn |
| 2031-6330-00 ◆ | Stripline 180 Deg. Hybrid | 500 | 1000 | 3 | 25 | 45 | Conn |
| 2020-6601-10 ◆ | Directional Mini Octave | 500 | 1000 | 10 | 35 | 47 | Conn |
| JH-140-PIN ◆ | High-Freq Quad Hybrid | 500 | 1000 | 3 | 25 | 44 | FP-2 |
| CH-140-PIN ◆ | Directional | 5 | 1000 | 20 | 40 | 35 | FP-2 |
| MACPCT0040 | Coupler 10 dB, 75 Ohm | 5 | 1000 | 10 | 30 | 24 | SM-91 |
| MACPES0028 | Coupler 7 dB, 75 Ohm | 40 | 1000 | 7 | 22 | 24 | SM-137 |
| MACPES0034 | Coupler 10 dB, 75 Ohm | 5 | 1000 | 10 | 23 | 24 | SM-138 |
| MACP-009736-CD0160 | Coupler 13 dB, 75 Ohm | 5 | 1000 | 13 | 28 | 24 | SM-22 |
| EMDC-13-1-75 | Coupler 13 dB, 75 Ohm | 5 | 1000 | 13 | 38 | 24 | SM-22 |
| MACP-010718-CG09E0 | Coupler, 17 Db | 40 | 1002 | 17 | 35 | 24 | SM-22 |
| MACP-010249-CI08A0 | Coupler 18 dB, 75 Ohm | 5 | 1200 | 18 | 32 | 24 | FR4 |
| MACP-010446-C80370 | Coupler, 8 dB | 5 | 1200 | 8 | 21 | 24 | N/A |
| MACP-010414-CA0370 | Coupler, 10 dB | 5 | 1200 | 10 | 21 | 24 | N/A |
| MACP-009730-C60370 | Coupler 6 dB, 75 Ohm | 5 | 1200 | 6 | 16 | 24 | SM-55 |
| MACP-009945-CH0670 | CATV 17.5 dB Directional Coupler | 5 | 1200 | 18 | 33 | 24 | SM-103 |
| MACP-007741-CG09E0 | Coupler 17dB, 75 Ohm | 5 | 1200 | 17 | 32 | 24 | SM-22 |
| MACP-007727-CI07B0 | 18 dB, 75 Ohm | 5 | 1200 | 18 | 26 | 24 | SM-123 |
| MACP-009011-C80370 | 8 dB, 75 Ohm | 5 | 1200 | 8 | 25 | 24 | SM-55A |
| MACP-010250-C808A0 | Coupler 8 dB, 75 Ohm | 5 | 1200 | 9 | 24 | 28 | FR4 |
| MACP-011008 | Coupler 16dB 75 Ohm | 5 | 1200 | 16 | 12 | 24 | FR4 |
| MACP-011009 | Coupler 8dB 75 Ohm | 5 | 1200 | 8 | - | 24 | FR4 |
| 2031-6331-00 ◆ | Stripline 180 Deg. Hybrid | 1000 | 2000 | 3 | 25 | 45 | Conn |
| 2025-6002-10 ◆ | Stripline Directional | 500 | 2000 | 10 | 28 | 47 | Conn |
| 2020-6604-06 ◆ | Directional Mini Octave | 1000 | 2000 | 6 | 31 | 47 | Conn |
| 2035-6364-00 ◆ | Air Dielectric 90 Deg. Hybrid | 1000 | 2000 | 3 | 20 | 47 | Conn |
| 2032-6344-00 ◆ | Stripline 90 Deg. Hybrid | 1000 | 2000 | 3 | 22 | 45 | Conn |
| H-9-N | Hybrid Junction | 2 | 2000 | 4 | 40 | 44 | Conn |
| 2025-6004-20 ◆ | Stripline Directional | 500 | 2000 | 20 | 42 | 47 | Conn |
| 2020-6607-30 ◆ | Directional Mini Octave | 1000 | 2000 | 30 | 55 | 47 | Conn |
| JH-141-PIN ◆ | High-Freq Quad Hybrid | 1000 | 2000 | 3 | 27 | 44 | FP-2 |
| HH-128-PIN ◆ | Hybrid Junction | 20 | 2000 | 3 | 35 | 27 | FP-3 |
| 2020-6605-10 ◆ | Directional Mini Octave | 1000 | 2000 | 10 | 35 | 47 | Conn |
| MACPCC0001 | Bi-Directional 17 dB Coupler | 1700 | 2000 | 17 | 34 | 33 | SOIC-8 |
| 2020-6606-20 ◆ | Directional Mini Octave | 1000 | 2000 | 20 | 45 | 47 | Conn |
| 2025-6001-06 ◆ | Stripline Directional | 500 | 2000 | 6 | 24 | 47 | Conn |
| 2032-6350-00 ◆ | Stripline 90 Deg. Hybrid | 500 | 2000 | 3 | 24 | 45 | Conn |
| MACP-010385-CE0880 | Coupler, 14 dB | 5 | 2400 | 14 | 27 | 24 | SMT |
| H-183-4-N ◆ | Hybrid Junction | 30 | 3000 | 5 | 20 | 37 | Conn |
| 2032-6345-00 ◆ | Stripline 90 Deg. Hybrid | 2000 | 4000 | 3 | 22 | 45 | Conn |
| 2020-6609-10 ◆ | (Directional Mini Octave | 2000 | 4000 | 10 | 32 | 47 | Conn |
| 2031-6332-00 ◆ | Stripline 180 Deg. Hybrid | 2000 | 4000 | 3 | 22 | 45 | Conn |
| 2020-6611-30 ◆ | Directional Mini Octave | 2000 | 4000 | 30 | 52 | 47 | Conn |
| 2020-6610-20 ◆ | Directional Mini Octave | 2000 | 4000 | 20 | 42 | 47 | Conn |

## Couplers (continued)

| Part Number | Description | Min Freq (MHz) | Max Freq (MHz) | Coupling, Nom (dB) | Isolation (dB) | Input Power (dBm) | Package |
|---|---|---|---|---|---|---|---|
| 2025-6006-10 ◆ | Stripline Directional | 1000 | 4000 | 10 | 28 | 47 | Conn |
| 2025-6008-20 ◆ | Stripline Directional | 1000 | 4000 | 20 | 42 | 47 | Conn |
| 2025-6005-06 ◆ | Stripline Directional | 1000 | 4000 | 6 | 24 | 47 | Conn |
| 2020-6612-06 ◆ | Directional Mini Octave | 2600 | 5200 | 6 | 26 | 47 | Conn |
| 2020-6613-10 ◆ | Directional Mini Octave | 2600 | 5200 | 10 | 30 | 47 | Conn |
| 2031-6333-00 ◆ | Stripline 180 Deg. Hybrid | 2600 | 5200 | 3 | 20 | 45 | Conn |
| 2020-6614-20 ◆ | Directional Mini Octave | 2600 | 5200 | 20 | 40 | 47 | Conn |
| 2035-6366-00 ◆ | Air Dielectric 90 Deg. Hybrid | 2600 | 5200 | 3 | 18 | 47 | Conn |
| 2020-6615-30 ◆ | Directional Mini Octave | 2600 | 5200 | 30 | 50 | 47 | Conn |
| 2032-6347-00 ◆ | Stripline 90 Deg. Hybrid | 4000 | 8000 | 3 | 20 | 45 | Conn |
| 2020-6616-06 ◆ | Directional Mini Octave | 4000 | 8000 | 6 | 28 | 47 | Conn |
| 2032-6352-00 ◆ | Stripline 90 Deg. Hybrid | 2000 | 8000 | 3 | 20 | 45 | Conn |
| 2031-6334-00 ◆ | Stripline 180 Deg. Hybrid | 4000 | 8000 | 3 | 20 | 45 | Conn |
| 2020-6618-20 ◆ | Directional Mini Octave | 4000 | 8000 | 20 | 40 | 47 | Conn |
| 2020-6617-10 ◆ | Directional Mini Octave | 4000 | 8000 | 10 | 30 | 47 | Conn |
| 2020-6619-30 ◆ | Directional Mini Octave | 4000 | 8000 | 30 | 50 | 47 | Conn |
| 2025-6012-20 ◆ | Stripline Directional | 2000 | 8400 | 20 | 40 | 47 | Conn |
| 2025-6010-10 ◆ | Stripline Directional | 2000 | 8400 | 10 | 28 | 47 | Conn |
| 2025-6009-06 ◆ | Stripline Directional | 2000 | 8400 | 6 | 24 | 47 | Conn |
| 2032-6348-00 ◆ | Stripline 90 Deg. Hybrid | 8000 | 12400 | 3 | 18 | 45 | Conn |
| 2026-6001-10 ◆ | Stripline Directional | 1000 | 12400 | 10 | 28 | 47 | Conn |
| 2020-4018-20 ◆ | Directional Mini Octave | 7000 | 12400 | 20 | 38 | | Conn |
| 2025-6016-20 ◆ | Stripline Directional | 4000 | 12400 | 20 | 35 | 47 | Conn |
| 2031-6335-00 ◆ | Stripline 180 Deg. Hybrid | 8000 | 12400 | 3 | 17 | 45 | Conn |
| 2020-6623-30 ◆ | Directional Mini Octave | 7000 | 12400 | 30 | 47 | 47 | Conn |
| 2020-6622-20 ◆ | Directional Mini Octave | 7000 | 12400 | 20 | 38 | 47 | Conn |
| 2026-6003-20 ◆ | Stripline Directional | 1000 | 12400 | 20 | 37 | 47 | Conn |
| 2020-4018-10 ◆ | Directional Mini Octave | 7000 | 12400 | 10 | 30 | | Conn |
| 2020-6621-10 ◆ | Directional Mini Octave | 7000 | 12400 | 10 | 27 | 47 | Conn |
| 2025-6014-10 ◆ | Stripline Directional | 4000 | 12400 | 10 | 25 | 47 | Conn |
| 2032-6354-00 ◆ | Stripline 90 Deg. Hybrid | 4000 | 12400 | 3 | 20 | 47 | Conn |
| 2031-6338-00 ◆ | Stripline 180 Deg. Hybrid | 4000 | 12400 | 3 | 17 | 45 | Conn |
| 2020-6630-20 ◆ | Directional Mini Octave | 12400 | 18000 | 20 | 35 | 47 | Conn |
| 2032-6371-00 ◆ | Stripline 90 Deg. Hybrid | 2000 | 18000 | 3 | 20 | 47 | Conn |
| 2025-6018-10 ◆ | Stripline Directional | 6000 | 18000 | 10 | 26 | 47 | Conn |
| 2025-6017-06 ◆ | Stripline Directional | 6000 | 18000 | 6 | 21 | 47 | Conn |
| 2026-6007-10 ◆ | Stripline Directional | 1000 | 18000 | 10 | 25 | 47 | Conn |
| 2026-6010-10 ◆ | Stripline Directional | 500 | 18000 | 10 | 25 | 47 | Conn |
| 2020-6629-10 ◆ | Directional Mini Octave | 12400 | 18000 | 10 | 30 | 47 | Conn |
| 2020-6628-06 ◆ | Directional Mini Octave | 12400 | 18000 | 6 | 21 | 47 | Conn |
| 2031-6339-00 ◆ | Stripline 180 Deg. Hybrid | 7000 | 18000 | 3 | 14 | 43 | Conn |
| 2032-6375-00 ◆ | Stripline 90 Deg. Hybrid | 4000 | 18000 | 3 | 18 | 50 | Conn |
| 2032-6374-00 ◆ | Stripline 90 Deg. Hybrid | 6500 | 18000 | 3 | 18 | 45 | Conn |
| 2025-6020-20 ◆ | Stripline Directional | 6000 | 18000 | 20 | 35 | 47 | Conn |
| 2020-6626-20 ◆ | Directional Mini Octave | 7000 | 18000 | 20 | 35 | 47 | Conn |
| 2026-6012-20 ◆ | Stripline Directional | 500 | 18000 | 20 | 35 | 47 | Conn |
| 2026-6009-20 ◆ | Stripline Directional | 1000 | 18000 | 20 | 37 | 47 | Conn |
| 2026-6004-10 ◆ | Stripline Directional | 2000 | 18000 | 10 | 25 | 47 | Conn |
| 2020-6627-30 ◆ | Directional Mini Octave | 7000 | 18000 | 30 | 45 | 47 | Conn |
| 2020-6624-06 ◆ | Directional Mini Octave | 7000 | 18000 | 6 | 21 | 47 | Conn |
| 2020-6625-10 ◆ | Directional Mini Octave | 7000 | 18000 | 10 | 30 | 47 | Conn |
| 2020-6631-30 ◆ | Directional Mini Octave | 12400 | 18000 | 30 | 42 | 47 | Conn |
| 2025-6019-16 ◆ | Stripline Directional | 6000 | 18000 | 16 | 32 | 47 | Conn |

## Power Dividers / Combiners

| Part Number | Min Freq (MHz) | Max Freq (MHz) | Channels (#) | Amplitude Balance (dB) | Phase Bal (°) | Isolation (dB) | Max Input Power (dBm) | Package |
|---|---|---|---|---|---|---|---|---|
| MAPD-010424-C20C80 | 2400 | 5 | 2 | 0.2 | 5 | 6 | 24 | SMT |
| MAPD-010320-5070HR | 50 | 70 | 2 | 1 | 0.3 | 30 | 30 | SM-89 |
| M3H-50-PIN ◆ | 1 | 100 | 3 | 0.2 | 1 | 30 | 30 | TO-5 |
| MTH-50-PIN ◆ | 1 | 100 | 2 | 0.1 | 1 | 30 | 30 | TO-5-1 |
| MAPD-008185-C20720 | 50 | 150 | 2 | 0.5 | 2 | 22 | 30 | SM-114 |
| MAPD-008762-ES0001 | 120 | 160 | 2 | 1 | 1 | 20 | 30 | SM-87 |
| MAPD-009850-HW1268 | 112 | 168 | 2 | 1 | 1 | 18 | 30 | SM-89 |
| MAPD-008109-C30040 | 5 | 200 | 3 | 0.1 | 1 | 30 | 30 | SM-4 |
| THV-50-N ◆ | 2 | 200 | 2 | 0.2 | 1 | 30 | 33 | Conn |
| THV-50-TNC ◆ | 2 | 200 | 2 | 0.2 | 1 | 30 | 33 | Conn |
| THV-50-BNC ◆ | 2 | 200 | 2 | 0.2 | 1 | 30 | 33 | Conn |
| THV-50-SMA ◆ | 2 | 200 | 33 | 0.2 | 1 | 30 | 33 | Conn |
| MAPD-011018 | 5 | 250 | 2 | 0.3 | 4.3 | 19 | 30 | SMT |
| M3V-50-PIN ◆ | 50 | 300 | 3 | 0.2 | 2 | 25 | 30 | TO-5 |
| DS-310-PIN ◆ | 0 | 300 | 4 | 0.2 | 4 | 25 | 30 | FP-5 |
| DS-117-PIN ◆ | 1 | 300 | 3 | 0.3 | 4 | 20 | 30 | FP-3 |
| DS-308-BNC ◆ | 1 | 300 | 3 | 0.3 | 4 | 20 | 30 | C-8 |
| TU-50-N ◆ | 20 | 400 | 2 | 0.2 | 1 | 35 | 33 | Conn |
| TU-50-SMA ◆ | 20 | 400 | 2 | 0.2 | 1 | 35 | 33 | Conn |
| DSS-113-PIN ◆ | 0 | 400 | 2 | 0.2 | 1 | 25 | 30 | SF-1 |
| DS-113-PIN ◆ | 0 | 400 | 2 | 0.2 | 1 | 25 | 30 | FP-2 |
| MTV-50-PIN ◆ | 40 | 400 | 2 | 0.2 | 2 | 30 | 30 | TO-5-1 |
| TU-50-BNC ◆ | 20 | 400 | 33 | 0.2 | 1 | 35 | 33 | Conn |
| TU-50-TNC ◆ | 20 | 400 | 2 | 0.2 | 1 | 35 | 33 | Conn |
| DS-112-PIN ◆ | 10 | 500 | 4 | 0.2 | 5 | 25 | 30 | FP-5 |
| MAPD-007249-ESML21 | 5 | 500 | 2 | 0.2 | 1 | 25 | 30 | SM-24 |
| DSS-333-PIN ◆ | 10 | 500 | 2 | 0.2 | 2 | 25 | 30 | SF-1 |
| DS-318-PIN ◆ | 5 | 500 | 2 | 0.2 | 2 | 18 | 30 | RH-1 |
| DS-309-BNC ◆ | 2 | 500 | 8 | 0.2 | 2 | 30 | 33 | C-18 |
| DS-319-PIN ◆ | 10 | 500 | 2 | 0.2 | 1 | 25 | 30 | TO-8-2 |
| DS-109-PIN ◆ | 10 | 500 | 2 | 0.2 | 1 | 25 | 30 | FP-2 |
| DS-312-BNC ◆ | 10 | 500 | 4 | 0.2 | 2 | 25 | 30 | C-14 |
| DS-328-PIN ◆ | 3 | 700 | 3 | 0.3 | 3 | 20 | 30 | TO-8-2 |
| MAPD-008072-ESSM26 | 5 | 900 | 2 | 0.5 | 5 | 20 | 30 | SM-1 |
| MAPDCC0017 | 824 | 960 | 6 | 0.2 | 6 | 20 | 30 | SOW-16 |
| MAPDCC0005 | 824 | 960 | 3 | 0.6 | 2 | 15 | 30 | SOIC-8 |
| MAPDCC0009 | 824 | 960 | 4 | 0.3 | 3 | 20 | 30 | SOIC-8 |
| MAPDCC0007 | 824 | 960 | 4 | 0.3 | 2 | 23 | 30 | SOW-16 |
| MAPDCC0001 | 824 | 960 | 2 | 0.1 | 0.5 | 15 | 30 | SOIC-8 |
| MAPDCC0011 | 824 | 960 | 2 | 0.1 | 3 | 13 | 30 | SOT-26 |
| MAPDCC0021 | 824 | 960 | 8 | 0.4 | 5 | 20 | 30 | SSOP-20 |
| MAPDCC0019 | 824 | 960 | 6 | 0.5 | 4 | 20 | 30 | SOIC-16 |
| ELPD-290 | 820 | 980 | 2 | 1.2 | 7 | 20 | 30 | SM-88 |
| MAPD-010274-C209C0 | 5 | 1000 | 2 | 0.2 | 0.3 | 19 | 30 | Datasheet* |
| MAPD-010362-C20FA0 | 5 | 1000 | 2 | 0.4 | 3 | 19 | 24 | Datasheet* |
| MAPD-009673-C2DA40 | 5 | 1000 | 2 | 0.4 | 1.5 | 20 | 30 | SM-150 |
| MAPD-008812-0003HW | 5 | 1000 | 3 | 0.2 | 2 | 20 | 24 | SM-4 |
| MAPD-009918-C209C0 | 5 | 1000 | 2 | 0.3 | 0.9 | 26 | 30 | SM-156 |

*Reference Datasheet for packaging information

Note: Part numbers are RoHS compliant ◆ indicates non-RoHS compliant
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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) | Package |
|---|---|---|---|---|---|---|---|---|
| MAPD-010038-C209C0 | 5 | 1000 | 2 | 0.3 | 0.3 | 30 | 30 | SM-156 |
| MAPD-009278-5T1000 | 5 | 1000 | 2 | 0.4 | 6 | 16 | 24 | SM-156 |
| H-81-4-SMA ◆ | 5 | 1000 | 2 | 0.5 | 2.5 | 25 | 33 | Conn |
| MAPD-008108-C202C0 | 5 | 1000 | 2 | 0.5 | 4 | 17 | 30 | SM-44 |
| T-1000-TNC ◆ | 10 | 1000 | 2 | 0.1 | 1 | 25 | 33 | Conn |
| MAPDCT0033 | 5 | 1000 | 2 | 0.4 | 0 | 22 | 30 | SM-139 |
| H-81-4-N ◆ | 5 | 1000 | 2 | 0.5 | 2.5 | 25 | 33 | Conn |
| T-1000-BNC ◆ | 10 | 1000 | 2 | 0.1 | 1 | 25 | 33 | Conn |
| MAPD-007246-ES4700 | 2 | 1000 | 4 | 0.2 | 5 | 20 | 30 | SM-46 |
| MAPDCT0030 | 5 | 1000 | 2 | 0.2 | 1 | 20 | 30 | SM-138 |
| DSS-327-PIN ◆ | 5 | 1000 | 2 | 0.3 | 3 | 16 | 30 | SF-1 |
| MAPDCT0029 | 5 | 1000 | 2 | 0.3 | 1 | 14 | 30 | SM-55 |
| MAPDCT0028 | 5 | 1000 | 4 | 0.3 | 0.5 | 20 | 30 | SM-46 |
| T-1000-SMA ◆ | 10 | 1000 | 2 | 0.1 | 1 | 25 | 33 | Conn |
| T-1000-N ◆ | 10 | 1000 | 2 | 0.1 | 1 | 25 | 33 | Conn |
| 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-327-PIN ◆ | 5 | 1000 | 2 | 0.2 | 3 | 20 | 30 | FP-2 |
| MAPDCT0027 | 5 | 1000 | 2 | 0.3 | 1 | 15 | 30 | SM-55 |
| MACPES0026 | 5 | 1000 | 2 | 0.6 | 5 | 17 | 30 | SM-135 |
| ELPD-20-1 | 5 | 1000 | 2 | 0.5 | 4 | 22 | 30 | SM-139 |
| MACPES0045 | 40 | 1000 | 2 | 0.2 | 0.5 | 18 | 30 | SM-150 |
| ESSMJ-2-12-75 | 5 | 1000 | 2 | 0.5 | 4 | 30 | 30 | SM-44 |
| MAPD-010281-C2W024 | 5 | 1200 | 2 | 0.2 | 1.3 | — | 30 | Datasheet* |
| MAPD-011003 | 30 | 1200 | 3 | 0.4 | 2.7 | 20 | 24 | SM-4 |
| MAPD-010047-C2W24M | 5 | 1200 | 2 | 0.2 | 1.3 | — | 30 | Datasheet* |
| MAPD-009492-C2W180 | 5 | 1200 | 2 | 1.3 | 1.3 | — | 17 | SM-164 |
| MAPDCT0032 | 5 | 1200 | 3 | 0.3 | 3 | 20 | 24 | SM-4 |
| MAPDCT0024 | 5 | 1200 | 2 | 0.3 | 2.1 | — | 30 | SM-169 |
| MAPDCT0017 | 46 | 1200 | 3 | 0.3 | 3 | 20 | 24 | SM-4 |
| DS-331-PIN ◆ | 750 | 1500 | 2 | 0.2 | 6 | 10 | 30 | TO-8 |
| MAPD-011002 | 5 | 1600 | 2 | 0.3 | 0.7 | 23 | 30 | SM-22 |
| MAPD-010638-C2WSOT | 5 | 1600 | 2 | 0.3 | 1 | 26 | 24 | SM-156 |
| MAPDCC0003 | 1510 | 1660 | 2 | 0.1 | 1 | 15 | 30 | SOIC-8 |
| MAPDCC0004 | 1700 | 1900 | 2 | 0.1 | 2 | 15 | 30 | SOIC-8 |
| MAPDCC0002 | 1850 | 1990 | 2 | 0.1 | 1 | 15 | 30 | SOIC-8 |
| MAPDCC0006 | 1850 | 1990 | 3 | 0.3 | 7 | 12 | 30 | SOIC-8 |
| MAPDCC0015 | 1850 | 1990 | 5 | 0.2 | 6 | 21 | 30 | SOIC-16 |
| 2089-6406-00 ◆ | 500 | 2000 | 4 | 0.4 | 6 | 20 | 36 | Conn |
| DS-4-4-BNC ◆ | 2 | 2000 | 4 | 1 | 5 | 30 | 30 | Conn |
| MAPDCC0008 | 1700 | 2000 | 4 | 0.1 | 4 | 18 | 30 | SOW-16 |
| H-8-4-SMA ◆ | 2 | 2000 | 2 | 0.1 | 2.5 | 25 | 33 | Conn |
| 2089-6206-00 ◆ | 500 | 2000 | 2 | 0.3 | 4 | 20 | 36 | Conn |
| MAPD-007530-000100 | 1700 | 2000 | 2 | 0.2 | 1.5 | 16 | 30 | SOT-26 |
| 2089-6201-00 ◆ | 1000 | 2000 | 2 | 0.2 | 4 | 20 | 33 | Conn |
| DS-4-4-SMA ◆ | 2 | 2000 | 4 | 1 | 5 | 30 | 30 | Conn |
| 2089-6801-00 ◆ | 1000 | 2000 | 8 | 0.8 | 8 | 20 | 38 | Conn |
| 2089-6401-00 ◆ | 1000 | 2000 | 4 | 0.4 | 6 | 20 | 36 | Conn |

* Reference Datasheet for packaging information

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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) | Package |
|---|---|---|---|---|---|---|---|---|
| DSS-313-PIN ◆ | 10 | 2000 | 2 | 0.3 | 4 | 23 | 24 | SF-1 |
| DS-4-4-N ◆ | 2 | 2000 | 4 | 1 | 5 | 30 | 30 | Conn |
| DS-313-PIN ◆ | 10 | 2000 | 2 | 0.3 | 4 | 23 | 24 | FP-2 |
| MAPDCC0018 | 1700 | 2000 | 6 | 0.5 | 8 | 18 | 30 | SOW-16 |
| DS-409-4BNC ◆ | 10 | 2000 | 4 | 0.5 | 5 | 25 | 37 | Conn |
| DS-808-4BNC ◆ | 20 | 2000 | 8 | 0.6 | 5 | 20 | 37 | Conn |
| DS-409-4SMA ◆ | 10 | 2000 | 4 | 0.5 | 5 | 25 | 37 | Conn |
| DS-808-4SMA ◆ | 20 | 2000 | 8 | 0.6 | 5 | 20 | 37 | Conn |
| DS-808-4N ◆ | 20 | 2000 | 8 | 5 | 0.6 | 20 | 37 | Conn |
| MAPDCC0020 | 1700 | 2000 | 6 | 1 | 4 | 21 | 30 | SOIC-16 |
| DS-409-4TNC ◆ | 10 | 2000 | 4 | 0.5 | 5 | 25 | 37 | Conn |
| DS-332-PIN ◆ | 1000 | 2000 | 2 | 0.2 | 6 | 10 | 30 | TO-8 |
| DS-808-4TNC ◆ | 20 | 2000 | 8 | 0.6 | 5 | 20 | 37 | Conn |
| 2089-6806-00 ◆ | 500 | 2000 | 8 | 0.8 | 8 | 20 | 41 | Conn |
| MAPDCC0014 | 1700 | 2000 | 4 | 0.8 | 5 | 18 | 30 | SOIC-16 |
| MAPD-011007 | 5 | 2150 | 2 | 0.3 | 1 | 26 | 24 | SM-156 |
| MAPD-010201-8022CG | 1 | 2200 | 2 | 0.5 | 1 | 13 | 24 | SM-89 |
| MAPDCT0026 | 5 | 2400 | 2 | 0.8 | 2 | 10 | 30 | SM-156 |
| MAPDCC0010 | 2200 | 2500 | 2 | 0.1 | 2 | 22 | 30 | SOT-25 |
| MAPD-008957-CT0012 | 1 | 2700 | 2 | 0.5 | 2 | 9 | 24 | SM-22 |
| 2089-6802-00 ◆ | 2000 | 4000 | 8 | 0.8 | 10 | 18 | 38 | Conn |
| 2089-6402-00 ◆ | 2000 | 4000 | 36 | 0.4 | 6 | 20 | 36 | Conn |
| 2089-6202-00 ◆ | 2000 | 4000 | 2 | 0.2 | 4 | 20 | 33 | Conn |
| 2089-6203-00 ◆ | 4000 | 8000 | 2 | 0.2 | 6 | 20 | 33 | Conn |
| 2089-6403-00 ◆ | 4000 | 8000 | 4 | 0.4 | 8 | 20 | 36 | Conn |
| 2089-6807-00 ◆ | 2000 | 8000 | 8 | 1.2 | 16 | 15 | 41 | Conn |
| 2089-6207-00 ◆ | 2000 | 8000 | 2 | 0.3 | 8 | 18 | 36 | Conn |
| 2089-6407-00 ◆ | 2000 | 8000 | 4 | 0.5 | 12 | 18 | 39 | Conn |
| 2089-6404-00 ◆ | 8000 | 12400 | 4 | 0.5 | 8 | 18 | 36 | Conn |
| 2089-6204-00 ◆ | 8000 | 12400 | 2 | 0.2 | 6 | 20 | 33 | Conn |
| 2089-6808-00 ◆ | 2000 | 18000 | 8 | 1.8 | 24 | 15 | 45 | Conn |
| 2089-6805-00 ◆ | 12400 | 18000 | 8 | 0.8 | 24 | 15 | 40 | Conn |
| 2090-6814-00 ◆ | 1000 | 18000 | 8 | 1.4 | 16 | 17 | 47 | Conn |
| 2089-6405-00 ◆ | 12400 | 18000 | 4 | 0.5 | 8 | 15 | 38 | Conn |
| 2090-6205-00 ◆ | 2000 | 18000 | 2 | 0.3 | 5 | 23 | 46 | Conn |
| 2090-6414-00 ◆ | 1000 | 18000 | 4 | 1 | 12 | 18 | 47 | Conn |
| 2089-6205-00 ◆ | 12400 | 18000 | 2 | 0.3 | 6 | 17 | 35 | Conn |
| 2090-6210-00 ◆ | 8000 | 18000 | 2 | 0.3 | 5 | 18 | 43 | Conn |
| 2089-6210-00 ◆ | 7000 | 18000 | 2 | 0.3 | 8 | 17 | 35 | Conn |
| 2089-6209-00 ◆ | 4000 | 18000 | 2 | 0.3 | 8 | 17 | 36 | Conn |
| 2089-6410-00 ◆ | 7000 | 18000 | 4 | 0.5 | 12 | 15 | 38 | Conn |
| 2090-6204-00 ◆ | 500 | 18000 | 2 | 0.3 | 5 | 23 | 49 | Conn |
| 2089-6409-00 ◆ | 4000 | 18000 | 4 | 0.5 | 12 | 15 | 39 | Conn |
| 2090-6309-00 ◆ | 4000 | 18000 | 3 | 0.5 | — | 18 | 46 | Conn |
| 2090-6304-00 ◆ | 500 | 18000 | 3 | 0.5 | — | 18 | 49 | Conn |
| 2089-6208-00 ◆ | 2000 | 18000 | 2 | 0.3 | 8 | 17 | 40 | Conn |
| 2090-6214-00 ◆ | 1000 | 18000 | 2 | 0.4 | 5 | 22 | 47 | Conn |
| 2089-6408-00 ◆ | 2000 | 18000 | 4 | 0.5 | 12 | 17 | 20 | Conn |
| 2089-6810-00 ◆ | 7000 | 18000 | 8 | 1.5 | 24 | 15 | 40 | Conn |

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## Transformers / Baluns

| Part Number | Description | Min Freq (MHz) | Max Freq (MHz) | Impedance Ratio | Insertion Loss (dB) | Package |
|---|---|---|---|---|---|---|
| MABA-009807-CF4010 | Transformer | 0.05 | 3.072 | 4:1 | 1 | SM-1 |
| MABA-011006 | Transformer | 8 | 8 | 1:20 | 0.9 | SM1 |
| ETC16-1T-2 | Flux Coupled Balun | 5 | 40 | 16:1 | 1 | SM-22 |
| MABA-010411-CT1160 | Transformer | 30 | 60 | 1:1 | 0.8 | Surface Mount |
| MABA-007902-CF38A0 | Flux Coupled Balun Transformer | 5 | 65 | 2.56:1 | 0.8 | SM-138 |
| MABAES0017 | Flux Coupled Balun | 5 | 65 | 2.56:1 | 0.8 | SM-138 |
| MABA-011017 | Flux Coupled Transformer | 5 | 85 | 2:1 | 0.5 | SM-138 |
| MABA-011017 | Transformer | 5 | 85 | 2:1 | 0.5 | SM-22 |
| MABA-010181-CF9A40 | Flux Coupled Transformer | 5 | 90 | 1:9 | 1.3 | SMT |
| MABA-008282-CFGA40 | Flux Coupled Transformer | 5 | 90 | 16:1 | 1.5 | SM-164 |
| MABA-010655-CF1A40 | Ethernet Transformer | 1 | 100 | 1:1 | 0.3 | Surface Mount |
| MABA-009776-CF28A0 | Flux Coupled Balun Transformer | 5 | 100 | 2:1 | 0.4 | SM-164 |
| MABA-010061-CF4FA0 | Flux Coupled Transformer | 5 | 100 | 1:4 | 1.2 | SMT |
| MABA-009573-CF1A40 | Flux Coupled Transformer | 5 | 100 | 1.77:1 | 0.3 | SM-164 |
| MABA-008124-CF1FA0 | Flux Coupled Balun Transformer | 5 | 100 | 1:1 | 0.7 | SM-250-5 |
| MABA-008570-ETC414 | E-Series Transformer | 3 | 110 | 1:4 | 0.3 | SM-22 |
| MABA-009650-CF1160 | Flux Coupled Transformer | 5 | 120 | 1:1 | 0.4 | SM-22 |
| MABA-009852-CF1A40 | Flux Coupled Balun Transformer | 5 | 120 | 1:1 | 0.2 | SM-164 |
| MABA-008965-CF1160 | Flux Coupled Balun Transformer | 5 | 120 | 1:1 | 0.2 | SM-22A |
| MABA-009109-CF1A40 | Flux Coupled Balun Transformer | 5 | 120 | 1:1 | 0.2 | SM-164A |
| MABA-009412-CF1BC0 | Flux Coupled Transformer | 5 | 120 | 1:1 | 0.4 | SM-193 |
| MABA-009005-CF1A40 | Flux Coupled Balun | 5 | 120 | 1:1 | 0.2 | SM-164A |
| MABA-009572-CF18A0 | Flux Coupled | 5 | 200 | 1:1 | 0.5 | SM-138 |
| MABA-011009 | Transformer | 3 | 200 | 1:1 | 0.6 | SM-22 |
| MABA-011002 | Step Down Transformer | 5 | 200 | 4:1 | 1.5 | SM-55 |
| MABA-009836-CF48A0 | Flux Coupled Transformer | 5 | 200 | 4:1 | 0.5 | Surface Mount |
| MABA-010112-CT1A40 | Flux Coupled Transformer | 0 | 200 | 1:1 | 0.8 | SMT |
| MABA-009600-CF48A0 | Flux Coupled Transformer | 5 | 200 | 4:1 | 0.7 | SM-138 |
| MABA-009594-CF18A0 | Flux Coupled Transformer | 5 | 200 | 1:1 | 0.4 | FR4 |
| MABACT0068 | Flux Coupled Balun | 5 | 200 | 2:1 | 0.4 | SM-164 |
| MABA-008482-CF1A40 | Flux Coupled Transformer | 5 | 200 | 1:1.8 | 0.4 | SM-156 |
| MABACT0048 | Flux Coupled Balun | 5 | 200 | 2:1 | 0.4 | SM-164 |
| MABA-008260-CF4A40 | Flux Coupled Balun | 5 | 200 | 4:1 | 0.8 | SM-164 |
| MABA-007532-CF18A0 | Transmission Line Balun | 5 | 200 | 1:1 | 0.4 | SM-138 |
| MABACT0071 | Flux Coupled Balun | 0 | 200 | 1:1 | 0.5 | SM-164 |
| MABACT0062 | Flux Coupled Balun | 3 | 200 | 1:1 | 0.5 | SM-22 |
| MABAES0060 | Flux Coupled Balun | 0 | 200 | 1:1 | 1 | SM-22 |
| MABACT0018 | Transformer | 5 | 200 | 1:4 | 0.7 | SM-138-A |
| MABACT0012 | Flux Coupled Balun | 3 | 200 | 1:1 | 0.8 | SM-22B |
| MABA-010544-CT0071 | Flux Coupled Transformer | 0.3 | 200 | 1:1 | 0.8 | Surface Mount |
| MABA-010400-CT18A0 | Transformer | 40 | 200 | 1:1 | 0.4 | Surface Mount |
| MABA-008354-CF4A40 | Flux Coupled Transformer | 5 | 200 | 4:1 | 1.5 | SM-164 |
| MABA-008354 | Flux Coupled Transformer | 5 | 200 | 4:1 | 2.2 | SM-164 |
| ETC1-1T-2 | E-Series Transformer | 0 | 200 | 1:1 | 0.3 | SM-22 |
| MABA-011043 | Flux Coupled Transformer | 5 | 200 | 4:1 | 1 | SM-136 |
| MABA-011048 | Flux Coupled Transformer | 5 | 200 | 4:1 | 0.8 | SM-136 |
| 007488-CT9550 | Transmission Line Balun | 5 | 220 | 9:1 | 0.8 | SM-55 |
| MABAES0022 | Transmission Line Balun | 5 | 220 | 9:1 | 0.6 | SM-55 |
| MABA-009250-CT0068 | E-Series Transformer | 3 | 300 | 2:1 | 0.7 | SM-22 |
| MABA-011033 | Flux Coupled High Temp | 1 | 300 | 1:2 | 0.5 | SM-22 |

## Transformers / Baluns (continued)

| Part Number | Description | Min Freq (MHz) | Max Freq (MHz) | Impedance Ratio | Insertion Loss (dB) | Package |
|---|---|---|---|---|---|---|
| MABA-011039 | Flux Coupled High Temp | 1.0 | 300 | 1:4 | 0.5 | SM22 |
| MABA-011020 | E-Series RF 1:4 Flux Coupled Step-Up Transformer | 1.0 | 350 | 1:4 | 0.8 | SM-22 |
| MABA-009387-ES0040 | Flux Coupled Transformer | 1.0 | 350 | 2:1 | 1.6 | SM-138 |
| MABA-007493-CF4160 | Flux Coupled Balun | 1.0 | 350 | 4:1 | 1.6 | SM-22 |
| MABA-007766-CF28A0 | Flux Coupled Balun | 5.0 | 350 | 1.5:1 | 1.4 | SM-138 |
| MABACT0067 | Flux Coupled Balun | 1.0 | 350 | 4:1 | 1.3 | SM-164 |
| MABA-007237-ETC410 | Flux Coupled Balun | 1.0 | 350 | 1:4 | 1.2 | SM-22 |
| MABAES0025 | Flux Coupled Balun | 5.0 | 350 | 1.5:1 | 1.0 | SM-138 |
| ETC4-1 | Flux Coupled Transformer | 1.0 | 350 | 1:4 | 1.0 | SM-22 |
| MABA-009126-ET11SM | Flux Coupled Balun | 0.0 | 400 | 1:1 | 1.0 | SM-1 |
| TP-104-PIN ◆ | Pulse | 1.0 | 400 | 4:1 | 0.4 | FP-1 |
| ETC36-1T-2TR | E-Series RF Transformer | 5.0 | 400 | 36:1 | 12.0 | SM-22 |
| ETC3-1 | Flux Coupled Balun | 10.0 | 440 | 3:1 | 3.0 | SM-22 |
| MABA-010143-FLUX18 | Flux Coupled Transformer | 2.0 | 500 | 1:8 | 1.0 | SM-22 |
| MABA-009947-CF3160 | Flux Coupled Transformer | 0.3 | 500 | 1:3 | 0.7 | SM-22 |
| MABA-009487-60HWCA | E-Series Transformer | 0.4 | 500 | 1:1 | 1.2 | SM-195 |
| MABA-009484-ETC31T | E-Series Transformer | 2.0 | 500 | 1:3 | 0.7 | SM-22 |
| MABA-009180-500MHZ | E-Series Transformer | 0.4 | 500 | 1:1 | 3.0 | SM-22 |
| TP-102-PIN | Pulse Transformer | 1.0 | 500 | 4:1 | 0.4 | FP-1 |
| ETC1-1T-5 | E-Series Transformer | 2.0 | 500 | 1:1 | 2.0 | SM-22 |
| MABA-009298-CT48A0 | Flux Coupled Balun | 1.0 | 650 | 4:1 | 1.5 | SM-138 |
| MABACT0064 | Flux Coupled Balun | 1.0 | 650 | 4:1 | 1.5 | SM-138 |
| MABAES0031 | Flux Coupled Balun | 1.0 | 650 | 1:4 | 1.0 | SM-138 |
| MABA-009488-61HWCA | E-Series Transformer | 3.0 | 800 | 1:4 | 1.0 | SM-195 |
| MABAES0061 | Flux Coupled Balun | 2.0 | 800 | 1:4 | 1.2 | SM-22 |
| ETC4-1-2 | E-Series Transformer | 2.0 | 800 | 4:1 | 1.2 | SM-22B |
| MABA-008184-CT1760 | Transmission Line Balun with Tertary Winding | 50.0 | 870 | 1:1 | 0.3 | SM-118A |
| MABACT0074 | Transmission Line Balun | 50.0 | 870 | 2.66:1 | 1.7 | SM-152 |
| ETC1-1-6 | E-Series Transformer | 760.0 | 960 | 1:1 | 0.2 | SM-22 |
| MABA-010463-CA2A40 | Transformer | 20.0 | 1000 | 1:1.77 | 1.2 | Surface Mount |
| MABA-009711-ETK2MM | Transmission Line Step-up Transformer | 2.0 | 1000 | 1:4 | 0.7 | SM-164B |
| MABA-009092-CT1A40 | Transmission Line Balun Transformer | 5.0 | 1000 | 1.33:1 | 0.7 | SM-164 |
| MABA-008980-CF0440 | Transmission Line Balun Transformer | 50.0 | 1000 | 1:4 | 7.0 | SM-168A |
| MABA-008752-TC1P57 | Auto-Transformer | 2.0 | 1000 | 1.5:1 | 0.4 | SM-22 |
| MABA-008639-TC41T7 | Flux Coupled Balun | 6.0 | 1000 | 1:4 | 3.0 | SM-22 |
| MABACT0040 | Transmission Line Balun, with Center Tap | 5.0 | 1000 | 1:1 | 1.1 | SM-164 |
| MABACT0066 | Transmission Line Balun | 5.0 | 1000 | 4:1 | 1.3 | SM-138 |
| MABA-007569-ETK42T | Transmission Line Balun | 2.0 | 1000 | 1:4 | 0.3 | SM-22 |
| TP-105-PIN ◆ | Pulse Transformer | 0.5 | 1000 | 1.4:1 | 0.4 | FP-1 |
| TP-103-PIN ◆ | Pulse Transformer | 0.5 | 1000 | 4:1 | 0.4 | FP-1 |
| MABACT0063 | Auto-Transformer | 5.0 | 1000 | 1.5:1 | 0.5 | SM-22 |
| MABAES0032 | Transmission Line Balun | 5.0 | 1000 | 1:1 | 1.0 | SM-138 |
| MABAES0034 | Auto-Transformer | 20.0 | 1000 | 4:1 | 2.0 | SM-22 |
| MABA-010449-CA2A40 | Transformer | 5.0 | 1000 | 1:2 | 0.8 | Surface Mount |
| ETK4-2T | E-Series Transformer | 2.0 | 1000 | 4:1 | 3.0 | SM-22 |
| ETC4-1T-7 | E-Series Transformer | 6.0 | 1000 | 4:1 | 1.0 | SM-22 |
| ETC1.5-4 | Auto-Transformer | 5.0 | 1000 | 1.5:1 | 1.0 | SM-22 |
| ETC1-1T-75 | Transmission Line with Tertary Winding | 40.0 | 1000 | 1:1 | 3.0 | SM-22 |
| MABA-010245-CT1160 | Transmission Line Transformer | 46.0 | 1002 | 1:1 | 0.4 | SM-55 |

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.

## Transformers / Baluns (continued)

| Part Number | Description | Min Freq (MHz) | Max Freq (MHz) | Impedance Ratio | Insertion Loss (dB) | Package |
|---|---|---|---|---|---|---|
| TP-108-PIN ◆ | Flux Coupled Balun | 350.0 | 1125 | 2.5:1 | 0.8 | FP-1 |
| MABA-011029 | Transformer, 1:2 Transmission Line Balun | 5.0 | 1200 | 1:2 | 1.5 | SM-55 |
| MABA-010725-CT1006 | Transmission Line with Tertiary Winding | 45.0 | 1200 | 1:1 | 0.5 | Surface Mount |
| MABA-010726-CT1007 | Tranformer | 45.0 | 1200 | 1:1 | 0.6 | Surface Mount |
| MABA-010321-CT1A42 | Transmission Line with Tertiary Winding | 50.0 | 1200 | 1:1 | 0.7 | Surface Mount |
| MABA-010238-CT4A80 | Transformer | 5.0 | 1200 | 1:2 | 1.3 | SM-55 |
| MABA-010441-CT38A0 | Transformer | 5.0 | 1200 | 1:3 | 1.1 | SM-138 |
| MABA-010268-CT4160 | Transmission Line Transformer | 5.0 | 1200 | 1:4 | 0.7 | FR4 |
| MABA-010129-CT4A40 | Transmission Line Transformer | 5.0 | 1200 | 1:4 | 0.7 | SMT |
| MABA-009602-ES2922 | E-Series Transformer With Tap | 50.0 | 1200 | 1:1 | 0.8 | SM-22 |
| MABA-009231-CT1A4B | T-line balun | 5.0 | 1200 | 1:1 | 0.7 | SM-187 |
| MABA-009691-CT1881 | Transmission Line Transformer | 5.0 | 1200 | 1:1 | 0.2 | SM-136 |
| MABA-007681-CT2010 | Transmission Line Balun | 5.0 | 1200 | 1:2 | 0.6 | SM-118 |
| MABA-009210-CT1760 | Transmission Line Balun with Tertary Winding | 50.0 | 1200 | 1:1 | 0.6 | SM-118A |
| MABA-009232-CT4A4B | Transmission Line Balun Transformer | 5.0 | 1200 | 4:1 | 1.0 | SM-187 |
| MABACT0061 | Auto-Transformer | 5.0 | 1200 | 4:1 | 1.6 | SM-22 |
| MABACT0043 | Transmission Line Balun Transformer | 5.0 | 1200 | 1:1 | 0.5 | SM-138 |
| MABA-008979-CF0290 | Transmission Line Balun with Tertary Winding | 50.0 | 1200 | 1:1 | 0.6 | SM-158 |
| MABA-007748-CT1160 | Transmission Line Balun with Tertary Winding | 5.0 | 1200 | 1:1 | 0.6 | SM-22 |
| MABACT0069 | Transmission Line Balun with Tertary Winding | 50.0 | 1200 | 1:1 | 0.8 | SM-158 |
| MABACT0060 | Transmission Line Balun with Tertary Winding | 5.0 | 1200 | 1:1 | 0.7 | SM-164 |
| MABAES0029 | Transmission Line Balun with Tertary Winding | 50.0 | 1200 | 1:1 | 1.0 | SM-158 |
| MABA-010392-CT18A0 | Transmission Line Transformer | 5.0 | 1200 | 1:1 | 0.7 | SM-138 |
| MABA-10314-CT1370 | Transformer | 4.0 | 1200 | 1:1 | 0.9 | SM-55 |
| MABA-011013 | 1:1 TxLine + tertiary winding | 45.0 | 1200 | 1:1 | 0.8 | FR4 |
| MABA-011014 | 1:1 TxLine | 45.0 | 1200 | 1:1 | 0.9 | FR4 |
| MABA-011015 | Transformer | 45.0 | 1200 | 1:1.278 | 1.5 | FR4 |
| MABA-011029 | Transformer | 5.0 | 1200 | 1:2 | 0.9 | SM-55 |
| TP-101-PIN ◆ | Pulse Transformer | 0.0 | 1500 | 1.6:1 | 0.4 | FP-1 |
| TPX-75-4N ◆ | 50/75 Ohm | 10.0 | 1500 | 1.5:1 | 0.3 | Conn |
| MABA-010247-2R1250 | Transmission Line Transformer | 1.0 | 1600 | 1:2 | 1.5 | SM-197 |
| MABA-011028 | Txline Balun | 600.0 | 1700 | 1:1 | 0.5 | SM-22 |
| MABA-010374-CT4A40 | Transmission Line | 10.0 | 1900 | 1:4 | 1.8 | Surface Mount |
| ETN1-1-13 | Transmission line Balun | 4.0 | 2000 | 1:1 | 0.3 | SM-52 |
| MABA-007731-CT1980 | Transmission Line Balun Transformer | 50.0 | 2150 | 1:1 | 1.2 | SM-152 |
| MABA-010386-CA3A40 | Auto-Transformer | 5.0 | 2400 | 1:3 | 3.0 | Surface Mount |
| MABA-010012-ES4302 | Transmission Line Transformer | 30.0 | 2500 | 1:4 | 1.8 | SM-22 |
| MABA-009822-715254 | Transmission Line Transformer | 4.0 | 3000 | 1:1 | 0.3 | SMT |
| MABA-010125-TC1113 | Transmission Line Transformer | 4.0 | 3000 | 1:1 | 1.5 | SM-22 |
| MABA-007871-CT1A40 | Transmission line Balun, MoCA | 5.0 | 3000 | 1:1 | 0.6 | SM-164 |
| MABA-008757-CT1160 | Transmission Line Balun Transformer | 4.0 | 3000 | 1:1 | 2.0 | SM-22B |
| MABA-007327-CT1A40 | Transmission Line Transformer | 4.0 | 3000 | 1:1 | 1.6 | SM-164 |
| MABACT0065 | Transmission line Balun | 500.0 | 3000 | 4:1 | 0.2 | SM-22 |
| MABA-007236-C16423 | Transmission line Balun | 500.0 | 3000 | 1:4 | 3.0 | SM-22 |
| MABA-007159-000000 | Transmission line Balun | 4.0 | 3000 | 1:1 | 0.3 | SM-22 |
| MABACT0059 | Transmission line Balun | 4.0 | 3000 | 1:1 | 2.0 | SM-22B |
| MABACT0039 | Transmission line Balun | 5.0 | 3000 | 1:1 | 1.3 | SM-138 |
| MABACT0034 | Transmission line Balun | 4.0 | 3000 | 1:1 | 1.6 | SM-164 |
| ETC1.6-4-2-3 | E-Series Transformer | 500.0 | 3000 | 4:1 | 0.2 | SM-22 |
| ETC1-1-13 | E-Series Transformer | 4.0 | 3000 | 1:1 | 0.3 | SM-22 |
| MABA-000001-75KIT1 | 75 Ohm CATV Transformer Designer's™ Kit | | | | | SMT |
| MABA-000001-50KIT1 | Transformer Designer's Kit | | | | | SMT |

## Filters / Diplexers

| Part Number | Description | Min Freq (MHz) | Max Freq (MHz) | Crossover Frequency (dB) | LP/HP Insertion Loss (dB) | LP/HP Return Loss Loss (dB) | LP/HP Isolation (dB) | Package |
|---|---|---|---|---|---|---|---|---|
| MAFLCT0066 | Diplexer | 5 | 870 | 30/46 | 0.7/0.75 | 18/20 | 47/46 | SMT |
| MAFL-011013 | Broadband CATV Diplexer | 5 | 1000 | 42/54 | 0.5/0.5 | 16/16 | 55/50 | SMT |
| MAFL-009810-CD0550 | Diplex Filter | 5 | 1000 | 42/54 | 0.5/0.5 | 19/20 | 55/50 | SMT |
| MAFL-009511-CD0A10 | Diplex Filter | 5 | 1000 | 42/52 | 0.5/0.5 | 17/20 | 55/55 | SMT |
| MAFL-009055-CD4254 | Diplexer | 5 | 1000 | 42/54 | 0.5 | 16 | 48/50 | SMT |
| MAFL-007654-CD0A10 | Diplex Filter | 5 | 1000 | 42/54 | 0.5 | 17/20 | 55/55 | SMT |
| MAFL-007988-CD0550 | Diplex Filter | 5 | 1000 | 65/88 | 0.5/0.5 | 20/20 | 50/50 | SMT |
| MAFLCT0027 | Diplexer | 5 | 1000 | 65/88 | 0.5/0.5 | 20/20 | | SMT |
| MAFL-010465-CD0B20 | Filter, MoCA Diplexer | 5 | 1002 | 42/88 | 1.2/1.2 | 15/12 | 60/70 | SMT |
| MAFL-011025 | Broadband CATV Diplexer | 5 | 1002 | 65/108 | 0.5/0.5 | 16/16 | 50/50 | SMT |
| MAFL-011024 | Broadband CATV Diplexer | 5 | 1002 | 85/108 | 0.5/0.5 | 16/16 | 50/50 | SMT |
| MAFL-011015 | CATV Diplex Filter | 5 | 1002 | 42/54 | 0.5/0.5 | 20/18 | 55/55 | SMT |
| MAFL-011014 | CATV Diplex Filter | 5 | 1002 | 65/88 | 0.5/0.5 | | 55/50 | SMT |
| MAFL-011037 | Diplex Filter | 5 | 1002 | 42/54 | 0.5/0.5 | 18/18 | 52/52 | SMT |
| MAFL-011038 | Diplex Filter | 5 | 1002 | 65/88 | 0.5/0.5 | 18/18 | 52/52 | SMT |
| MAFL-008098-CD0550 | Diplex Filter | 5 | 1100 | 42/54 | 0.5/0.5 | | 20/20 | SMT |
| MAFLCT0068 | Diplexer | 5 | 1100 | 42/54 | 0.8/0.8 | 12/10 | 53/50 | SMT |
| MAFLCT0081 | Diplexer | 50 | 1425 | 870/1125 | 1.1/1.1 | 18/18 | 65/66 | SMT |
| MAFL-009217-CD0AC0 | Diplex Filter | 5 | 1525 | 864/1128 | 0.5/1 | 14/18 | 35/44 | SMT |
| MAFL-008070-CL0AD0 | MoCA Low Pass Filter | 50 | 1525 | 870/975 | 0.75/1.8 | 12 | 30/25 | SMT |
| MAFL-010101-CB0AD0 | MoCA Band Pass Filter | 1125 | 1550 | 1125/1550 | 1.7 | 11 | 40/37 | SMT |
| MAFL-009906-CL0AD0 | MoCA Low Pass Filter | 5 | 1550 | 1002 | 1.0 | 15/14 | 32 | SMT |
| MAFL-010256-CB0AD0 | MoCA Band Pass Filter | 1125 | 1550 | 1125/1550 | 1.7 | 11 | 40 | SMT |
| MAFL-008290-CD0AC0 | Diplex Filter | 5 | 1550 | 1002/1125 | 0.6/1.7 | 15/14 | 40/40 | SMT |
| MAFL-011012 | CATV Diplex Filter | 5 | 1675 | 1002/1125 | 1.5/1.5 | 14/14 | 39/40 | SMT |
| MAFL-009272-CD0AC0 | Diplexer | 5 | 1675 | 1002/1125 | 0.6/1.5 | 16 | 40/40 | SMT |
| MAFL-011026 | MoCA Triplex Filter | 5 | 1675 | 85/105;1002/1125 | 1.2/1.5/2.8 | 18/16/16 | 65/55 | SMT |
| MAFL-011018 | MoCA Triplex Filter | 5 | 1675 | 42/54;1002/1125 | 1.2/1.5/2.8 | 18/16/16 | 65/55 | SMT |
| MAFL-011023 | MoCA Triplex Filter | 5 | 1675 | 65/88;1002/1125 | 1.2/1.5/2.5 | 18/18/16 | 65/55 | SMT |
| MAFL-010140-CT0C60 | MoCA Triplex Filter | 5 | 2000 | 42/54;1002/1125 | 1.2/1.5 | 12/10 | 37/47 | SMT |
| MAFL-010670-CB0AD0 | MoCA Band Pass Filter | 350 | 3000 | 650/875 | 2/2 | 11/11 | | SMT |
| MAFL-010639-CB0AD0 | MoCA Band Pass Filter | 500 | 3000 | 650/875 | 2/2 | 10/10 | | SMT |
| MAFL-008195-CD0AC0 | Diplex Filter | 50 | 3000 | 870/950 | 1.5 | 25/14 | 40/44 | SMT |
| MAFL-007898-CD0AC0 | Diplex Filter | 50 | 3000 | 870/1525 | 1.8/1.2 | 15/15 | 45/45 | SMT |
| MAFL-009010-CT0B90 | MoCA Triplex Filter | 5 | 6000 | 1002/1125 | 1/2 | 14/11 | 51/55 | SMT |

## 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 |
| MA4M1050 | 50 | 100 | 132 | Die |
| MA4M3050 | 50 | 200 | 354 | Die |
| MA4M1100 | 100 | 100 | 199 | Die |
| MA4M3100 | 100 | 50 | 358 | Die |
| MA4M3150 | 150 | 50 | 359 | 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.

## MACOM Frequency Generation Products

### 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

## Voltage Controlled Oscillators (VCOs)

| Part Number | Min Freq (MHz) | Max Freq (MHz) | Phase Noise at 10 kHz Offset (Vt=5V)(dBc/Hz) | Phase Noise at 100 kHz Offset (Vt=5V)(dBc/Hz) | Pout at Fo (dBm) | DC Current (mA) | Package |
|---|---|---|---|---|---|---|---|
| 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-109082 | 8714 | 9450 | -90 | -117 | 9 | 90 | 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-109173 | 8805 | 9542 | -88 | -117 | 9 | 90 | 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 |
| MAOC-114850 | 14500 | 15200 | -84 | -108 | 3.5 | 90 | 5 mm PQFN-32 |

## MACOM Crosspoints, Signal Conditioners/Redrivers

### Switching solutions in high data rate systems

With over a decade of experience in crosspoint switch design and delivery, MACOM has positioned itself as the preferred and trusted supplier for switching solutions in high data rate systems. Our devices are equipped with signal conditioning technology that enables system designers to use lower cost board materials and components while increasing their system margin. MACOM's continued innovation and investment in pushing the boundaries of performance, size, and speed, ensures that we remain the supplier of choice.

**Crosspoints, Signal Conditioners. Redrivers**

- Channel counts range from 2x2 to 288x288
- Data rates from 19 Mbps to 28 Gbps
- Lower cost board materials and components increases system margin.
- Applications include: video broadcast routers and switchers, HDMI switchers, and DWDM physical layer routers

## Crosspoint Switches, Signal Conditioners/Redrivers

| Part Number | Switch Matrix Size | Max Data Rate (Gbps) | Supply Voltage (V) | Channels (#) | Embedded CDR | Embedded SerDes | Package |
|---|---|---|---|---|---|---|---|
| M21004 | 2 x 2 | 3.2 | 1.2 | 2 | No | No | 4 mm 24-pin QFN |
| M21105 | 4 x 4 | 3.2 | 1.2 | 4 | Yes | Yes | 10 mm 72-pin QFN |
| M21163 | 32 ports (reconfigurable) | 3.2 | 1.2 | 32 | No | No | 17 mm 252-pin BGA |
| M21111 | 17 x 17 | 3.2 | — | 17 | No | No | 23 mm 404-pin PBGA |
| M21123 | 24 ports (reconfigurable) | 3.2 | 1.2 | 24 | No | No | 12 mm 88-pin QFN |
| M21121 | 34 x 34 | 3.2 | — | 34 | No | No | 34 mm 404-pin PBGA |
| M21131 | 72 x 72 | 3.2 | 1.2 | 72 | Yes | No | 35 mm 1156-pin BGA |
| M21151 | 144 x 144 | 3.2 | 1.2 | 144 | Yes | No | 35 mm 1156-pin BGA |
| M21156 | 144 x 144 | 3.2 | 1.2 | 144 | No | No | 35 mm 1156-pin BGA |
| M21172 | 200 x 288 | 3.2 | 1.2 | 288 | No | No | 50 mm 2389-pin BGA |
| M21171 | 288 x 200 | 3.2 | 1.2 | 200 | No | No | 50 mm 2389-pin BGA |
| M21170 | 288 x 288 | 3.2 | 1.2 | 288 | No | No | 50 mm 2389-pin BGA |
| M21043 | 8 ports (reconfigurable) | 3.2 | 1.2 | 8 | No | No | 7 mm 48-pin QFN |
| M21115 | 20 x 20 | 3.8 | 2.5/3.3 | 20 | No | No | 35 mm 676-pin TEPBGA |
| M21125 | 40 x 40 | 3.8 | 2.5/3.3 | 40 | No | No | 35 mm 676-pin TEPBGA |
| M21330 | 4 x 4 | 4.25 | 1.2 | 4 | No | No | 6 mm 40-pin QFN |
| M21351 | 4 x 4 | 4.25 | 1.2 | 4 | No | No | 6 mm 40-pin QFN |
| M21352 | 8 x 8 | 4.25 | 1.2 | 8 | No | No | 10 mm 72 pin QFN |
| M21443 | 12 x 12 | 4.25 | 1.2 | 12 | No | No | 14 mm 100-pin TQFP |
| M21444 | 12 x 12 | 4.25 | 2.4 | 12 | — | Yes | 14 mm 100-pin TQFP |
| M21353 | 12 x 12 | 4.25 | 1.2 | 12 | No | No | 12 mm 88-pin QFN |
| M21141 | 72 x 72 | 4.25 | 1.2 | 72 | Yes | Yes | 35 mm 1156-pin BGA |
| M21161 | 144 x 144 | 4.25 | 1.2 | 144 | Yes | Yes | 35 mm 1156-pin BGA |
| M21362 | 8 x 8 | 5.5 | 1.7 | — | Yes | Yes | 10 mm 72-pin QFN |
| M21363 | 12 x 12 | 5.5 | 2.4 | 12 | Yes | Yes | 12 mm 88-pin QFN |
| M21462 | 8 x 8 | 6.25 | 1.2 | 8 | Yes | No | 10 mm 72-pin QFN |
| M21463 | 12 x 12 | 6.25 | 1.2 | 12 | Yes | No | 12 mm 88-pin QFN |
| M21450 | 2 x 2 | 6.5 | 1.2 | 2 | No | No | 6 mm 40-pin QFN |
| M21030 | 4 x 4 | 6.5 | 1.2 | 4 | No | No | 6 mm 40-pin QFN |
| M21451 | 4 x 4 | 6.5 | 1.2 | 4 | No | No | 6 mm 40-pin QFN |
| M21452 | 8 x 8 | 6.5 | 1.2 | 8 | No | No | 10 mm 72-pin QFN |
| M21453 | 12 x 12 | 6.5 | 1.2 | 12 | No | No | 12 mm 88-pin QFN |
| M23636 | 36 x 36 | 6.5 | 1.2 | 36 | No | — | 23 mm 484-pin BGA |
| M21148 | 48 x 48 | 6.5 | 1.2 | 48 | No | No | 27 mm 676 pin BGA |
| M21147 | 80 x 80 | 6.5 | 1.2 | 80 | No | No | 35 mm 1156-pin FCBGA |
| M21167 | 160 x 160 | 6.5 | 1.2 | 160 | No | No | 35 mm 1936-pin FCBGA |
| M21440 | 8 x 8 | 10.312 | 1.2 | 8 | Yes | Yes | 12 mm 88-pin QFN |
| M21441 | 12 x 12 | 10.312 | 1.2 | 12 | Yes | Yes | 19 mm 324-pin BGA |
| M20001 | 2 x 2 | 12.5 | 3.3 | 2 | No | No | 3 mm 16-pin QFN |
| M21024 | 24 x 24 | 12.5 | 1.2 | 24 | No | No | 21 mm 396-pin BGA |
| M21036 | 36 x 36 | 12.5 | 1.2 | 36 | No | No | 23 mm 480-pin BGA |
| M21048 | 48 x 48 | 12.5 | 1.2 | 48 | No | No | 27 mm672-pin BGA |
| M21080 | 80 x 80 | 12.5 | 1.8 | 80 | No | No | 45 mm 1924-pin FCBGA |
| M21601 | 120 x 120 | 12.5 | 1.8 | 120 | No | No | 45 mm 1924-pin FCBGA |
| M21605 | 160 x 160 | 12.5 | 1.8 | 160 | No | No | 45 mm 1924-pin FCBGA |

# MACOM Serial Digital Interface (SDI) Video Products

## Optimizing the performance of equipment that supports SMPTE standards

MACOM SDI video products span a complete signal chain for an SDI link, including multi-rate equalizer and cable driver solutions for emerging ultra high-definition (UHD) TV standards and legacy 3G, HD and SD.

MACOM's new 12G-SDI video solutions for 4K UHD broadcast video transport applications enhance next-generation system designs by providing higher density, lower power, and lower material cost for transporting high quality UHD images compared to lower speed solutions.

Typical applications include next-generation 4K/8K video production solutions, broadcast video routing and production switchers, video distribution amplifiers, video cameras and monitors.

All MACOM SDI products are fully compliant with the Society of Motion Picture and Television Engineers (SMPTE) standards.

### SDI Cable Equalizers

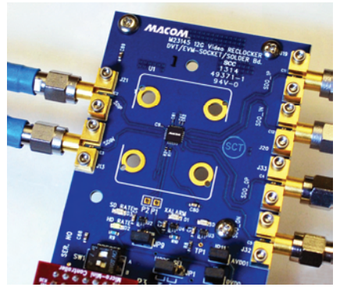
- Specifically designed to compensate for the losses that SDI video signals accumulate when transmitted across long 75Ω copper cables
- Ideal for the receive path of HD and UHD video broadcast equipment

### SDI Reclockers

- Enable robust video broadcast systems by removing jitter from SDI video signals
- Products include innovative multi-channel and multi-rate reclockers
- Ideal for HD and UHD video broadcast equipment

### SDI Cable Drivers

- Multi-channel and dual output designed to drive 75Ω copper cables
- Ideal for the transmit path of HD and UHD video broadcast equipment



### Crosspoints, Signal Conditioners, Redrivers

- Channel counts range from 2x2 to 288x288
- Data rates from 19 Mbps to 28 Gbps
- Supports a variety of board materials and switching architectures by providing robust signal integrity margin
- Applications include: video broadcast routers and switchers, HDMI switchers, and DWDM physical layer routers

MACOM's 12G-SDI Chipset was honored with a 2015 Studio Daily *Prime Award* and a 2014 Hollywood Post Alliance *Engineering Excellence Award*.

Hollywood Post Alliance
Engineering Excellence Award Winner

## SDI Cable Equalizers

| Part Number | Description | Max Data Rate (Gbps) | Supply Voltage (V) | Power Consumption (mW) | Belden 1694A Reach (m) | | | | | Outputs (#) | Package |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 12G | 6G | 3G | HD | SD | | |
| M23544 | 12G Multi-rate Long Reach Equalizer with Reclocker | 11.88 | 2.5 | 400 | 75 | 100 | 220 | 265 | 530 | 2 | 4 mm 24-pin QFN |
| M23554 | 12G Multi-rate Long Reach Equalizer with Reclocker | 11.88 | 2.5 | 400 | 75 | 100 | 220 | 265 | 530 | 2 | 5 mm 32-pin QFN |
| M23564 | 12G Multi-rate Long Reach Equalizer with Reclocker | 11.88 | 2.5 | 400 | 75 | 100 | 220 | 265 | 530 | 1 | 4 mm 16-pin QFN |
| M22544 | 6G/3G/HD/SD-SDI Adaptive Cable Equalizer | 5.94 | 2.5 | 130 | — | 120 | 140 | 140 | 400 | 2 | 4 mm 24-pin QFN |
| M22554 | 6G/3G/HD/SD-SDI Adaptive Cable Equalizer | 5.94 | 2.5 | 130 | — | 120 | 140 | 140 | 400 | 2 | 5 mm 32-pin QFN |
| M22564 | 6G/3G/HD/SD-SDI Adaptive Cable Equalizer | 5.94 | 2.5 | 130 | — | 120 | 140 | 140 | 400 | 1 | 4 mm 16-pin QFN |
| M21324 | 3G/HD/SDI-SDI Cable Equalizer | 2.97 | 3.3 | 230 | — | — | 100 | 200 | 400 | 1 | 4 mm 16-pin QFN |
| M21424 | 3G/HD/SDI-SDI Dual Output Cable Equalizer | 2.97 | 2.5/3.3 | 175 | — | — | 100 | 200 | 400 | 2 | 5 mm 32-pin QFN |
| M21544 | 3G/HD/SD-SDI Long Reach Equalizer* | 2.97 | 2.5 | 145 | — | — | 200 | 200 | 400 | 2 | 4 mm 24-pin QFN |
| M21554 | 3G/HD/SD-SDI Long Reach Equalizer* | 2.97 | 2.5 | 145 | — | — | 200 | 200 | 400 | 2 | 5 mm 32-pin QFN |
| M21564 | 3G/HD/SD-SDI Long Reach Equalizer* | 2.97 | 2.5 | 145 | — | — | 200 | 200 | 400 | 1 | 4 mm 16-pin QFN |
| M21644 | 3G/HD/SD-SDI Long Reach Equalizer | 2.97 | 2.5 | 120 | — | — | 200 | 200 | 400 | 2 | 4 mm 24-pin QFN |
| M21654 | 3G/HD/SD-SDI Long Reach Equalizer | 2.97 | 2.5 | 120 | — | — | 200 | 200 | 400 | 2 | 5 mm 32-pin QFN |
| M21664 | 3G/HD/SD-SDI Long Reach Equalizer | 2.97 | 2.5 | 105 | — | — | 200 | 200 | 400 | 1 | 4 mm 16-pin QFN |
| M31544 | 3G/HD/SD-SDI Long Reach Equalizer* | 2.97 | 2.5 | 145 | — | — | 200 | 200 | 400 | 2 | 4 mm 24-pin QFN |
| M31564 | 3G/HD/SD-SDI Long Reach Equalizer* | 2.97 | 2.5 | 145 | — | — | 200 | 200 | 400 | 1 | 4 mm 16-pin QFN |
| M21214 | HD/SD Broadcast Video Adaptive Cable Equalizer | 1.485 | 2.5/3.3 | 175 | — | — | — | 200 | 400 | 1 | 6 x 10 mm 16-pin QFN |
| M21234 | HD/SD-SDI Cable Equalizer | 1.485 | 1.8/2.5/3.3 | 125 | — | — | — | 175 | 350 | 1 | 5 mm 32-pin QFN |
| M21204 | SD-SDI Cable Equalizer | 0.27 | 2.5/3.3 | 175 | — | — | — | 200 | 400 | 1 | 6 x 10 mm 16-pin QFN |

* with Jitter Cleaner

## SDI Cable Reclockers

| Part Number | Description | Max Data Rate (Gbps) | Supply Voltage (V) | Power Consumption (mW) | Channels (#) | Integrated Mux | Outputs (#) | Package |
|---|---|---|---|---|---|---|---|---|
| M23145 | 12G Multi-rate Reclocker | 11.88 | 2.5 | 275 | 1 x 2 | — | 2 | 4 mm 24-pin QFN |
| M21260 | 3G/HD/SD-SDI Quad Reclocker External Rate Detection | 3.2 | 1.2 | 0.56 | 4 x 4 | 4 x 4 | 4 | 10 mm 72-pin QFN |
| M21262 | 3G/HD/SD-SDI Reclocker with 4:1 Input Mux | 3.2 | 1.2 | 0.56 | 4 x 1 | 4 x 1 | 1 | 10 mm 72-pinQFN |
| M21245 | 3G/HD/SD-SDI Low Power Reclocker | 2.97 | 1.2/1.8/2.5/3.3 | 0.23 | 2 | 4:1 | 2 | 6 mm 40-pin QFN |
| M21350 | 3G/HD/SD-SDI Low Power Quad Reclocker with 4x 4:1 mux | 2.97 | 1.2/1.8/2.5/3.3 | 0.135 | 4 | 4:1 x 4 | 4 | 10 mm 72-pin QFN |
| M21355 | 3G/HD/SD-SDI Low Power Quad Reclocker | 2.97 | 1.2/1.8/2.5/3.3 | 0.135 | 4 | 16 x 4 xPT | 4 | 10 mm 72-pin QFN |
| M31245 | 3G/HD/SD-SDI Ultra Low Power Reclocker | 2.97 | 2.5 | 70 | 1 | 4:1 | 2 | 4 mm 32-pin QFN |
| M31285 | 3G/HD/SD-SDI Ultra Low Power Reclocker with Cable Driver | 2.97 | 2.5 | 160 | 1 | 4:1 | 2 | 4 mm 32-pin QFN |
| M21215 | HD/SD-SDI Reclocker Integrated Rate Detection | 1.485 | 2.5/3.3 | 0.325 | 1 | 4:1 | 1 | 10 mm 64-pin LQFP |
| M21235 | HD/SD-SDI Reclocker Integrated Rate Detection | 1.485 | 3.3 | 0.4 | 1 | 4:1 | 1 | 7 mm 48-pin QFN |
| M21315 | HD/SD-SDI Reclocker Integrated Rate Detection | 1.485 | 3.3 | 0.43 | 1 | 4:1 | 1 | 9 mm 64-pin QFN |

## SDI Cable Drivers

| Part Number | Description | Max Data Rate (Gbps) | Supply Voltage (V) | Power Consumption (mW) | Channels (#) | Outputs (#) | Package |
|---|---|---|---|---|---|---|---|
| M23428 | 12G Multi-rate Dual Cable Driver | 11.88 | 2.5 | 135 | 1 | 2 | 3 mm 16-pin QFN |
| M22428 | 6G/3G/HD/SD-SDI Dual Cable Driver | 5.94 | 2.5 | 125 | 1 | 2 | 3 mm 16-pin QFN |
| M21328 | 3G/HD/SD-SDI Cable Driver | 2.97 | 3.3 | 144 | 1 | 1 | 4 mm 16-pin QFN |
| M21428 | 3G/HD/SD-SDI Dual Cable Driver | 2.97 | 2.5/3.3 | 122 | 1 | 2 | 3 mm 16-pin QFN |
| M21518 | 3G/HD/SD-SDI Low Power Cable Driver | 2.97 | 1.8/2.5/3.3 | 52 | 1 | 1 | 4 mm 24-pin QFN |
| M21528 | 3G/HD/SD-SDI Low Power Dual Cable Driver | 2.97 | 1.8/2.5/3.3 | 40 | 2 | 2 | 4 mm 24-pin QFN |
| M31285 | 3G/HD/SD-SDI Reclocker with Dual Cable Driver | 2.97 | 2.5 | 160 | 1 | 2 | 4 mm 32-pin QFN |
| M21212 | HD/SD-SDI Cable Driver | 1.485 | 2.5/3.3 | 100 | 1 | 1 | 6 x 5 mm 8-pin SOIC |
| M21218 | HD/SD-SDI Cable Driver | 1.485 | 1.8/3.3 | 82 | 1 | 1 | 6 x 5 mm 8-pin SOIC |
| M21232 | HD/SD-SDI Cable Driver | 1.485 | 2.5/3.3 | 90 | 1 | 1 | 3 mm 16-pin QFN |
| M21418 | HD/SD-SDI Cable Driver | 1.485 | 2.5/3.3 | 122 | 1 | 1 | 3 mm 16-pin QFN |
| M21202 | SD-SDI Cable Driver | 0.27 | 2.5/3.3 | 100 | 1 | 1 | 6 x 5 mm 8-pin SOIC |

## MACOM High Definition CCTV (HDcctv) Video Products

### Robust solutions for the security and surveillance industry


MACOM has leveraged its proven technology for switching and transport of High-Definition (HD) uncompressed video signals in the broadcast industry, to provide economical and robust solutions for the security and surveillance industry. MACOM's devices allow for an efficient and effective migration from analog and standard definition (SD) monitoring and recording systems to HD video surveillance systems with dependability.

We offer a comprehensive portfolio of serial digital video cable equalizers, cable drivers, and reclockers for CCTV cameras, digital video recorders (DVR), displays, repeaters, and other system peripherals incorporating our advanced 3G/HD-SDI transmission technology for seamless data communication over long distances.

MACOM provides the world's most extensive high bandwidth non-blocking crosspoint switch portfolio as a preferred and trusted supplier for solutions in routers, switchers, multiplexers, and distribution amplifiers with channel counts ranging from 2 x 2 up to 288 x 288.

**HDcctv Cable Equalizers**
> Specifically designed to compensate for the losses that HD video signals accumulate when transmitted across 75Ω copper cables

**HDcctv Reclockers**
> Removes jitter from video signals
> Multi-rate products

**HDcctv Cable Drivers**
> Designed for driving HDcctv video signals across 75Ω copper cables
> Multi-channel and dual output
> Ideal solution for security and surveillance applications

# HDcctv Devices

## HDcctv Cable Equalizers

| Part Number | Description | Max Data Rate (Gbps) | Supply Voltage (V) | Power Consumption (mW) | Channels (#) | Belden 1694A Reach (m) | | | Outputs (#) | Package |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 3G | HD | SD | | |
| M08036 | 3G/HD/SD Digital Video Cable Equalizer | 2.97 | 3.3 | 0.23 | 1 | 100 | 200 | 400 | 1 | 4 mm 16-pin QFN |
| M08046 | 3G/HD/SD Digital Video Cable Equalizer: Dual Output | 2.97 | 2.5/3.3 | 0.175 | 2 | 100 | 200 | 400 | 2 | 5 mm 32-pin QFN |
| M08016 | HD/SD Digital Video Cable Equalizer | 1.485 | 2.5/3.3 | 0.177 | 1 | — | 200 | 400 | 1 | 6 x 10 mm 16-pin SOIC |
| M08026 | HD/SD Digital Video Cable Equalizer | 1.485 | 3.3 | 0.23 | 1 | — | 200 | 400 | 1 | 4 mm 16-pin QFN |

## HDcctv Reclockers

| Part Number | Description | Max Data Rate (Gbps) | Supply Voltage | Power Consumption (mW) | Channels (#) | Integrated Mux | Outputs (#) | Package |
|---|---|---|---|---|---|---|---|---|
| M08045 | 3G/HD/SD Digital Video Reclocker | 2.97 | 1.2/1.8/2.5/3.3 | 0.23 | 2 | 4:01 | 2 | 6 mm 40-pin QFN |
| M08035 | HD/SD Digital Video Reclocker | 1.485 | 1.2/1.8/2.5/3.3 | 0.23 | 2 | 4:01 | 2 | 6 mm 40-pin QFN |

## HDcctv Cable Drivers

| Part Number | Description | Max Data Rate (Gbps) | Supply Voltage (V) | Power Consumption (W) | Channels (#) | Outputs (#) | Output Return Loss (dB) | Package |
|---|---|---|---|---|---|---|---|---|
| M08038 | 3G/HD/SD Digital Video Cable Driver | 2.97 | 3.3 | 0.144 | 1 | 1 | 15 | 4 mm 16-pin QFN |
| M08048 | 3G/HD/SD Digital Video Cable Driver: Dual Output | 2.97 | 2.5/3.3 | 0.122 | 2 | 2 | 10 | 3 mm 16-pin QFN |
| M08018 | HD/SD Digital Video Cable Driver | 1.485 | 2.5/3.3 | 0.122 | 1 | 1 | 15 | 6 x 5 mm 8-pin SOIC |
| M08028 | HD/SD Digital Video Cable Driver | 1.485 | 3.3 | 0.144 | 1 | 1 | 15 | 4 mm 16-pin QFN |

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.

## MACOM Communications Processors

### Bridges between circuit-switched and packet-based networks

MACOM's software-configurable DSP products serve as bridges for transporting video, voice, fax and modem transmissions between circuit-switched networks and packet-based networks, and across network boundaries. Our multiservice access device architecture combines the performance of a digital-signal processor core with the flexibility of a microcontroller core. These products:

> Process and translate voice and data and perform various management and reporting functions
> Compress signals to minimize bandwidth consumption
> Modify or add communications protocols to accommodate transport of signals across a variety of different networks

Supported services include:

> Video and Voice over IP (VoIP)
> Voice-over-ATM (VoATM)
> Voice-over-DSL services
> Wireline-to-wireless connectivity

**VoIP Processors**

> Complete, integrated VoIP media, signaling and control processing
> For next-generation network (NGN) POTS/ISDN line cards focused on class 5 replacement and IP-PBX applications

**Carrier Convergence Processors**

> Powerful digital signal processors optimized for voice processing, a flexible packet-processing engine, and industry-standard streaming interfaces on a single die
> Support packet-to-TDM, packet-to-packet, or TDM-to-TDM operation

**Enterprise Voice and Data Processors**

> Provide single-chip telecom processing for small to medium-sized businesses
> Voice-over-packet subsystem with a high-performance routing and VPN engine

## VoIP Processors

| Part Number | Series | Channels (#) | Pin Count (#) | Work Mode | Memory Support | Typ Power Consumption (W) | Vcore Voltage (V) | Package |
|---|---|---|---|---|---|---|---|---|
| M82311 | Comcerto 300v2 | 0 | 484 | Master | DDR2 | 1.3 | 1.1 | 19 mm LBGA |
| M82501 | Comcerto 500 | 4 | 484 | Master / Slave | SDRAM | 1.5 | 1.2 | 19 mm FPBGA |
| M82506 | Comcerto 500 | 8 | 484 | Master / Slave | SDRAM | 1.5 | 1.2 | 19 mm FPBGA |
| M82510 | Comcerto 500 | 16 | 484 | Master / Slave | SDRAM | 1.8 | 1.2 | 19 mm xFPBGA |
| M82511 | Comcerto 500 | 16 | 484 | Master / Slave | SDRAM | 1.5 | 1.2 | 19 mm FPBGA |
| M82321 | Comcerto 300v2 | 18 | 484 | Slave | DDR2 | 1.3 | 1.1 | 19 mm LBGA |
| M82331 | Comcerto 300v2 | 18 | 484 | Master | DDR2 | 1.3 | 1.1 | 19 mm LBGA |
| M82351 | Comcerto 300 | 18 | 484 | Master | DDR | 1.3 | 1.05 | 23 mm FPBGA |
| M82514 | Comcerto 500 | 24 | 484 | Master / Slave | SDRAM | 1.5 | 1.2 | 19 mm FPBGA |
| M82515 | Comcerto 500 | 32 | 484 | Master / Slave | SDRAM | 1.5 | 1.2 | 19 mm FPBGA |
| M82520 | Comcerto 500 | 32 | 484 | Master / Slave | SDRAM | 1.8 | 1.2 | 19 mm FPBGA |
| M82322 | Comcerto 300v2 | 36 | 484 | Slave | DDR2 | 1.3 | 1.1 | 19 mm LBGA |
| M82332 | Comcerto 300v2 | 36 | 484 | Master | DDR2 | 1.3 | 1.1 | 19 mm LBGA |
| M82352 | Comcerto 300 | 36 | 484 | Master | DDR | 1.3 | 1.05 | 23 mm FPBGA |
| M82524 | Comcerto 500 | 48 | 484 | Master / Slave | SDRAM | 1.8 | 1.2 | 19 mm FPBGA |
| M82323 | Comcerto 300v2 | 53 | 484 | Slave | DDR2 | 1.3 | 1.1 | 19 mm LBGA |
| M82333 | Comcerto 300v2 | 53 | 484 | Master | DDR2 | 1.3 | 1.1 | 19 mm LBGA |
| M82343 | Comcerto 300 | 53 | 484 | Slave | DDR | 1.3 | 1.05 | 23 mm FPBGA |
| M82353 | Comcerto 300 | 53 | 484 | Master | DDR | 1.3 | 1.05 | 23 mm FPBGA |
| M82530 | Comcerto 500 | 64 | 484 | Master / Slave | SDRAM | 1.8 | 1.2 | 19 mm FPBGA |
| M82324 | Comcerto 300v2 | 71 | 484 | Slave | DDR2 | 1.3 | 1.1 | 19 mm LBGA |
| M82334 | Comcerto 300v2 | 71 | 484 | Master | DDR2 | 1.3 | 1.1 | 19 mm LBGA |
| M82344 | Comcerto 300 | 71 | 484 | Slave | DDR | 1.3 | 1.05 | 23 mm FPBGA |
| M82354 | Comcerto 300 | 71 | 484 | Master | DDR | 1.3 | 1.05 | 23 mm FPBGA |
| M82346 | Comcerto 300 | 107 | 484 | Slave | DDR | 1.3 | 1.05 | 23 mm FPBGA |
| M82356 | Comcerto 300 | 107 | 484 | Master | DDR | 1.3 | 1.05 | 23 mm FPBGA |
| M82308 | Comcerto 300v2 | 128 | 484 | Slave | DDR2 | 1.59 | 1.2 | 19 mm LBGA |
| M82318 | Comcerto 300v2 | 128 | 484 | Master | DDR2 | 1.59 | 1.2 | 19 mm LBGA |
| M85373 | Comcerto 5300 | 128 | 625 | Master / Slave | DDR3 | 2.65 | 1.1 | 21 mm FCBGA/HFCBGA |
| M82348 | Comcerto 300 | 142 | 484 | Slave | DDR | 1.3 | 1.05 | 23 mm FPBGA |
| M82358 | Comcerto 300 | 142 | 484 | Master | DDR | 1.3 | 1.05 | 23 mm FPBGA |
| M82349 | Comcerto 300 | 160 | 484 | Slave | DDR | 1.3 | 1.05 | 23 mm FPBGA |
| M82359 | Comcerto 300 | 160 | 484 | Master | DDR | 1.3 | 1.05 | 23 mm FPBGA |
| M85374 | Comcerto 5300 | 256 | 625 | Master / Slave | DDR3 | 2.65 | 1.1 | 21 mm FCBGA/HFCBGA |
| M85375 | Comcerto 5300 | 384 | 625 | Master / Slave | DDR3 | 2.65 | 1.1 | 21 mm FCBGA/HFCBGA |
| M85376 | Comcerto 5300 | 512 | 625 | Master / Slave | DDR3 | 2.65 | 1.1 | 21 mm FCBGA/HFCBGA |

## Enterprise Voice and Data Processors

| Part Number | Series | Channels (#) | Pin Count (#) | Work Mode | Memory Support | Typ Power Consumption (W) | Vcore Voltage (V) | Package |
|---|---|---|---|---|---|---|---|---|
| M82803 | Comcerto 800 | 0 | 484 | Master | SDRAM | 1.3 | 1.2 | 19 mm FPBGA |
| M82801 | Comcerto 800 | 4 | 484 | Master | SDRAM | 1.3 | 1.2 | 19 mm FPBGA |
| M82805 | Comcerto 800 | 8 | 484 | Master | SDRAM | 1.3 | 1.2 | 19 mm FPBGA |
| M82810 | Comcerto 800 | 16 | 484 | Master | SDRAM | 1.3 | 1.2 | 19 mm FPBGA |
| M82815 | Comcerto 800 | 24 | 484 | Master | SDRAM | 1.3 | 1.2 | 19 mm FPBGA |
| M82820 | Comcerto 800 | 32 | 484 | Master | SDRAM | 1.3 | 1.2 | 19 mm FPBGA |

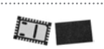
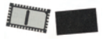
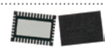
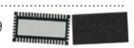
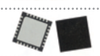
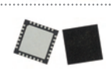
## Carrier Convergence Processors

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| M82610 | Comcerto 600 | 256 | 484 | Slave | SDRAM | 1.6 | 1.2 | 19 mm FPBGA |
| M82710 | Comcerto 700 | 384/404 | 484 | Slave | SDRAM | 1.9 / 2.4 | 1.0 / 1.1 | 19 mm FPBGA |
| M82910 | Comcerto 900 | 512/640 | 484 | Slave | SDR / DDR | 3.09 | 1.05 | 19 mm FPBGA |

# Appendix and Part Number Index

# Package Selection Guide

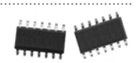
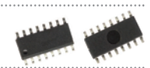
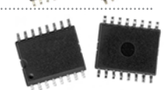
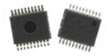
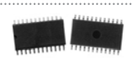
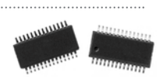
## Plastic Leadless Packages

| Package Type | Approx Outline Dimensions (mm) | |
|---|---|---|
| 1 mm X1-DFN-6LD | 1 x 1 x 0.45 |  |
| 1.2 x 1.5 TDFN-6LD<br>1.5 x 1.2 TDFN-6LD | 1.2 x 1.5 x 0.75<br>1.5 x 1.2 x 0.75 |  |
| 2 mm STDFN-8LD<br>2 mm STQFN-12LD | 2 x 2 x 0.55<br>2 x 2 x 0.55 |  |
| 2 x 2.5 mm STQFN-14LD | 2 x 2.5 x 0.55 |  |
| 3 mm PQFN-12 LD/16LD<br>3 mm TQFN-12 LD/16LD<br>3 mm HQFN-16LD | 3 x 3 x 0.9<br>3 x 3 x 0.75<br>3 x 3 x 1.5 |  |
| 4 mm PQFN-16 LD/20 LD/24LD<br>4 mm TQFN-16 LD/20LD<br>4 mm HQFN-8LD/16LD/20LD | 4 x 4 x 0.9<br>4 x 4 x 0.75<br>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<br>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<br>7 mm HQFN-16LD/32LD | 7 x 7 x 0.9<br>7 x 7 x 1.5 |  |

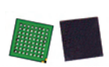
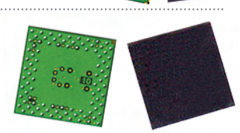
## Plastic Leaded Packages

| | | |
|---|---|---|
| SC-79 | 0.8 x 1.6 x 0.6 |  |
| SOD-323 | 1.3 x 2.5 x 1.1 |  |
| SOT-23 | 2.9 x 2.4 x 1 |  |
| SOT-25 | 2.9 x 2.8 x 1.3 |  |
| SOT-26 | 2.9 x 2.8 x 1.3 |  |

## Plastic Leaded Packages

| Package Type | 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<br>SOW-24 | 10.3 x 10.3 x 2.5<br>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 |  |

## Plastic Ball Grid Array Packages (PBGA)

| | | |
|---|---|---|
| 8 mm 64 I/O PBGA | 8 x 8 x 1.7 |  |
| 15 mm 90 I/O PBGA | 15 x 15 x 3 |  |

*other package outlines available



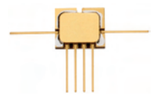
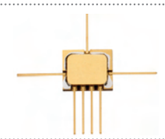
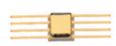
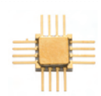
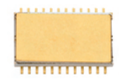
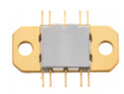
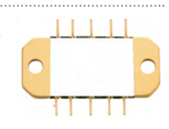
All dimensions exclude leads.

# Package Selection Guide

## Ceramic/Chip Diode Packages

| Package Type | Approx Outline Dimensions (mm) | |
|---|---|---|
| 30 Ceramic | 3.2 dia. x 5.7 |  |
| 134 Die | 0.4 x 0.4 x 0.2 |  |
| 186 Ceramic | 11.2 x 2.5 x 1.1 |  |
| 401 Axial Lead | 2.3 dia. x 55 |  |
| 1027 Ceramic | 8 dia. 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 dia. x 10 |  |
| 1038 Ceramic | 8 dia. x 17 |  |
| 1080 Ceramic | 8 dia. x 22.2 |  |
| 1082 Ceramic | 8 dia. x 19.8 |  |
| 1088 Ceramic | 2.4 x 1.3 x 1 |  |
| 1246 Surmount | 1.2 x 0.5 x 0.2 |  |

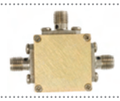
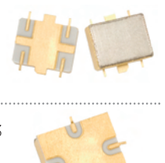
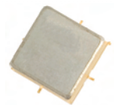
## Metal/Ceramic Packages

| Package Type | 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 x13.8 x 2.8 |  |

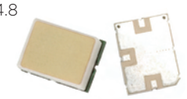
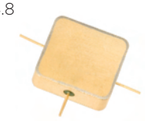
All dimensions exclude leads.

# Package Selection Guide

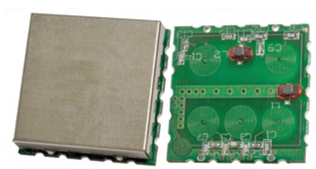
## Metal/Ceramic Packages

| Package Type | Approx Outline Dimensions (mm) | |
|---|---|---|
| MOD2 (3/4 size) | 20.3 x 15 x 6.6 |  |
| MOD3 (3/4 size) | 20.3 x 15 x 4.8 |  |
| SMA-AMP (3/4 size) | 23.4 x 27.9 x 13.3 |  |
| SMA-MXR (3/4 size) | 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 dia. x 11 |  |
| TO-8-02 | 12.7 dia. x 9.7 |  |
| TO-8-03 | 15.2 dia. x 9.7 |  |

## Metal/Ceramic Packages

| Package Type | Approx Outline Dimensions (mm) | |
|---|---|---|
| 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 |  |

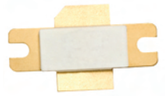
## Passives Packagess

| Package Type | Approx Outline Dimensions (mm) | |
|---|---|---|
| SM-2 | 12.5x 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 (3/4 size) | 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 |  |

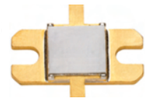
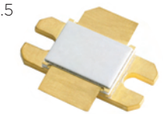
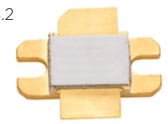
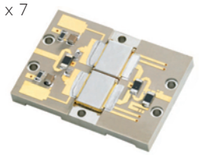
All dimensions exclude leads.

# Package Selection Guide

## Transistor Packages

| Package Type | 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 |  |
| PH1214-M Series Ceramic | 23 x 10 x 4.5 |  |
| P-8TF | 20.8 x 6.4 x 3.5 |  |

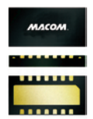
## Transistor Packages

| Package Type | Approx Outline Dimensions (mm) | |
|---|---|---|
| P-51H | 22.9 x 10.2 x 5.5 |  |
| P-94C | 22.9 x 10.2 x 5.5 |  |
| 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 |  |

All dimensions exclude leads.

# Package Selection Guide

## GaN Transistor Packages

| Package Type | Approx Outline Dimensions (mm) | |
|---|---|---|
| SOT-89 | 4.5 x 4.0 x 1.5 |  |
| 6 x 3 mm DFN-14 | 6.0 x 3.0 x 10 |  |
| LGA2414 | 24.0 x 14.0 x 3.2 |  |
| P-254A | 5.6 x 8.1 x 2.4 |  |
| P-260 | 13.97 x 8.12 x 3.25 |  |
| P-253 | 20.32 x 10.92 x 3.99 |  |
| P-256 | 28.96 x 17.78 x 4.78 |  |
| P-237 | 20.32 x 14.96 x 4.11 |  |

## GaN Transistor Packages

| Package Type | Approx Outline Dimensions (mm) | |
|---|---|---|
| P-261 | 20.57 x 19.44 x 3.74 |  |
| P-238 | 34.04 x 19.44 x 3.74 |  |
| P-264 | 41.15 x 16.62 x 5.13 |  |

| Package Type | Approx Outline Dimensions (mm) | |
|---|---|---|
| 4 mm QFN-24 | 4.0 x 4.0 x 0.9 |  |
| SOIC-8NE | 4.9 x 6.1 x 1.47 |  |
| 3 x 6 mm DFN-14 | 6.0 x 3.0 x 1.0 |  |
| TO272-2 | 23.62 x 11.18 x 2.59 |  |
| TO272-4 | 23.62 x 14.1 x 2.59 |  |

All dimensions exclude leads.

# Package Selection Guide

## GaN Transistor Packages

| Package Type | Approx Outline Dimensions (mm) | |
|---|---|---|
| AC200B-2 | 13.97 x 8.13 x 3.1 |  |
| AC360B-2 | 20.32 x 10.92 x 3.86 |  |
| AC360P-2 | 9.65 x 10.92 x 3.86 |  |
| AC780P-2 | 20.57 x 19.43 x 3.6 |  |
| C780B-2 | 34.04 x 19.43 x 3.6 |  |
| AC780B-4 | 34.04 x 19.43 x 3.6 |  |

## Other Packages

**Package Type**

**SDI and HDcctv Product Packages**

3 mm 16-pin QFN
4 mm 16-pin/24-pin/32-pin QFN
5 mm 32-pin QFN
6 mm 40-pin QFN
7 mm 48-pin QFN
10 mm 72-pin QFN
12 mm 88-pin QFN
14 mm 100-pin QFN

**Communications Processor Packages**

19 mm LBGA/FPBGA
21 mm FCBGA/HFCBGA
23 mm FPBGA

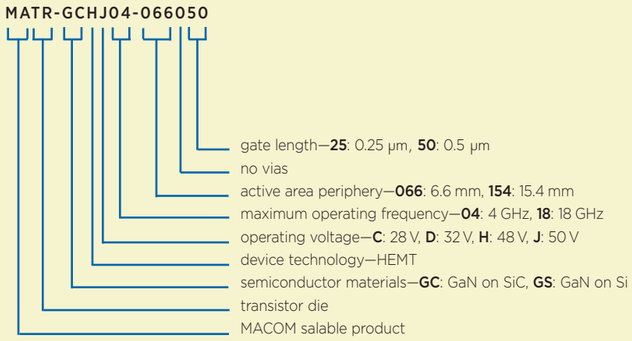
**Crosspoint Switch Product Packages**

17 mm 252-pin BGA
19 mm 324-pin BGA
21 mm 484-pin/1924-pin BGA
23 mm 484-pin /1924-pin BGA
23 mm 404-pin PBGA
27 mm 676-pin BGA
34 mm PBGA
35 mm 1156-pin BGA
35 mm 676-pin TEPBGA
35 mm 1936-pin FCBGA
50 mm 2389-pin BGA

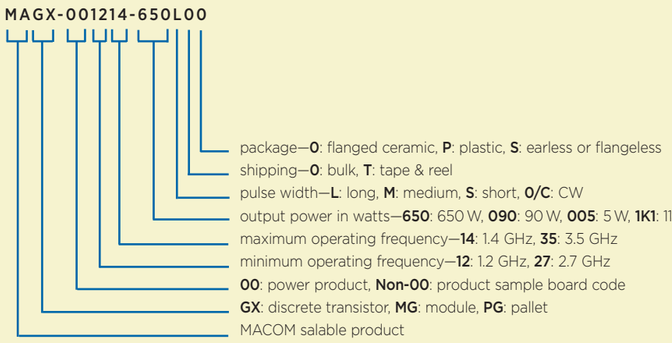
All dimensions exclude leads.

# GaN Product Part Number Nomenclature Reference

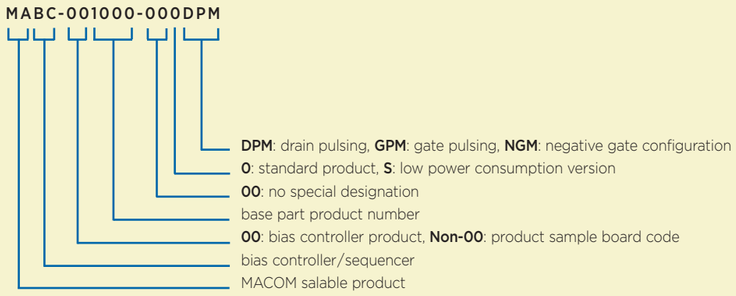
## GaN Die Product Part Number Nomenclature




## GaN RF Power Product Part Number Nomenclature




## GaN Bias Controller/Sequencer Module Product Part Number Nomenclature



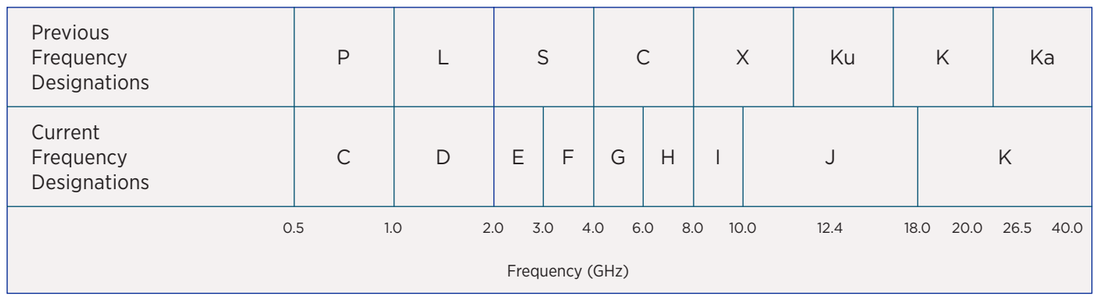
# Decibels – Volts – Watts Conversion Table

MACOM

50-ohm System Terminated

| dBm | V | $P_O$ | dBm | V | $P_O$ | dBm | mV | $P_O$ | dBm | V | $P_O$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 53 | 100 | 200W | | | | | | | | | |
| 50 | 70.7 | 100W | 0 | 0.225 | 1 mW | -49 | 0.8 | | -97 | 3.2 | |
| 49 | 64 | 80W | -1 | 0.2 | 0.8 mW | -50 | 0.71 | .01 µW | -98 | 2.9 | |
| 48 | 58 | 64W | -2 | 0.18 | 0.64 mW | -51 | 0.64 | | -99 | 2.51 | |
| 47 | 50 | 50W | -3 | 0.16 | 0.5 mW | -52 | 0.57 | | -100 | 2.25 | 0.1 pW |
| 46 | 44.5 | 40W | -4 | 0.141 | 0.4 mW | -53 | 0.5 | | -101 | 2 | |
| 45 | 40 | 32W | -5 | 0.125 | 0.32 mW | -54 | 0.45 | | -102 | 1.8 | |
| 44 | 32.5 | 25W | -6 | 0.115 | 0.25 mW | -55 | 0.4 | | -103 | 1.6 | |
| 43 | 32 | 20W | -7 | 0.1 | 0.2 mW | -56 | 0.351 | | -104 | 1.41 | |
| 42 | 28 | 16W | -8 | 0.09 | 0.16 mW | -57 | 0.32 | | -105 | 1.27 | |
| 41 | 26.2 | 12.5W | -9 | 0.08 | 0.125 mW | -58 | 0.286 | | -106 | 1.18 | |
| 40 | 22.5 | 10W | -10 | 0.071 | 0.1 mW | -59 | 0.251 | | | | |
| 39 | 20 | 8W | -11 | 0.064 | | -60 | 0.225 | 0.001 µW | dBm | nV | |
| 38 | 18 | 6.4W | -12 | 0.058 | | -61 | 0.2 | | -107 | 1000 | |
| 37 | 16 | 5W | -13 | 0.05 | | -62 | 0.18 | | -108 | 900 | |
| 36 | 14.1 | 4W | -14 | 0.045 | | -63 | 0.16 | | -109 | 800 | |
| 35 | 12.5 | 3.2W | -15 | 0.04 | | -64 | 0.141 | | -110 | 710 | 0.01 pW |
| 34 | 11.5 | 2.5W | -16 | 0.0355 | | | | | -111 | 640 | |
| 33 | 10 | 2W | | | | dBm | µV | | -112 | 580 | |
| 32 | 9 | 1.6W | dBm | mV | | -65 | 128 | | -113 | 500 | |
| 31 | 8 | 1.25W | -17 | 31.5 | | -66 | 115 | | -114 | 450 | |
| 30 | 7.1 | 1W | -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




## Wavelength and Frequency

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

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

$\lambda$ = wavelength in meters (m)
$F$ = frequency in hertz (Hz)
$\varepsilon_r$ = relative dielectric constant of propagation medium
$c$ = velocity of light (300,000,000 m/s)
$\mu_r$ = relative permeability of propagation medium

The dielectric (e) is a property of the medium in which the wave propagates. The value of e 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 e 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 e relative to a vacuum is higher. Teflon®, for example, can be made with dielectric constant values (e) 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—$10^{-3}$ m |
| 3 x 1014 | 1 micron—$10^{-6}$ m |

# Part Number Index

## Part Number 007488-CT9550 to A5-6



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

# Part Number Index

## Part Number A511 to HH-128-PIN



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

# Part Number Index

## Part Number HHS-109-PIN to M85C



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

# Part Number Index

## Part Number M86C to MA4P7102F-1072T





Note: Part numbers are RoHS compliant ◆ indicates non-RoHS compliant

# Part Number Index

## Part Number MA4P7104B-401T to MABA-0007569-ETK42T



Note: Part numbers are RoHS compliant ◆ indicates non-RoHS compliant

# Part Number Index

## Part Number MABA-007681-CT2010 to MADRCC0002



 Note: Part numbers are RoHS compliant ◆ indicates non-RoHS compliant

# Part Number Index

## Part Number MADRCC0004 to MASW-003103-1364



Note: Part numbers are RoHS compliant ◆ indicates non-RoHS compliant

# Part Number Index

## Part Number MASW-004100-1193 to MY63



 Note: Part numbers are RoHS compliant ◆ indicates non-RoHS compliant

# Part Number Index

## Part Number MY63C to TP-105-PIN



Note: Part numbers are RoHS compliant ◆ indicates non-RoHS compliant

# Part Number Index

## Part Number TP-108-PIN to XX1010-QT



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