



We work with you

M/A-COM, Inc., a business unit of Tyco Electronics, is an established industry leader in the design, development, and manufacture of radio frequency (RF), microwave and millimeter wave semiconductors, components and technologies for the wireless telecommunications, automotive, aerospace and military markets. Holding hundreds of patents in the field, M/A-COM is internationally known as an innovator and integrator whose technologies are found in today's most advanced signal intelligence and defense systems, as well as in leading automotive navigation, safety, and communications solutions. M/A-COM is also a major supplier of critical communications systems and equipment for public safety, utility, federal, and select commercial markets. Headquartered in Lowell, Massachusetts, M/A-COM has offices and manufacturing facilities worldwide.

Products now and in the future

M/A-COM currently has many new products in development. We are happy to work with you on any customized products or standard product variations. Please contact us for more information.

Visit M/A-COM on the Web at www.macom.com or contact your local M/A-COM sales office for assistance.

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1654966



RF & Microwave Product Solutions June 2006

commercial • industrial • military • space



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Integrated RFID antenna and reader systems by M/A-COM



M/A-COM RFID portal systems and antenna stands

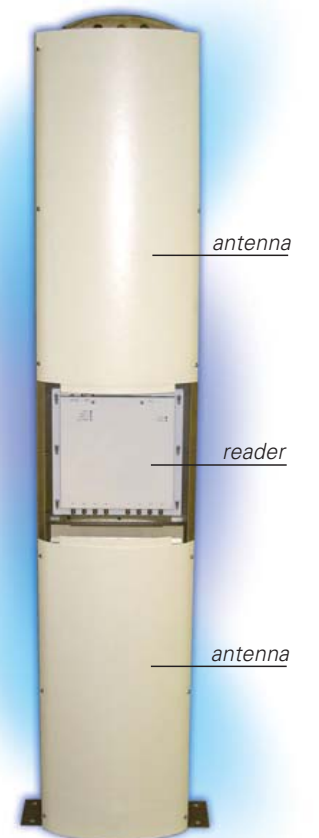
M/A-COM designs and manufactures integrated RFID stands and full turnkey tested RFID systems with flexibility for a variety of RFID applications. From integrating readers, cables, antennas and power supplies to adding on display lights, alarms, GPIO control, and similar peripherals, M/A-COM has the expertise to design and manufacture integrated solutions to meet your needs.

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Available as antenna stand or a complete portal system (including reader)

Complete portal system:
Size: 14.4"x77.3"x10.2"
Weight: 58 lbs



a vital part of your world



M/A-COM Product Selection Guide Overview

This product selection guide contains information about our standard products. It is intended to assist in the selection of products to ensure availability, ease of use, and optimal performance. These products represent more than five decades of innovation in design and manufacturing. Detailed specifications for our standard parts can be found quickly on our web site at www.macom.com by typing the part number into the search box. We provide product samples, test boards, and applications support. See the back cover for contact information to request any of these items or to get more information.

M/A-COM also produces custom products and modifications to standard products, so please contact us with your specifications if you cannot find a standard product that meets your needs. Most of our standard products can be up-screened to meet defense and space applications or we can design custom parts to your specific requirements.

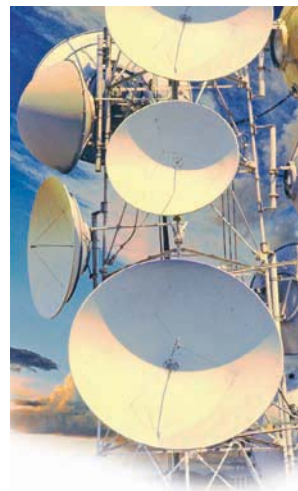
Partner of Choice

A leader in the RF and microwave industry for more than 50 years, M/A-COM has earned a global reputation as the partner of choice in applications for RF, microwave and millimeter wave technology. Not only do we offer one of the industry's broadest range of solutions available today, but with our ongoing commitments to R&D, we continue to drive tomorrow's innovations.

Our technology and expertise extend across a broad range of solutions for the commercial wireless telecommunications, broadband, and aerospace and defense markets. M/A-COM products are utilized around the globe in some of the most challenging applications found in wireless infrastructure, handsets, WLAN, CATV, VSAT, RFID, automotive, test and measurement, radar, electronic warfare, missile guidance, and space.

M/A-COM is a business unit of Tyco Electronics, which provides advanced technology products from more than 40 well-known and respected brands, including Agastat, Alcoswitch, AMP, AMP NETCONNECT, Buchanan, CII, CoEv, Critchley, Elcon, Elo TouchSystems, M/A-COM, Madison Cable, OEG, OneSource Building Technologies, Potter & Brumfield, Raychem, Schrack, Simel, and TDI Batteries.

Tyco Electronics is a major business segment of Tyco International, a 37 billion dollar manufacturing and service company.





RF and Microwave Capabilities

M/A-COM is one of the only vertically-integrated, non-captive RF and microwave suppliers in the industry. Therefore, we're uniquely able to produce and process semiconductor materials, design and manufacture complex devices, and combine these devices into multi-function components. We can manufacture integrated subassemblies using these components and devices, then combine the integrated subassemblies into complete systems driven by in-house software. Thus, we can offer customers low cost, high-volume solutions tailored to their need at any step of the process.

We are a leader in the industry in offering "dual use" technologies that allow us to participate successfully in both commercial and government markets. We have unique technologies and capabilities to offer innovative design solutions including:

- Si, GaAs, AlGaAs, InGaAs, InP and SiGe IC products
- Unique MMIC processes: HMIC™, GMIC™, MSAG™, iHBT™
- In-house design, fabrication, assembly, and screening capabilities
- Multiple facilities for improved flexibility and local content manufacturing
- Wide spectrum coverage from RF to millimeter wave frequencies
- One of the broadest selection of standard and custom products in the industry

Commercial, Military, and Space Products

This guide features our standard commercial products and a sampling of our standard aerospace and defense products. Additionally, most commercial parts listed can be up-screened to meet defense or space applications. We also provide custom products for all markets to meet your specific requirements if a standard product is not available. If you cannot find a product that meets your requirements in this guide, please contact us and we will work together to develop or recommend an appropriate solution.

M/A-COM has fully equipped environmental screening labs designed to handle high-volume, high-reliability screening needs. When program screening requirements call for more than our standard catalog screening, custom screening programs can be created by either adding options to the standard screening or generating a program-specific sequence. M/A-COM can perform screening per most military and space standards including MIL-STD-883, MIL-H-38534, and ESA requirements.



For applications that involve more difficult customer requirements and critical schedules, M/A-COM offers a dedicated program management team. Our staff of senior program managers is available to support all program and critical management needs and offer the experience and attention to detail that ensures success.

Operational Excellence

Our Quality Policy is to deliver error-free products and services on time. Therefore our product and services are developed and integrated throughout the entire supply chain into capable processes to achieve Six Sigma levels of performance.

M/A-COM operations are certified to ISO 9001, ISO 14001, AS 9100, and QS-9000. Everyone is involved in the continuous improvement effort from suppliers to customers. Best practices are identified and implemented throughout the company, with a continuing challenge to identify opportunities for innovation and improvement.

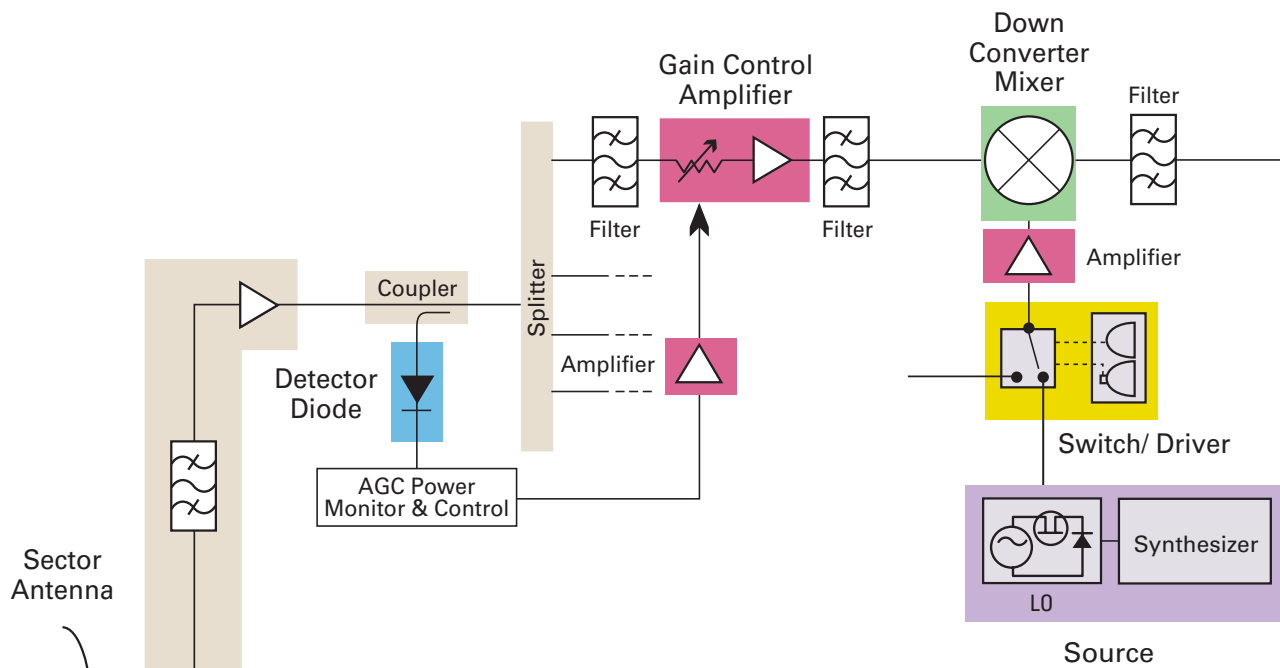
In our markets, superior reliability and a robust design aren't added benefits – they're often a matter of life and death. While all companies pledge their commitment to designing more reliable products, we literally wrote the book on reliability. It's called Design for Reliability, and it is required reading for many college engineering courses. The methodology encompasses the full engineering cycle, from design to verification to analysis.

How to Order

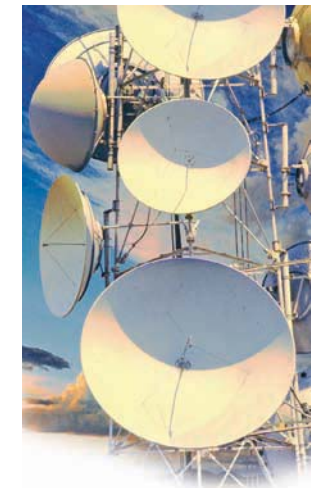
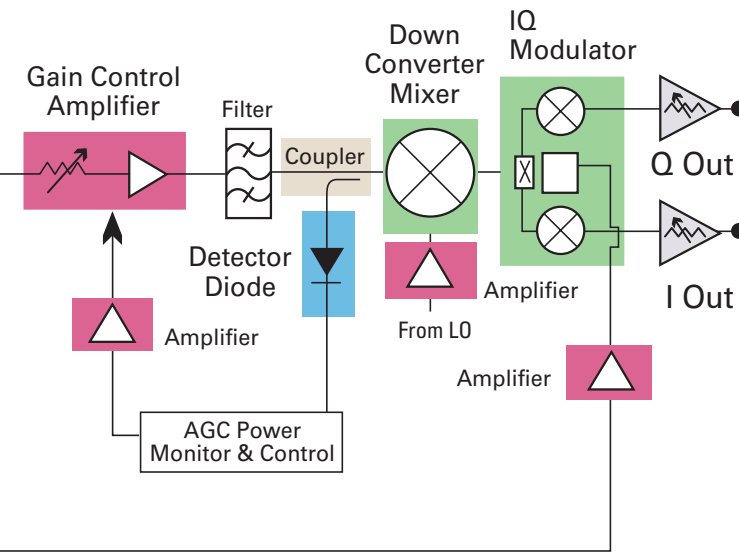
Most of the standard products listed in this selection guide are available directly from the distribution partners found on our web site at www.macom.com/distributors. In addition, your local M/A-COM sales office or nearest representative can assist you with ordering or service. Our regional phone numbers are listed on the back cover of this guide as well as on our web site at www.macom.com/sales.



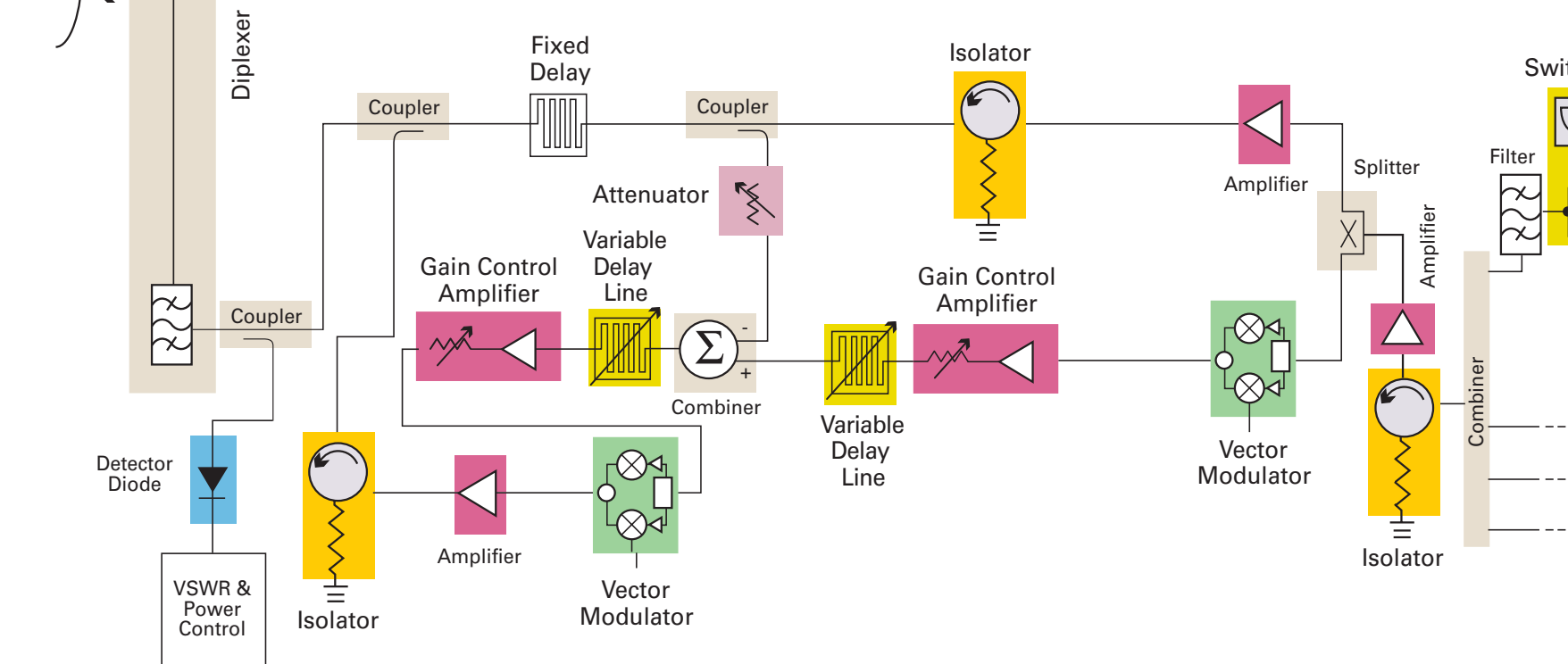
Receiver RF Front End



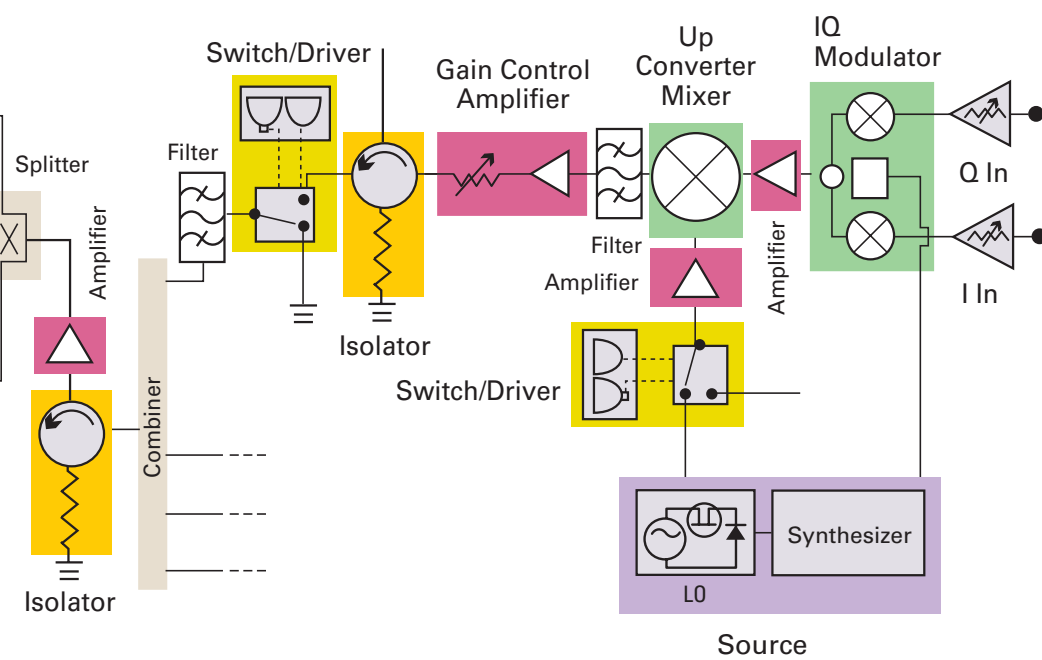
Receiver IF



Power Amplifier

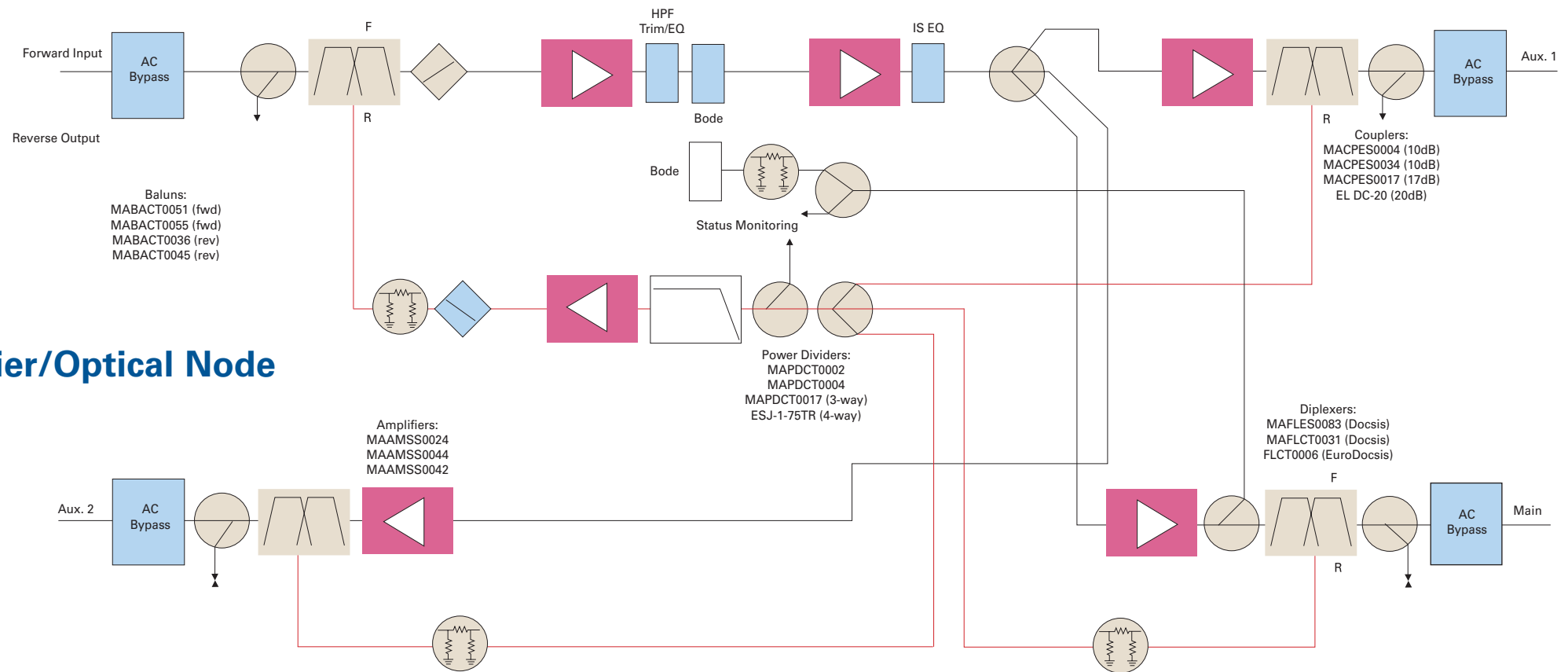


Transmitter

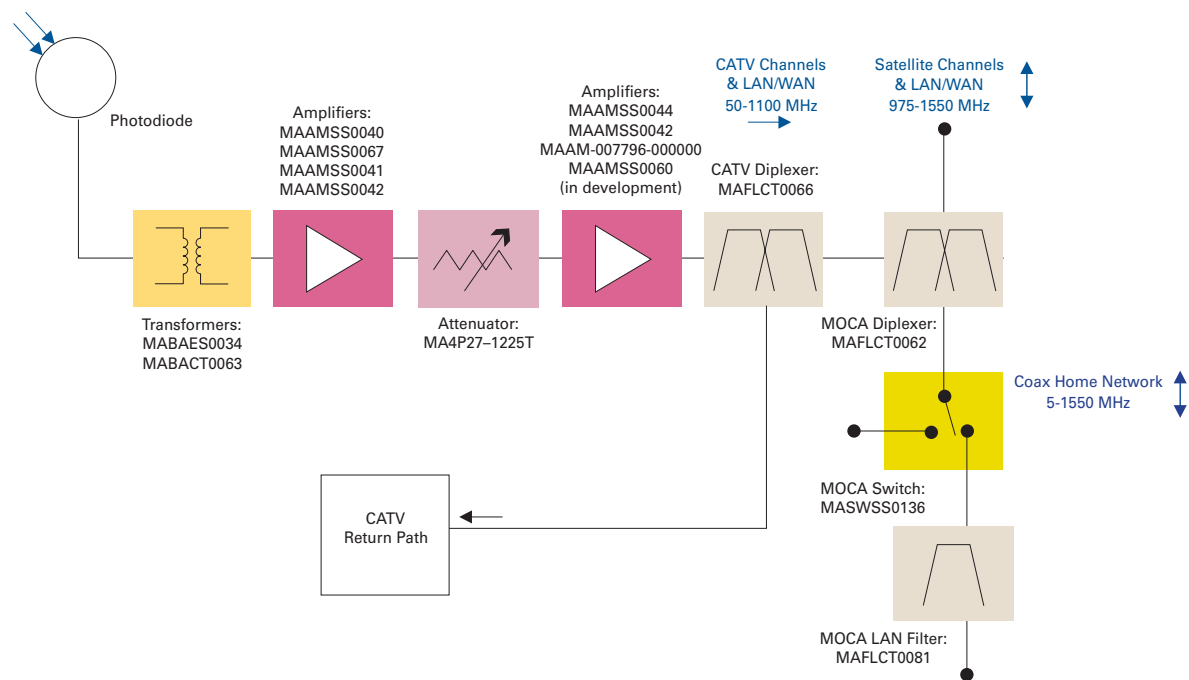




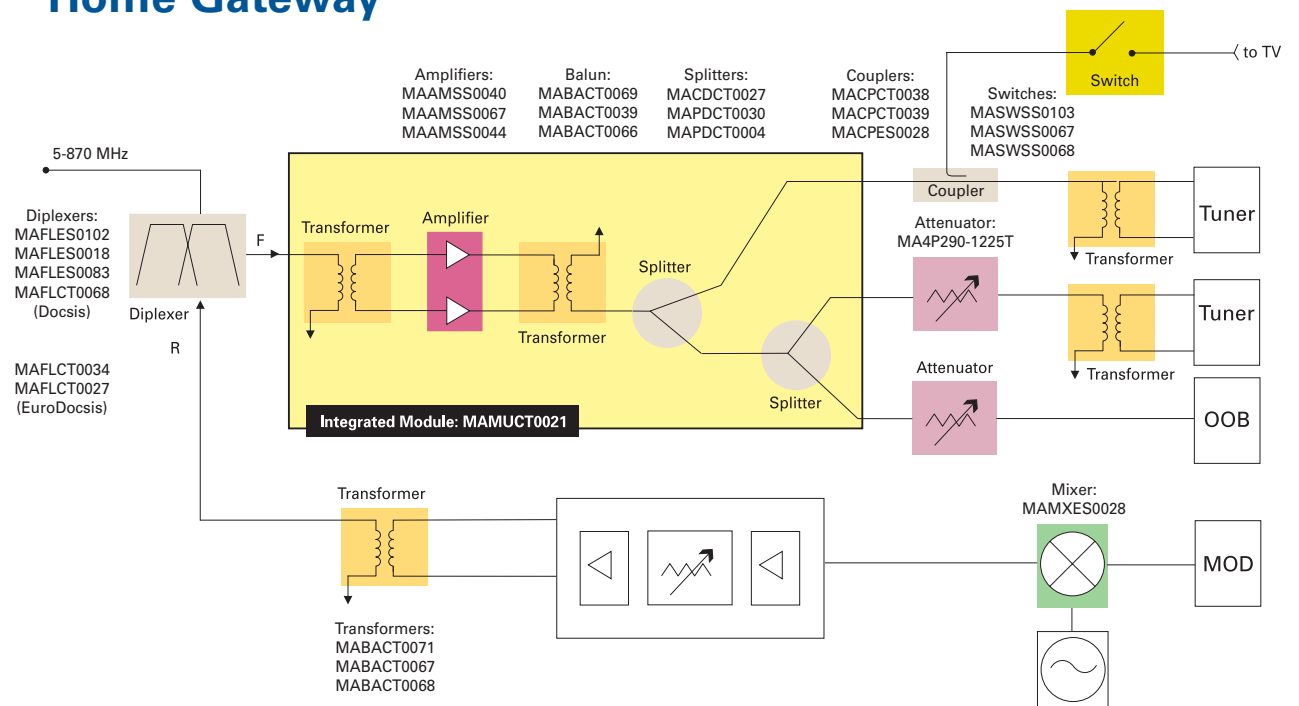
Amplifier/Optical Node



Video Overlay for PON/FTTx/MOCA Device

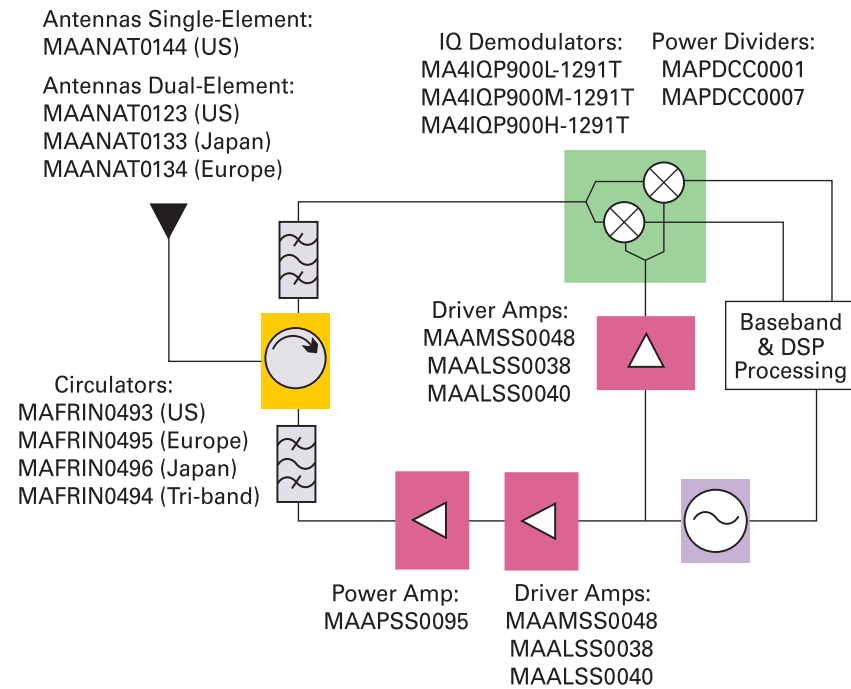


Home Gateway

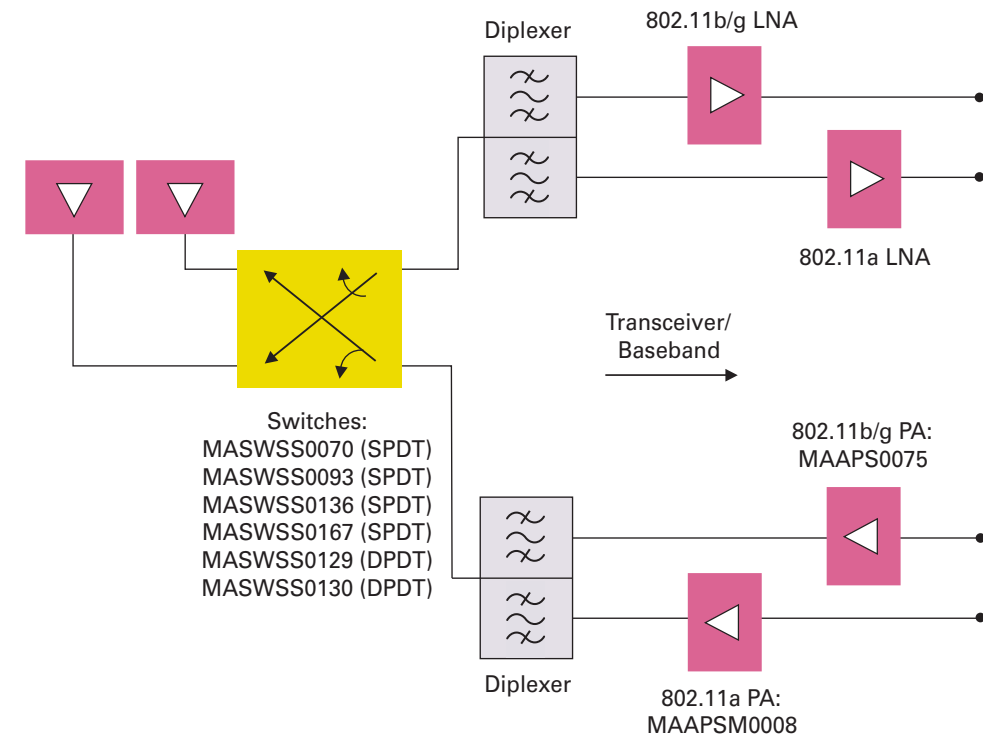




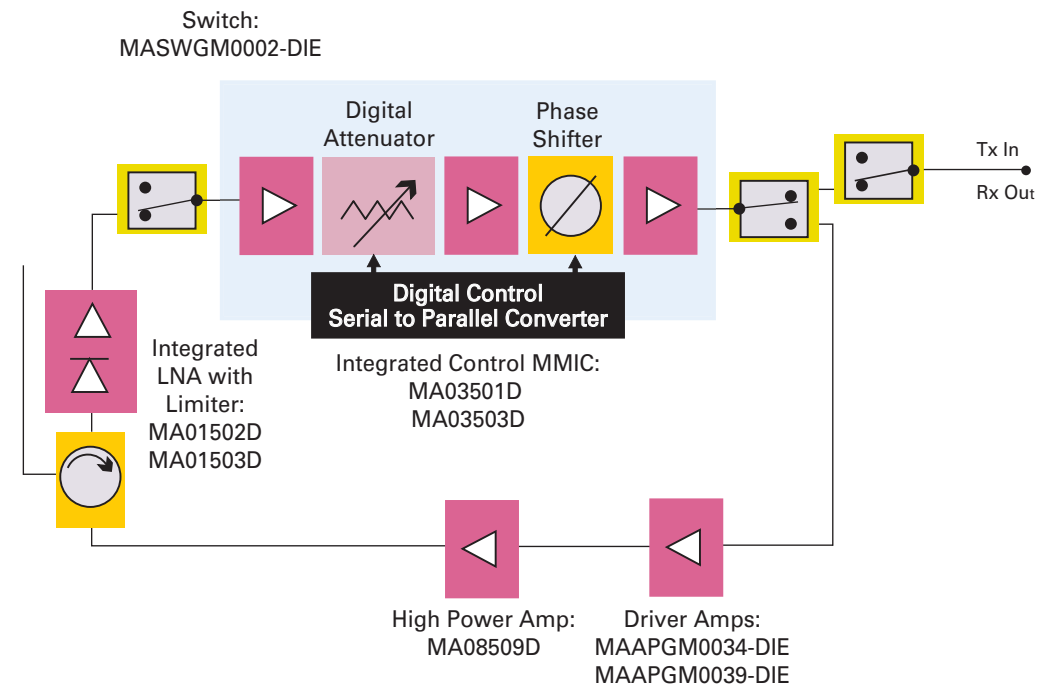
RFID Reader EPCglobal UHF Architecture



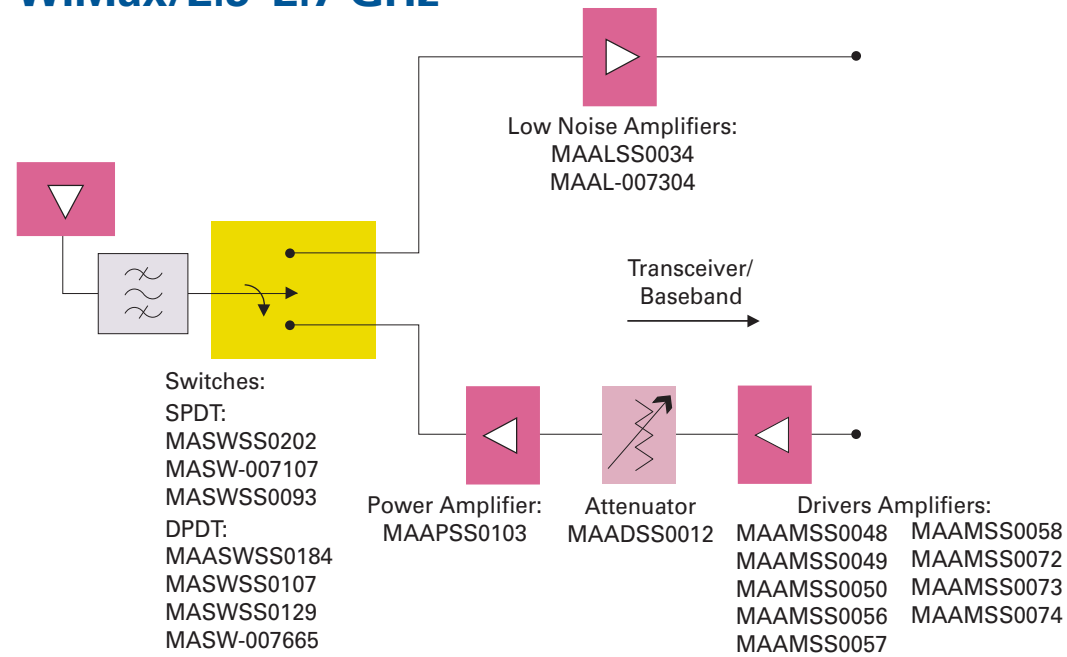
WLAN/802.11 RF



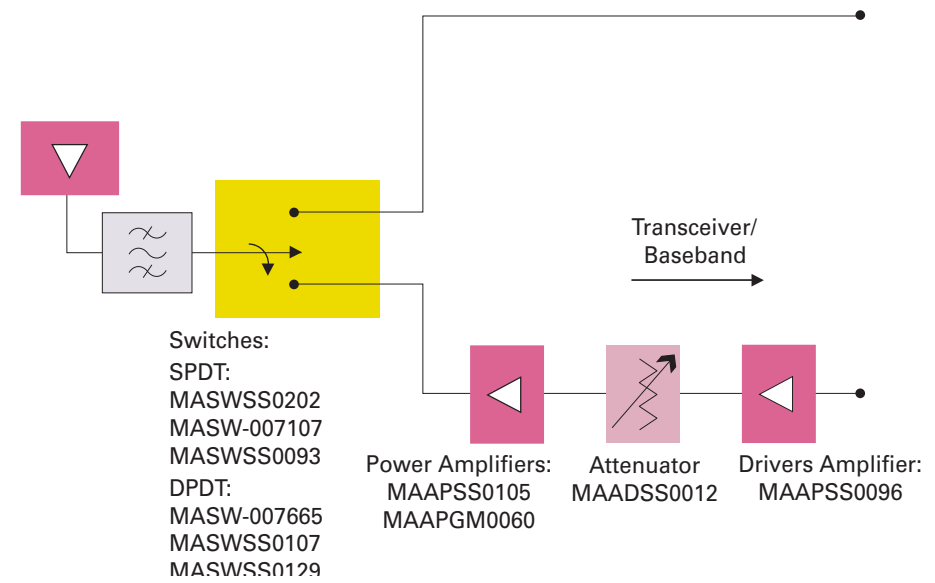
X-Band Radar GaAs MMIC Chipset



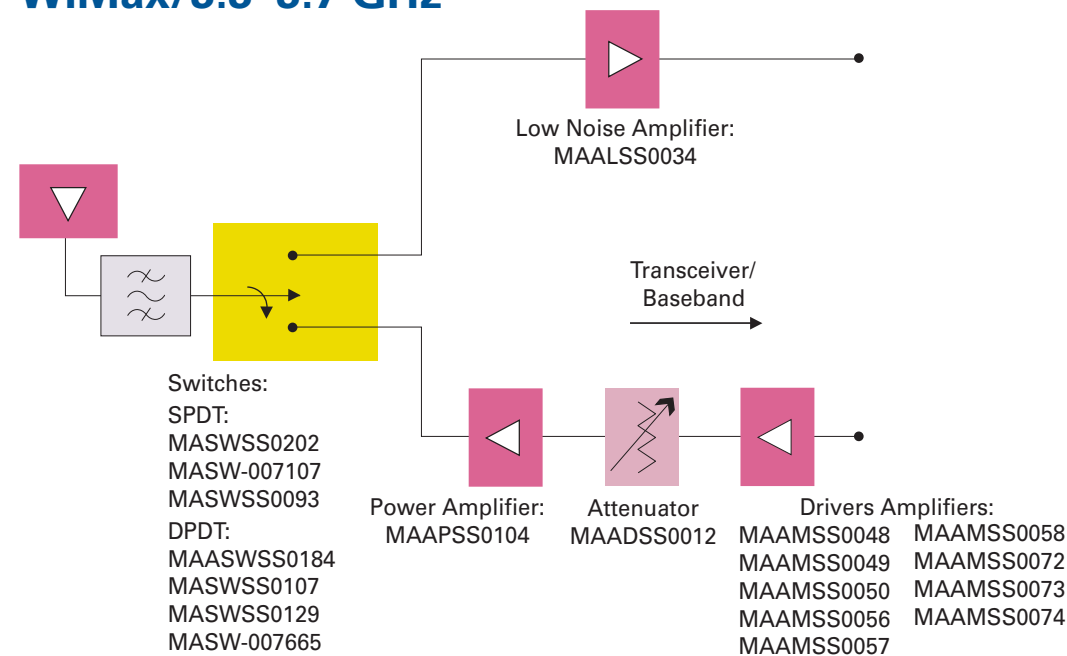
WiMax/2.3–2.7 GHz



WiMax/4.9–5.9 GHz



WiMax/3.3–3.7 GHz

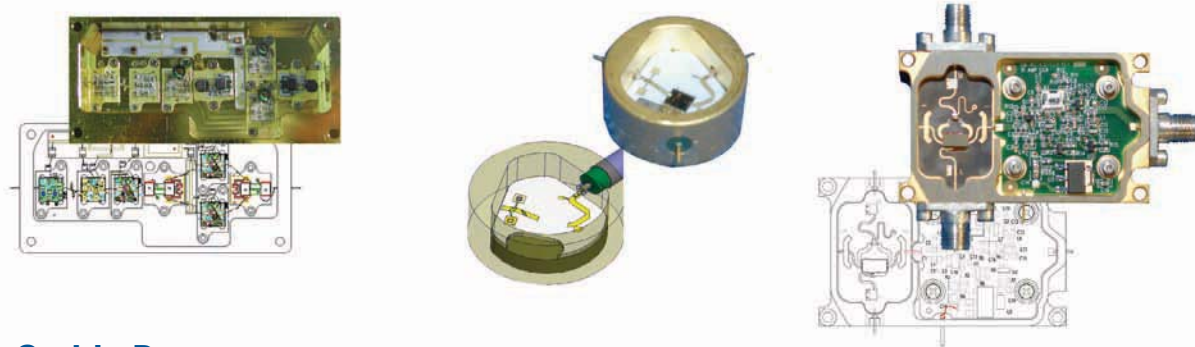




Application Specific Multi-chip Modules

For your demanding applications

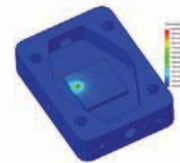
Custom Solutions



Stable Processes

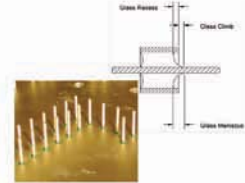
Design Methods

- Thermal simulation
- Electrical molding
- Non-linear analysis



Fabrication Processes

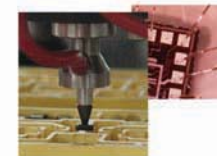
- Metal injection molding
- Hermetic electrical interfaces



- Thin film



Assembly



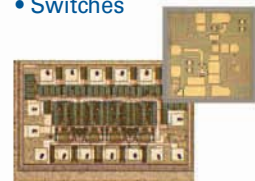
Test



Proven Designs and Materials

MMICs

- Amplifiers
- Limiters
- Attenuators
- Phase Shifters
- Switches



Components

- Mixers
- Amplifiers
- Limiters
- Attenuators
- Phase Shifters
- Switches
- Splitters
- Isolators



Packages

- Surface Mount
- Component
- Power
- Versapac
- BGA



Discrettes

- Diodes
- Ring diodes
- Capacitors



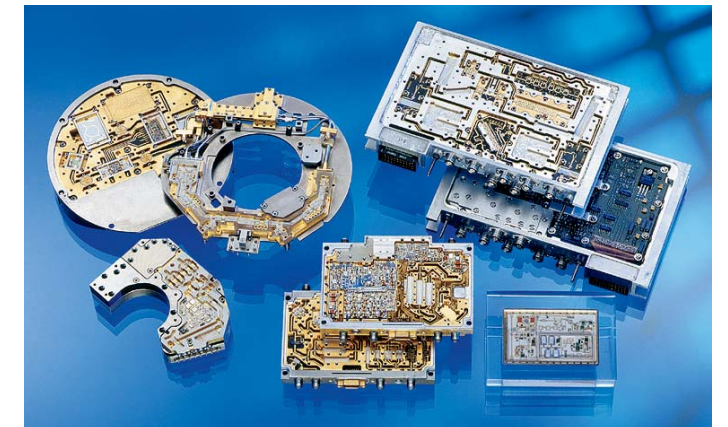
Multifunction Assemblies

Value-added Solutions through:

- Advanced technology
- Highly integrated assemblies
- Low cost techniques

Integrated functionality:

- Amplification
- Signal distribution
- Switching
- Phase shifting
- Frequency conversion
- Filtering
- Diplexing/multiplexing
- Power detection
- Frequency generation
- Attenuation



SIGINT

SMR-5550 LOW COST MICROWAVE RECEIVER

- 1 to 18 GHz Tuning Range
- Synthesized in 10 kHz steps
- High Dynamic Range
- Optimized for PCM/TDM and FM/FDM Reception
- Selectable Wideband IF Outputs: 70/140/160 MHz standard
- Excellent BER Performance
- Five IF Bandwidths for FM Demodulation
- RS-232 Control

SMR-5550i LOW COST MICROWAVE RECEIVER

- 0.5 to 20 GHz Tuning Range
- Compatible with 40 GHz Frequency Extender
- Synthesized Tuning in 1 kHz Steps
- Excellent Phase Noise Performance 0.2 degrees RMS Typical
- GHz IF Output, 100 MHz Bandwidth
- Selectable 70/140/160 MHz IF Outputs:
 - Fixed Gain Wideband Output
 - Variable Gain Wideband Output
 - Variable Gain, Post Filtered IF Output
- AM, FM and LOG Video, and Audio Outputs
- Four Selectable IF Bandwidths
- Ethernet 10/100BaseT, RS-232, RS-422

SMR-3822 WIDEBAND MICROWAVE RECEIVING SYSTEM

- 0.5 to 20 GHz, Extendable Up to 40 GHz
- SEI Certified
- IF Outputs at 1 GHz, 160 MHz, and 70 MHz
- Built-in Spectrum Display Processor for RF Sweep and IF Pan
- Eight IF Bandwidths: 250 kHz to 100 MHz
- AM, FM, and Log Detectors
- Controlled from Workstation or Front Panel Controls
- Built-in Test Functions
- F1-F2 Sweep and Fixed Frequencies
- Ethernet 10/100BaseT control
- Integrated Local Control Panel

TU-3840 WIDEBAND ELINT TUNER

- 1 to 18 GHz, Extendable Up to 40 GHz
- Based on SEI Certified SMR-3822 Front-End
- IF Outputs at 1 GHz and 160 MHz
- Controlled from Remote Workstation
- Built-in Test Functions
- F1-F2 Sweep and Fixed Frequencies
- Ethernet 100BaseT control
- RF Blanking (Optional)
- RF Attenuation (Optional)

TU-3822/IFD-3822 WIDEBAND MICROWAVE RECEIVING SYSTEM

- 0.5 to 18 GHz (20 GHz optional), extendable to millimeter wave frequencies
- IF Outputs centered at 70 MHz, and 160 MHz
- Built-in Spectrum Display Processor for RF Sweep and IF Pan
- Eight IF bandwidths: 250 kHz to 50 MHz
- AM and FM Demodulators
- Digitally Controlled from PC or front panel controls
- Built-in Test Functions
- 100 Channel Memory. F1-F2 Sweep and Fixed Frequencies (optional)
- Remote Tuner/Local Demodulator-Controller or Optional Integrated Tuner/Demodulator/Controller
- Ethernet 10base-2 control

SMR-4820 COMPACT MICROWAVE SEARCH RECEIVER

- 2 to 26.5 GHz Frequency Range (0.1-26.5 GHz Optional)
- Compact, Lightweight Package, 17 lb (7.7 kg)
- Power Consumption, 100 watts, typical
- Low Phase Noise less than 0.45° rms
- Selectable IF Output Frequency: 70/140 MHz
- Selectable IF Bandwidths
- Ethernet, RS-422A or RS-232C Remote Control

MODEL 388 IF TO TAPE/BASEBAND CONVERTER

- Three Fixed IF Inputs: 21.4, 70 and 160 MHz Standard Variable Frequency Input: 10 to 250 MHz
- Four Preset Output Center Frequencies: 1.075, 2.150, 3.225, 4.300 MHz
- Variable Output Center Frequency: 100 kHz to 20 MHz (50 MHz Optional)
- RS-232 Control
- Group Delay Equalization
- Compact, Half-Rack Package

MODEL 388A IF TO TAPE/BASEBAND CONVERTER

- Three Fixed IF Inputs: 21.4, 70 and 160 MHz Standard Variable Frequency Input: 10 to 250 MHz
- Four Preset Output Center Frequencies: 1.075, 2.150, 3.225, 4.300 MHz
- Variable Output Center Frequency: 100 kHz to 20 MHz (50 or 80 MHz Optional)
- RS-232 Control, Optional Ethernet
- Group Delay Equalization
- Compact, Half-Rack Package
- Improved Carrier-to-Noise Ratio
- Selectable Output Level for Compatibility with Both Analog & Digital Recorders
- MODEL 391 TAPE-TO-IF CONVERTER
- Input Frequency: 1.075 and/or 3.225 MHz
- Output Center Frequency: 21.4 MHz – Standard, 70 or 160 MHz - Optional
- Delay Equalization ±200 ns
- External Reference Input
- Crystal Controlled

FE-3820 18-40 GHz FREQUENCY EXTENDER

- Companion Unit to SMR-3822 and SMR-5550i Receivers
- Frequency Range:
 - 18 to 40 GHz (Converted)
 - 0.5 to 20 GHz (Direct)
- Control Modes
 - Remote from Companion Receiver
 - FE-3820 Front Panel
 - Remote via Ethernet or RS-232/RS-422
- Low Noise Figure
- Low Phase Noise
- 2U, Half-rack Chassis
- Will Operate with Other Manufacturers Receivers

SIGINT (continued)

MODEL 410 HF MULTICOUPLER

- 100 kHz to 32 MHz
- Eight or Sixteen Outputs
- Wide Dynamic Range
- Input Protection

MODEL 410VXI HF MULTICOUPLER

- 100 kHz to 32 MHz
- 2-slot C-size VXI Card
- Eight Outputs
- Wide Dynamic Range
- Excellent Reverse Isolation

MODEL 414 VHF/UHF MULTICOUPLER

- 20 to 1200 MHz
- Switchable Dual Input Option
- 70 dB Reverse Isolation
- Wide Dynamic Range
- Low Noise
- Fourteen Outputs (Max)

MODEL 418 VHF/UHF MULTICOUPLER

- Wide Passband 20-3000 MHz
- Half Rack Chassis
- Eight Outputs
- Wide Dynamic Range
- Input Protection
- High Port-to-Port Isolation

MODEL 418VXI VHF/UHF MULTICOUPLER

- Wide Passband 20-3000 MHz
- 6U, Single-slot, C-size VXI
- Eight Outputs
- Wide Dynamic Range
- Input Protection
- High Port-to-Port Isolation

MODEL 418S MINIATURE VHF/UHF MULTICOUPLER

- Wide Passband 20-3000 MHz
- Miniature Chassis 8.25 in D x 7.25 in W x 2.6 in H
- Eight Outputs
- Wide Dynamic Range
- Input Protection
- High Port-to-Port Isolation

MODEL 510 MICROWAVE MULTICOUPLER

- Wide Passband 0.5-18 GHz
- Half Rack Chassis
- Eight Outputs
- Wide Dynamic Range
- Input Protection
- High IP2 & IP3
- High Channel-to-Channel Isolation (Optional)

SPECTRE (Special Purpose Emitter Collection & Tactical Receiving Equipment)

- Flexible Carry-on System for ELINT or COMINT Survey and Analysis
- 0.5 - 40 GHz Frequency Coverage
- Programmable RF Spectrum and IF Signal Analysis Displays
- Wideband, Low Phase Noise Receivers
- Windows NT® Graphical User Interface (GUI)
- AM, FM, LOG, Baseband, and Audio Outputs

TELEMETRY

Transmitter Products

- MA05935 - 200 mW Round Lower S-band Transmitter
- MA06836 - 500 mW Square Lower S-band Programmable Transmitter
- MA06936 - 500 mW Round Lower S-band Programmable Transmitter
- MA06838 - 1 W Square Lower S-band Programmable Transmitter
- MA06000-AP Frequency Selection Application Note

Encoder Products

- MATM07A01 – Non-Randomized PCM Encoder
- MATM07A02 – Randomized PCM Encoder
- MATM07C01 – Multi-Input PCM Encoder

Telemetry Module Units (TMU):

- MATMTMU001 – Telemetry Module Unit (Transmitter/Encoder/Sensor)
- MATMTMU002 – Packaged 200 mW Transmitter & PCM Encoder
- MATMTMU003 – Packaged 200 mW Transmitter
- MATMTMU004 – Single Card Telemetry Solution
- MATMTMU008 – Telemetry Module Unit (Transmitter/Encoder)
- MATMTMU010 – Packaged 500 mW Transmitter

Receiver & Antenna Products:

- TMR-5550T - Telemetry Band Microwave Receiver
- Airborne GPS Antenna



M/A-COM amplifiers are used extensively in commercial and military electronics applications. M/A-COM produces low noise amplifiers (LNA), power amplifiers (PA), driver amplifiers and wideband amplifiers ranging from 50 MHz to 77 GHz designed specifically for voice and data applications for the consumer and military market.



- Cordless and mobile phones
- Infrastructure cellular base stations for
 - GSM
 - CDMA
 - PHS
 - UMTS
- Satellite radios
- Mobile GPS radios
- VSAT
- CATV and broadband
- WLAN cards and access points
- Aerospace and Defense products
- Bluetooth
- RFID



Amplifiers

Frequency (MHz)	Part Number	Gain (dB)	NF (dB)	Output P1dB (dBm)	Output IP3 (dBm)	Sat. P Out (dBm)	Voltage (Volts)	Current (mA)	Package
Die Products									
200 - 3000	MAAM02350 ◆	18	4.1	14	—	—	6	65	Die
700 - 2500	MAAPGM0077-DIE	23	—	41	—	41	10	3800	Die
800 - 3300	MAAPGM0026-DIE	20	6	27	36	28	8	230	Die
1000 - 18000	MAAMGM0002-DIE	9	4	20	31	21	5	75	Die
1200 - 3200	MAAPGM0036-DIE	20	5	30	40	31	8	460	Die
1200 - 1750	MAAM12000 ◆	26	1.25	14	24	—	5	80	Die
1300 - 2500	MAAPGM0076-DIE	25	—	41	—	42	10	3800	Die
1500 - 6500	MAALGM0006-DIE	17	3.5	16	—	—	5	40	Die
2000 - 4000	MAAPGM0027-DIE	22	6	29	37	30	8	230	Die
2000 - 6000	MAAM26100 ◆	19	—	28	39	30	8	475	Die
2000 - 6000	MAAPGM0078-DIE	20	—	40	—	41	10	2800	Die
2000 - 8000	MAAM28000 ◆	17	7.5	14	—	—	10	60	Die
2000 - 8000	MAAPGM0028-DIE	14	—	26	38	28	8	240	Die
2000 - 8000	MAAPGM0074-DIE	14	—	38	—	39	10	2100	Die
2000 - 13000	MAAPGM0057-DIE	7	8	30	—	31	10	510	Die
2000 - 18000	MAAMGM0007-DIE	8	6	19	—	22	5	170	Die
2000 - 18000	MAAPGM0053-DIE	6	7	26	—	27	8	250	Die
2500 - 5500	MAAPGM0035S-DIE	17	7	31	42	32	8	600	Die
2500 - 6000	MAAPGM0066-DIE	33	—	33	42	34	8	650	Die
3000 - 6000	MAAPGM0022-DIE	17	6	31	43	31	8	600	Die
3500 - 6500	MAAPGM0029-DIE	20	7	30	42	31	8	300	Die
3500 - 7000	MAAM37000 ◆	17	1.8	14	24	—	4	75	Die
4000 - 8500	MAAPGM0073-DIE	25	—	31	—	31	8	320	Die
4000 - 18000	MAAPGM0052-DIE	13	6	25	—	26	8	500	Die
4500 - 9000	MAAPGM0021-DIE	17	9	31	41	33	8	590	Die
5000 - 8000	MAALGM0003-DIE	14	2.1	13	25	—	3	50	Die
5000 - 9000	MAAPGM0030-DIE	17	8	29	38	30	8	240	Die
5500 - 7000	MAAPGM0025-DIE	18	5	36	43	38	8	1700	Die
5700 - 8500	MAAPGM0067-DIE	31	—	33	41	34	8	640	Die
5700 - 8500	MAAPGM0068-DIE	28	—	31	38	31	8	320	Die
6500 - 12500	MAAPGM0037-DIE	13	8	29	37	30	8	310	Die
7000 - 11000	MAAM71100 ◆	18	—	28	38	31	8	750	Die
7000 - 15000	MAAPGM0056-DIE	26	10	30	—	31	8	540	Die
7100 - 11700	MAAPGM0069-DIE	34	—	32	44	33	8	760	Die
7500 - 10500	MAAPGM0024-DIE	26	—	37	—	38	8	1600	Die
7500 - 10500	MAAPGM0079-DIE	29	—	42	48	43	10	4000	Die
7500 - 12000	MAAM71200 ◆	15.5	3.2	11	—	—	4	40	Die
7500 - 13500	MAAPGM0038-DIE	19	8	29	40	31	8	700	Die
8000 - 11000	MA08509D	25	—	—	—	41	10	2250	Die
8000 - 12000	MAALGM0002-DIE	13	2.3	10	23	—	3	50	Die
8000 - 12500	MAAPGM0034-DIE	15	8	26	33	28	10	126	Die
8500 - 11500	MAAPGM0063-DIE	25	—	36	—	37	10	1400	Die
8500 - 12500	MAAPGM0051-DIE	15	9	30	37	31	10	290	Die
9500 - 11000	MAAPGM0033-DIE	14	6	29	36	30	10	300	Die

Note: Part numbers are RoHS compliant except: ◆ indicates non-RoHS compliant
 Blue listings indicate standard stock items widely available from our franchised distribution partners.
 Detailed specifications for our standard parts can be found quickly on our web site at www.macom.com by typing the part number into the search box.
 All specifications are subject to change.

Amplifiers

Frequency (MHz)	Part Number	Gain (dB)	NF (dB)	Output P1dB (dBm)	Output IP3 (dBm)	Sat. P Out (dBm)	Voltage (Volts)	Current (mA)	Package
Die Products									
9500 - 12000	MAAPGM0062-DIE	23	—	35	—	36	10	900	Die
9500 - 13000	MAAPGM0019-DIE	19	10	31	38	32	8	820	Die
10000 - 13250	MAAPGM0070-DIE	34	—	32	39	33	8	900	Die
10500 - 15500	MAAPGM0040-DIE	20	8	25	33	27	8	200	Die
11000 - 15000	MAAPGM0041-DIE	20	7	30	35	31	8	450	Die
11000 - 16000	MAALGM0004-DIE	11	2.9	12	23	—	3	50	Die
11500 - 16500	MAAPGM0044-DIE	19	8	25	36	27	8	210	Die
11500 - 15000	MAAPGM0016-DIE	18	—	36	43	37	8	2400	Die
11500 - 15000	MAAPGM0045-DIE	19	10	31	37	33	8	875	Die
11500 - 16000	MAAPGM0042-DIE	20	10	28	35	31	8	460	Die
12000 - 15500	MAAPGM0018-DIE	18	—	32	—	33	8	830	Die
12000 - 19000	MAAPGM0005-DIE	15	15	22	27	23	7	240	Die
12750 - 15350	MAAPGM0071-DIE	27	—	31	40	32	8	900	Die
13500 - 15000	MAAPGM0043-DIE	17	7	31	37	32	8	820	Die
14000 - 14500	AM42-0007-DIE ◆	22	—	32	41	33	9	1000	Die
15500 - 18000	MAAPGM0046-DIE	16	8	25	32	26	8	470	Die
16000 - 19500	MAAPGM0047-DIE	16	11	24	27	26	8	270	Die
17700 - 19700	MAAPGM0072-DIE	22	—	30	38	30	8	500	Die
Packaged Products									
0.01 - 2500	A3010	9.5	4.5	19	35	—	+12/-5.2	155	TO-8, SMA
2 - 1500	A25-1	13.5	3	9	22	—	+15	24	TO-8, SMT, SMA
2 - 2400	A33-1	9	4	6	19	—	+15	19	TO-8, SMT, SMA
2 - 2400	A35-1	9	4.2	9.5	23	—	+15	28	TO-8, SMT, SMA
5 - 100	A101	17	3	23	36	—	+12	105	TO-8, SMT, SMA
5 - 200	A71	18	2.1	-2.5	10	—	+15	9	TO-8, SMT, SMA
5 - 250	A74-1	31	4.5	8.5	21	—	+15	40	TO-8, SMT, SMA
5 - 250	A75-2	21	4.2	8	19	—	+15	24	TO-8, SMT, SMA
5 - 250	EA54	27	3.8	5	16	—	+5	30	TO-5
5 - 300	A78	14	3.5	19.5	35	—	+15	65	TO-8, SMT, SMA
5 - 300	A79	14	4	22	38	—	+15	88	TO-8, SMT, SMA
5 - 300	A88-1	18.5	3.8	18.5	30	—	+15	52	TO-8, SMT, SMA
5 - 400	A56	26	5.5	13.5	27	—	+15	69	TO-8, SMT, SMA
5 - 400	EA1	14	4.3	4.5	13	—	+15	10	TO-5
5 - 400	EA2	13.5	5.7	9	21	—	+15	27	TO-5
5 - 400	PA979 ◆	14.5	4	26.5	38	—	+15	130	TO-8-1
5 - 500	A1	16	2.4	-1	11	—	+15	9	TO-8, SMT, SMA
5 - 500	A5	14.8	4.5	8.5	22	—	+15	25	TO-8, SMT, SMA
5 - 500	A5-5	15.5	4	9	21	—	+15	24	TO-8, SMT, SMA
5 - 500	A514	28	4	19	32	—	+15	96	TO-8, SMT, SMA
5 - 500	A515	27.5	3.5	22	33	—	+15	127	TO-8, SMT, SMA
5 - 500	A54	15.5	4	9	21	—	+15	34	TO-8, SMT, SMA
5 - 500	A58	11.5	4	19	34	—	+15	65	TO-8, SMT, SMA
5 - 500	A59	11.5	4.3	22	36	—	+15	88	TO-8, SMT, SMA
5 - 500	A72	15	3.3	12.5	26	—	+15	30	TO-8, SMT, SMA

Amplifiers

Frequency (MHz)	Part Number	Gain (dB)	NF (dB)	Output P1dB (dBm)	Output IP3 (dBm)	Sat. P Out (dBm)	Voltage (Volts)	Current (mA)	Package
Packaged Products									
5 - 500	A73	32	3.5	1.5	15	—	+15	20	TO-8, SMT, SMA
5 - 500	A74	30	3	8.5	20	—	+15	40	TO-8, SMT, SMA
5 - 500	A74-2	26	3.8	-1	10	—	+5	13	TO-8, SMT, SMA
5 - 500	A75	21	2.1	9	21	—	+15	25	TO-8, SMT, SMA
5 - 500	A76	28	3	14.7	28	—	+15	62	TO-8, SMT, SMA
5 - 500	A76-1	27.5	3	12.7	26	—	+5	47	TO-8, SMT, SMA
5 - 500	A77	16.5	4.5	16.5	30	—	+15	50	TO-8, SMT, SMA
5 - 500	A88	18.7	6.5	20.5	30	—	+15	79	TO-8, SMT, SMA
5 - 500	AM-123 ◆	10	5.5	18	30	—	+15	62	FP-7
5 - 500	AM-131	10	5	19	35	—	+15	65	TO-8
5 - 500	AM-143 ◆	15.8	2.5	6	20	—	+15	13	TO-8-1
5 - 500	AM-147	17	3.4	21	33	—	+15	52	TO-8
5 - 500	AM-151	12	4.3	22	36	—	+15	88	TO-8
5 - 500	AMC-143 ◆	15.8	2.5	6	20	—	+15	13	Conn
5 - 500	AMC-147 ◆	17	3.4	21	33	—	+15	52	Conn
5 - 500	AMC-151 ◆	12	4.3	22	36	—	+15	88	Conn
5 - 500	EA53-2	19	3.6	11	24	—	+15	33	TO-5
5 - 500	EA54-2	29.5	4.5	9.5	20	—	+15	55	TO-5
5 - 500	PA760	28	3	15	28	—	+15	60	TO-8
5 - 500	RA89	26.5	3.7	21.5	35	—	+15	130	TO-8B, SMT, SMA
5 - 600	A77-1	16	5	16.5	30	—	+15	50	TO-8, SMT, SMA
5 - 1000	A11	14.7	3.1	-2	10	—	+15	9	TO-8, SMT, SMA
5 - 1000	A11-2	16	2.5	-1	10	—	+15	9	TO-8, SMT, SMA
5 - 1000	A63	16	3	4	15	—	+15	14	TO-8, SMT, SMA
5 - 1000	AM-176 ◆	13.2	4	13	27	—	+15	38	TO-8-1
5 - 1000	AM-182 ◆	28.2	3.5	10	20	—	+15	44	TO-8-1
5 - 1000	AMC-182 ◆	28.2	3.5	10	20	—	+15	44	Conn
5 - 1200	A21-1	15.5	2.4	-1	11	—	+15	10	TO-8, SMT, SMA
5 - 1200	PA946	22	5	17	27	—	+15	75	TO-8
5 - 1500	A24	20	4.2	8	21	—	+15	34	TO-8, SMT, SMA
5 - 1500	A25	10	6	9	21	—	+15	24	TO-8, SMT, SMA
5 - 1500	A27	8.5	7.5	15.5	28	—	+15	50	TO-8, SMT, SMA
6 - 600	A5-6	16	4.5	8.5	21	—	+15	24	TO-8, SMT, SMA
10 - 100	AM-162	12.5	1.5	15	30	—	+15	11	TO-8-1
10 - 100	AMC-162 ◆	12.5	1.5	15	30	—	+15	11	Conn
10 - 200	A80-1	27.3	2	16	28	—	+15	30	TO-8, SMT, SMA
10 - 250	A231	26	1.7	10	22	—	+5	16	TO-8, SMT, SMA
10 - 250	A70	8	1.6	8	24	—	+15	10	TO-8, SMT, SMA
10 - 250	A70-1	8	1.8	14	28	—	+15	15	TO-8, SMT, SMA
10 - 250	A70-2	8	2.2	19	38	—	+15	25	TO-8, SMT, SMA
10 - 250	A83-1	35.5	2.5	-1.5	9	—	+15	31	TO-8, SMT, SMA
10 - 300	A87-2	16	2.9	11	24	—	+5	15	TO-8, SMT, SMA
10 - 400	A51	15	2.7	-3.5	10	—	+15	7	TO-8, SMT, SMA
10 - 400	A87	14	3.8	17.5	33	—	+15	33	TO-8, SMT, SMA

Amplifiers

Frequency (MHz)	Part Number	Gain (dB)	NF (dB)	Output P1dB (dBm)	Output IP3 (dBm)	Sat. P Out (dBm)	Voltage (Volts)	Current (mA)	Package
Packaged Products									
10 - 400	A87-1	16	3.4	17	31	—	+15	30	TO-8, SMT, SMA
10 - 400	A411	15.8	3	10	24	—	+5	16	TO-8, SMT, SMA
10 - 500	A53	15	3	3.5	16	—	+15	12	TO-8, SMT, SMA
10 - 500	A55	14.7	5	11	24	—	+15	30	TO-8, SMT, SMA
10 - 500	A57	14.7	4.8	14	28	—	+15	44	TO-8, SMT, SMA
10 - 500	A75-3	20.5	1.7	3	16	—	+15	14	TO-8, SMT, SMA
10 - 500	A83	30	3	-1	10	—	+5	13	TO-8, SMT, SMA
10 - 500	A180	16.5	3.4	18	33	—	+15	63	TO-8, SMT, SMA
10 - 500	A511	17	3.4	21	33	—	+15	52	TO-8, SMT, SMA
10 - 500	A513	20	5.5	18	30	—	+12	120	TO-8, SMT, SMA
10 - 500	A514	28	4	19	32	—	+15	96	TO-8, SMT, SMA
10 - 500	A515	27.5	3.5	22	33	—	+15	127	TO-8, SMT, SMA
10 - 500	A531	31.7	2	2.5	14	—	+5	17	TO-8, SMT, SMA
10 - 500	AM-146 ◆	21	4.5	22	35	—	+15	130	FP-9
10 - 500	AMC-146 ◆	21	4.5	22	35	—	+15	130	Conn
10 - 500	PA511	12.7	4.6	24.8	40	—	+15	118	TO-8, SMT, SMA
10 - 500	PA512	18	5.2	27.5	33	—	+15	200	TO-8, SMT, SMA
10 - 500	RA89-1	30	3.2	21.5	36	—	+15	130	TO-8B, SMT, SMA
10 - 600	A67-1	15	3.7	17	30	—	+15	36	TO-8, SMT, SMA
10 - 700	A59-1	10.5	6	22	36	—	+15	88	TO-8, SMT, SMA
10 - 700	PA591	10.5	6	22	36	—	+15	88	TO-8
10 - 800	A67	14	4	16	30	—	+15	32	TO-8, SMT, SMA
10 - 1000	A12	16	2.8	8	22	—	+15	22	TO-8, SMT, SMA
10 - 1000	A17	12	6	15.3	27	—	+15	44	TO-8, SMT, SMA
10 - 1000	A18-1	14.7	3.8	16	30	—	+15	44	TO-8, SMT, SMA
10 - 1000	A19-1	11.5	5.5	22.5	35	—	+15	90	TO-8, SMT, SMA
10 - 1000	A66-1	27.5	2.9	15	28	—	+15	66	TO-8, SMT, SMA
10 - 1000	A66-3	26	3	3	13	—	+5	16	TO-8, SMT, SMA
10 - 1000	A181	16.5	3.8	22	35	—	+15	95	TO-8, SMT, SMA
10 - 1000	A1021	26	3.8	14.5	26	—	+5	60	TO-8, SMT, SMA
10 - 1000	A1031	28.5	2.7	10	22	—	+5	36	TO-8, SMT, SMA
10 - 1000	AM-145 ◆	10.7	3	18	32	—	+15	50	TO-8-1
10 - 1000	AM-177 ◆	12	6.5	22	35	—	+15	105	TO-8-1
10 - 1000	AM-183 ◆	28.5	4	14	23	—	+15	72	TO-8-1
10 - 1000	AMC-145 ◆	10.7	3	18	32	—	+15	50	Conn
10 - 1000	AMC-183 ◆	28.5	4	14	23	—	+15	72	Conn
10 - 1000	PA661	27.5	3	15	27	—	+15	65	TO-8
10 - 1000	RA66	37	3.5	15.5	30	—	+15	81	TO-8B, SMT, SMA
10 - 1000	RA69	25	4.5	23	34	—	+15	130	TO-8B, SMT, SMA
10 - 1200	A64	26	3.4	8	20	—	+15	35	TO-8, SMT, SMA
10 - 1200	A66	23.5	4	15	28	—	+15	64	TO-8, SMT, SMA
10 - 1200	A1211	14	2.8	6	20	—	+5	16	TO-8, SMT, SMA
10 - 1200	A16-2	13	3.5	6	18	—	+5	15	TO-8, SMT, SMA
10 - 1500	A26	20.5	5	16	27	—	+15	64	TO-8, SMT, SMA

Amplifiers

Frequency (MHz)	Part Number	Gain (dB)	NF (dB)	Output P1dB (dBm)	Output IP3 (dBm)	Sat. P Out (dBm)	Voltage (Volts)	Current (mA)	Package
Packaged Products									
10 - 1500	A28	11	6	15	29	—	+15	45	TO-8, SMT, SMA
10 - 1500	A28-2	14	3.5	10.5	24	—	+5	27	TO-8, SMT, SMA
10 - 1500	A29-1	9	5.5	22	32	—	+15	90	TO-8, SMT, SMA
10 - 2000	A31-1	11.5	3.5	-2	9	—	+15	9	TO-8, SMT, SMA
10 - 2000	A33	9.5	4.5	3	15	—	+15	14	TO-8, SMT, SMA
10 - 2000	A35	10	5	9	21	—	+15	24	TO-8, SMT, SMA
10 - 2000	A37	10	6.8	15	28	—	+15	47	TO-8, SMT, SMA
10 - 2000	A38	9.5	6.5	19	30	—	+15	65	TO-8, SMT, SMA
10 - 2000	A39	7.5	8.5	22	34	—	+15	90	TO-8, SMT, SMA
10 - 2000	AM-180 ◆	9.7	6	14.5	28	—	+15	45	TO-8-1
10 - 2000	AM-184 ◆	20	5	11	21	—	+15	52	TO-8-1
10 - 2000	AMC-180 ◆	9.7	6	14.5	28	—	+15	45	Conn
10 - 2000	AMC-184 ◆	20	5	11	21	—	+15	52	Conn
15 - 100	AM05-0005 ◆	14.5	2.7	27	42	—	+12	88	LGA-1
15 - 100	AM05-0006 ◆	10.1	3.0	27	42	—	+12	88	LGA-1
20 - 250	A70-3	8	2.8	21	40	—	+15	37	TO-8, SMT, SMA
20 - 250	A81	25.5	3	17	28	—	+15	35	TO-8, SMT, SMA
20 - 250	A81-1	25	2.5	13.5	27	—	+15	25	TO-8, SMT, SMA
20 - 250	A82	25	2.8	20	31	—	+15	50	TO-8, SMT, SMA
20 - 250	A82-1	19	2.8	15	26	—	+15	50	TO-8, SMT, SMA
20 - 250	PA703	7.5	2.5	21	—	—	+15	37	TO-8
20 - 500	A81-2	24.5	3	15	28	—	+15	29	TO-8, SMT, SMA
20 - 500	A81-3	17	4	8	20	—	+15	29	TO-8, SMT, SMA
20 - 500	A80	29	2.3	14.3	27	—	+15	45	TO-8, SMT, SMA
20 - 2700	MAAM-007501-SA2002	11.5	2.5	27	40	—	+9	165	TO-8, SMT, SMA
30 - 250	AMC-119 ◆	8	2.5	21	35	—	+15	50	Conn
30 - 250	AM-119 ◆	8	2.5	21	35	—	+15	50	TO-8-1
35 - 350	PAW1027 ◆	38	4.5	31	43	—	+24	300	SOT115J
35 - 500	PAW1027-1 ◆	38	4.5	31	43	—	+24	300	SOT115J
50 - 450	MAAMSS0017 ◆	18	4.4	22	40	—	—	—	SOT-89
50 - 450	MAAMSS0046	18	4.4	22	40	—	—	—	SOT-89
50 - 860	MAMUCT0021	5	3.7	—	—	—	—	—	Surface Mount
50 - 870	MAAMSS0040	12	3.3	23	—	—	—	—	SOICN-16
50 - 1000	MAAMSS0042	15	3	21	38	—	—	—	SOT-89
50 - 1000	MAAMSS0067	12.2	3.3	24	32	—	—	—	4 mm PQFN 20
50 - 1000	MAAMSS0091	14.8	2.7	23	36	—	—	—	SOT-89
50 - 2000	MAAM-007865-OP1R00	20	5	18	29	—	+5	60	3 mm PQFN 12
50 - 2500	MAAMSS0017 ◆	18	4.8	20	38.5	—	+5	70	SOT-89
50 - 2500	MAAMSS0046	18	4.8	20	38.5	—	+5	70	SOT-89
50 - 3300	MAAM-007866-OP1R00	27	6	22.5	34	—	+5	165	3 mm PQFN 12
70 - 3000	MAALSS0034	12	1.6	23	36	—	+5	88	SOT-89
100 - 600	AM-160 ◆	28.2	2.5	19	30	—	+15	70	FP-9
100 - 600	AM-191 ◆	23.2	3	22	32	—	+15	77	FP-3
100 - 800	A89	22	4.5	17.5	30	—	+15	42	TO-8, SMT, SMA

Amplifiers

Frequency (MHz)	Part Number	Gain (dB)	NF (dB)	Output P1dB (dBm)	Output IP3 (dBm)	Sat. P Out (dBm)	Voltage (Volts)	Current (mA)	Package
Packaged Products									
100 - 1200	A1212	14	1.8	19	29	—	+5	70	TO-8, SMT, SMA
100 - 2000	RA36	24	5.5	13	22	—	+15	76	TO-8, SMT, SMA
100 - 2000	A32	13	2.1	22	32	—	+15	94	TO-8, SMT, SMA
100 - 2000	A32-1	12	2.5	15.5	25	—	+5	44	TO-8, SMT, SMA
100 - 2000	A34	16	5.5	7	18	—	+15	35	TO-8, SMT, SMA
100 - 2000	A36	16.5	5.5	12	23	—	+15	63	TO-8, SMT, SMA
100 - 2300	A36-1	16.2	6	12	23	—	+15	63	TO-8, SMT, SMA
100 - 2600	A36-2	15	7	14	30	—	+15	63	TO-8, SMT, SMA
100 - 3200	A43	11.5	7	8.5	21	—	+15	45	TO-8, SMT, SMA
200 - 3000	MAAM02350-A2	18	4	14	—	—	+6	65	CR-3
200 - 3000	MAALSS0012 ◆	12	1.5	21	32	—	+5	87	SOT-363
200 - 3000	MAALSS0038 ◆	12	1.5	21	36	—	+5	87	SOT-363
200 - 2000	PA2010	10	5	25.5	33	—	+15	179	TO-8, SMT, SMA
200 - 2000	PA38	10	4	23	34	—	+15	150	TO-8, SMT, SMA
200 - 2600	PA38-2	8.5	4.5	23.5	33	—	+15	150	TO-8, SMT, SMA
250 - 4000	MAAMSS0048	21	3.5	27	40	—	+5	160	SOT-89
250 - 4000	MAAMSS0049	19	3.5	28.5	43	—	+5	230	SOT-89
250 - 4000	MAAMSS0050	20	4.5	30	43	—	+5	420	SOT-89
250 - 4000	MAAMSS0056	22	3.5	27.5	42	—	+5	195	SOIC-8
250 - 4000	MAAMSS0057	20	3.5	31	45	—	+5	490	SOIC-8
250 - 4000	MAAMSS0072	23	3.7	27	39	—	+5	235	4 mm PQFN 16
250 - 4000	MAAMSS0073	23	3.8	29	43	—	+5	490	4 mm PQFN 16
300 - 1000	AM-155 ◆	12.3	3.5	20	30	—	+15	50	TO-8-1
300 - 1000	AMC-155 ◆	12.3	3.5	20	30	—	+15	52	Conn
300 - 1800	AM-153 ◆	12.4	2.5	7.5	17	—	+15	13	TO-8-1
400 - 500	MAALSS0025 ◆	21	0.9	—	28	—	+8	80	SOIC-8
500 - 2400	MAAMSS0014 ◆	19	5	23	38	—	+5	110	SOT-89
800 - 960	PA1162 ◆	28	2.2	35	50	—	+12	780	Flange
800 - 960	PA1162A ◆	27.5	2.2	34	48	—	+10	1000	Flange
800 - 1000	AM50-0003 ◆	15	1.2	16.5	—	—	+5	60	SOIC-8
800 - 1000	MAALSS0043	15	1.2	16.5	—	—	+5	60	SOIC-8
800 - 1000	AM50-0011 ◆	16.8	0.95	14	30	—	+5	40	SOT-26
800 - 1000	MAALSS0040 ◆	16.8	0.95	14	30	—	+5	40	SOT-26
800 - 1000	AM55-0016 ◆	16	1.6	0	20	—	+2.7	—	Plastic
800 - 1000	MAAP-007649-000100	19	—	34	49.5	—	+7.5	515	4 mm PQFN 16
850 - 960	MAAPSS0095	37	—	—	—	—	3.3	180	3 mm PQFN 16
900 - 942	MA02104AF ◆	30.8	—	—	—	—	+3.6	—	TSSOP-16
900 - 942	MA02107AF ◆	30.8	—	—	—	—	+3.4	—	TSSOP-16
900 - 2000	MAAMSS0005 ◆	15.5	2.8	6	17	—	+5	3	SOT-143
900 - 2000	MAAM-007217	15.5	2.8	6	17	—	+5	3	SOT-143
1000 - 4000	A4011	15.5	2	18.3	29	—	+5	65	TO-8, SMT, SMA
1000 - 4000	A4012	18	3.5	15.5	26	—	+5	65	TO-8, SMT, SMA
1000 - 4000	A45	17.5	4	19.5	29	—	+15	120	TO-8, SMT, SMA
1000 - 4000	A45-1	17.5	4	13	26	—	+5	65	TO-8, SMT, SMA

Amplifiers

Frequency (MHz)	Part Number	Gain (dB)	NF (dB)	Output P1dB (dBm)	Output IP3 (dBm)	Sat. P Out (dBm)	Voltage (Volts)	Current (mA)	Package
Packaged Products									
1000 - 4000	PA48	16	5.5	24	34	—	+15	225	TO-8B, SMT, SMA
1000 - 4000	RA46	25.5	4.5	19	30	—	+12	175	TO-8B, SMT, SMA
1000 - 18000	MAAMGM0002	10	4	20	31	21	5	100	5x5 mm PQFN
1200 - 1750	MAAM12000-A1	26	1.35	14	—	—	+5	80	CR-3
1200 - 3200	MAAPGM0036	20	5	31	40	31	8	460	CR-15
1400 - 1450	AM42-0041 ◆	28	—	—	—	28	+8	500	CR-15
1400 - 2000	AM50-0004 ◆	14	1.4	16	29	—	+8	45	SOIC-8
1400 - 2000	MAAMSS0045	14	1.4	16	29	—	+8	45	SOIC-8
1400 - 2000	AM50-0006 ◆	18	1.6	1	—	—	+3	6.5	SOT-26
1400 - 2000	MAALSS0048	18	1.6	1	—	—	+3	6.5	SOT-26
1435 - 1525	AM42-0054 ◆	26	—	—	—	33	—	—	CR-15
1435 - 1525	MA05515-DIE ◆	32	—	—	—	24	—	—	Hybrid
1500 - 1600	MAAM12021 ◆	21	1.55	6	—	—	+5	8	SO-8
1500 - 1600	MAALSS0044	21	1.55	6	—	—	+5	8	SO-8
1500 - 1700	MAALSS0027 ◆	20	1.5	8.5	17	—	+3	9.5	SOT-26
1500 - 1700	MAALSS0049	20	1.5	8.5	17	—	—	—	SOT-26
1550 - 1600	AM50-0002 ◆	27	1.15	1	—	—	+5	20	SOIC-8
1550 - 1600	MAALSS0042	27	1.15	1	—	—	+5	20	SOIC-8
1700 - 2000	MAAM12031 ◆	20	1.65	7	—	—	+5	8	SOIC-8
1700 - 2000	MAAL-007673	20	1.65	7	—	—	+5	8	SOIC-8
1700 - 2100	MAALSS0024 ◆	20	1	11	26	—	+5	30	SOT-26
1700 - 2500	MAAMSS0007 ◆	13	5.5	23	40	—	+5	100	3mm PQFN 20
1710 - 1910	AM40-0023 ◆	11	0.9	-13	—	—	—	—	CR-5
1800 - 1930	MA02203AD ◆	24.5	—	—	—	26.5	+3.6	350	SOIC-16
1800 - 1930	MAAM-007219	24.5	—	—	—	26.5	+3.6	350	SOIC-16
1800 - 1930	MA02204AF ◆	32	—	—	—	27	+3.3	360	TSSOP-16
1800 - 1930	MA02206GJ	28.9	—	—	—	26.9	+3.6	228	MSOP-8EP
1800 - 1930	MAAPSS0107	28.9	—	—	—	26.9	+3.6	228	MSOP-8EP
1880 - 1930	MAAPSS0071	35	—	—	40	26	+2.4	400	3mm PQFN 12
1880 - 1930	MAAPSS0076	25.5	—	—	—	25.5	+2.4	350	3mm PQFN 12
1800 - 2000	PA2001 ◆	21	2	30.3	44	—	+12	340	Flange
1800 - 2000	PA2003 ◆	21	2.8	32.5	47	—	+12	495	Flange
1800 - 2000	PA1132 ◆	21	2.8	32.5	47	—	+12	495	Flange
1800 - 2200	AM50-0012 ◆	19	1.4	20	32	—	+5	80	3mm PQFN
1800 - 2200	MAALSS0045	19	1.4	20	32	—	+5	80	3mm PQFN
2000 - 4000	MAAPGM0027 ◆	22	6	29	37	30	8	230	5x5 mm PQFN
2000 - 6000	A61	7.5	3.2	12.5	25	—	+5	35	TO-8, SMT, SMA
2000 - 6000	A611	15	3.2	12.5	24	—	+5	31	TO-8, SMT, SMA
2000 - 6000	A6011	14.8	1.5	18	30	—	+5	58	TO-8, SMT, SMA
2000 - 6000	MAAM26100-B1	18	—	27	39	29	+8	475	CR-2
2000 - 6000	MAAM26100-B1G	20	—	28	40	29	+8	475	CR-2
2000 - 6000	MAAM26100-P1	19	—	28	39	30.5	+8	475	CR-15
2000 - 6000	RA62	16	4	13	28	—	+15	65	TO-8B, SMT, SMA
2000 - 6000	RA63-1	22	5.5	16	32	—	+5	120	TO-8B, SMT, SMA

Amplifiers

Frequency (MHz)	Part Number	Gain (dB)	NF (dB)	Output P1dB (dBm)	Output IP3 (dBm)	Sat. P Out (dBm)	Voltage (Volts)	Current (mA)	Package
Packaged Products									
2000 - 6500	MAAPGM0028	14	8	26	37	29	8	300	CR-15
2000 - 8000	MAAM28000-A1	17	8	14	—	—	+10	70	Ceramic
2000 - 12000	6884-710	27	2.7	14.2	25	—	+15	138	QSL-SMA
2200 - 2400	MAALSS0013	17	0.9	10	25	—	+5	26	SOT-26
2200 - 2400	MAALSS0033	17	0.9	10	25	—	+5	26	SOT-26
2200 - 2500	AM42-0055 ◆	29	—	—	—	33	—	—	CR-15
2200 - 2500	MA05535-DIE ◆	29	—	—	—	24	—	—	Hybrid
2400 - 2500	AM52-0024 ◆	31	—	27	40	—	+3.3	230	MSOP-8EP
2400 - 2500	MA02303GJ ◆	29.5	3.6	26.5	43	—	+3.3	265	MSOP-8EP
2400 - 2500	MAAPSS0093	29.5	3.6	26.5	43	—	+3.3	265	MSOP-8EP
2400 - 2500	MAAPSS0066	27	—	—	35	25	2.4	400	3mm PQFN 12
2400 - 2500	MAAPSS0075	32	—	26.5	52	—	+3.3	185	3mm PQFN 12
2500 - 5500	MAAPGM0035S	18	7	32	42	33	8	700	CR-15
2500 - 6000	MAAP-000066-PKG003	28	—	33	42	33	8	660	5 mm PQFN
3500 - 7000	MAAM37000-A1	17	2.2	14	—	—	+4	75	CR-3
3600 - 6500	MAAPGM0029	19	8	30	42	30	8	300	CR-15
4000 - 8500	MAAP-000073-PKG003	24	—	31	38	32	8	320	5 mm PQFN
4000 - 8000	MLA2440-603 ◆	30	4	—	—	—	—	—	TWTA Replacement
4800 - 6700	MAAPGM0060	18	—	37	—	37	8	1850	CR-15
4900 - 6000	MAAPSM0008 ◆	20.5	—	29.5	40	31.5	+7	500	4 mm PQFN 16
4900 - 6000	MAAPSS0096	20.5	—	29.5	40	31.5	+7	500	4 mm PQFN 16
5000 - 8500	MAAPGM0021	17	9.5	32	40	33	8	600	CR-15
5000 - 8500	MAAP-000021-PKG003	17	—	32	40	33	8	600	5 mm PQFN
5000 - 9000	MAAPGM0030	14	9	30	38	30	8	300	CR-15
5700 - 8500	MAAP-000067-PKG003	26	—	33	41	34	8	640	5 mm PQFN
5700 - 8500	MAAP-000068-PKG003	25	—	30	38	31	8	320	5 mm PQFN
5900 - 7100	AM42-0039 ◆	33	—	33	43	33	+8	900	CR-15
5900 - 7100	AM42-0046 ◆	27	—	—	—	36	+8	1900	CR-15
6500 - 9500	MAAPGM0064	17	9.5	32	41	33	8	600	CR15
7100 - 11700	MAAP-000069-PKG003	31	—	32	44	33	8	760	5 mm PQFN
7500 - 12000	MAAM71200-H1 ◆	15.5	3.5	11	—	—	+4	40	Ceramic
8000 - 12500	MAAPGM0034	14.5	8.5	27	33	27.5	10	126	CR-15
8000 - 18000	MLA2470-703 ◆	30	7	—	—	—	—	—	TWTA Replacement
9000 - 12000	MAAPGM0038	21	9	30	40	31.5	8	710	CR-15
9000 - 12000	MAAP-000038-PKG003	20	9	30	40	31.5	8	710	5 mm PQFN
9800 - 13000	MAAPGM0019	19	10	31	38	32	8	830	CR-15
10000 - 13250	MAAP-000070-PKG003	31	—	32	39	33	8	900	5 mm PQFN
11000 - 15000	MAAPGM0040	20	8	27	33	27	8	200	CR-15
11500 - 15000	MAAPGM0041	19	7	30	34	31	8	460	CR-15
12000 - 16000	MAAP-000042-PKG003	20	—	29	38	30	8	470	5 mm PQFN
12750 - 15350	MAAP-000071-PKG003	24	—	31	40	32	8	900	5 mm PQFN
12700 - 15400	MAAP-000044-PKG003	17	—	26	33	27	8	210	5 mm PQFN
14000 - 14500	AM42-0007 ◆	22	—	32	41	33	+9	1000	CR-15

Amplifiers

Frequency (MHz)	Part Number	Gain (dB)	NF (dB)	Output P1dB (dBm)	Output IP3 (dBm)	Sat. P Out (dBm)	Voltage (Volts)	Current (mA)	Package
Packaged Products									
14000 - 14500	MA08602FR ◆	34	7	—	—	33	—	—	FR
17700 - 19700	MAAP-000072-PKG003	19	—	30	38	31	8	500	5 mm PQFN

Antenna Switches Amplifiers

Frequency (MHz)	Part Number	Gain (dB)	I.L. (dB)	Output P1dB (dBm)	Isol. (dB)	Types	Package
Packaged Products							
1.8 - 2	AM55-0004	24	0.6	24	20	T/R	Plastic

Gain Control Amplifiers

Frequency (MHz)	Part Number	Gain (dB)	Output P1dB (dBm)	Output IP3 (dBm)	Atten. Step (dB)	Atten. Range (dB)	Package
Die Products							
1000 - 15000	MAAMGM0003-DIE	7.5	25	39	—	35	Die
Packaged Products							
100 - 400	AM55-0024	22.5	17.5	30	0.5	31.5	8mm PBGA

CATV Amplifiers

Frequency (MHz)	Part Number	Gain (dB)	NF (dB)	Output P1dB (dBm)	OIP3 (dBm)	CSO (dBc)	Channel loading (dbmV/ch 132ch)	Package
Packaged Products								
50 - 660	MAMUSS0007* ◆	5	5.7	—	—	-73	+13 in	Surfacemount
50 - 870	MAAMSS0001 ◆	12	3.3	23	—	-70	+13 in	SOICN-16
50 - 1000	MAAMSS0003 ◆	12.2	3.3	24	32	-70	+25 out	4mm PQFN 20
50 - 1000	MAAMSS0031 ◆	14.8	2.7	23	36	-70	+23 out	SOT-89
50 - 1000	MAAMSS0042 ◆	15	2.7	—	38	-70	+30 out	SOT-89

*The MAAMUSS0007 is a single input, three output device.



M/A-COM antennas are used extensively in automotive and aerospace/defense applications, as well as in other wireless markets. Broadband operation is available from 20 MHz to 40 GHz. Major applications include the following:

Automotive Telematics

- Satellite radio antennas
 - XM
 - Sirius
- Mobile GPS and Bluetooth antennas
- Multi-band antennas
 - GPS
 - Cellular
 - PCS
 - SDARS

Aerospace & Defense

- Military aviation
- Space launch antennas
- Missiles
- Electronic warfare
- Telemetry

RFID

- Single and dual elements
- Lightweight
- Rugged construction



RFID Antennas

Frequency (MHz)	Part Number	Elements	Size Polarization	Weight (in inches)	Gain (lbs.)	(dBic)
865 - 868	MAANAT0134	Dual	CP	19.6 x 8.8 x 1.6	1.8	8.9
902 - 928	MAANAT0123	Dual	CP	19.6 x 8.8 x 1.6	1.8	7.9
902 - 928	MAANAT0144	Single	CP	8.5 x 8.5 x 1.0	1	9
950 - 960	MAANAT0133	Dual	CP	19.6 x 8.8 x 1.6	1.8	8.9

GPS Antennas

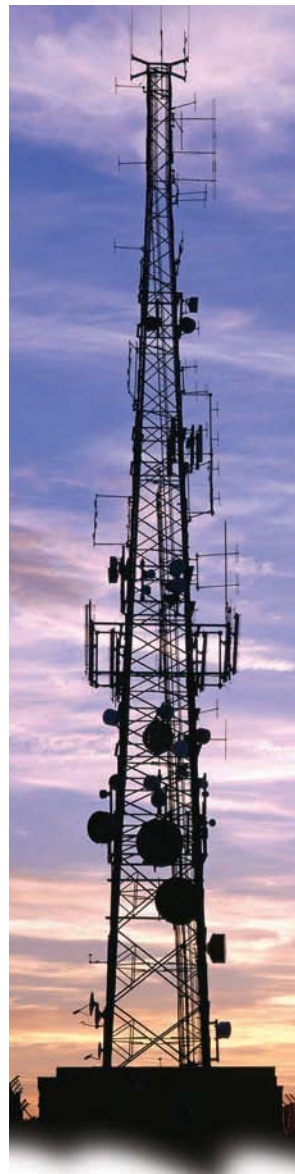
Frequency (MHz)	Part Number	Types	Gain (dBi)	Size (in inches)
1575.42	ANPC-185	◆ Active	26	2.56 x 2.25 x 0.65

Satellite Radio Antennas

Frequency (MHz)	Part Number	Types	Size (in inches)
2332.5 - 2345	MAANIN0050	◆ XM	3.0 x 4.5 x 1.56
2320 - 2332.5	MAANIN0055	◆ Sirius	3.0 x 4.5 x 1.56

Please contact us for custom designed antennas for any automotive, RFID, or aerospace/defense application.

Note: Part numbers are RoHS compliant except: ◆ indicates non-RoHS compliant
 Blue listings indicate standard stock items widely available from our franchised distribution partners.
 Detailed specifications for our standard parts can be found quickly on our web site at www.macom.com by typing the part number into the search box.
 All specifications are subject to change.



M/A-COM attenuators are used in various applications for automotive and wireless markets. There are serial and parallel logic controlled digital attenuators and voltage variable analog attenuators (VVAs) that range from DC to 20 GHz.

- Cellular infrastructure
- Handset gain control
- Radar systems
- Satellite radios
- Test equipment



Voltage Variable Attenuators

Frequency (MHz)	Part Number	I.L. (dB)	Attenuator Range (dB)	Input IP3 (dBm)	Voltage (Volts)	Current (mA)	Package
Packaged Products							
0 - 2000	AT-250 ◆	3.2	12	36	-4	0.020	SOIC-8
0 - 2000	AT-259 ◆	3.2	12	36	-4	0.020	SOT-143
0 - 2000	MAAVSS0005	3.2	12	36	-4	0.020	SOT-143
0 - 2000	AT-635 ◆	7.2	35	36	-4	0.020	SO-14
0 - 2500	AT-255 ◆	3.6	25	36	-3	0.025	SOT-25
0 - 2000	MAAVSS0006	3.6	25	36	-3	0.025	SOT-25
5 - 2000	G1*	2.5	25	—	+15	15	TO-8, SMT, SMA
5 - 2000	G2	2.6	23	—	+5	15	TO-8, SMT, SMA
5 - 3000	MA4P274-1225T ◆	1	30	43	—	—	SOT-25
5 - 3000	MA4P7455-1225T	1	30	43	—	—	SOT-25
5 - 3000	MA4P290-1225T ◆	2.8	25	50	—	—	SOT-25
5 - 3000	MADP-007167-12250T	2.8	25	50	—	—	SOT-25
50 - 1000	MAAV-007088-000100	2.8	42	34	—	—	SOW-16
100 - 2000	G30**	2.5	35	—	+15	10	TO-8, SMT, SMA
500 - 2000	AT-109 ◆	2.5	35	25	+5	0.050	SOIC-8
500 - 2000	AT-110 ◆	2.8	30	28	+5	0.300	SOIC-8
500 - 2000	AT-110-2	2.8	39	28	+5	0.300	SOIC-8
500 - 2000	MAAVSS0008 ◆	2.8	39	28	+5	0.300	SOIC-8
500 - 2000	AT-113 ◆	2.7	40	28	+3	0.050	SOIC-8
500 - 3000	AT-108 ◆	2.5	40	28	+5	0.050	SOIC-8
500 - 3000	MAAVSS0007	2.5	40	32	+5	0.050	SOIC-8
500 - 4000	G40	2.5	25	—	+15	12	TO-8, SMT, SMA
600 - 1200	MA4VAT904-1061T ◆	1	24	49	—	—	SOIC-8
600 - 1200	MA4VAT907-1061T ◆	1	24	49	—	—	SOIC-8
600 - 2000	MA4VAT900-1277T ◆	1	24	40	—	—	MLP 3mm
800 - 1000	MAAV-007089-000100	4.2	35	35	—	30	SOW-16
800 - 1000	MAAV-007092-000100	3.6	38	40	—	30	CSP-8
824 - 960	AT65-0009 ◆	1.7	25	40	—	—	SOT-25
900 - 2500	AT65-0008 ◆	1.5	28	40	—	—	SO-8
1500 - 2500	MA4VAT2004-1061T ◆	1.4	24	49	—	—	SOIC-8
1500 - 2500	MA4VAT2007-1061T ◆	1.4	24	52	—	—	SOIC-8
1700 - 2000	MAAV-007090-000100	3.5	35	31	—	—	SOW-16
1700 - 2200	MAAV-007091-000100	2.9	33	31	—	30	CSP-8
1800 - 2500	AT-119 ◆	2.4	42	32	+2.25	0.050	SOT-25
1800 - 2500	MAAVSS0001	2.4	42	32	+2.25	0.050	SOT-25

*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

Note: Part numbers are RoHS compliant except: ◆ indicates non-RoHS compliant
 Blue listings indicate standard stock items widely available from our franchised distribution partners.
 Detailed specifications for our standard parts can be found quickly on our web site at www.macom.com by typing the part number into the search box.
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Digital Attenuators

Frequency (MHz)	Part Number	I.L. (dB)	Step Size (dB)	Attenuator Range (dB)	Input IP3 (dBm)	Package
Die Products						
0 - 2000	MADA2030G ◆	1.9	0.5	15.5	45	Die
0 - 6000	MAATGM0001-DIE ◆	3.5	0.56	35	36	Die
2000 - 20000	MAATGM0004-DIE ◆	4	0.75	23	32	Die
Package Products						
0 - 2000	AT-106	4.6	1	50	46	CR-13
0 - 2000	AT-107	4	0.5	31.5	48	CR-13
0 - 2000	AT-210 ◆	1.5	1	15	50	SOIC-16
0 - 2000	MAATSS0015	1.5	1	15	50	SOIC-16
0 - 2000	AT-220 ◆	1.6	2	30	50	SOIC-16
0 - 2000	MAADSS0009	1.6	2	30	50	SOIC-16
0 - 2000	AT-230 ◆	1.6	4	28	50	SOIC-14
0 - 2000	AT-232	2.5	2	30	50	CR-6
0 - 2000	AT-233	2.8	2	30	50	CR-12
0 - 2000	AT-260 ◆	1.9	1	31	50	SSOP-20
0 - 2000	MAATSS0020	1.9	1	31	50	SSOP-20
0 - 2000	AT-263	3	1	31	48	CR-12
0 - 2000	AT-266 ◆	0.3	10	10	50	SOT-25
0 - 2000	MAATSS0018	0.3	10	10	50	SOT-25
0 - 2000	AT-267 ◆	0.3	15	15	50	SOT-25
0 - 2000	MAADSS0008	0.3	15	15	50	SOT-25
0 - 2000	AT-273	1.9	16	32	48	CR-11
0 - 2000	AT-280 ◆	1.5	0.5	15.5	45	SOIC-16
0 - 2000	MAATSS0021	1.5	0.5	15.5	45	SOIC-16
0 - 2000	AT-283	2.9	0.5	15.5	47	CR-12
0 - 2000	AT-357 ◆	6.5	1	31	47	C-46
0 - 2000	AT15-0001	7.3	1	31	40	Ceramic
0 - 2000	AT20-0106	4.6	1	50	46	CR-13
0 - 2000	AT20-0107	3.8	0.5	31.5	48	CR-13
0 - 2000	AT20-0263	3	1	31	48	CR-12
0 - 2000	AT20-0273	1.9	16	32	48	CR-11
0 - 2000	MAAD-007086-000100	4.7	1	50	48	SOW-24
0 - 2000	MAATCC0005	4.2	0.5	31.5	48	SOW-24
0 - 2000	MAATCC007	3.2	1	31	48	SOW-16
0 - 2000	MAAD-007084-000100	3	0.5	15.5	48	SOW-16
0 - 2400	MAAD-007082-000100	6	1	50	48	CSP-1
0 - 2400	MAAD-007080-000100	6	1	50	48	CSP-1
0 - 2500	MAATCC0012	2.7	2	30	48	CSP-1
0 - 2500	MAAD-007079-000100	2.7	2	30	48	CSP-1
0 - 3000	AT-213	2.5	1	15	50	CR-11
0 - 3000	MAAD-007085-000100	2.8	1	15	50	SOW-16
0 - 3000	MAATCC0006	3.1	2	30	50	SO-16
0 - 3000	MAATCC0008	1.7	1	15	50	SO-16
0 - 3000	MAATCC0010	4	1	31	48	CSP-1
0 - 3000	MAATCC0012	3.1	2	30	50	SO-16

Digital Attenuators (continued)

Frequency (MHz)	Part Number	I.L. (dB)	Step Size (dB)	Attenuator Range (dB)	Input IP3 (dBm)	Package
Packaged Products						
0 - 3000	MAAD-007078-000100	3.8	1	31	48	CSP-1
0 - 3500	MAAD-007084-000100	3.2	0.5	15.5	48	CSP-1
0 - 3500	MAATCC0014	3.2	0.5	15.5	48	CSP-1
0 - 4000	MAATCC0009	5.1	0.5	31.5	48	CSP-1
0 - 4000	MAADCC0006	2.5	1	15	48	CSP-1
0 - 4000	MAATCC0011	5.1	0.5	31.5	48	CSP-1
0 - 4000	MAAD-007077-000100	2.5	1	15	48	CSP-1
0 - 6000	MAATGM0001 ◆	4	0.56	35	36	5x5 mm PQFN
0 - 6000	MAAD-007083-000100	5.8	1	31	48	CSP-1
20 - 2000	AT-358 ◆	2.7	10	10	35	TO-8-2
400 - 2500	MAATSS0001 ◆	1.9	0.5	15.5	46	QSOP-16 (SSOP-16)
400 - 2500	MAATSS0002 ◆	1.8	1	31	43	QSOP-16 (SSOP-16)
400 - 2500	MAATSS00017	1.9	0.5	15.5	46	QSOP-16 (SSOP-16)
500 - 2000	AT-264 ◆	2.2	2	30	47	TSSOP-16
500 - 2000	MAATSS0016	2.2	2	30	47	TSSOP-16
500 - 2500	MAATSS0022	1.75	0.5	15.5	46	MSOP-10
500 - 4000	MAATSS0019	1.6	1	15	47	TSSOP-16
800 - 2500	MAADSS0010	1.8	1	31	43	QSOP-16 (SSOP-16)



M/A-COM durable **test cables** have the flexibility and reliability required for testing applications, as well as excellent electrical characteristics. Customer-replaceable interfaces allow a single cable to interconnect a variety of male and female interfaces without degrading the low loss and VSWR of the cable assembly.

Other cables available from M/A-COM:

Instrument test cables

- Protection for your ANA investment

Super flexible coaxial cables

- For interconnecting RF and microwave modules, sub-assemblies and instruments

EW cables

- MIL-qualified for high performance airborne, shipboard, and ground-based applications

Space cables

- Low weight, radiation resistant, long-term stable for launch vehicles and satellites



Test Cables

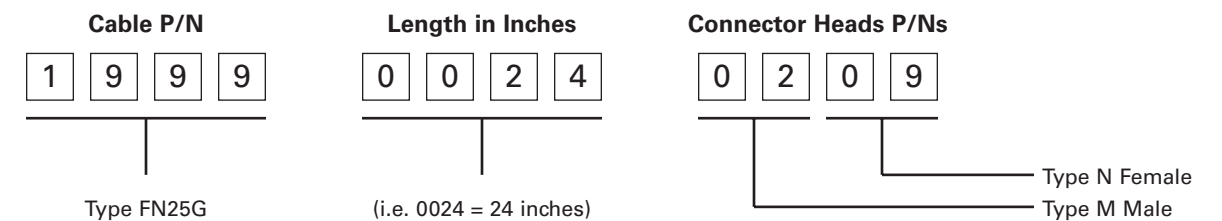
Freq. (GHz)	Part Number	VSWR (Max)	Ins. Loss (dB/ft)	Imped. (Ohms)	Velocity of Prop.	Time Delay (nS/ft)	Cap. (pF/ft)	RF Leakage (dB/ft Max)	Power (Rm Temp.)*	Con. Load (lbs/in)	Bend Radius	Outside Dia. (in min.)	Temp. (deg. C)**
18	FN25G	1.25:1	0.5 + 0.4	50	76%	1.34	27	-90	40W	100	1.25	0.25	-65 to 110
18	FN25GA	1.25:1	0.5 + 0.4	50	76%	1.34	27	-90	40W	Con. Fctry.	1.5	0.35	-65 to 110
18	FN35G	1.25:1	0.5 + 0.4	50	76%	1.34	27	-90	40W	100	1.75	0.35	-65 to 110
18	FE25G	1.25:1	0.5 + 0.4	50	76%	1.34	27	-90	40W	Con. Fctry.	1.25	0.25	-65 to 110
26.5	FN24G	1.40:1	0.5 + 0.52	50	76%	1.34	27	-90	25W	100	1.2	0.24	-65 to 110

*Dependent upon connector style.

**Power handling decreases to 1 Watt maximum at 18 GHz at 110°C during operation.

Ordering Information

Design your own test cable using this simple format. The example below illustrates the part number formulation for a FN25G cable, 24" long with Nf and Nm connectors.



Cables

Cable Type	Part Number
FN25G	1999
FN25G Armored	1998
FN35G	1997
FE25G	1996
FN24G	1985

Accessories

Accessories (for 18 GHz models)	Part Number
Interlink	1600-8207
90° Interlink	1600-5136
Storage Box	9604-0250
Torque Wrench	9604-0251
Pat Wrench	9604-0321
Test Kit <small>(contains 2 each: ETNCm, SMAm, Nm and 7mm 1 each: Flat and torque wrench)</small>	9613-0001

Connector Heads

Type	On Cable Assy's	For Individual Purchase 18 GHz Test Cables	For Individual Purchase 26.5 GHz Test Cables
ETNCm	01	1550-0067	1550-0389
TNCf	08	1550-0165	1550-0390
Nm	02	1550-0068	1550-0392
Nf	09	1550-0166	1550-0393
SMAm	03	1550-0070	1550-0384
SMAf	07	1550-0164	1550-0385
3.5 mm (m)	10	1550-0168	1550-0386
3.5 mm (f)	11	1550-0167	1550-0387
7 mm	04	1550-0069	1550-0391
K/2.92 mm (m)	13	—	1550-0398
K/2.92 mm (f)	14	—	1550-0393
2.4 mm (m)	15	—	1550-0603
2.4 mm (f)	16	—	1550-0602

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

Blue listings indicate standard stock items widely available from our franchised distribution partners.

Detailed specifications for our standard parts can be found quickly on our web site at www.macom.com by typing the part number into the search box.

All specifications are subject to change.



An industry leader in RF and microwave technology, M/A-COM is also an industry leader in **ceramic packages** for RF, microwave and optoelectronic devices. M/A-COM manufactures high thermal conductivity, low loss packages for a broad spectrum of advanced semiconductor devices, including:

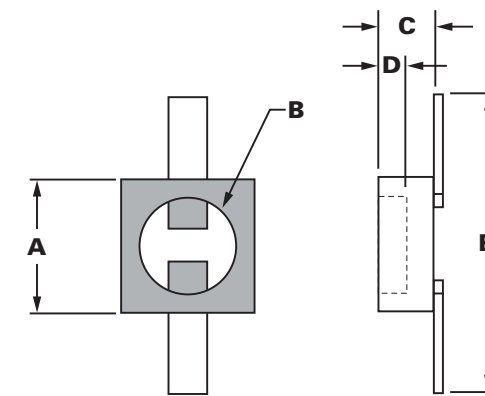
- RF bipolar transistors
- RF LDMOS transistors
- GaAs FETs and MMICs
- GaN/SiC FETs
- Microwave diodes/varactors
- Hermetic, surface-mount component packages for mixers, LNAs, doublers, etc
- Photodiodes
- LEDs
- Laser diodes
- VCSELs and MEMS
- Both hermetic and non-hermetic packages



Our modern facility is fully equipped with all of the preparation, tooling, firing, brazing, plating, and inspection equipment necessary to produce state-of-the-art custom designs, as well as to execute high volume production runs. Progressive quality concepts are applied at all levels of business, with dedication to continuous process improvement.



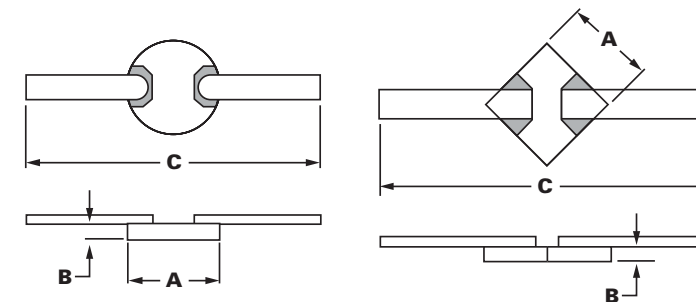
J-Packs



A	B	C	D	E
.070" Sq."	ø.050"	.030"	.015"	.155"
.070" Sq."	ø.055"	.030"	.015"	.165"
.100" Sq."	ø.055"	.030"	.015"	.400"
.100" Sq."	ø.063"	.030"	.015"	.500"
.100" Sq."	ø.072"	.030"	.015"	.540"

Parts are available in 2, 3, or 4 lead configurations

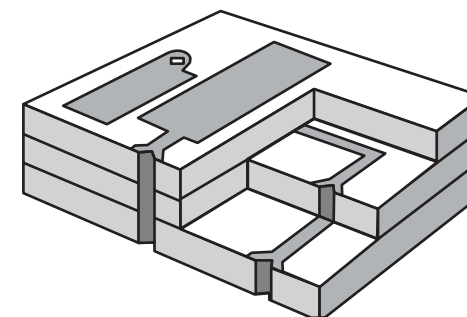
W-Pack



A	B	C
ø.053"	.010" or .015"	.270"
ø.100"	.010 or .015"	.290"
.050" Sq.	.010" or .015"	.300"
.070" Sq.	.010" or .015"	.330"
.100" Sq.	.010" or .015"	.400"

Parts are available in 2, 3, or 4 lead configurations

HTCC Packages



Design Information

	Standard	Custom
Material - 94% Al2O3 - White		
Metalization		
Available Plating		
Electrolytic Au		
Electrolytic Ni		
Electrolytic Ag		
Electrolytic Cu		
Electroless Ni		
Electroless Au		
Surface Finish - As Fired	25µ IN. RMS	Machined
Layer Thickness Range	.010 - .025	.008 - .030
Number of Layers	2	as required
Camber .004/inch	.003/inch	
Dimensional Tolerances	±1% NLT .002	±.5% NLT .001
Conductor Line Width	.005 Min.	.003 Min.
Space between Conductors	.005 Min.	.003 Min.
Via Hole Diameter	.012 Min.	.009 Min.

Specific design parameters should be communicated regarding complex or unusual applications.

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

Blue listings indicate standard stock items widely available from our franchised distribution partners.

Detailed specifications for our standard parts can be found quickly on our web site at www.macom.com by typing the part number into the search box.

All specifications are subject to change.



RF and Microwave Diodes: PIN, Schottky, and Varactor Devices.

M/A-COM produces one of the widest variety of PIN, Schottky, and varactor diodes in the industry for microwave circuit applications from 1 MHz to 40 GHz. Diodes are manufactured in die form, plastic, ceramic, and metal packaging.



- Broadband and high power switch circuits: silicon and GaAs PIN switch diodes
- Analog and digital 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

Limiter Diodes

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

Multiplier Diodes

- Flip chip series for higher frequency millimeter wave applications
- Plastic package series for microwave frequency surface mount applications
- Ceramic package series for waveguide and coaxial circuit higher power applications

Mixer and Detector Diodes

- SURMOUNT™ “0502” style diodes for surface mount high performance applications
- GaAs Flip Chip and GaAs beam lead series for surface mount millimeter frequency applications
- Plastic series for cost effective, surface mount applications
- Ceramic series for microwave frequency surface mount applications

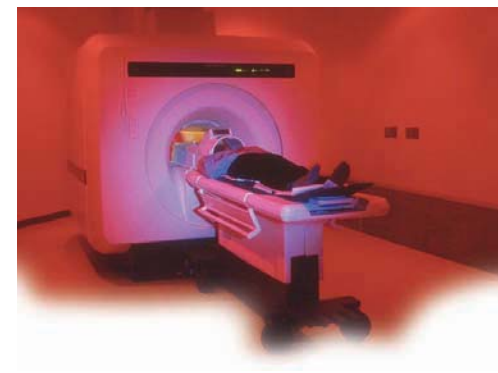


Switch and Attenuator PIN Diodes

- CERMACHIP and OFFSET BOND PAD series for microwave frequency applications
- Plastic series for cost effective, surface mount applications
- AlGaAs series for low loss, high isolation millimeter frequency applications
- GaAs & silicon flip chip series for surface mount millimeter frequency applications
- SURMOUNT™ “0502” 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 & VHF applications

Tuning Diodes

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



Limiters

Junction Capacitance (pf)	Part Number	Max. Peak Power (W) @ 1µS P.W., 0.1% Duty	Lifetime (ns)	Voltage Rating (V)	Input P1dB (dBm)	Package
Die Products						
0.13 - 0.24	MA4L011 ◆	65	10	15-35	6	ODS-134
0.14 - 0.24	MA4L021 ◆	80	10	20-35	7	ODS-134
0.13 - 0.23	MA4L022 ◆	90	10	20-40	8	ODS-134
0.14 - 0.21	MA4L031 ◆	100	15	30-50	9	ODS-134
0.13 - 0.20	MA4L032 ◆	100	15	30-50	10	ODS-134
0.07 - 0.15	MA4L062 ◆	150	40	65-75	13	ODS-134
0.15 Max	MA4L101 ◆	250	90	100	20	ODS-134
0.30 Max	MA4L401 ◆	2000	800	250	30	ODS-132
Packaged Products						
0.13 - 0.24	MA4L011 ◆	65	10	15-35	6	120, 137, 186, 1141, 1056, 30, 32
0.14 - 0.24	MA4L021 ◆	80	10	20-35	7	120, 137, 186, 1056, 30, 32
0.13 - 0.23	MA4L022 ◆	90	10	20-40	8	120, 137, 186, 1056, 30, 32
0.14 - 0.21	MA4L031 ◆	100	15	30-50	9	120, 137, 186, 1056, 30, 32
0.13 - 0.20	MA4L032 ◆	100	15	30-50	10	120, 137, 186, 1056, 30, 32
0.07 - 0.15	MA4L062 ◆	150	40	65-75	13	120, 137, 186, 1056, 30, 32
0.15 Max	MA4L101 ◆	250	90	100	20	120, 137, 186, 1056, 30, 32
0.30 Max	MA4L401 ◆	2000	800	250	30	120, 137, 186, 1056, 30, 32

Mixing Detectors

Frequency (MHz)	Part Number	Tss (dBm)	Junction Capacitance (pF)	Total Capacitance (pF)	Text Frequency (GHz)	Package
Die Products						
0 - 18000	MA4E2099-1284	-53	0.16	0.16	10	ODS-1213
0 - 18000	MA4E931Z2-1261A	-55	0.11	0.11	10	ODS-1261
0 - 20000	MA4E2062H-1213		0.4	0.4	10	ODS-1213
0 - 20000	MA4E2062L-1213		0.4	0.4	10	ODS-1213
0 - 20000	MA4E2062M-1213		0.4	0.4	10	ODS-1213
0 - 26000	MA4E1317	-55	0.045	0.045	12	ODS-1278
0 - 26000	MA4E1318	-55	0.045	0.045	12	ODS-1197
0 - 26000	MA4E1319-1	-55	0.045	0.045	12	ODS-1199
0 - 26000	MA4E1319-2	-55	0.045	0.045	12	ODS-1200
0 - 26000	MA4E2037	-55	0.05	0.05	10	Beam Lead
0 - 26000	MA4E2039	-55	0.05	0.05	10	Beam Lead
0 - 26000	MA4E2040	-55	0.05	0.05	10	Beam Lead
0 - 26000	MA4E2501L-1290	-53	0.12	0.12	10	ODS-1290
0 - 26000	MA4E2502H-1246	-53	0.12	0.12	10	ODS-1246
0 - 26000	MA4E2502L-1246	-53	0.12	0.12	10	ODS-1246
0 - 26000	MA4E2502M-1246	-53	0.12	0.12	10	ODS-1246
0 - 26000	MA4E2508H-1112	-53	0.24	0.24	10	ODS-1112
0 - 26000	MA4E2508L-1112	-53	0.24	0.24	10	ODS-1112
0 - 26000	MA4E2508M-1112	-53	0.24	0.24	10	ODS-1112
0 - 26000	MA4E2513L-1289	-53	0.12	0.12	10	ODS-1289
0 - 26000	MA4E2514L-1116	-53	0.12	0.12	10	ODS-1116
0 - 26000	MA4E2514M-1116	-53	0.12	0.12	10	ODS-1116
0 - 26000	MA4E2532L-1113	-53	0.16	0.16	10	ODS-1113
0 - 26000	MA4E2532M-1113	-53	0.16	0.16	10	ODS-1113
0 - 26000	MA4E2544L-1282	-53	0.22	0.22	10	ODS-1282
1 - 18000	MADS-002545-1307M	-53	0.11	0.22	10	ODS-1307
Packaged Products						
0 - 4000	MADS-001338-1279OT	-47	0.7	1	2	SC-79
0 - 4000	MA4E1338 Series ◆	-47	0.7	1	2	SOD-323, SOT-23, SC-70(3L), SOT-143
0 - 4000	MA4E1338A1 Series	-47	0.7	1	2	SOD-323, SOT-23, SC-70(3L)
0 - 4000	MA4E1338B1 Series	-47	0.7	1	2	SOT-23, SC-70(3L)
0 - 4000	MA4E1338E1 Series	-47	0.7	1	2	SOT-143
0 - 4000	MADS-001339-1279OT	-45	1	1.2	2	SC-79
0 - 4000	MA4E1339 Series ◆	-45	1	1.2	2	SOD-323, SOT-23, SC-70(3L), SOT-143
0 - 4000	MA4E1339A1 Series	-45	1	1.2	2	SOD-323, SOT-23, SC-70(3L)
0 - 4000	MA4E1339B1 Series	-45	1	1.2	2	SOT-23, SC-70(3L)
0 - 4000	MA4E1339E1 Series	-45	1	1.2	2	SOT-143
0 - 4000	MADS-001340-1279OT	-45	0.9	2	2	SC-79
0 - 4000	MA4E1340 Series ◆	-45	0.9	2	2	SOD-323, SOT-23, SC-70(3L), SOT-143
0 - 4000	MA4E1340A1 Series	-45	0.9	2	2	SOD-323, SOT-23, SC-70(3L)
0 - 4000	MA4E1340B1 Series	-45	0.9	2	2	SOT-23, SC-70(3L)
0 - 4000	MA4E1340E1 Series	-45	0.9	2	2	SOT-143

Mixing Detector (continued)

Frequency (MHz)	Part Number	Tss (dBm)	Junction Capacitance (pF)	Total Capacitance (pF)	Text Frequency (GHz)	Package
Packaged Products						
0 - 4000	MA4E20541-1279T	-50	0.15	0.3	2	SC-79
0 - 4000	MA4E2054A1 Series	-50	0.15	0.3	2	SOT-23,SC-70(3L)
0 - 4000	MA4E2054B1 Series	-50	0.15	0.3	2	SOT-23,SC-70(3L)
0 - 4000	MA4E2054C1	-50	0.15	0.3	2	SOT-23
0 - 4000	MADS-002054-1146CT	-50	0.15	0.3	2	SC-70(3L)
0 - 4000	MA4E2054D1	-50	0.15	0.3	2	SOT-23
0 - 4000	MADS-002054-1146DT	-50	0.15	0.3	2	SC-70(3L)
0 - 4000	MA4E20541-1141T	-50	0.15	0.3	2	SOD-323
0 - 4000	MA4E2054E1-1068T	-50	0.15	0.3	2	SOT-143
0 - 4000	MA4E2054 Series ♦	-50	0.15	0.3	2	SOD-323, SOT-23, SC-70(3L), SOT-143
0 - 4000	MADS-002200-1279OT	-55	0.11	0.25	1	SC-79
0 - 4000	MA4E2200A1-1141T	-55	0.11	0.25	1	SOD-323
0 - 4000	MA4E2200B1-287T	-55	0.11	0.25	1	SOT-23
0 - 4000	MA4E2200D1-287T	-55	0.11	0.25	1	SOT-23
0 - 4000	MA4E2200E1-1068T	-55	0.11	0.25	1	SOT-143
0 - 4000	MA4E2200 Series ♦	-55	0.15	0.25	1	SOD-323, SOT-23, SC-70(3L), SOT-143
0 - 4000	MA4E2072 Series	-50	0.5	0.63	1	SOT-143
0 - 6000	MA40045-137		0.10	0.30	6.0	ODS-137
0 - 6000	MA40064-119	-55	0.12	0.32	3.0	ODS-119
0 - 16000	MA40115-276		0.12	0.32	16.0	ODS-276
0 - 16000	MA40126-186		0.12	0.32	9.4	ODS-186
0 - 10000	MA40143-213	-50	0.12	0.32	10	ODS-213
0 - 10000	MA40147-213	-50	0.12	0.32	10	ODS-213
0 - 10000	MA40201-119	-55	0.12	0.32	10	ODS-119
0 - 10000	MA40205-119	-55	0.12	0.32	10	ODS-119
0 - 10000	MA40215-120	-55	0.12	0.32	10	ODS-120,276
0 - 10000	MA40261-186	-55	0.12	0.32	10	ODS-186
0 - 10000	MA40264-186	-55	0.12	0.32	10	ODS-186
0 - 12000	MA4E185-276		0.2	0.4	10	ODS-276
0 - 12000	MA4E190-276		0.2	0.4	10	ODS-276
0 - 12000	MA4E197-186		0.2	0.4	10	ODS-186
0 - 18000	MA4E914-276		0.14	0.35	10	ODS-276
0 - 18000	MA4E920-276		0.14	0.35	10	ODS-276
0 - 18000	MA4E926-276		0.2	0.4	10	ODS-276
0 - 18000	MA4E929A-119	-55	0.25	0.45	10	ODS-119
0 - 18000	MA4E929B-119	-55	0.25	0.45	10	ODS-119

Switch/Attenuator

Frequency (MHz)	Part Number	Dynamic Resistance (ohms)	Total Capacitance (pf)	Package
Die Products				
0.1 - 500	MA4PK2000 Series	0.2	2.7	223 Die, 1027, 1038, 1048, 1080, 1082 (Pkg)
0.1 - 500	MA4PK3000 Series	0.15	3.2	1252 Die, 1073, 1074, 1075, 1084, 1085 (Pkg)
0.5 - 8000	MA4P604 Series	1	0.3	131 Die, 1072, 255, 258, 30, 43, 4 (Pkg)
0.5 - 1000	MA4P606 Series	0.7	0.6	131 Die, 255, 258, 30, 31, 36, 43 (Pkg)
0.5 - 500	MA4P607 Series	0.4	1.3	212 Die, 296, 43 (Pkg)
1 - 6000	MA4P505 Series	0.45	0.35	131 Die, 1072, 144, 255, 31, 32, 36, 4 (Pkg)
1 - 6000	MA4SPS422	3.1	0.18	ODS-1295 Die
1 - 10000	MA4SPS421	6	0.09	ODS-1294 Die
1 - 10000	MA4P504 Series	0.6	0.20	132 Die, 1056, 1072, 120, 137, 144, 186 (Pkg)
5 - 10000	MA4P404 Series	0.8	0.20	132 Die, 1072, 111, 258, 30, 31, 36, 54 (Pkg)
10 - 18000	MA4SPS502	2.4	0.14	ODS-1270 Die
20 - 18000	MA4P303 Series	1.5	0.15	134 Die, 120, 1088, 186, 32, 36, 94 (Pkg)
30 - 18000	MA4P203 Series	1.5	0.15	134 Die, 111, 1056, 30,32, 54, 94 (Pkg)
50 - 2000	MADP-042505-130600	0.6	0.6	ODS-1306 Die
50 - 4000	MADP-042405-130600	0.8	0.27	ODS-1306 Die
50 - 4000	MA4SPS302	1	0.4	ODS-1247 Die
50 - 7000	MA4BPS301	0.9	0.34	ODS-1244 Die
50 - 6000	MADP-042305-130600	1.3	0.14	ODS-1306 Die
50 - 11000	MA4BPS201	1	0.23	ODS-1244 Die
50 - 15000	MA4SPS552	2.5	0.06	ODS-1281 Die
50 - 16000	MADP-042905-130600	3.1	0.06	ODS-1306 Die
50 - 18000	MADP-064908-131000	5	0.05	ODS-1310 Die
50 - 18000	MA4P202 Series	2.5	0.25	134 Die, 120, 1056, 1088,255, 276 (Pkg)
50 - 18000	MA4SPS402	4.5	0.04	ODS-1253 Die
50 - 18000	MA4BPS101	1.9	0.13	ODS-1244 Die
100 - 10000	MA4GP022 Series	1.0	0.15	277 Die, 137, 213, 94 (Pkg)
100 - 15000	MA4GP032 Series	1.5	0.12	277 Die, 137, 120, 30 (Pkg)
100 - 18000	MA4FCP305	2.1	0.05	ODS-1269 Die
100 - 18000	MA4PBL027	2.8	0.030	Beam Lead Die
100 - 18000	MA4GP030 Series	2.0	0.06	277 Die, 120, 137, 1056, 276, 30, 94 (Pkg)
100 - 18000	MA4P102 Series	2.0	0.07	134 Die, 120, 186, 276,,30, 54 (Pkg)
100 - 30000	MA4GP907	4.2	0.025	Flip Chip Die
100 - 30000	MA4AGP907	3	0.025	Flip Chip Die
100 - 30000	MA4FCP300	2.6	0.025	ODS-1269 Die
100 - 40000	MA4AGBLP912	4	0.02	Beam Lead Die
100 - 40000	MA4AGFCP910	5.2	0.018	Flip Chip Die
100 - 40000	MA4FCP200	2.8	0.02	ODS-1264 Flip Chip
Packaged Products				
0.1 - 500	MA4P4000 Series	0.5	1.8	1091, 402 (Pkg)
0.1 - 500	MA4P4300 Series	1	1.6	1091, 402 (Pkg)
0.5 - 500	MA4P608 Series	0.35	2.5	43 (Pkg)
0.5 - 500	MA4P7441F-1091T	0.5	1.8	ODS-1091 Non-Magnetic Pkg
0.5 - 500	MA4P7446F-1091T	0.5	1.8	ODS-1091 Non-Magnetic Pkg
0.5 - 1000	MA4P7452F-1072T	0.9	0.4	ODS-1072 Non-Magnetic Pkg

Switch/Attenuator (continued)

Frequency (MHz)	Part Number	Dynamic Resistance (ohms)	Total Capacitance (pf)	Package
Packaged Products				
0.5 - 1000	MA4P7470F-1072T	0.8	0.4	ODS-1072 Non-Magnetic Pkg
1 - 300	MA4P1450-1091T	0.35	1.4	1091 (Pkg)
1 - 500	MA4P7461F-1072T	0.5	0.6	ODS-1072 Non-Magnetic Pkg
1 - 500	MA4P7464F-1072T	0.5	0.4	ODS-1072 Non-Magnetic Pkg
1 - 1000	MA4P7000 Series	0.8	0.4	1072, 401 (Pkg)
1 - 1000	MA4P7100 Series	0.5	0.7	1072, 401 (Pkg)
1 - 4000	MA4P278 Series ◆	10	0.15	SOD-323,SC-70(3L),SOT-23
1 - 4000	MA4P290 Series ◆	16	0.2	SOD-323,SC-70(3L),SOT-23
1 - 4000	MA4P7438 Series	10	0.15	SOD-323,SOT-23
1 - 4000	MADP-007167	16	0.2	SOD-323,SC-70(3L),SOT-23
1 - 4000	MADP-007438 Series	10	0.15	SC-70(3L),SOT-23
5 - 500	MA4P1250-1072T	0.5	0.7	1072 (Pkg)
5 - 2500	MA4P274 Series ◆	3	0.15	SOD-323,SC-70(3L),SOT-23,SOT-143
5 - 2500	MA4P7455 Series	3	0.15	SOD-323,SC-70(3L),SOT-23,SOT-143
5 - 2500	MADP-007455 Series	3	0.15	SC-79
5 - 4000	MA4P277 Series ◆	6	0.15	SOD-323,SC-70(3L),SOT-23
5 - 4000	MA4P7437 Series	6	0.15	SOD-323,SOT-23
5 - 4000	MADP-007437 Series	6	0.15	SC-70(3L),SOT-23
10 - 300	MA4PH237-1072T	0.6	1.2	1072 (Pkg)
10 - 1000	MA4PH238-1072T	6	0.2	1072 (Pkg)
10 - 1000	MA4PH239-1072T	25	0.5	1072 (Pkg)
15 - 2500	MA4P282 Series ◆	0.6	1.0	SOD-323,SC-70(3L),SOT-23
15 - 2500	MA4P7447	0.6	1.0	SOD-323,SOT-23
15 - 2500	MADP-007155 Series	0.6	1.0	SC-70(3L),SOT-23
25 - 4000	MA4P7433 Series	1.5	0.2	SOD-323,SC-70(3L),SOT-23,SOT-143
25 - 4000	MA4P789 Series ◆	1.5	0.2	SOD-323,SC-70(3L),SOT-23,SOT-143
25 - 4000	MADP-007433 Series	1.5	0.2	SC-79,SOT-23, SC-70(3L)
25 - 2500	MA4P275 Series ◆	0.5	0.8	SOD-323,SC-70(3L),SOT-23,SOT-143
25 - 2500	MA4P7436 Series	0.5	0.8	SOD-323,SC-70(3L),SOT-23,SOT-143
25 - 2500	MADP-007436 Series	0.5	0.8	SC-79
50 - 500	MA4PH235-1072T	0.5	0.8	1072 (Pkg)
50 - 1000	MA4PH236-1072T	3	0.2	1072 (Pkg)

Tuning

Capacitance (pF)	Part Number	Breakdown Voltage (Vb)	Gamma	Q (Min) @ 50 MHz	Package
Die Products					
3.3	MA46459-277	22	1.0	2000	ODS-277
2.7	MA46478-277	22	1.25	2000	ODS-277
4.7	MA46481-277	22	1.25	1500	ODS-277
6.8	MA46483-186	22	1.25	1500	ODS-277
8.2	MA46484A-277	22	1.25	1500	ODS-277
0.5	MA46580-1209	18	1.25	3000	ODS-1209 Beam Lead
0.7	MA46581-1209	18	1.25	3000	ODS-1209 Beam Lead
1	MA46582-1209	18	1.25	2500	ODS-1209 Beam Lead
2	MA46584-1209	18	1.25	2000	ODS-1209 Beam Lead
0.5	MA46585-1209	18	1	3000	ODS-1209 Beam Lead
0.35	MA46H120	15	1	3000	Flip Chip
0.06	MA46H146	25	1	5000	Flip Chip
Packaged Products					
4.7	MA45436 Series ◆	30	0.5	1800	SOT-23
4.7	MAVR-045436 Series	30	0.5	1800	SOT-23
5.6	MA45437 Series ◆	30	0.5	1700	SOT-23
5.6	MAVR-045437 Series	30	0.5	1700	SOT-23
6.8	MA45438 Series ◆	30	0.5	1600	SOT-23
6.8	MAVR-045438 Series	30	0.5	1600	SOT-23
8.2	MA45439 Series ◆	30	0.5	1500	SOT-23
8.2	MAVR-045439 Series	30	0.5	1500	SOT-23
10	MA45440 Series ◆	30	0.5	1300	SOT-23
10	MAVR-045440 Series	30	0.5	1300	SOT-23
12	MA45441 Series ◆	30	0.5	1200	SOT-23
12	MAVR-045441 Series	30	0.5	1200	SOT-23
27	MA45445 Series ◆	30	0.5	900	SOT-23
27	MAVR-045445 Series	30	0.5	900	SOT-23
33	MA45446 Series ◆	30	0.5	750	SOT-23
33	MAVR-045446 Series	30	0.5	750	SOT-23
0.5	MA46410-30	18	1.5	3000	ODS-30
1	MA46413-30	18	1.5	2500	ODS-30
1.8	MA46416-30	18	1.5	2500	ODS-30
2.7	MA46418-30	18	1.5	1800	ODS-30
3.8	MA46420-30	18	1.5	1800	ODS-30
4.7	MA46421-30	18	1.5	1200	ODS-30
5.6	MA46422-30	18	1.5	1200	ODS-30
10	MA46425-30	18	1.5	1200	ODS-30
0.5	MA46450-30	22	1.0	4000	ODS-30
1	MA46452-30	22	1.0	3000	ODS-30
1.5	MA46454-30	22	1.0	3000	ODS-30
1.8	MA46455-30	22	1.0	3000	ODS-30
4.7	MA46461-30	22	1.0	1500	ODS-30
0.5	MA46470-120	22	1.25	4000	ODS-120
0.7	MA46471-120	22	1.25	4000	ODS-120

Tuning (continued)

Capacitance (pF)	Part Number	Breakdown Voltage (Vb)	Gamma	Q (Min) @ 50 MHz	Package
Packaged Products					
1	MA46472-120	22	1.25	3000	ODS-120
1.2	MA46473-120	22	1.25	3000	ODS-120
1.5	MA46474-120	22	1.25	3000	ODS-120
1.8	MA46475-276	22	1.25	3000	ODS-276
2	MA46476-120	22	1.25	3000	ODS-120
2.2	MA46477-120	22	1.25	3000	ODS-120
3.8	MA46480-276	22	1.25	2000	ODS-276
5.6	MA46482-120	22	1.25	1500	ODS-120
10	MA46485-120	22	1.25	1500	ODS-120
0.6	MA46504-1056	30	0.5	6000	ODS-1056
1	MA46505-1056	30	0.5	5700	ODS-1056
3	MA46506-1056	30	0.5	4500	ODS-1056
0.4	MA46601-30	30	0.5	7500	ODS-30
0.5	MA46602-30	30	0.5	7000	ODS-30
1	MA46605-30	30	0.5	5700	ODS-30
0.6	MA46H070-1056	20	0.75	4500	ODS-1056
1	MA46H071-1056	20	0.75	4500	ODS-1056
3	MA46H072-1056	20	0.75	3000	ODS-1056
5	MA46H073-1056	20	0.75	2200	ODS-1056
0.6	MA46H200-1056	22	1.25	3000	ODS-1056
1	MA46H201-1056	22	1.25	3000	ODS-1056
3	MA46H202-1056	22	1.25	2000	ODS-1056
5	MA46H203-1056	22	1.25	1500	ODS-1056
10	MA46H204-1056	22	1.25	1500	ODS-1056
12	MA46H205-1056	22	1.25	1500	ODS-1056
15	MA46H206-1056	22	1.25	1500	ODS-1056
0.6	MA46H500-1056	18	1.5	2500	ODS-1056
1	MA46H501-1056	18	1.5	2500	ODS-1056
3	MA46H502-287T ◆	18	1.5	1800	SOT-23
5	MA46H503-1056	18	1.5	1200	ODS-1056
10	MA46H504-1056	18	1.5	1200	ODS-1056
54.1	MAVR-000079 Series	12	1.3	80	SOT-23
54.1	MA4ST079 Series ◆	12	1.3	80	SOT-23
24.8	MAVR-000080 Series	12	1.3	150	SOT-23
24.8	MA4ST080 Series ◆	12	1.3	150	SOT-23
10.1	MAVR-000081 Series	12	1.3	300	SOT-23
10.1	MA4ST081 Series ◆	12	1.3	300	SOT-23
7.3	MAVR-000082 Series	12	1.3	350	SOT-23
7.3	MA4ST082 Series ◆	12	1.3	350	SOT-23
5	MAVR-000083 Series	12	1.3	450	SOT-23
5	MA4ST083 Series ◆	12	1.3	450	SOT-23
14	MA4ST1103-1141T ◆	22	1.5	350	SOD-323
4.7	MAVR-001230 Series	12	1	850	SC-79
3.4	MAVR-001240 Series	12	1	1200	SC-79

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Tuning (continued)

Capacitance (pF)	Part Number	Breakdown Voltage (Vb)	Gamma	Q (Min) @ 50 MHz	Package
Packaged Products					
4.7	MA4ST1231 Series	12	1	850	SOD-323,SC-70(3L)
3.4	MA4ST1241 Series	12	1	1200	SOD-323,SC-70(3L)
4.7	MA4ST1230 Series ◆	12	1	850	SOD-323,SC-70(3L)
3.4	MA4ST1240 Series ◆	12	1	1200	SOD-323,SC-70(3L)
55	MAVR-001320 Series	12	1	550	SC-79,SOD-323,SC-70(3L)
25	MAVR-001330 Series	12	1	900	SC-79,SOD-323,SC-70(3L)
18	MAVR-001340 Series	12	1	1050	SC-79,SOD-323,SC-70(3L)
11	MAVR-001350 Series	12	1	1100	SC-79,SOD-323,SC-70(3L)
55	MA4ST1320 Series ◆	12	1	550	SOD-323,SC-70(3L)
25	MA4ST1330 Series ◆	12	1	900	SOD-323,SC-70(3L)
18	MA4ST1340 Series ◆	12	1	1050	SOD-323,SC-70(3L)
11	MA4ST1350 Series ◆	12	1	1100	SOD-323,SC-70(3L)
0.5	MAVR-002200 Series	12	1.5	1750	SC-79,SOD-323,SC-70(3L)
1.9	MAVR-002300 Series	12	1.5	1850	SC-79,SOD-323,SC-70(3L)
3.3	MAVR-002400 Series	12	1.5	1450	SC-79,SOD-323,SC-70(3L)
4.6	MAVR-002500 Series	12	1.5	1150	SC-79,SOD-323,SC-70(3L)
6.3	MAVR-002600 Series	12	1.5	1000	SC-79,SOD-323,SC-70(3L)
0.5	MA4ST2200 Series ◆	12	1.5	1750	SOD-323,SC-70(3L)
1.9	MA4ST2300 Series ◆	12	1.5	1850	SOD-323,SC-70(3L)
3.3	MA4ST2400 Series ◆	12	1.5	1450	SOD-323,SC-70(3L)
4.6	MA4ST2500 Series ◆	12	1.5	1150	SOD-323,SC-70(3L)
6.3	MA4ST2600 Series ◆	12	1.5	1000	SOD-323,SC-70(3L)
5.0	MAVR-000230 Series	12	1	400	SC-79,SOD-323,SC-70(3L)
3.5	MAVR-000240 Series	12	1	450	SC-79,SOD-323,SC-70(3L)
2.7	MAVR-000250 Series	12	1	450	SC-79,SOD-323,SC-70(3L)
5.0	MA4ST230 Series ◆	12	1	400	SOD-323,SC-70(3L)
3.5	MA4ST240 Series ◆	12	1	450	SOD-323,SC-70(3L)
2.7	MA4ST250 Series ◆	12	1	450	SOD-323,SC-70(3L)
28	MAVR-000320 Series	12	1	300	SC-79,SOD-323,SC-70(3L)
13	MAVR-000330 Series	12	1	350	SC-79,SOD-323,SC-70(3L)
9.5	MAVR-000340 Series	12	1	350	SC-79,SOD-323,SC-70(3L)
6.3	MAVR-000350 Series	12	1	400	SC-79,SOD-323,SC-70(3L)
28	MA4ST320 Series ◆	12	1	300	SOD-323,SC-70(3L)
13	MA4ST330 Series ◆	12	1	350	SOD-323,SC-70(3L)
9.5	MA4ST340 Series ◆	12	1	350	SOD-323,SC-70(3L)
6.3	MA4ST350 Series ◆	12	1	400	SOD-323,SC-70(3L)
10	MAVR-000401 Series	22	1	250	SOD-323,SOT-23
10	MA4ST401 Series ◆	22	1	250	SOD-323,SOT-23
12	MAVR-000402 Series	22	1	250	SOD-323,SOT-23
12	MA4ST402 Series ◆	22	1	250	SOD-323,SOT-23
15	MAVR-000403 Series	22	1	250	SOD-323,SOT-23
15	MA4ST403 Series ◆	22	1	250	SOD-323,SOT-23
18	MAVR-000404 Series	22	1	175	SOD-323,SOT-23
18	MA4ST404 Series ◆	22	1	175	SOD-323,SOT-23

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Tuning (continued)

Capacitance (pF)	Part Number	Breakdown Voltage (Vb)	Gamma	Q (Min) @ 50 MHz	Package
Packaged Products					
22	MAVR-000405 Series	22	1	175	SOD-323,SOT-23
22	MA4ST405 Series ◆	22	1	175	SOD-323,SOT-23
27	MAVR-000406 Series	22	1	150	SOD-323,SOT-23
27	MA4ST406 Series ◆	22	1	150	SOD-323,SOT-23
33	MAVR-000407 Series	22	1	150	SOD-323,SOT-23
39	MA4ST407 Series ◆	22	1	150	SOD-323,SOT-23
39	MAVR-000408 Series	22	1	150	SOD-323,SOT-23
47	MA4ST408 Series ◆	22	1	150	SOD-323,SOT-23
47	MAVR-000408 Series	22	1	150	SOD-323,SOT-23
0.8	MA4ST551-30	22	1	650	ODS-30
1	MA4ST552-30	22	1	650	ODS-30
1.2	MA4ST553-30	22	1	600	ODS-30
1.5	MA4ST554-31	22	1	600	ODS-31
1.8	MA4ST555-287T ◆	22	1	550	SOT-23
1.8	MA4ST555-30	22	1	550	ODS-30
2.2	MA4ST556-287T ◆	22	1	550	SOT-23
3.3	MA4ST558-30	22	1	500	ODS-30
3.9	MA4ST559-137	22	1	450	ODS-137
4.7	MA4ST560-287T ◆	22	1	450	SOT-23
5.6	MA4ST561-31	22	1	450	ODS-31
6.8	MA4ST562-287T ◆	22	1	400	SOT-23

Multiplier

Junction Capacitance (pf)	Part Number	Reverse V. (Min.) (V)	Lifetime (ns)	Transition Time (ns)	Package
Die Products					
0.14 - 1.1	MA46H120	15	25	40	Flip Chip (Die)
0.03 - 0.063	MA46H146	26	15	10	Flip Chip (Die)
1.6 - 2.4	MA43002-134	45	225	250	ODS-134 (Die)
0.5 - 0.7	MA44631B-134	30	8	70	ODS-134 (Die)
0.7 - 0.9	MA44631C-134	30	8	70	ODS-134 (Die)
0.4 - 0.6	MA44641A-134	40	12	90	ODS-134 (Die)
Packaged Products					
0.2 - 0.55	MA43543-120	20	25	60	ODS-120
0.2 - 0.3	MA43592-120	25	27	90	ODS-120
0.2 - 0.3	MA44621A-120	20	7	50	ODS-120
0.15 - 0.25	MA48701E-120	15	25	20	ODS-120
0.25 - 0.35	MA48702E-120	15	30	25	ODS-120
0.15 - 0.25	MA48706C-120	25	25	20	ODS-120
0.25 - 0.35	MA48707C-120	25	30	25	ODS-120
3 - 4.5	MA43000-276	85	500	600	ODS-276
0.45 - 0.85	MA43004-30	30	50	150	ODS-30
0.5 - 0.7	MA44622A-36	20	7	50	ODS-36
3 - 4.5	MA44767-287T ◆	30	500	600	SOT-23
3 - 4.5	MA144767-287T	30	500	600	SOT-23
1.6 - 2.4	MA44768-287T ◆	30	225	250	SOT-23
1.6 - 2.4	MA144768-287T	30	225	250	SOT-23
0.8 - 1.2	MA44769-287T ◆	30	50	150	SOT-23
0.8 - 1.2	MA144769-287T	30	50	150	SOT-23



Drivers

M/A-COM drivers are used extensively in wireless infrastructure base stations as well as military and defense applications. Drivers are typically used to translate TTL control voltages for attenuators and switches.



- Cordless and mobile phones
- Cellular base stations/wireless infrastructure
- Satellite radio
- GPS & DAB
- 2.4 GHz and 5.0 GHz WLAN
- VSAT
- CATV and broadband
- Bluetooth
- Fixed Wireless Access (FWA)
- Instrumentation
- Commercial and military radar
- Radar systems
- Test equipment

Frequency Doublers

M/A-COM frequency doublers are a specialized class of broadband mixers and are used in a variety of communications applications.

- Surface mount, connectorized and drop-in packaging available for standard components
- Multi-octave input frequency coverage in the range of 5 MHz – 12 GHz high performance applications



Drivers

Vcc (V)	Part Number	Types	Rise Time/Fall Time (ns)	Vee (-V)	Package
Die Products					
5	MADRMA-0001 ◆	Quad	500	-5	Die
Packaged Products					
5	MADRCC0004	Quad	500	-5	SO-16
5	MADR-007098-000100	PIN	—	—	SOW-16
5	MADRCC0005	Single	500	-5	SO-8
5	MADRCC0006	Single	500	-5	SO-8
5	MADRCC0007	Quad	500	-5	SO-16
5	MADRMA-0002	Quad	500	-5	QFN-20, Tin Plating
5	MADR-007690-DR0002 ◆	Quad	500	-5	QFN-20, Tin-Lead Plating
15	LG1 ◆	PIN	30000	-15	TO-8, SMT, SMA
15	LG30 ◆	PIN	2000	-15	TO-8, SMT, SMA
20	MADR-007131-000100	Dual Pin Driver	—	—	CSP-9

Frequency Doublers

Input Frequency (MHz)	Part Number	VSWR (ratio)	Input Power (dBm)	Conversion Loss (dB)	Package
Packaged Products					
5 - 2400	FD25 ◆	1.5:1	10	11.5	TO-8
5 - 2400	FD25C ◆	1.5:1	10	11.5	SMA
5 - 2400	FD25E ◆	1.5:1	10	11.5	FP
5 - 2400	FD25H ◆	1.5:1	23	12	TO-8
5 - 2400	FD25HC ◆	1.5:1	23	12	SMA
5 - 2400	SFD25 ◆	1.5:1	10	11.5	SMT
5 - 2400	SFD25H ◆	1.5:1	23	12	SMT
5 - 2400	FMS-109 ◆	1.5:1	10	11	SMT
10 - 750	FM-105 ◆	2.0:1	13	14.5	Relay Header
10 - 2400	CSFD25 ◆	2.0:1	10	11.5	SMT
10 - 2400	CSFD25H ◆	2.0:1	23	12	SMT
50 - 3300	CSFD26 ◆	2.0:1	10	12.5	SMT
50 - 3300	FD26 ◆	2.0:1	10	13	TO-8
50 - 3300	FD26C ◆	2.0:1	10	13	SMA
50 - 3300	FD26E ◆	2.0:1	10	13	FP
50 - 3300	SFD26 ◆	2.0:1	10	13	SMT
75 - 1500	FM-104 ◆	2.5:1	13	12	FP
200 - 3000	FM-106 ◆	2.0:1	13	13	FP
2000 - 9000	FD93 ◆	1.5:1	12	12	Hermetic Module
2000 - 9000	FD93C ◆	1.5:1	12	12	SMA
2000 - 9000	FD93H ◆	1.5:1	19	12	Hermetic Module
2000 - 9000	FD93HC ◆	1.5:1	19	12	SMA
3000 - 12000	FDZ5013 ◆	2.0:1	13	12	Hermetic Module
3000 - 12000	FDZ5013C ◆	2.0:1	13	12	SM

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M/A-COM offers a complete line of RF and Microwave **limiters**, limiting amplifiers and LNA/limiters up to 18 GHz. M/A-COM limiters and limiting amplifiers use the latest thin-film hybrid manufacturing techniques to obtain the highest levels of performance, repeatability, reliability and cost-effectiveness. These products use the latest technology available in the industry for silicon and GaAs MMICs, silicon bipolar, and GaAs FET devices.



Limiting Amplifiers

Frequency (MHz)	Part Number	Gain (dB)	NF (dB)	Output P1dB (dBm)	Max. Limiting (dBm)	VSWR In/Out	Voltage (Volts)	Current (mA)	Package
Packaged Products									
10 - 500	SMLA88	16.5	6	17	20.5	1.7	15	89	TO-8, SMT, SMA
10 - 1000	LA17	11.5	5.8	10	15	1.7	15	55	TO-8, SMT, SMA
50 - 500	AL7	13	5	-1.5	0.5	1.5	15	54	TO-8, SMT, SMA
50 - 500	LA7	12.5	7	12	15.5	1.5	15	54	TO-8, SMT, SMA
1000 - 4000	LA45	11.5	8	14	15.5	1.7	15	110	TO-8, SMT, SMA
1000 - 4000	LA45-1	14	7.5	17	18.5	1.8	15	110	TO-8, SMT, SMA

LNA with Integrated Limiter

Frequency (MHz)	Part Number	Gain (dB)	NF (dB)	Output P1dB (dBm)	Input IP3 (dBm)	Output IP3 (dBm)	Sat. P Out (dBm)	Package
Die Products								
8500 - 12000	MA01502D	14	2.7	20	11	25	—	Die
8500 - 12000	MA01503D	19	2.7	20	6	25	—	Die

Package Limiters

Frequency (MHz)	Part Number	I.L. (dB)	Avg. Power (W)	Peak Power (W)	Leakage (mw)	Recovery Time (ns)	Package
Packaged Products							
1000 - 2000	2690-1001 ◆	0.7	1	100	75	100	Coax
1000 - 2000	2690-1003 ◆	0.9	3	1000	100	1000	Coax
2000 - 8000	2690-1005 ◆	1.1	1	100	50	100	Coax
2000 - 8000	2690-1007 ◆	1.3	3	1000	100	1000	Coax
2000 - 18000	2690-1013 ◆	2	1	100	50	100	Coax
2000 - 18000	2690-1014 ◆	2.2	2	500	75	250	Coax
2000 - 18000	2690-1015 ◆	2.3	3	1000	100	1000	Coax
8000 - 18000	2690-1009 ◆	1.8	1	100	50	100	Coax
8000 - 18000	2690-1011 ◆	2.3	3	1000	100	1000	Coax

Signal Limiters

Frequency (MHz)	Part Number	I.L. (dB)	Limiting Level (dB)	Input VSWR	Output VSWR	Voltage (Volts)	Current (mA)	Package
Packaged Products								
5 - 3000	L1	3	4	1.7	1.9	+15	7	TO-8, SMT, SMA
50 - 4000	L42	4	4.5	1.7	2	+15	7	TO-8, SMT, SMA

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Aerospace/Defense Receiver Protectors

Band/Frequency	Part Number	Application/Type	Protection Capability	Drive	Insertion Loss	Leakage	Recovery Time
Packaged Products							
S-Band - 2.7-2.9 GHz	Contact Factory ♦	Commercial land based radar, WG	4.0kW pk, 400W avg.	Quasi-passive	0.5 dB	40mW flat, 500mW spike	800 ns
C-Band - 5.2-5.8 GHz	Contact Factory ♦	Military shipborne radar, WG	1.2kW pk, 30W avg.	Quasi-passive	0.5 dB	40mW flat, 250mW spike	400 ns
X-Band - 9.4-10.0 GHz	Contact Factory ♦	Military shipborne radar, WG	2.0kW pk, 150W avg.	Quasi-active	1.0 dB	20mW flat, 50mW spike	200 ns
X-Band - 8.9-9.5 GHz	Contact Factory ♦	Military airborne radar, WG	5.0kW pk, 150W avg.	Quasi-passive	1.0 dB	25mW mean, 150mW spike	800 ns
Ka-Band - 33.8-34.4 GHz	Contact Factory ♦	Military airborne radar, WG	130W pk, 15W avg.	Active	1.3 dB	15mW flat, 15mW spike	150 ns
Ka-Band - 35.0-35.6 GHz	Contact Factory ♦	Military airborne radar, WG	30W pk, 5W avg.	Quasi-passive	1.2 dB	30mW flat, 250mW pk	75 ns
S-Band - 2-4 GHz	MALIML0035	Phase array radar Drop-in	50W pk	Passive	0.42 dB	100mW flat	3 ns
X-Band - 9.1-9.5 GHz	MALIML0028 ♦	Military airborne radar, WG	500W pk, 35W avg.	Quasi-passive	1.0 dB	45mW flat, 450mW spike	1.0 us



Mixers and modulators are widely used in Aerospace and Defense, wireless and broadband communications applications. M/A-COM offers a variety of connectorized, flat pack, drop-in and surface mount packages with a broad range of operating frequency ranges and performance specifications for these markets.

Mixers

- Double and triple balanced designs
- Variety of technologies
 - Hybrid assemblies using Schottky quad diodes
 - GaAs pHEMT
 - Si HMIC
- Products available in subsets of the frequency range
 - RF/LO: 50 KHz – 24 GHz
 - IF: DC – 8 GHz

Modulators

- I/Q mod/demod versions available
- Products available in subsets of the 9 – 960 MHz frequency range
- Surface mount packaging for maximum performance



IQ Modulators

Frequency RF/LO (MHz)	Frequency IQ (MHz)	Part Number	LO Carrier Suppression (dBc)	SSB Reaction (dBc)	Package
Packaged Products					
850 - 960	0 - 0	MA4IQP900L-1291T ◆	34	35	6mm PFQN
850 - 960	0 - 0	MA4IQP900M-1291 ◆	50	40	6mm PFQN
850 - 960	0 - 0	MA4IQP900H-1291T ◆	26	30	6mm PFQN
850 - 960	0 - 0	MAMO-000900-1291MT	40	42	6mm PFQN
921 - 960	0.001 - 0.27	MAMO-007252-IN2960 ◆	27/34	55	SM-28
1800 - 2000	0 - 0	MA4IQP190H-1291T ◆	30	25	6mm PFQN

Demodulators

Frequency Fmin (MHz)	Fmax (MHz)	Part Number	Conversion Loss (dB)	Amplitude Unbalance (dB)	Phase Unbalance (deg)	Harmonic 3X I/Q (dBc)	Package
Packaged Products							
70	90	MAAD-007251 ◆					6mm PFQN
850	960	MA4IQP900L-1291T ◆	12.6	0.09	3		6mm PFQN
850	960	MA4IQP900M-1291 ◆	13	0.12	0.5	70	6mm PFQN
850	960	MA4IQP900H-1291T ◆	12.5	0.2	2		6mm PFQN
850	960	MAMO-000900-1291MT	12	0.05	0.5		6mm PFQN
1800	2000	MA4IQP190H-1291T ◆	12.5	0.2	2		6mm PFQN

Mixers: Space Products

Frequency (RF/LO) (MHz)	Frequency (IF) (MHz)	Part Number	LO Drive (dBm)	Conversion Loss (dB)	Isol. (LO/RF) (dB)	Package
Packaged Products						
0.5 - 500	0.5 - 500	MD20-0016-S	7	35	1	FP-2
5 - 1500	5 - 1500	MD20-0018-S	9	30	1	FP-2
10 - 3000	10 - 3000	MD20-0017-S	8	25	6	FP-2

Mixers

Frequency (RF/LO) (MHz)	Frequency (IF) (MHz)	Part Number	LO Drive (dBm)	Conversion Loss (dB)	Isol. (LO/RF) (dB)	Input P1dB (dBm)	Package
Die Products							
20000 - 26000	0 - 6000	MA4EX2401	13	8	30	10.5	CHIP
Packaged Products							
— - 960	820 - 915	MAMXES0072	7	7	40	5	SM-89
0.05 - 200	0 - 200	M6D-50 ◆	7	7	50	0	RH
0.05 - 200	0 - 200	SM6D ◆	7	7	45	—	SMT
0.2 - 200	0 - 200	MAC-50 ◆	7	6	25	1	TO-52
0.2 - 200	0.2 - 200	MDS-222 ◆	7	7.5	35	2	SF-1
0.4 - 500	0 - 500	M6V, SM6V ◆	7	6.5	47	0	TO-5, SMT
0.5 - 500	0 - 500	ELCM-1	7	6.2	27	1	SM-89
0.5 - 500	0 - 500	ELCM-1H	17	7.2	35	14	SM-87
0.5 - 500	0 - 500	EMRS-1	7	6.2	27	1	SM-1
0.5 - 500	0 - 500	M9BC ◆	17	7	52	8	RH
0.5 - 500	0 - 500	MAMXES0022	7	6.5	30	1	SM-134
0.5 - 500	0 - 500	MD-124 ◆	7	7	25	2	FP-2
1 - 400	0 - 400	M9E ◆	27	7	40	20	RH
1 - 500	0 - 500	MD-161 ◆	13	8	25	10	FP-2
1 - 1000	0 - 1000	ESMD-C1	7	7.5	45	1	SM-2
1 - 1000	1 - 1000	MAMXES0028	7	7.5	30	1	SM-134
1 - 1500	1 - 1000	MD-160 ◆	13	9	25	—	RH-3
1 - 3400	1 - 2000	CSM4T	10	8	35	7	SMT
1 - 3400	1 - 2000	CSM4T17	17	8	35	14	SMT
1 - 3400	1 - 2000	M4T ◆, SM4T	10	8	35	6	FP, SMT
1 - 3400	1 - 2000	M4TH, SM4TH ◆	23	8	35	17	FP, SMT
1 - 3400	1 - 2000	M8T, M8TC ◆	10	7	38	7	TO-8, SMA
1 - 3400	1 - 2000	M8TH, M8THC ◆	23	7.5	36	17	TO-8, SMA
1 - 3400	1 - 2000	SM4T17	17	8	35	13	SMT
1 - 3500	1 - 3500	MD-189 ◆	23	8	35	20	FP-2
1 - 3500	1 - 3500	MDC-169 ◆	10	10	35	7	C-7
1 - 3500	1 - 3500	MD-169 ◆	10	10	35	7	FP-2
1 - 3500	5 - 1500	MDS-169 ◆	10	8	35	7	SF-1
1 - 3500	1 - 3500	MDS-189 ◆	23	8	35	20	SF-1
1 - 4000	5 - 1500	MD-179 ◆	7	10.5	35	5	FP-2
1 - 4000	5 - 1500	MDC-179 ◆	7	10.5	35	5	C-7
2 - 500	0 - 500	ELCM-1MH	13	6	30	9	SM-89
5 - 500	0 - 500	M6E-50 ◆	7	7.5	43	—	RH
5 - 500	0 - 500	MAC-51 ◆	7	7	25	2	TO-5-2
5 - 500	0 - 500	MD-108 ◆	7	9	35	2.5	RH-3
5 - 750	0 - 500	SM6EH ◆	20	6	45	13	SMT
5 - 750	0 - 500	M6EH ◆	20	6	47	13	RH
5 - 1000	0 - 1000	ELCM-2	7	7	25	1	SM-89
5 - 1000	0 - 1000	MAMXES0115	7	7	25	1	SM-89
5 - 1000	0 - 1000	MD-113 ◆	7	8	25	0	FP
5 - 1000	0 - 1000	EMRS-2	7	7	25	1	SM-1
5 - 1500	0 - 1000	ELCM-5	7	7.5	30	1	SM-87

Mixers (continued)

Frequency (RF/LO) (MHz)	Frequency (IF) (MHz)	Part Number	LO Drive (dBm)	Conversion Loss (dB)	Isol. (LO/RF) (dB)	Input P1dB (dBm)	Package
Packaged Products							
5 - 1500	0 - 1000	EMRS-5MH	13	9	30	7.5	SM-1
5 - 1500	0 - 1000	MD-158 ◆	7	9	20	1	FP
5 - 1900	5 - 1000	ELCM-11X	7	7.4	27	1	SM-87
5 - 1900	5 - 1000	MAMXES0041	7	7.2	37	1	SM-134
5 - 2500	5 - 1500	EMRS-25MH	13	7.3	30	9	SM-1
5 - 2500	5 - 1500	ELCM-25MH	13	6.5	30	13	SM-2
10 - 500	10 - 500	MDS-223 ◆	7	7	40	2.5	SF-1
10 - 1000	0 - 600	M2E, SM2E, M2EC ◆	20	8	33	—	TO-8, SMT, SMA
10 - 1200	0 - 1000	M6R ◆	7	8	40	0	TO-5
10 - 1500	0 - 800	M2A, M2AC ◆	7	7.5	40	0	TO-8, SMA
10 - 1500	0 - 1000	M4A, SM4A ◆	7	7.5	35	0	FP, SMT
10 - 1500	0 - 1000	M4B, SM4B ◆	13	7.5	35	7	FP, SMT
10 - 1500	0 - 600	M9H, M9HC ◆	20	8	29	15	TO-8, SMA
10 - 1500	10 - 1500	MD-148 ◆	10	6	40	5	FP
10 - 1500	10 - 1500	MD-149 ◆	7	7.5	40	0	FP
10 - 1500	10 - 1500	MDS-148 ◆	10	6	40	5	SMT
10 - 1500	10 - 1500	MDS-149 ◆	7	7.5	40	0	SMT
10 - 1600	0 - 800	M2B, M2BC ◆	13	7.5	43	7	TO-8, SMA
10 - 2000	10 - 800	ESMD-C15	10	6.5	30	5	SM-2
10 - 2400	1 - 1000	M2T, M2TC ◆	13	8	40	11	TO-8, SMA
50 - 4800	50 - 3000	CSM5T ◆	10	7.2	35	7	SMT
50 - 4800	50 - 3000	CSM5T17 ◆	17	7.8	33	14	SMT
50 - 4800	50 - 3000	CSM5TH ◆	23	7	35	17	SMT
50 - 5000	50 - 3000	M5T ◆	10	8	32	7	FP
50 - 5000	50 - 3000	SM5T ◆	10	7.5	32	7	SMT
50 - 5000	50 - 3000	SM5T17 ◆	17	7.5	32	13	SMT
50 - 5000	50 - 3000	SM5TH ◆	23	7.7	32	17	SMT
80 - 2500	0 - 1000	ESMD-C50H	17	7.3	28.9	14	SM-2
80 - 2500	0 - 1000	MAMXES0117	17	7.3	29	14	SM-2
80 - 2500	0 - 1000	ESMD-C50L	10	7.7	30	5	SM-2
80 - 2500	0 - 1000	ESMD-C50M	13	7.4	29.1	8	SM-2
300 - 5000	0.1 - 3000	MD-154 ◆	10	10	11	7	FP
350 - 2000	0 - 400	EMRS-11F	7	6.8	25	1	SM-1
500 - 9000	10 - 2000	MDC-164 ◆	13	6.5	17	8	SMA
500 - 19000	30 - 5000	M87, M87C ◆	13	9	24	8	Minpac, SMA
600 - 3000	0 - 1000	MD-156 ◆	7	9	20	0	FP
700 - 1000	10 - 150	MD22-0002-MUC	5	—	22	8	SM-41
700 - 1000	0 - 400	MA4EX900L-1226T ◆	5	6.5	26	1	MSOP-8
700 - 1200	0 - 400	MA4EX950H-1225T ◆	15	6.6	27.5	8.3	SOT-25
700 - 1200	0 - 400	MA4EX950L-1225T ◆	5	6.5	28	1.5	SOT-25
700 - 1200	0 - 400	MA4EX950M-1225T ◆	10	7	26	4.3	SOT-25
700 - 1400	0 - 400	EMD40-900L	17	9	28	2.5	SOIC-8
700 - 2000	0 - 300	MD-614 ◆	7	8	25	0	FP
800 - 1000	1 - 150	CSM11-13 ◆	13	7.5	35	9	SMT

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Mixers (continued)

Frequency (RF/LO) (MHz)	Frequency (IF) (MHz)	Part Number	LO Drive (dBm)	Conversion Loss (dB)	Isol. (LO/RF) (dB)	Input P1dB (dBm)	Package
Packaged Products							
800 - 1000	0 - 100	MD54-0004	13	7.5	38	21	SOIC-8
800 - 1000	0 - 100	MAMXSS0011	13	7.5	38	21	SOIC-8
800 - 1000	0 - 200	MD54-0005	5	8	35	15	SOT-25
800 - 1000	0 - 200	MAMXSS0012	5	8	35	15	SOT-25
800 - 1000	170	MD57-0001	-5	9.3	28	14	SOT-26
800 - 2400	0 - 1500	M4G, SM4G ◆	7	7.5	32	0	FP, SMT
800 - 3500	0 - 1500	M2G, M2GC ◆	7	8	28	0	TO-8, SMA
810 - 1000	10 - 100	EFM-900	13	8.5	22	22	SM-108
850 - 1050	0 - 200	MA4EXP950H-1277T ◆	15	8.3	55	12.7	MLP 3mm sq.
850 - 1050	0 - 400	MA4EXP950L-1277T ◆	5	8.5	62	4.3	MLP 3mm sq.
850 - 1050	0 - 400	MA4EXP950M-1277T ◆	10	8.2	62	8.1	MLP 3mm sq.
880 - 915	150 - 170	EMRS-6HX1	17	5.5	30	13	SM-1
880 - 915	150 - 170	MAMXES0120	17	5.5	30	17	SM-1
925 - 1880	45 - 95	EMRS-6X1	7	9.5	30	7	SM-1
925 - 1880	45 - 95	MAMXES0118	7	9.5	35	7	SM-1
1000 - 6000	10 - 2000	MDC-163 ◆	0	7	10	-2	SMA
1000 - 7000	10 - 2000	MDC-162 ◆	13	6	15	8	SMA
1000 - 18000	0 - 500	DM1-18A ◆	7	6	22	3	SMA
1000 - 18000	30 - 5000	M83, M83C ◆	13	7.5	25	6	Minpac, SMA
1000 - 18000	1000 - 8000	M88, M88C ◆	13	8	28	7	Minpac, SMA
1000 - 18000	1000 - 8000	M89, M89C ◆	10	8	28	4	Minpac, SMA
1300 - 1900	0 - 500	MA4EX180H-1225T ◆	15	6.5	27	8.5	SOT-25
1300 - 1900	0 - 500	MA4EX180M-1225T ◆	10	5.5	17	5	SOT-25
1400 - 2000	0 - 400	EMD40-1800L	7	7.9	29	1	SOIC-8
1400 - 2100	0 - 500	MD54-0006	5	8	28	12	SOT-25
1400 - 2100	0 - 500	MAMXSS0013	5	8	28	12	SOT-25
1400 - 2500	0 - 400	EMD40-2400L	7	8	29	1	SOIC-8
1500 - 2200	160 - 390	CSM2N-17	17	7.3	43	14	SMT
1700 - 2000	0 - 200	MD54-0003	13	8.5	27	21	SOIC-8
1700 - 2000	0 - 200	MAMXSS0010	13	8	28	21	SOIC-8
1700 - 2200	100 - 400	MD57-0002 ◆	0	8.5	18	15	SOT-26
1700 - 2200	0 - 400	MA4EXP190H-1277T ◆	15	8.4	48	11.3	MLP 3mm sq.
1700 - 2300	0 - 500	MA4EX190H-1225T ◆	15	6.6	30	10.5	SOT-25
1700 - 2300	0 - 500	MA4EX190L-1225T ◆	5	6.1	25	2	SOT-25
1700 - 2500	0 - 500	MA4EX240H-1225T ◆	15	5.4	17	8.5	SOT-25
1700 - 2500	0 - 400	MA4EX240L-1225T ◆	5	7	17.5	1	SOT-25
1700 - 2500	0 - 500	MA4EX240M-1225T ◆	10	5.5	17	5.3	SOT-25
1700 - 2500	0 - 500	MAMX-000240-1225MT	10	5.5	17	5.3	SOT-25
1800 - 2000	10 - 150	CSM12-13 ◆	13	6.7	30	8	SMT
1800 - 10000	0 - 1000	MY84, MY84C ◆	9	6.5	39	4	Versapac, SMA
1850 - 1980	100 - 500	EFM-1900 ◆	13	7.5	19	24	SM-106
1900 - 2200	160 - 390	CSM2-17	17	8	40	14	SMT
2000 - 2300	0 - 300	MA4EXP190H-1225T ◆	15	8.1	27	13	SOT-25
2000 - 10000	0 - 2000	MC4110 ◆	10	6.2	22	3	Open Carrier

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Mixers (continued)

Frequency (RF/LO) (MHz)	Frequency (IF) (MHz)	Part Number	LO Drive (dBm)	Conversion Loss (dB)	Isol. (LO/RF) (dB)	Input P1dB (dBm)	Package
Packaged Products							
2000 - 18000	30 - 5000	MY82, MY82C ◆	13	7.5	20	6	Versapac, SMA
2000 - 18000	0 - 1000	MY85, MY85C ◆	7	8	35	1	Versapac, SMA
2000 - 18000	1000 - 8000	MY88, MY88C ◆	13	8	28	7	Versapac, SMA
2000 - 18000	1000 - 8000	MY89, MY89C ◆	10	8	28	4	Versapac, SMA
2000 - 18000	30 - 4000	MY93, MY93C ◆	10	8	29	4	Versapac, SMA
2000 - 18000	2000 - 18000	M50A, M50AC ◆	10	8	26	5	Minpac, SMA
2000 - 18000	0 - 1000	M85, M85C ◆	7	8	35	1	Minpac, SMA
2000 - 18000	2000 - 8000	M88H, M88HC ◆	21	8	28	17	Minpac, SMA
2000 - 18000	30 - 4000	M93, M93C ◆	10	8	29	4	Minpac, SMA
2000 - 18000	1000 - 8000	MZ8810, MZ8810C ◆	10	7.5	25	6	Versapac, SMA
2000 - 18000	1000 - 8000	MZ8813, MZ8813C ◆	13	7	25	8	Versapac, SMA
2000 - 18000	30 - 5000	MZ9310, MZ9310C ◆	10	7.5	23	6	Versapac, SMA
2000 - 18000	30 - 5000	MZ9313, MZ9313C ◆	13	7	24	8	Versapac, SMA
2000 - 24000	100 - 5000	MZ5210, MZ5210C ◆	10	9	20	4	Versapac, SMA
2000 - 24000	1000 - 15000	M51, M51C ◆	10	8	25	5	Minpac, SMA
2000 - 24000	100 - 5000	M52, M52C ◆	10	8	22	5	Minpac, SMA
2000 - 24000	1000 - 15000	MY51, MY51C ◆	10	8	25	5	Versapac, SMA
2000 - 24000	100 - 5000	MY52, MY52C ◆	10	8	22	5	Versapac, SMA
2000 - 26000	100 - 6000	M53, M53C ◆	10	8	22	5	Minpac, SMA
2000 - 26000	1000 - 15000	M50, M50C ◆	10	8	26	5	Minpac, SMA
2000 - 26000	1000 - 15000	MY50, MY50C ◆	10	8	26	5	Versapac, SMA
2000 - 26000	1000 - 12000	MY50A, MY50AC ◆	10	8	26	5	Versapac, SMA
2100 - 2700	0 - 300	MD54-0007 ◆	13	8	25	18	SOT-25
2110 - 2170	100 - 500	EFM-2100 ◆	13	8.5	16	22	SM-106
2110 - 2170	134 - 246	MAMXES0050 ◆	7	10	22	1	SM-87
2300 - 2800	0 - 200	MA4EXP240L-1277T ◆	5	8.3	51	4.8	MLP 3mm sq.
2300 - 2800	0 - 500	MAMX-090240-1225MT	15	9	54	9.4	SOT-25
2400 - 6000	0 - 2000	M8H-7, M8HC-7 ◆	7	6	40	0	TO-8, SMA
2500 - 5500	0 - 1500	M63, M63C ◆	9	5.5	40	2	Minpac, SMA
2500 - 6500	0 - 1500	M63H, M63HC ◆	20	6	37	14	Minpac, SMA
2500 - 6500	0 - 1500	MY63H, MY63HC ◆	20	7.5	26	14	Versapac, SMA
3000 - 4000	0 - 1050	MA4EX370H-1225T ◆	15	6.8	27.5	8	SOT-25
3000 - 4000	0 - 1050	MA4EX370L-1225T ◆	5	8.5	14	2	SOT-25
3000 - 4000	0 - 1050	MA4EX370M-1225T ◆	10	6.3	27	5	SOT-26
3500 - 4500	0 - 1000	MA4EXP400H-1277T ◆	15	7.7	44	13	MLP 3mm sq.
3500 - 18000	0 - 3000	M86, M86C ◆	7	7	34	3	Minpac, SMA
3700 - 4200	0 - 2000	M8H-3, M8HC-3 ◆	7	5	40	0	TO-8, SMA
4000 - 18000	0 - 3000	M80, M80C ◆	7	6.5	34	3	Minpac, SMA
4000 - 20000	0 - 4000	MC4520 ◆	20	7	30	11	Open Carrier
4200 - 6000	0 - 2000	MA4EX600H-1225T ◆	15	5.8	28	6.9	SOT-25
4200 - 6000	0 - 2000	MA4EX600L-1225T ◆	5	6.4	26	0.3	SOT-25
4200 - 6000	0 - 2000	MA4EX600M-1225T ◆	10	6.5	27	2.7	SOT-25
4500 - 9500	0 - 2000	M76, M76C ◆	10	6	35	3	Minpac, SMA
4500 - 9500	0 - 2000	M76H, M76HC ◆	20	7	35	15	Minpac, SMA

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Mixers (continued)

Frequency (RF/LO) (MHz)	Frequency (IF) (MHz)	Part Number	LO Drive (dBm)	Conversion Loss (dB)	Isol. (LO/RF) (dB)	Input P1dB (dBm)	Package
Packaged Products							
4500 - 9500	0 - 2000	MY76, MY76C ◆	10	6	35	3	Versapac, SMA
4500 - 9500	0 - 2000	MY76H, MY76HC ◆	20	7	35	15	Versapac, SMA
4700 - 6000	0 - 1050	MA4EX580L-1225T ◆	5	8.5	23	1.5	SOT-25
5000 - 18000	0 - 3000	M79, M79C ◆	10	7	32	4	Minpac, SMA
5000 - 18000	0 - 3000	M79H, M79HC ◆	20	7.5	33	15	Minpac, SMA
5600 - 6000	2300 - 2700	MA4EX585L-1225T ◆	5	8.3	28	1.1	SOT-25
6000 - 14000	0 - 2000	M14A ◆	7	6.5	32	2	SMA
6000 - 18000	0 - 3000	MZ7407, MZ7407C ◆	7	6.5	34	3	Versapac, SMA
6000 - 18000	0 - 3000	MZ7410, MZ7410C ◆	10	6.5	34	4	Versapac, SMA
6000 - 18000	0 - 3000	MZ7420, MZ7420C ◆	20	7.5	33	15	Versapac, SMA
7000 - 18000	0 - 3000	M74, M74C ◆	10	6.5	35	4	Minpac, SMA
8000 - 12500	0 - 2500	M77, M77C ◆	10	5.5	35	4	Minpac, SMA
8000 - 12500	0 - 2500	MY77, MY77C ◆	10	5.5	35	4	Versapac, SMA
9000 - 15000	0 - 2500	M67, M67C ◆	10	6.5	35	4	Minpac, SMA
11000 - 15000	0 - 1450	MA4EX1201-1300T ◆	13	7.5	39	8	MSOP-8

Up/Down Converters

Frequency (MHz)	Part Number	Gain (dB)	NF (dB)	Input IP3 (dBm)	Carrier Suppression (dBc)	Idd (ma)	Package
Packaged Products							
824	MD59-0054 ◆	26	—	—	—	50	PQFN 4mm, 20 lead
869	MADCSM0001 ◆	10	8	10	—	10	PQFN, 4mm, 20 Lead
869	MADCSM0011 ◆	12.5	7.5	8	—	12	PQFN, 3mm, 12 Lead
1500	SA65-0003 ◆	8	1.5	25	—	45	QSOP-16
1710	MD59-0062 ◆	24	10	—	—	46	PQFN 4mm, 20 lead
1800	MADCSM0012 ◆	25	2.3	-9	—	25	PQFN, 3mm, 16 Lead
1800	MD59-0049 ◆	25	2.3	-8	—	26	PQFN 4mm, 20 lead

Vector Modulators

Part Number	I.L. (dB)	Phase Shift (Degrees)	Amplitude Flatness (dB)	Dev. from Linear Phase (deg)	Return Loss (-dB)	Output IP3 (dBm)	Package
Packaged Products							
MAMDC0002 ◆	11.5	360	0.1	0.2	17	41	CSP-6
MAMDC0005 ◆	—	360	0.05	0.75	18	—	CSP-6
SA90-0001 ◆	15	360	0.25	0.5	17	—	CSP-5

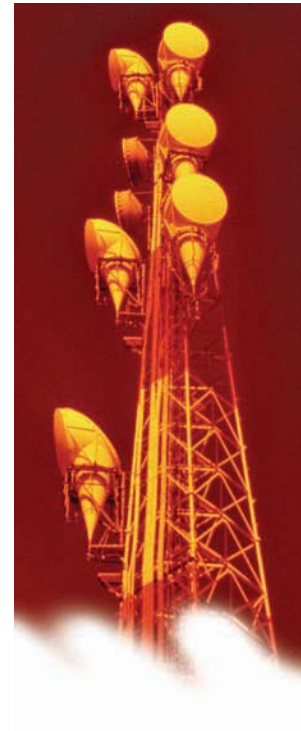
Note: Part numbers are RoHS compliant except: ◆ indicates non-RoHS compliant
Blue listings indicate standard stock items widely available from our franchised distribution partners.
Detailed specifications for our standard parts can be found quickly on our web site at www.macom.com by typing the part number into the search box.
All specifications are subject to change.



M/A-COM offers a wide variety of multifunction devices from MMICs to sub-assemblies. We have several unique MMIC processes including Si HMIC, Si GMIC, GaAs MSAG, and AlGaAs iHBT. We also integrate several ICs into a single package form to offer multifunction solutions. We offer some of the most highly integrated GaAs MMICs in the industry such as our dual path X-band T/R control MMIC that integrates a phase shifter, attenuator, gain block, driver amplifier, and switches on a single chip.

We also offer LNA/limiters, multifunction control chips, delay lines, vector modulators, upconverter/drivers and more.

Please contact us for additional solutions including custom or military products.



Multifunction Amplifiers

Freq (MHz)	Part Number	Gain (dB)	NF (dB)	Output P1dB (dBm)	Output IP3 (dBm)	Sat Pout (dBm)	Voltage (Volts)	Current (mA)	Package
Die Products									
7000 - 12000	MAMFGM0001-DIE	28/21	10.5	22/18	26	—	+5/-5	400	Die
7000 - 12000	MAMF-000002-DIE000	21/15	10.5	22/19	26	—	±5/-5	340	Die
7000 - 12000	MAMF-000003-DIE000	25/19	10.5	23/18	30	—	+5/-5	500	Die
7000 - 12000	MAMF-000004-DIE000	19/13	10.5	23/18	31	—	+5/-4	430	Die
8000 - 11000	MA03501D	18	10	21	26	—	+5/-4	275	Die
8000 - 11000	MA03503D	18	10	22.5	28	—	+5/-4	325	Die



M/A-COM Couplers

Couplers are used extensively in a wide range of Aerospace & Defense, wireless and wireline communications applications. M/A-COM offers a variety of connectorized and surface mount packages with a broad range of coupling values for these markets.

Hybrid Couplers

- Magic Tee (1800) and Quadrature (900) configurations
- 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 6-30 dB
- Products available in subsets of the 2 MHz to 18 GHz frequency range
- 75W products available for CATV, DTV and DBS applications

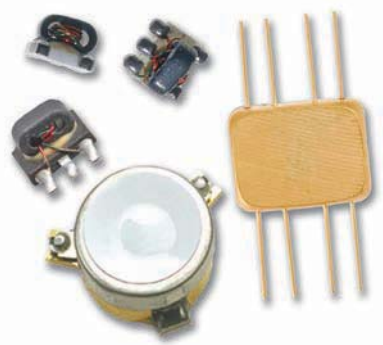
Filters/Diplexers

M/A-COM offers a variety of highpass, lowpass and diplex filter components and assemblies used in common wireless communications standards and CATV, DBS and DTV applications.

- 50W and 75W diplexers
- Low cost surface mount packaging
- Multi-chip and MMIC products
- Higher functionality assemblies available

Circulators/Isolators

M/A-COM circulators and isolators are used in a variety of wireless communications and Aerospace & Defense applications.



- Single and dual junction devices
- Surface mount and drop-in packaging available for standard components



Splitters/Combiners

Splitters and combiners are used in a wide range of Aerospace & Defense, wireless and wireline communications applications. M/A-COM offers a variety of connectorized and surface mount packages for these markets.

- 50W and 75W devices
- Products available in subsets of 400 KHz to 26 GHz frequency range
- 2, 3, 4, 5, 6 and 8 channel versions available

Transformers

M/A-COM offers many standard transformers used for a variety of wireless, wireline and Aerospace & Defense communications applications.

- Available in a variety of surface mount, flat pack and connectorized packages
- Standard impedance ratios up to 4:1
- Balanced/unbalanced versions available
- 50W and 75W nominal impedance devices available

Inductors

M/A-COM offers a line of high Q toroidal inductors useful for any application requiring RF or electromagnetic suppression.

- Standard devices are in the 53 to 273 nH inductance range
- Q of 90 minimum
- Surface mount wire wound toroid construction



MNS Microwave Chip Capacitors

- Suitable for D.C. 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

Transformers

Frequency (MHz)	Part Number	Impedance (Ohms)	Impedance Ratio	I.L. (dB)	RF Power (W)	Package
Packaged Products						
0.06 - 60	ET16-6T-SM1 ◆	50	16:1	3	0.25	SM-1
0.3 - 200	ETC1-1T ◆	50	1:1	1.5	0.25	SM-22
0.3 - 200	MABACT0062	75	1:1	0.8	0.25	SM-22B
0.3 - 200	MABACT0071	75	1:1	0.5	0.25	SM-164
0.3 - 200	MABAES0060	50	1:1	1.5	0.25	SM-22
0.5 - 1000	TP-103 ◆	—	4:1	0.6	3	FP
0.5 - 1000	TP-105 ◆	—	1.4:1	0.5	1.5	FP
0.5 - 1500	TP-101 ◆	—	1.6:1	0.5	3	FP
0.75 - 400	TP-104 ◆	—	2:1	0.55	0.4	FP
1 - 350	ETC4-1 ◆	50	4:1	3	0.25	SM-22
1 - 350	MABA-007493-CF4160	75	4:1	1.6	0.25	SM-22B
1 - 350	MABAES0008 ◆	75	4:1	3	0.25	SM-22
1 - 350	MABAES0040 ◆	50	2:1	2.6	0.25	SM-138
1 - 500	TP-102 ◆	—	4:1	0.75	1	FP
1 - 650	MABACT0064	75	4:1	3	0.25	SM-138
2 - 200	TP-75 ◆	—	1.5:1	0.25	10	SMA
2 - 800	ETC4-1-2 ◆	50	4:1	3	0.25	SM-22
2 - 800	MABAES0061	50	4:1	3	0.25	SM-22
2 - 800	MABAES0010 ◆	50	4:1	2.2	0.25	SM-119
2 - 800	MABAES0015 ◆	50	4:1	3.5	0.25	SM-52
2 - 1000	ETK4-2T ◆	50	4:1	3	0.25	SM-22
2 - 1000	MABA-007569-GTK42T	-50	4:1	3	0.25	SM-22
4.5 - 1000	MABACT0059	75	1:1	0.8	0.25	SM-22B
4.5 - 2000	MABACT0056	75	1:1	3.5	0.25	SM-136
4.5 - 3000	MABA-007327-CT1490	75	1:1	1.6	0.25	SM-155
4.5 - 3000	ETC1-1-13 ◆	50	1:1	2	0.25	SM-22
4.5 - 3000	MABA-007159-000000	50	1:1	2	0.25	SM-22
5 - 50	MABA-007532-CF38A0	75	1:1	0.3	1	SM-138
5 - 65	MABA-007902-CF3840	75	2.56:1	0.8	0.25	SM-138
5 - 200	MABACT0056	75	1:4	0.9	0.05	SM-138-A
5 - 200	MABACT0068 ◆	75	2:1	0.3	0.25	SM-164
5 - 220	MABA-007488-CT9550	75	9:1	0.8	0.25	SM-55
5 - 350	MABACT0067 ◆	75	4:1	0.9	0.25	SM-164
5 - 350	MABA-007766-CF28A0	75	1.5:1	1.4	0.25	SM-138
5 - 1000	MABACT0063	75	1.5:1	1	0.25	SM-22
5 - 1000	MABAES0032 ◆	75	1:1	1.03	0.25	SM-138
5 - 1000	MABACT0066	75	4:1	1.5	0.25	SM-138
5 - 3000	MABA-007489-CT18A0	75	1:1	0.8	0.25	SM-138
10 - 1000	ETC1.5-7 ◆	50	1.5:1	1	0.25	SM-22
10 - 1500	TPX-75-4 ◆	—	1.5:1	0.25	2	SMA
20 - 1000	MABAES0034 ◆	50	4:1	2.2	0.25	SM-22
50 - 870	MABACT0074	75	4:1	1.5	1	SM-152
50 - 2150	MABA-00731-CT1980	75	1:1	1.2	0.25	SM-152
50 - 1200	MABACT0069	75	1:1	0.8	0.25	SM-138

Transformers (continued)

Frequency (MHz)	Part Number	Impedance (Ohms)	Impedance Ratio	I.L. (dB)	RF Power (W)	Package
Packaged Products						
350 - 1125	TP-108 ◆	—	2.5:1	1	3	FP
500 - 2500	ETC1.6-4-2-3 ◆	50	4:1	3	0.25	SM-22
500 - 2500	MABA-007236_C16423	-50	4:1	3	0.25	SM-22
760 - 960	ETC1-1-6 ◆	50	1:1	2	0.25	SM-22
1710 - 1910	ETC1-1-10 ◆	50	1:1	2	0.5	SM-22

Circulators/Isolators

Frequency (MHz)	Part Number	Junctions	Isol. (dB)	I.L. (dB)	Size	Package
Packaged Products						
869 - 894	FR11-0001 ◆	1	22	0.3	1	Drop In
869 - 894	FR12-0001 ◆	1	24	0.3	1	Drop In
869 - 894	FR31-0001 ◆	1	24	0.25	0.883	FR31
869 - 894	FR32-0001 ◆	1	24	0.25	0.883	Surface Mount
925 - 960	FR11-0002 ◆	1	22	0.3	1	Drop In
925 - 960	FR12-0002 ◆	1	24	0.3	1	Drop In
925 - 960	FR31-0002 ◆	1	24	0.25	0.883	Surface Mount
925 - 960	FR32-0002 ◆	1	24	0.25	0.883	Surface Mount
1805 - 1880	FR11-0003 ◆	1	22	0.3	1	Drop In
1805 - 1880	FR12-0003 ◆	1	24	0.3	1	Drop In
1805 - 1880	FR31-0003 ◆	1	24	0.25	0.883	Surface Mount
1805 - 1880	FR32-0003 ◆	1	24	0.25	0.883	Surface Mount
1805 - 1880	MAFRIN0164 ◆	1	20	0.3	1 x 1.25	Drop In
1805 - 1880	MAFRIN0203 ◆	1	20	0.35	0.6	Surface Mount
1930 - 1990	FR11-0004 ◆	1	22	0.3	1	Drop In
1930 - 1990	FR12-0004 ◆	1	24	0.3	1	Drop In
1930 - 1990	FR31-0004 ◆	1	24	0.25	0.883	Surface Mount
1930 - 1990	FR32-0004 ◆	1	24	0.25	0.883	Surface Mount
1930 - 1990	MAFRIN0165 ◆	1	20	0.3	1 x 1.25	Drop In
1930 - 1990	MAFRIN0204 ◆	1	20	0.35	0.6	Surface Mount
2110 - 2170	FR11-0009 ◆	1	22	0.3	1	Drop-In
2110 - 2170	FR12-0009 ◆	1	24	0.25	1	Drop-In
2110 - 2170	FR31-0009 ◆	1	24	0.25	0.883	FR31
2110 - 2170	FR32-0009 ◆	1	24	0.25	0.883	Surface Mount
2110 - 2170	MAFRIN0166 ◆	1	20	0.3	1 x 1.25	Drop In
2110 - 2170	MAFRIN0205 ◆	1	20	0.35	0.6	Surface Mount

Power Splitters/Combiners

Frequency (MHz)	Part Number	Impedance (Ohms)	Channels	Isolation (dB)	Phase Balance (degrees)	Amplitude Balance (dB)	Package
Die Products							
1000 - 5000	MAPDGM0001-DIE ◆	50	2	15	—	—	DIE
Packaged Products							
0.2 - 300	DS-310 ◆	50	4	25	4	0.2	FP-5
0.4 - 400	DS-113 ◆	50	2	25	1	0.15	FP-2
0.4 - 400	DSS-113 ◆	50	2	25	1.5	0.15	SF-1
1 - 100	M3H-50 ◆	50	3	55	0.5	0.1	TO-5
1 - 100	MTH-50 ◆	50	2	30	1	0.1	TO-5-1
1 - 300	DS-117 ◆	50	3	20	4	0.25	FP-3
1 - 300	DS-308 ◆	50	3	20	4	0.25	C-8
2 - 200	THV-50 ◆	50	2	35	0.5	0.1	Conn
2 - 1000	GS-4-7TR ◆	50	4	23	10	0.5	SM-46
2 - 1000	MAPD-007246-ES4700	50	4	23	10	0.5	SM-46
2 - 2000	DS-4-4 ◆	50	4	30	2	0.5	Conn
2 - 2000	H-8-4 ◆	50	2	35	1	0.05	Conn
3 - 700	DS-328 ◆	50	3	20	4	0.4	TO-8-2
5 - 100	MAPDCT0010 ◆	75	2	32	2.5	0.25	SM-150
5 - 120	ESSM-2-9-75 ◆	75	2	21	2	0.5	SM-53
5 - 120	ESSM-3-1-75 ◆	75	3	36	2	0.2	SM-4
5 - 500	DS-309 ◆	50	8	30	2	0.15	C-18
5 - 500	DS-318 ◆	50	2	18	2	0.2	RH-1
5 - 500	ESML-2-1 ◆	50	2	30	5	0.6	SM-24
5 - 500	MAPD-007249-ESML21	50	2	30	3	0.3	SM-24
5 - 750	ESML-2-7 ◆	50	2	27	3	1	SM-24
5 - 900	ESSM-2-6 ◆	50	2	28	3	0.3	SM-1
5 - 900	MAPD-008072-GSSM26	50	2	28	3	0.3	SM-1
5 - 1000	DS-327 ◆	50	2	20	3	0.2	FP-2
5 - 1000	DSS-327 ◆	50	2	16	3	0.3	SF-1
5 - 1000	ELPD-20-1 ◆	75	2	22	4	0.5	SM-93
5 - 1000	ESSMJ-2-10-75 ◆	75	2	29	—	0.3	SM-44
5 - 1000	ESSMJ-2-12-75 ◆	75	2	30	—	0.3	SM-44
5 - 1000	ESSM-2-2-75 ◆	75	2	18	6	0.6	SM-55
5 - 1000	H-81-4 ◆	50	2	25	2	0.1	Conn
5 - 1000	MACPES0007 ◆	75	—	26	—	—	Surface Mount
5 - 1000	MAPDCT0002 ◆	75	2	32	1.5	0.4	SM-150
5 - 1000	MAPDCT0005 ◆	75	3	22	4	0.3	SM-4
5 - 2400	MAPDCT0012 ◆	75	2	18	2	0.2	SM-156
10 - 500	DS-109 ◆	50	2	35	1	0.15	FP-2
10 - 500	DS-112 ◆	50	4	25	5	0.2	FP-5
10 - 500	DS-312 ◆	50	4	25	2	0.2	C-14
10 - 500	DS-319 ◆	50	2	25	1	0.2	TO-8-2
10 - 500	DSS-333 ◆	50	2	25	2	0.15	SF-1
10 - 1000	T-1000 ◆	50	2	45	1	0.1	Conn
10 - 1000	ESML-2-4 ◆	50	2	15	5	0.7	SM-24
10 - 2000	DS-409-4 ◆	50	4	30	2	0.1	Conn
10 - 2000	DSS-313 ◆	50	2	22	5	0.3	SF-1

Power Splitters/Combiners

Frequency (MHz)	Part Number	Impedance (Ohms)	Channels	Isolation (dB)	Phase Balance (degrees)	Amplitude Balance (dB)	Package
Packaged Products							
10 - 2000	DS-313 ◆	50	2	23	4	0.3	FP-2
10 - 2000	PD10-0042-S	50	2	23	6	0.4	FP-2
20 - 400	TU-50 ◆	50	2	40	1	0.1	Conn
20 - 2000	DS-808-4 ◆	50	8	30	2	0.1	Conn
25 - 1000	DS-323 ◆	50	3	24	4	0.4	FP-3
25 - 1000	DS-324 ◆	50	4	20	6	0.25	FP-5
40 - 400	MTV-50 ◆	50	2	30	2	0.2	TO-5-1
400 - 820	MAPDCT0004 ◆	75	2	40	0.5	0.5	SM-55
40 - 870	ESSM-3-3-75 ◆	75	3	20	6	0.6	SM-4
40 - 1000	MAPD-007874-C20960	75	2	14	3	0.35	SM-138
50 - 300	M3V-50 ◆	50	3	40	1	0.1	TO-5
750 - 1500	DS-331 ◆	50	2	10	6	0.2	TO-8
800 - 900	QH01-0016-G ◆	50	2	17	1.5	0.3	SOT-26
800 - 900	MAHYCC0001	50	2	17	1.5	0.3	SOT-26
800 - 980	MAPD-000900-12920T	50	2	27	1	0.2	SOT-26
820 - 980	ELPD-290 ◆	50	2	20	7	1.2	SM-88
824 - 896	MAPDCC0016	50	5	26	5	0.2	SOIC-16
824 - 960	MAPDCC0001	50	2	23	0.5	0.05	SOIC-8
824 - 960	MAPDCC0011	50	2	15	3	0.1	SOT-26
824 - 960	MAPDCC0005	50	3	18	2	0.6	SOIC-8
824 - 960	MAPDCC0007	50	4	23	2	0.3	SOW-16
824 - 960	MAPDCC0009	50	4	24	3	0.3	SOIC-8
824 - 960	MAPDCC0017	50	6	25	6	0.2	SOW-16
824 - 960	MAPDCC0019	50	6	25	4	0.5	SOIC-16
824 - 960	MAPDCC0021	50	8	30	5	0.4	SSOP-20
850 - 950	MAHYB900-1292T ◆	50	3	18	2	0.4	SOT-26
1000 - 2000	DS-332 ◆	50	2	10	6	0.2	TO-8
1000 - 18000	2089 Series ◆	50	2	20	4	0.2	Conn
1000 - 18000	2090-6204-00 ◆	50	2	23	5	0.3	Conn
1000 - 26000	2090 Series ◆	50	2	20	5	0.3	Conn
1510 - 1660	MAPDCC0003	50	2	20	1	0.05	SOIC-8
1700 - 1900	MAPDCC0004	50	2	20	2	0.1	SOIC-8
1700 - 2000	MAPD-007530-000/00	50	2	20	1.5	0.2	SOT-26
1700 - 2000	MAPDCC0008	50	4	18	4	0.1	SOW-16
1700 - 2000	MAPDCC0014	50	4	23	5	0.8	SOIC-16
1700 - 2000	MAPDCC0018	50	6	22	8	0.5	SOW-16
1700 - 2000	MAPDCC0020	50	6	25	4	0.5	SOIC-16
1850 - 1990	MAPDCC0002	50	2	21	1	0.05	SOIC-8
1850 - 1990	MAPDCC0006	50	3	18	7	0.3	SOIC-8
1850 - 1990	MAPDCC0015	50	5	28	6	0.2	SOIC-16
2000 - 18000	2090-6205-00 ◆	50	2	23	5	0.3	Conn
2200 - 2500	MAPDCC0010	50	2	22	2	0.1	SOT-25
3650 - 4050	MAHYB390-1303T ◆	50	3	20	3	1.4	2mm MLP
8000 - 18000	2090-6210-00 ◆	50	2	18	5	0.3	Conn

Couplers

Frequency (MHz)	Part Number	Impedance (Ohms)	Coupling (dB)	I.L. (dB)	Max. Power (W)	Isol. (dB)	Package
Packaged Products							
0.2 - 35	HH-108 ◆	50	3.5	0.1	25	40	SMA
0.5 - 400	CH-137 ◆	50	20	0.5	3	30	RH
0.5 - 400	CHS-137 ◆	50	20	0.5	3	30	SMT
1 - 1000	CH-132 ◆	50	20	0.7	5	20	SMA/BNC
2 - 32	CD-920-4 ◆	50	20	0.2	50	40	BNC
2 - 32	CH-130-4 ◆	50	30	0.1	500	30	SMA/BNC
2 - 200	HH-106 ◆	50	—	1	1	30	FP
2 - 200	HH-107 ◆	50	—	1	1	30	SMA/BNC
2 - 2000	H-9 ◆	50	4	0.4	25	55	SMA/N
5 - 40	EMDC-17-2-75 ◆	75	17	0.45	0.25	45	SM-22
5 - 120	MACPCT0017 ◆	75	17.3	—	—	45	Surface Mount
5 - 200	HH-109 ◆	50	—	1.4	0.5	30	FP
5 - 200	HHS-109 ◆	50	—	1.4	0.5	30	SMT
5 - 870	ELDC-10 ◆	75	10	1	0.25	21	SM-55
5 - 870	ELDC-12LI ◆	75	12	1.8	0.25	28	SM-115
5 - 870	ELDC-16LI ◆	75	16	0.8	0.25	31	SM-103
5 - 870	MACPCT0038	75	17	0.6	0.25	32	SM-103
5 - 870	ELDC-8LI-1 ◆	75	8	1.8	0.25	18	SM-115
5 - 870	MACPES0004 ◆	75	10	1.3	0.25	28	SM-132
5 - 900	EMDC-8-1-75 ◆	75	8.5	1.6	0.25	22.5	SM-22
5 - 1000	ELDC-17 ◆	75	17	0.6	0.25	12	SM-55
5 - 1000	ELDC-14 ◆	75	14.3	1	0.25	34	SM-55
5 - 1000	ELDC-16 ◆	75	16	0.9	0.25	28	SM-55
5 - 1000	ELDC-12 ◆	75	11.8	1.2	0.25	12	SM-55
5 - 1000	CH-140 ◆	50	19.75	0.3	3	20	FP
5 - 1000	ELDC-20 ◆	75	20	0.6	0.25	29	SM-55
5 - 1000	ELDC-7 ◆	75	7	2.5	0.25	22	SM-55
5 - 1000	ELDC-8 ◆	75	8	1.5	0.25	21	SM-55
5 - 1000	ELDC-8X1 ◆	75	8	2.1	0.25	13.5	SM-55
5 - 1000	EMDC-10-1 ◆	50	10	1.2	0.25	17	SM-22
5 - 1000	EMDC-10-1-75 ◆	75	10	1.5	0.25	12	SM-22
5 - 1000	EMDC-13-1-75 ◆	75	13	1.5	0.25	13	SM-22
5 - 1000	EMDC-13-2 ◆	75	13	1.4	0.25	13	SM-22
5 - 1000	EMDC-17-1-75 ◆	75	17	0.9	0.25	24	SM-22
5 - 1000	EMDC-17-5-75 ◆	75	17	0.8	0.25	29	SM-127
5 - 1000	EMDC-17-8-75 ◆	75	17	0.8	0.25	29	SM-127
5 - 1000	H-1-4 ◆	50	4	1.2	7	45	SMA/BNC
5 - 1000	MACPCT0039	75	10	1.6	0.25	23	SM-138
5 - 1000	MACPES0050 ◆	75	20	0.8	0.25	37	SM-55
6 - 600	EMDC-16-1 ◆	50	16	0.6	0.25	21	SM-22
7 - 14	JH-113 ◆	50	—	0.5	4	20	FP
7 - 14	JHS-113 ◆	50	—	0.5	4	20	SMT
10 - 500	CH-134 ◆	50	10.8	1.6	1	20	FP
10 - 500	CH-138 ◆	50	10.8	1.6	1	17	TO-8

Couplers (continued)

Frequency (MHz)	Part Number	Impedance (Ohms)	Coupling (dB)	I.L. (dB)	Max. Power (W)	Isol. (dB)	Package
Packaged Products							
10 - 500	CHS-134 ◆	50	10.8	1.6	1	20	SMT
10 - 500	HH-110 ◆	50	—	1.4	1	20	FP
10 - 500	HH-127 ◆	50	—	1.4	1	20	TO-8
10 - 500	HHS-110 ◆	50	—	1.4	1	20	SMT
20 - 40	JH-114 ◆	50	3	0.5	5	20	FP
20 - 40	JH-133 ◆	50	3	0.5	5	20	TO-8
20 - 40	JHS-114 ◆	50	—	0.5	5	20	SMT
20 - 140	JH-10-4 ◆	50	1	0.6	4	20	SMA
20 - 200	JH-131 ◆	50	—	1	0.25	20	SMA
20 - 300	HH-105 ◆	50	—	1	0.5	28	TO-5
20 - 1000	EMDC-16-1-75 ◆	75	16	0.5	0.25	25	SM-55
20 - 2000	HH-128 ◆	50	—	3	0.5	15	FP
30 - 1000	DCG-10-4 ◆	50	11	1.5	5	30	SMA
30 - 3000	H-183-4 ◆	50	4.5	0.7	5	35	SMA
40 - 80	JH-115 ◆	50	3	0.5	5	20	FP
40 - 80	JHS-115 ◆	50	3	0.5	1	20	SMT
40 - 870	ELDC-10LI ◆	75	10	1.3	0.25	24	SM-103
40 - 1000	EMDC-16-2-75 ◆	75	16	0.6	0.25	23	SM-55
40 - 1000	MACPES0028 ◆	75	7	1.9	0.25	22	SM-137
80 - 160	JH-119 ◆	50	3	0.75	4	20	FP
80 - 160	JHS-119 ◆	50	3	0.75	4	20	SMT
100 - 200	JH-121 ◆	50	—	0.75	4	20	FP
100 - 200	JHS-121 ◆	50	—	0.75	4	20	SMT
175 - 350	JH-136 ◆	50	—	0.5	4	20	FP
175 - 350	JHS-136 ◆	50	—	0.5	4	20	SMT
200 - 400	JHS-142 ◆	50	0	0.5	5	18	SMT
250 - 500	JH-139 ◆	50	—	0.5	4	15	FP
250 - 500	JHS-139 ◆	50	—	0.5	4	15	SMT
350 - 450	EMDC-20-1 ◆	50	20	0.25	0.25	38	SM-22
500 - 1000	2020-6600-06 ◆	50	6	0.15	50	31	Conn
500 - 1000	2020-6601-10 ◆	50	10	0.15	50	35	Conn
500 - 1000	2020-6602-20 ◆	50	20	0.15	50	45	Conn
500 - 1000	2020-6603-30 ◆	50	30	0.15	50	55	Conn
500 - 1000	JH-140 ◆	50	—	0.3	25	18	FP
500 - 18000	2025Series ◆	50	6-20	0.3-0.7	50	15-22	Conn
500 - 18000	2026-6010-10 ◆	50	10	0.9	50	15	Conn
500 - 18000	2026-6012-20 ◆	50	20	0.9	50	15	Conn
500 - 18000	203XSeries ◆	50	3	0.2	—	25	Conn
824 - 960	MACPCC0002	50	17	0.3	2	32	SOIC-8
1000 - 2000	2020-4015-06 ◆	50	6	0.2	50	31	Conn
1000 - 2000	2020-4015-10 ◆	50	10	0.2	50	35	Conn
1000 - 2000	2020-4015-20 ◆	50	20	0.2	50	45	Conn
1000 - 2000	2020-4015-30 ◆	50	30	0.2	50	55	Conn
1000 - 2000	2020-6604-06 ◆	50	6	0.2	50	31	Conn

Couplers (continued)

Frequency (MHz)	Part Number	Impedance (Ohms)	Coupling (dB)	I.L. (dB)	Max. Power (W)	Isol. (dB)	Package
Packaged Products							
1000 - 2000	2020-6605-10 ◆	50	10	0.2	50	35	Conn
1000 - 2000	2020-6606-20 ◆	50	20	0.2	50	45	Conn
1000 - 2000	2020-6607-30 ◆	50	30	0.2	50	55	Conn
1000 - 2000	JH-141 ◆	50	—	0.3	25	18	FP
1000 - 12400	2026-6001-10 ◆	50	10	0.35	50	18	Conn
1000 - 12400	2026-6003-20 ◆	50	20	0.35	50	17	Conn
1000 - 18000	2026-6007-10 ◆	50	10	0.3	50	15	Conn
1000 - 18000	2026-6009-20 ◆	50	20	0.3	50	17	Conn
1700 - 2000	MACPCC0001	50	17	0.3	2	34	SOIC-8
2000 - 4000	2020-4016-06 ◆	50	6	0.2	50	28	Conn
2000 - 4000	2020-4016-10 ◆	50	10	0.2	50	32	Conn
2000 - 4000	2020-4016-20 ◆	50	20	0.2	50	42	Conn
2000 - 4000	2020-4016-30 ◆	50	30	0.2	50	52	Conn
2000 - 4000	2020-6608-06 ◆	50	6	0.2	50	28	Conn
2000 - 4000	2020-6609-10 ◆	50	10	0.2	50	32	Conn
2000 - 4000	2020-6610-20 ◆	50	20	0.2	50	42	Conn
2000 - 4000	2020-6611-30 ◆	50	30	0.2	50	52	Conn
2000 - 18000	2026-6004-10 ◆	50	10	30	50	15	Conn
2000 - 18000	2026-6006-20 ◆	50	20	30	50	18	Conn
2600 - 5200	2020-6612-06 ◆	50	6	0.25	50	26	Conn
2600 - 5200	2020-6613-10 ◆	50	10	0.25	50	30	Conn
2600 - 5200	2020-6614-20 ◆	50	20	0.25	50	40	Conn
2600 - 5200	2020-6615-30 ◆	50	30	0.25	50	50	Conn
4000 - 8000	2020-4017-06 ◆	50	6	0.25	50	28	Conn
4000 - 8000	2020-4017-10 ◆	50	10	0.25	50	30	Conn
4000 - 8000	2020-4017-20 ◆	50	20	0.25	50	40	Conn
4000 - 8000	2020-6616-06 ◆	50	6	0.25	50	28	Conn
4000 - 8000	2020-6617-10 ◆	50	10	0.25	50	30	Conn
4000 - 8000	2020-6618-20 ◆	50	20	0.25	50	40	Conn
4000 - 8000	2020-6619-30 ◆	50	30	0.25	50	50	Conn
7000 - 12400	2020-4018-06 ◆	50	6	0.4	50	21	Conn
7000 - 12400	2020-4018-10 ◆	50	10	0.4	50	30	Conn
7000 - 12400	2020-4018-20 ◆	50	20	0.3	50	38	Conn
7000 - 12400	2020-4018-30 ◆	50	30	0.3	50	47	Conn
7000 - 12400	2020-6620-06 ◆	50	6	0.4	50	21	Conn
7000 - 12400	2020-6621-10 ◆	50	10	0.4	50	30	Conn
7000 - 12400	2020-6622-20 ◆	50	20	0.3	50	38	Conn
7000 - 12400	2020-6623-30 ◆	50	30	0.3	50	47	Conn
7000 - 18000	2020-6624-06 ◆	50	6	0.6	50	21	Conn
7000 - 18000	2020-6625-10 ◆	50	10	0.4	50	30	Conn
7000 - 18000	2020-6626-20 ◆	50	20	0.5	50	35	Conn
7000 - 18000	2020-6627-30 ◆	50	30	0.5	50	45	Conn
12400 - 18000	2020-4114-20 ◆	50	20	0.5	50	35	Conn
12400 - 18000	2020-6628-06 ◆	50	6	0.6	50	21	Conn

Note: Part numbers are RoHS compliant except: ◆ indicates non-RoHS compliant
 Blue listings indicate standard stock items widely available from our franchised distribution partners.
 Detailed specifications for our standard parts can be found quickly on our web site at www.macom.com by typing the part number into the search box.
 All specifications are subject to change.

Couplers (continued)

Frequency (MHz)	Part Number	Impedance (Ohms)	Coupling (dB)	I.L. (dB)	Max. Power (W)	Isol. (dB)	Package
Packaged Products							
12400 - 18000	2020-6629-10 ◆	50	10	0.4	50	30	Conn
12400 - 18000	2020-6630-20 ◆	50	20	0.5	50	35	Conn
12400 - 18000	2020-6631-30 ◆	50	30	0.5	50	42	Conn

Inductors

Self Resonant Frequency (MHz)	Part Number	Inductance (nH)	Qmin	Package
Packaged Products				
480	EIN8 ◆	273	90	SM-52
570	EIN9 ◆	246	90	SM-52
580	EIN11 ◆	165	90	SM-52
635	EIN12 ◆	193	90	SM-52
700	EIN10 ◆	180	90	SM-52
800	EIN14 ◆	146	90	SM-52
840	EIN15 ◆	123	90	SM-52
970	EIN13 ◆	97	90	SM-52
1440	EIN16 ◆	53	90	SM-52

Passives — Space Products

Couplers: Space Products

Frequency (MHz)	Part Number	Coupling (dB)	I.L. (dB)	Max. Power (W)	Isol. (dB)	Package
Packaged Products						
5 - 1000	CH35-0008-S ◆	19.75	—	3	—	FP-2
10 - 500	CH35-0009-S ◆	10.8	—	1	—	FP-2
500 - 1000	CH20-0059-S ◆	10.8	—	1	—	FP-1
1500 - 2000	CH20-0058-S ◆	10.8	—	1	—	FP-1

Power Splitters/Combiners: Space Products

Frequency (MHz)	Part Number	Channels	Isolation (dB)	Phase Balance (degrees)	Amplitude Balance (dB)	Package
Packaged Products						
0.4 - 400	PD10-0041-S ◆	2	25	1	0.15	FP-2
10 - 500	PD10-0040-S ◆	2	25	1	1.3	FP-2
10 - 2000	PD10-0042-S ◆	2	23	6	0.4	FP-2
25 - 1000	PD20-0010-S ◆	3	24	4	0.4	FP-3

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Capacitors

Capacitance (pf)	Part Number	Pad Types	Standoff Voltage (V)	Package
Die Products				
50	MA4M1050	Round Bonding Pad	100	Die
100	MA4M1100	Round Bonding Pad	100	Die
200	MA4M2100	Round Bonding Pad	100	Die
10	MA4M3010	Square Bonding Pad	200	Die
30	MA4M3030	Square Bonding Pad	200	Die
50	MA4M3050	Square Bonding Pad	200	Die
100	MA4M3100	Square Bonding Pad	50	Die
150	MA4M3150	Square Bonding Pad	50	Die

CATV Diplexers

Frequency (GHz)	Part Number	Crossover Isol. (dB)	LP/HP Isol. (dB)	LP/HP RL (dB)	Common RL (dB)	Flatness (dB)	LP Ins Loss (dB)	HP Ins Loss (dB)	Package
Packaged Products									
5 - 30/46 - 1000 MHz	MAFL-007492-CD0A00	—	47/20/46	18/18	18	—	0.7	0.75	SMT
5 - 40/52 - 870 MHz	MAFLCT0031	—	55/55	22/20	22/20	—	0.5	0.5	SMT-142
5 - 40/52 - 870 MHz	MAFLES0122	41	50	22/22	22	0.85	1	1	Vertical plug-in
5 - 42/53 - 870 MHz	MAFLES0118	34	55/50	24/24	24	0.85	1	1.1	Horizontal Plug-in
5 - 42/54 - 870 MHz	MAFLES0102	—	45/45	18/18	18	—	0.5	0.5	SMT
5 - 42/54 - 1000 MHz	MAFLES0018	—	48/50	—	16	—	1.1	1.2	SM-162
5 - 42/54 - 1000 MHz	MAFLES0083	15	50/50	21/21	21	0.5	1.2	1.1	SM-85
5 - 42/54 - 1100 MHz	MAFLCT0068	—	55/50	—	12	—	1.1	1.2	SM-161
5 - 55/70 - 870 MHz	MAFLCT0010	30	50/50	25	25	0.85	1	1	Horizontal Plug-in
5 - 65/85 - 870 MHz	MAFLCT0006	36	55/55	22/24	22	0.85	1	1.1	Horizontal Plug-in
5 - 65/88 - 1000 MHz	MAFLCT0027	—	50/50	20	20	—	0.5	0.5	SMT
5 - 65/94 - 860 MHz	MAFLCT0034	—	55/50	16	16	—	0.9	1.0	SM-161
5 - 1000	EDF-2E ◆	75	—	0.5	45	—	—	—	SM-85
5 - 1000	MAFLCT0027 ◆	75	—	0.5	50	—	—	—	Surface Mount

Filters/Diplexers

Frequency (MHz)	Part Number	Impedance (Ohms)	Passband (MHz)	I.L. (dB)	Rejection (dB)	Rejection BW (dB)	Package
Packaged Products							
0 - 1000	MAFLCC0006	50	1000	0.5	20	1700	SOIC-8
0 - 2000	MAFLCC0007	50	2000	0.6	20	2500	SOIC-8
800 - 3000	MAFLCC0004	50	2200	0.5	20	400	SOIC-8
824 - 1990	MAFLCC0001	50	140	0.5	18	—	SOIC-8
824 - 1990	MAFLCC0003	50	140	0.7	19	—	SOT-26
825 - 1990	MA4DP918-1277 ◆	50	280	0.9	28	270	3mm sq MLP
843 - 925	CDMA 900 ◆	50	27	0.5	105	0	Conn
1700 - 3000	MAFLCC0005	50	2300	0.5	20	1000	SOIC-8

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M/A-COM offers a variety of synthesizers and Voltage Controlled Oscillators (VCOs) used to generate frequency references in Aerospace and Defense, as well as commercial wireless communications applications.

Synthesizers

- Incorporates PLL circuitry with VCO
- Standard components available to cover wireless interfaces from 109 – 1854 MHz
- Variety of different step sizes available
- Available in hybrid, surface mount packaging

VCOs

- Low phase noise performance
- Highly linear tuning capability
- Standard components available to cover wireless interfaces from 920 – 2300 MHz



Synthesizers

Frequency (MHz)	Part Number	Step Size (KHz)	Phase Noise (dBc/Hz)	Spurious Output (dBc)	Switching Time (ms)	Pout (dBm)	Package
Packaged Products							
805 - 844	MASYVS0061-0825 ◆	200	-150	-98	—	5	LSM6
1046 - 1085	MASYVS0061-1066 ◆	200	-157	-97	0	5	LSM6
1780 - 1860	MASYVS0006-1810 ◆	50	-140	-75	20	0	LSM6
1920 - 2000	MASYVS0006-1950 ◆	100	-138	-90	50	0	LSM6
2240 - 2310	MASYVS0006-2275 ◆	200	-133	-85	30	1.5	LSM6

VCOs

Frequency (MHz)	Part Number	Phase Noise (dBc/Hz)	Tuning Sensitivity (MHz/V)	Pout (dBm)	Vcc (V)	Package
Packaged Products						
920 - 960	MLO80100-00940 ◆	-130	14	0	5	LSM1
1000 - 1040	MLO80100-01020 ◆	-127	17	0	5	LSM1
1435 - 1525	FE55-0005 ◆	—	60	10	3	4mm PQFN-16
1600 - 1700	MLO81100-01650 ◆	-120	44	0	5	LSM1
1650 - 1750	MLO81100-01700 ◆	-120	37	0	5	LSM1
1770 - 1850	MLO81100-01810 ◆	-120	31	0	5	LSM1
1800 - 1900	MLO81100-01850 ◆	-118	50	0	5	LSM1
1930 - 1990	MLO81100-01960 ◆	-118	31	0	5	LSM1
2200 - 2300	FE55-0006 ◆	—	60	10	3	4mm PQFN-16
2200 - 2300	MA05836 ◆	—	—	27	3	Board

Aerospace/Defense VCOs

Frequency (MHz)	Part Number	Tuning Voltage	Phase Noise +25°C (dBc/Hz)	Power dBm (min)	Harmonics dBc (max)	Temp Range (Operating)	Power Supply V & mA	Package
Packaged Products								
400 - 600	MAVCML0059 ◆	0V - 15V	-110 @ 100KHz	10 (min)	-10	-30 to 70°C	+15V, 50mA	T08
420 - 550	MAVCML0025 ◆	2V - 12V	-100 @ 100 KHz	12+/-1.0	-10	-45 to 85°C	8V/50mA	T08
600 - 860	MAVCML0026 ◆	1.5V - 13V	-110 @ 100KHz	13+/-1.5	-15	-35 to 85°C	15V/50mA	T08
600 - 860	MAVCML0027 ◆	1V - 13V	-113 @ 100KHz	3.5+/-3.5	-15	-35 to 85°C	5V/18mA	SMT T08
700 - 900	MAVCML0028 ◆	0V - 30V	-105 @ 100KHz	13+/-3.0	-13	-35 to 100°C	12V/50mA	T08
1100 - 2100	MAVCML0030 ◆	0V - 20v	-98 @ 100khZ	10+/-2.5	-10	-40 to 85°C	15V/100mA	T08
1200 - 1300	MAVCML0029 ◆	2V - 12V	-100 @ 100 KHz	10+/-1.0	-10	-40 to 85°C	8V/40mA	T08
1550 - 2250	MAVCML0031 ◆	3V - 20V	-100 @ 100KHz	9+/-2.5	-10	-40 to 100°C	12V/50mA	T08
2850 - 4350	MAVCML0032 ◆	0V - 15V	-100 @ 100KHz	10+/-2.0	-10	-40 to 85°C	15V/125mA	SMT T08
3020 - 4410	MAVCML0033 ◆	4V - 11V	-98 @ 100khZ	12+/-1.0	-13	-40 to 85°C	15V/120mA	SMT T08
4200 - 4400	MAVCML0034 ◆	0V - 10V	-100 @ 100KHz	7.5+/-2.5	-12	-40 to 85°C	9V/50mA	LCC1
4230 - 4370	MAVCML0035 ◆	1V - 7V	-100 @ 100KHz	15+/-2.5	-25	-55 to 75°C	10V/130mA	SMT T08
4510 - 5740	MAVCML0036 ◆	1V - 13V	-98 @ 100KHz	12.5+/-1.5	-15	-35 to 85°C	5V/100mA	SMT T08
5010 - 5110	MAVCML0038 ◆	2V - 10V	-105 @ 100KHz	3.5+/-1.5	-15	-45 to 85°C	12V/150mA	VCO B
5700 - 5900	MAVCML0058 ◆	0V - 15V	-100 @ 100KHz	10 (min)	-12	-55 to 85°C	+15V, 50mA	T08
5790 - 5820	MAVCML0039 ◆	0.5V - 4.5V	-100 @ 100KHz	10+/-2.0	-12	-45 to 85°C	15V/100mA	T08
8570 - 9530	MAVCML0057 ◆	0V - 15V	-100 @ 100KHz	13 (min)	-15	-55 to 85°C	+15V, 135 mA -15V, 75mA	Co-ax SMA VCO B
8650 - 9250	MAVCML0041 ◆	5V -15V	-95 @ 100KHz	19.5+/-1.5	-30	-40 to 85°C	+/-15V 175/125mA	Custom Co-ax SMA
8950 - 9550	MAVCML0040 ◆	-10 to +10	-85 @ 100KHz	16+/-2.0	-20	-55 to 85°C	-24V/250 mA	VCO B
9000 - 9500	MAVCML0056 ◆	-10V / 10v	-87 @ 100KHz	16+/-2	-20	0 to +70°C	-15V, 150 mA	Co-ax SMA VCO A
10000 - 11000	MAVCML0043 ◆	2V - 12V	-65 @ 100KHz	16+/-2	-30	-45 to 85°C	8V/110mA	Leadless
13000 - 17000	MAVCML0044 ◆	2V - 12V	-63 @ 100KHz	13.5+/-1.5	-30	-45 to 85°C	8V/125mA	Leadless
14600 - 15100	MAVCML0055 ◆	3.5V - 10.0V	-92 @ 100 KHz	8+/-2	-30	-42 to 75°C	+7V, 100mA -12V, 175 mA	Custom Co-ax SMA



M/A-COM IC-based switches are used extensively in commercial and military electronics applications. The switches range from DC to 20 GHz designed specifically for voice and data applications.



- Cordless and mobile phones
- Cellular base stations
- Satellite radio
- GPS & DAB
- 2.4 GHz and 5.0 GHz WLAN
- VSAT
- CATV and broadband
- Bluetooth
- RFID
- Fixed Wireless Access (FWA)
- Instrumentation
- Commercial and military radar
- Aerospace and Defense products

M/A-COM diode-based HMIC silicon series-shunt PIN diode switches provide outstanding frequency performance from 50 MHz to 26.5 GHz. M/A-COM AlGaAs series-shunt PIN diode switches provide remarkable frequency performance from 50 MHz to 50 GHz.

- HMIC & AlGaAs switches are suitable for microwave and millimeter wave control circuits for military, instrumentation, and optoelectronic applications.
- HMIC switches: 1.0 dB Loss & 35 dB isolation at 18 GHz
- AlGaAs switches: 0.7 dB Loss & 35 dB isolation at 50 GHz



Phase Shifters

Frequency (MHz)	Part Number	I.L. (dB)	Input P1db (dBm)	Bits (#)	LSB (degree)	Range (degree)	Package
Die Products							
1000 - 1900	MAPCGM0001-DIE	5.3	27	6	5.6	360	Die
2300 - 4100	MAPCGM0003-DIE	5.7	23	6	5.6	360	Die
3500 - 6000	MAPCGM0002-DIE	6	26	6	5.6	360	Die
6000 - 18000	MAPCGM0004-DIE	17	19	5	11.2	360	Die
7000 - 12000	MAPCGM0005-DIE	10	23	6	5.6	360	Die
Packaged Products							
1000 - 1900	MAPCGM0001	5.5	27	6	5.6	360	6mm PQFN
2300 - 4100	MAPCGM0003	6	23	6	5.6	360	6mm PQFN
3500 - 6000	MAPCGM0002	6.5	26	6	5.6	360	6mm PQFN
7000 - 12000	MAPCGM0005	11	23	6	5.6	360	5x5mm PQFN

Switches with Drivers

Frequency (MHz)	Part Number	Type	I.L. (dB)	Isol. (dB)	Switching Speed (ns)	Input IP3 (dBm)	Package
Die Products							
2000 - 14000	MASWGM0001-DIE	DPDT	3	40	—	33	Die
0 - 5000	MASWGM0005-DIE	SPDT	1.6	58	—	—	Die
2000 - 8000	MASWGM0003-DIE	SPDT	3	45	15	35	Die
2000 - 20000	MASWGM0002-DIE	SPDT	4.3	35	29	—	Die
Packaged Products							
10 - 3000	MASW-007076-000100	SPST	2.2	35	50	46	SOW-24
10 - 500	S10 ♦	SPST	2	55	5	25	TO-8
10 - 500	S11 ♦	SPST	2	55	2	25	TO-8
0 - 3000	SW-313	SPDT	1.2	35	18	46	CR-9
0 - 3000	MASW-007075-000100	SPDT	2.2	33	50	46	SOW-24
0 - 3000	MASW-007074-000100	SP3T	2.3	30	50	46	SOW-24
0 - 3000	SW-314	SP4T	1.8	30	25	46	CR-14
0 - 3000	MASW-007073-000100	SP4T	2.3	25	50	46	SOW-24
0 - 3000	MASWCC0009	SP4T	2.5	25	50	46	QSOP-24

Delay Line

Frequency (MHz)	Part Number	I.L. (dB)	Input P1db (dBm)	Bits (#)	LSB (degree)	Range (degree)	Package
Packaged Products							
1800	MAMUSM0008	5	—	50	20	—	15mm BGA

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

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Aerospace/Defense Switches

Frequency (MHz)	Part Number	Type	I.L. (dB)	Isol. (dB)	R.L. (DB)	Switching Speed (ns)	I/P Power (mW)	Power Supply V & mA	Dimensions
Packaged Products									
0.01 - 6	MASWML0002 ◆ (MMIC)	SPST	2.7	50	12	50	100	+5 -5	13.5x6.2x3.3
6 - 9			4	50	9.5			50 50	1110135-4
9 - 10			4	45	9.5				
8 - 10	MASWML0004 ◆	SPST	1.9	60	12	50	100	+5 -15	16.4x13.5x5.6
								50 10	
6 - 18	MASWML0005 ◆	SPST	2.3	60	10	15	500	+5 -15	38.1x33.6x10.3
								50 10	30801-4
0.5 - 18	MASWML0010 ◆ (N/R & Miniature)	SPDT	3.3	55	9.5	30	100	+5 -15	22x16x8
								70 50	1110775-4
0.5 - 2	MASWML0011 ◆	SPDT	1.8	50	11.7	15	100	+5 -12	22x16x8
2 - 8			2.5	40	9.5				
8 - 18		(MMIC & MMIC)	2.9	32	9.5			25 25	1110506-4
0.5 - 18	MASWML0012 ◆ (Miniature)	SPDT	2.6	55	9.5	30	100	+5 -15	22x16x8
								70 50	1110634-4
6.4 -18	MASWML0013 ◆	SPDT	3.85	52	7.4	10 micro Second	2 W (CW)	+5 -15	40.7x40.7x12.9
								250 50	
6 - 12	MASWML0014 ◆ (Miniature)	SPDT	2.2	60	11	30	100	+5 -15	22x16x8
								70 50	1110775-4
10.5 - 13.5	MASWML0017 ◆	SPDT	1.7	65	11.7	30	3 W (CW)	-5 to -15	22x16x8
								0.5 50	1104260
0.5 - 2.0	MASWML0021 ◆	SP3T	1	50	14	250	100	5 -15	38.1x38.1x19.1
								100 50	A4-30805-4
0.5 -18.0	MASWML0022 ◆	SP3T	3.4	60	9.5	250	500	5 -15	38.1x39.1x19.1
								100 50	A4-30805-4
0.5 - 18.0	MASWML0023 ◆ (Miniature)	SP3T	2.9	60	9.5	30	100	5 -15	24.5x24.5x6.1
								100 50	
0.5 - 17.0	MASWML0024 ◆ (Miniature)	SP4T	3.6	50	9	30	100	5 -5	24.5x24.5x6.1
17.0 - 18.0			4					120 50	1110770-4
0.5 - 18.0	MASWML0025 ◆	SP4T	4.5	60	9.5	500 (100 typ)	100	5 -15	38.1x32.1x19.1
								180 100	
0.5 - 18.0	MASWML0026 ◆ (Miniature)	SP5T	3.3	60	9.5	30	100	5 -15	21.5x24.5x6.1
								140 50	1110771-4
0.5 - 2.0	MASWML0027 ◆	SP5T	1.8	65	15.5	30	100	5 -15	38.1x38.1x19.1
								140 50	
0.85 - 18.0	MASWML0028 ◆	SP6T	4	55	9.5	900	100	5 -5.2V	38.1x38.1x19.1
								190 50	

General

Frequency (MHz)	Part Number	Type	I.L. (dB)	Isol. (dB)	Input IP3 (dBm)	Package
Die Products						
0 - 2000	MASW2040 ◆	DPDT	0.4	20	46	Die
0 - 6000	MASW6030G ◆	DPDT	0.6	40	45	Die
0 - 6000	MASW6020G ◆	SPST	0.9	64	46	Die
50 - 26500	MA4SW110 ◆	SPST	0.3	68	50	Die
50 - 70000	MA4AGSW1 ◆	SPST	0.1	22	40	Die
10000 - 70000	MA4AGSW1A ◆	SPST	0.5	80	40	Die
0 - 3000	MASW2000 ◆	SPDT	0.6	35	53	Die
0 - 4000	MASW4030G ◆	SPDT	0.8	50	46	Die
0 - 6000	MASW6010 ◆	SPDT	0.5	45	46	Die
0 - 6000	MASW6010G ◆	SPDT	0.5	45	46	Die
0 - 20000	MASW20000 ◆	SPDT	1.7	50	43	Die
50 - 70000	MA4AGSW2 ◆	SPDT	0.4	65	40	Die
50 - 26500	MA4SW210 ◆	SP2T	0.35	70	50	Die
2000 - 26000	MA4SW210B-1 ◆	SP2T	1.5	55	47	Die
74000 - 80000	MA4GC6773 ◆	SP2T	1.2	24	40	Die
50 - 26500	MA4SW310 ◆	SP3T	0.4	65	50	Die
50 - 70000	MA4AGSW3 ◆	SP3T	0.45	60	40	Die
500 - 2500	MASWSS0100 ◆	SP3T	0.5	20	69	Die
2000 - 26000	MA4SW310B-1 ◆	SP3T	1.7	55	47	Die
74000 - 80000	MA4GC6774 ◆	SP3T	1.4	24	40	Die
50 - 26500	MA4SW410 ◆	SP4T	0.4	65	50	Die
50 - 70000	MA4AGSW4 ◆	SP4T	0.5	60	40	Die
2000 - 18000	MA4SW410B-1 ◆	SP4T	1.4	65	47	Die
22000 - 26000	MA4SW424B-1 ◆	SP4T	3	40	50	Die
50 - 26000	MA4SW510 ◆	SP5T	0.9	38	50	Die
50 - 50000	MA4AGSW5 ◆	SP5T	0.8	65	40	Die
2000 - 18000	MA4SW510B-1 ◆	SP5T	1.6	55	47	Die
75000 - 79000	MA4GC6772 ◆	SP5T	4	24	40	Die
500 - 2500	MASWSS0091 ◆	SP6T	0.5	38	70	Die
2000 - 18000	MA4SW610B-1 ◆	SP6T	1.6	60	47	Die
50 - 50000	MA4AGSW8-1 ◆	SP8T	1	45	40	Die
50 - 50000	MA4AGSW8-2 ◆	SP8T	1	55	35	Die
1800 - 4000	MA4BN1840-1 ◆	Bias Network	0.15	35		Die
1800 - 4000	MA4BN1840-2 ◆	Bias Network	0.25	35		Die
Packaged Products						
0 - 4000	MASWSS0184	DPDT	0.7	30	57.5	3 mm PQFN 12
0 - 4000	MASW-007587	DPDT	0.7	38	59	3 mm PQFN 12
0 - 6000	MASWSS0094 ◆	DPDT	0.8	43	45	3 mm PQFN 12
0 - 6000	MASWSS0107	DPDT	0.95	22	52	3 mm PQFN 12
0 - 6000	MASWSS0129	DPDT	0.75	30	49	3 mm PQFN 12
500 - 3000	MASWSS0040 ◆	DPDT	0.8	19	55	3 mm PQFN 12
500 - 3000	MASWSS0130	DPDT	0.6	25	55	3 mm PQFN 12
2000 - 6000	MASWSS0190	DPDT	0.75	43	50	2 mm UTDFN 8
4500 - 6000	MASWSS0039 ◆	DPDT	0.8	30	52	3 mm PQFN 12

General (continued)

Frequency (MHz)	Part Number	Type	I.L. (dB)	Isol. (dB)	Input IP3 (dBm)	Package
Packaged Products						
4500 - 6000	MASWSS0175	DPDT	0.8	30	52	3 mm PQFN 12
0 - 2500	SW-259 ◆	SPST	1	70	46	SOIC-8
0 - 2500	MASWSS0162	SPST	1	70	46	SOIC-8
0 - 3000	SW-214	SPST	1.3	25	46	FP-13
0 - 3000	SW-311	SPST	1.3	27	46	CR-9
0 - 3000	SW05-0311	SPST	1.3	25	46	CR-9
0 - 4000	MASW-007070-000100	SPST	0.85	25	48	CSP-1
5 - 3000	SW-215 ◆	SPST	2.9	27	46	DI-1
5 - 3000	SW-216 ◆	SPST	2.9	27	46	DI-1
5 - 4000	SW-231 ◆	SPST	2.8	22	46	FP-16
10 - 1000	SW-121 ◆	SPST	1	40	30	DI-1
50 - 4000	MA4SW101-287T ◆	SPST	0.4	38	40	SOT-23
50 - 6000	MA4AGSW900-287T ◆	SPST	0.6	40	37	SOT-23
300 - 4000	MASWSS0148	SPST	55	1.6	49	3 mm PQFN 12
500 - 2000	SW-393 ◆	SPST	1.6	42	39	SOIC-8
0 - 2000	SW-224	SPDT	0.8	30	46	TO-5-3
0 - 2000	SW-225	SPDT	0.8	30	46	FP-13
0 - 2000	SW-395 ◆	SPDT	0.5	20	45	SOT-26
0 - 2000	MASWSS0179	SPDT	0.5	20	45	SOT-26
0 - 2500	SW-239 ◆	SPDT	0.6	70	46	SOIC-8
0 - 2500	MASWSS0157	SPDT	0.6	70	46	SOIC-8
0 - 2500	SW-277 ◆	SPDT	0.5	40	61	SOIC-8
0 - 2500	MASWSS0161	SPDT	0.5	40	61	SOIC-8
0 - 2500	SW-338 ◆	SPDT	0.5	33	46	SOIC-8
0 - 2500	MASWSS0180	SPDT	0.5	33	46	SOIC-8
0 - 3000	MASWSS0192	SPDT	0.18	30	53	SC-70 (SOT-363)
0 - 3000	MASWSS0115	SPDT	0.3	22	46	SC-70 (SOT-363)
0 - 3000	MASWSS0005 ◆	SPDT	0.3	21	45	SOT-26
0 - 3000	MASWSS0136	SPDT	27	0.4	51.5	SC-70 (SOT-363)
0 - 3000	MASWSS0176	SPDT	0.3	21	45	SOT-26
0 - 3000	MASWSS0006 ◆	SPDT	0.4	20	60	SOT-26
0 - 3000	MASWSS0181	SPDT	0.4	20	60	SOT-26
0 - 3000	MASWSS0029 ◆	SPDT	0.4	24.5	60	SOT-26
0 - 3000	SW-110	SPDT	1.1	18	46	CR-9
0 - 3000	SW-276	SPDT	0.4	70	61	CR-2
0 - 3000	SW-312	SPDT	1.2	30	48	CR-9
0 - 3000	SW-313	SPDT	1.2	35	46	CR-9
0 - 3000	SW-425 ◆	SPDT	0.4	20	53	SOT-26
0 - 3000	MASWSS0143	SPDT	0.4	20	53	SOT-26
0 - 3000	SW-437 ◆	SPDT	0.3	21	55	SC-70 (SOT-363)
0 - 3000	MASWSS0166	SPDT	0.3	21	55	SC-70 (SOT-363)
0 - 3000	SW-438 ◆	SPDT	0.7	25	55	SC-70 (SOT-363)
0 - 3000	MASWSS0151	SPDT	0.7	25	55	SC-70 (SOT-363)
0 - 3000	SW-439 ◆	SPDT	0.8	50	85	MSOP-10

General (continued)

Frequency (MHz)	Part Number	Type	I.L. (dB)	Isol. (dB)	Input IP3 (dBm)	Package
Packaged Products						
0 - 3000	MASWSS0169	SPDT	0.8	50	85	MSOP-10
0 - 3000	SW-442 ◆	SPDT	28	0.8	50	SOT-26
0 - 3000	MASW-007935	SPDT	28	0.8	50	SOT-26
0 - 3000	SW-456 ◆	SPDT	0.3	22	52	SC-70 (SOT-363)
0 - 3000	MASW-007221	SPDT	0.3	22	52	SC-70 (SOT-363)
0 - 3000	SW10-0312	SPDT	1.2	27	46	CR-9
0 - 3000	SW10-0313	SPDT	1.2	35	46	CR-9
0 - 4000	SW-226	SPDT	1.5	25	46	CR-2
0 - 4000	SW-227	SPDT	1.4	35	46	CR-2
0 - 4000	SW-228	SPDT	1	22	46	CR-2
0 - 4000	MASW-007071-000100	SPDT	1.8	30	46	CSP-1
0 - 6000	MASWSS0070 ◆	SPDT	0.55	24	52	3 mm PQFN 12
0 - 6000	MASWSS0200	SPDT	0.55	24	52	3 mm PQFN 12
0 - 6000	MASW-007107	SPDT	0.75	20	50	2 mm PQFN 8
0 - 6000	MASWSS0093	SPDT	0.85	28	53	3 mm PQFN 12
0 - 6000	MASW-007588	SPDT	0.85	30	53	3 mm PQFN 12
5 - 2000	SW-233 ◆	SPDT	1.5	40	46	FP-16
5 - 2000	SW-236 ◆	SPDT	1.5	40	46	FP-16
5 - 3000	SW-205 ◆	SPDT	2.6	35	46	DI-1
5 - 3000	SW-206 ◆	SPDT	2.6	35	46	DI-1
5 - 3000	SW-207 ◆	SPDT	2.3	18	46	DI-1
10 - 3000	SW-137	SPDT	1.6	32	46	DI-1
20 - 1500	SW-162 ◆	SPDT	1.5	40	25	DI-1
20 - 2000	SW-112 ◆	SPDT	2.2	50	30	DI-1
50 - 3000	SW-485 ◆	SPDT	0.25	23	46	SC-70 (SOT-363)
500 - 3000	MASWSS0167	SPDT	25	0.3	48	1.2x1.5 mm PQFN 6
500 - 2000	SW-394 ◆	SPDT	1.5	35	47	SOIC-8
500 - 3000	MASWSS0024 ◆	SPDT	0.7	50	43	MSOP-8-EP
500 - 3000	MASWSS0178	SPDT	0.7	50	43	MSOP-8-EP
500 - 3000	SW-475 ◆	SPDT	0.6	54	43	4 mm PQFN 16
500 - 3000	MASWSS0121	SPDT	0.6	54	43	4 mm PQFN 16
800 - 2000	SW-335 ◆	SPDT	0.8	50	50	SOIC-8
5150 - 5350	MASWSSM0002 ◆	SPDT	1	21	51	4 mm PQFN 16
0 - 3000	MASWSS0117 ◆	SPDT	0.3	25	56	SC-70 (SOT-363)
0 - 3000	MASWSS0204	SPDT	0.3	25	56	SC-70 (SOT-363)
50 - 4000	MA4SW201-1061T ◆	SP2T	0.45	34	40	SOIC-8
0 - 2500	MASWSS0060 ◆	SP3T	0.55	21	62	3 mm PQFN 12
0 - 2500	MASWSS0065 ◆	SP3T	0.5	20	59	3 mm PQFN 12
0 - 2500	MASWSS0199	SP3T	0.5	20	59	3 mm PQFN 12
0 - 2500	SW-489 ◆	SP3T	0.5	18.5	66	3 mm PQFN 12
0 - 3000	MASWSS0144	SP3T	24	0.6	55	3 mm PQFN 12
0 - 3000	MASWSS0028 ◆	SP3T	0.3	24	50	2 mm PQFN 8
5 - 2000	SW-241 ◆	SP3T	2.5	35	46	DI-5
20 - 1500	SW-163 ◆	SP3T	2	35	25	DI-2

General (continued)

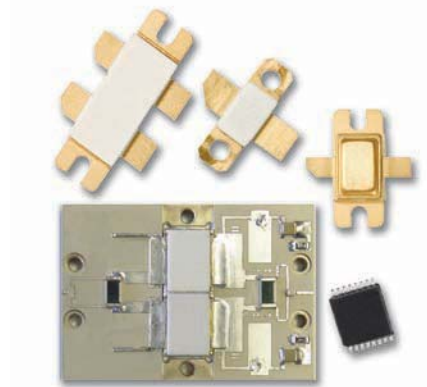
Frequency (MHz)	Part Number	Type	I.L. (dB)	Isol. (dB)	Input IP3 (dBm)	Package
Packaged Products						
50 - 4000	MA4SW301-1061T ◆	SP3T	0.5	30	40	SOIC-8
500 - 3000	MASWSS0191	SP3T	0.5	30	58	2 mm STDFN
0 - 2000	SW-415	SP4T	1.8	37	46	FP-25
0 - 2000	SW-419 ◆	SP4T	1	39	46	SO-24
0 - 3000	MASWSS0118 ◆	SP4T	0.65	23	57	4 mm PQFN 16
0 - 3000	SW-314	SP4T	1.8	30	46	CR-14
0 - 3000	SW15-0314	SP4T	1.8	25	46	CR-14
0 - 4000	SW-243 ◆	SP4T	0.7	35	46	CR-4
0 - 4000	MASWCC0010	SP4T	2.3	38	40	CSP-2
5 - 2000	SW-255 ◆	SP4T	2.1	35	68	DI-5
5 - 2000	SW-261 ◆	SP4T	2.1	35	46	FP-17
10 - 1000	SW-124 ◆	SP4T	1.4	40	30	DI-2
10 - 2000	SW-114 ◆	SP4T	2.8	35	30	DI-2
20 - 1500	SW-164 ◆	SP4T	2	35	25	DI-2
20 - 2000	SW-369 ◆	SP4T	2.8	40	44	FP-26
0 - 2000	SW-284	SP6T	2.8	28	46	FP-27
0 - 4000	MASWCC0006	SP6T	2.1	25	40	CSP-2
0 - 3000	SW-283	Transfer	2.1	20	50	CR-4
5000 - 6000	MAOS506AJ ◆	T/R	1.4	28	44	MSOP-8
75 Ohm or CATV						
5 - 1000	MASWSS0067 ◆	SPST	0.62	54	52	3 mm PQFN 12
5 - 1000	MASWSS0102 ◆	SPST	0.9	63	55	4 mm PQFN 20
5 - 1000	MASWSS0068 ◆	SPDT	0.6	51	52	4 mm PQFN 20
5 - 1000	MASWSS0069 ◆	SPDT	0.74	57	53	4 mm PQFN 20
5 - 1000	MASWSS0103 ◆	SPDT	1	63	52	4 mm PQFN 20

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M/A-COM manufactures a broad range of power solutions using a variety of silicon and GaAs transistor technologies for commercial and military applications.

- Bipolar industrial transistors
- TMOS/MOSFET industrial transistors
- TMOS/MOSFET communications transistors
- LDMOS communications transistors
- Bipolar communications transistors
- Communications module amplifiers
- TMOS/MOSFET broadcast transistors
- LDMOS broadcast transistors
- Bipolar avionics transistors
- LDMOS cellular infrastructure transistors
- Bipolar radar transistors
- Radar palette amplifiers
- GaAs power transistors



Bipolar

Frequency (MHz)	Part Number	Operating Voltage (V)	Pout (W)	Min. Gain (dB)	Min. Efficiency (%)	Package
Packaged Products						
1 - 30	MRF421	12.5	100	10	40	P208
1.5 - 30	MRF422	28	150	10	40	P208
1.5 - 30	MRF426	28	25	22	35	P-222
1.5 - 30	MRF428	50	150	13	45	P-208
2 - 60	MRF429	50	150	13	45	P-208
2 - 30	MRF448	50	250	12	45	P208
2 - 30	MRF454	12.5	80	12	50	P-208A
2 - 30	MRF455	12.5	60	13	55	P-222
30 - 200	MRF314	28	30	10	50	P-222A
30 - 200	MRF316	28	80	10	55	P209
30 - 200	MRF317	28	100	9	55	P-210
100 - 400	MRF313	28	1	15	45	P-227
100 - 400	MRF392	28	125	10	55	P-226
100 - 500	MRF393	28	100	9.5	55	P-226
100 - 500	MRF587	15	—	13	—	Ceramic
150 - 400	MRF321	28	10	12	50	P-232
150 - 400	MRF323	28	20	10	50	P-221
225 - 400	2N6439	28	60	7.8	55	P209
225 - 400	MRF327	28	80	7.3	50	P209
850 - 1400	PH0814-40	28	42	6.8	40	Ceramic
960 - 1215	MAPRST0912-50	50	50	9.1	40	P51H
960 -1215	MAPRST0912-300	50	300	9.5	40	P-133A
960 -1215	MAPRST0912-350	50	350	9.4	40	P-94C
960 - 1215	MRF10005	28	5	8.5	45	P-213
960 - 1215	MRF1000MB	18	0.7	10	—	P-224
960 - 1215	MRF10031	36	30	9	40	P-203
960 - 1215	MRF1004MB	35	4	10	40	P-224
960 - 1215	MRF10120	36	120	8	50	P-217
960 - 1215	MRF1090MA	50	90	8.4	35	P-230
960 - 1215	MRF1090MB	50	90	8.4	35	P-224
960 - 1215	MRF1150MA	50	150	7.8	35	P-230
960 - 1215	MRF1150MB	50	150	7.8	35	P-224
1025 - 1150	MRF10150	50	150	9.5	40	P-203
1025 - 1150	MRF10350	50	350	8.5	40	P-219
1025 - 1150	MRF10502	50	500	8.5	40	P-212
1030	MAPRST1030-1KS	50	1000	8	45	P94I
1030 - 1090	PH1090-15L	45	15	9	40	P-8TF
1030 - 1090	PH1090-175L	45	175	8.3	55	P-51F
1030 - 1090	PH1090-350L	45	350	8	55	P-94C
1030 - 1090	PH1090-550S	50	550	7.4	55	P-94C
1030 - 1090	PH1090-700B	50	700	7.5	50	P-154C
1030 - 1090	PH1090-75L	45	75	9	45	P-51D
1200 - 1400	MAPRST0002	40	50	9.5	50	P-8T
1200 - 1400	MAPRST1214-6UF	36	6	8.75	40	P-8TF

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Bipolar (continued)

Frequency (MHz)	Part Number	Operating Voltage (V)	Pout (W)	Min. Gain (dB)	Min. Efficiency (%)	Package
Packaged Products						
1200 - 1400	MAPRST1214-30UF	36	30	7.5	45	P-51H
1200 -1400	MAPRST1214-150UF	36	150	7.4	45	P-94C
1200 - 1400	PH1214-0.85L	11.5	0.85	9.3	30	P-8TA
1200 - 1400	PH1214-100EL	28	100	6	52	P-51I
1200 - 1400	PH1214-110M	40	110	7.4	50	P-23C
1200 - 1400	PH1214-12M	28	12	9	45	P-8TF
1200 - 1400	PH1214-20EL	28	20	9.5	50	P-8TA
1200 - 1400	PH1214-220M	40	220	7.4	50	P-94C
1200 - 1400	PH1214-25L	28	25	9.5	50	P-8TA
1200 - 1400	PH1214-25M	28	25	9.5	50	P-8TA
1200 - 1400	PH1214-25S	28	25	9.5	50	P-8TA
1200 - 1400	PH1214-2M	28	2	7	45	P-8TA
1200 - 1400	PH1214-300M	40	300	8.75	50	P-94C
1200 - 1400	PH1214-30EL	28	30	7.8	50	P-8TA
1200 - 1400	PH1214-3L	16.5	3	5.7	40	P-8TA
1200 - 1400	PH1214-40M	40	40	8.5	50	P-8TA
1200 - 1400	PH1214-4M	28	4	7	45	P-8TF
1200 - 1400	PH1214-55EL	28	55	6.6	50	P-98
1200 - 1400	PH1214-6M	28	6	7	45	P-8TF
1200 - 1400	PH1214-80M	40	80	7.5	50	P-51D
1200 - 1400	PH1214-8M	28	8	7	45	P-8TF
1450 - 1600	PH1516-10	25	10	10	40	Ceramic
1450 - 1500	PH1516-100	26	100	8	30	Ceramic
1450 - 1500	PH1516-60	26	60	8	30	Ceramic
1600 - 1640	MRF16006	28	6	7.4	40	P-206
1600 - 1640	MRF16030	28	30	7.5	40	P-207
1600 - 1640	MRF3104	20	0.5	10.5	—	P-228
1600 - 1700	PH1617-2	25	2	10	35	Ceramic
1600 - 1700	PH1617-30	25	30	10	40	Ceramic
1615 - 1685	PH1617-60	26	60	9	40	Module
1780 - 1900	PH1819-10	25	10	9	40	Ceramic
1780 - 1900	PH1819-15N	26	15	7.9	25	Ceramic
1780 - 1900	PH1819-2	25	2	10	35	Ceramic
1780 - 1900	PH1819-4N	26	4	10	25	Ceramic
1805 - 1880	PH1819-60	26	60	8	40	P-145E
1805 - 1880	PH1819-33	25	33	7	40	Ceramic
1805 - 1880	PH1819-45	25	45	8	40	Ceramic
1930 - 1990	PH1920-33	25	33	7	40	Ceramic
1930 - 1990	PH1920-45	25	45	8	40	Ceramic
1930 - 1990	PH1920-60	26	60	8	40	P-145E
2200 - 2600	PH2226-110M	36	110	8	45	P-94D
2200 - 2600	PH2226-50M	36	50	8	45	P-51D
2300	PH2323-1	28	1	8	30	Ceramic
2300	PH2323-14	28	14	7.6	35	Ceramic

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

Blue listings indicate standard stock items widely available from our franchised distribution partners.

Detailed specifications for our standard parts can be found quickly on our web site at www.macom.com by typing the part number into the search box.

All specifications are subject to change.

Bipolar (continued)

Frequency (MHz)	Part Number	Operating Voltage (V)	Pout (W)	Min. Gain (dB)	Min. Efficiency (%)	Package
Packaged Products						
2300	PH2323-3	28	3	8	30	Ceramic
2300	PH2323-5	28	5	8	35	Ceramic
2700 - 2900	PH2729-110M	36	110	6.8	35	P-94D
2700 - 2900	PH2729-130M	36	130	7.5	40	P-51G
2700 - 2900	PH2729-150M	38	150	8.3	38	P-94D
2700 - 2900	MAPRST2729-170M	36	170	8.5	40	P-94D
2700 - 2900	PH2729-25M	36	25	9.2	45	P-98
2700 - 2900	PH2729-65M	36	65	8.5	40	P-51E
2700 - 2900	PH2729-8.5M	36	8.5	8.1	35	P-51D
2700 - 3100	PH2731-20M	36	20	8.2	45	P-98
2700 - 3100	PH2731-5M	36	5	7	30	P-51D
2700 - 3100	PH2731-75L	36	75	7	40	P-51G
2856	MAPRST2856-200	40	200	7.5	38	P-94C
2856	PH2856-160	40	160	7.5	40	Ceramic
2900 - 3100	PH2931-135S	42	135	7.5	40	P-94D
2900 - 3100	PH2931-20M	36	20	8.2	45	P-98
2900 - 3100	PH2931-5M	36	5	7	30	P-51D
2900 - 3300	MAPRST2933-100M	36	100	8	38	P-51G
3100 - 3400	PH3134-11S ◆	36	11	8	35	P-8TF
3100 - 3400	PH3134-20L	36	20	7.5	35	P-51D
3100 - 3400	PH3134-30S	36	30	7.5	35	P-51D
3100 - 3400	PH3134-55L	36	55	7.5	35	P-51E
3100 - 3400	PH3134-65M	36	65	7.5	35	P-51E
3100 - 3400	PH3134-75S	36	75	7.5	35	P-51E
3100 - 3400	PH3134-9L	36	9	8	35	P-8TF
3100 - 3500	PH3135-20M	36	20	7.5	35	P-51D
3100 - 3500	PH3135-25S	36	25	7.5	35	P-51D
3100 - 3500	PH3135-30M	36	30	7.5	35	P-51D
3100 - 3500	PH3135-5M	33	5	8.5	30	P-51D
3100 - 3500	PH3135-5S ◆	33	5	8.5	30	P-51D
3100 - 3500	PH3135-65M	36	65	7.5	35	P-51E
3100 - 3500	PH3135-90S	36	90	7.5	35	P-51E

High Power Transistor Modules

Frequency (MHz)	Part Number	Operating Voltage (V)	Pout (W)	Min. Gain (dB)	Min. Efficiency (%)	Package
Packaged Products						
30 - 400	PHA4000-1 ◆	27	13	28	25	Module
30 - 400	PHA4000-2 ◆	27	64	7	35	Module
2700 - 2900	MAPPST2729-300M ◆	36	300	8.3	40	Pallet
2700 - 3100	PHA2731-140L ◆	36	140	7	35	Pallet
2700 - 3100	PHA2731-190M ◆	38	190	7.5	33	Pallet
2900 - 3300	MAPPST2933-190M ◆	36	190	7.5	35	Pallet
3100 - 3400	MAPPST3134-120L ◆	36	120	8	36	Pallet
3100 - 3500	PHA3135-130M ◆	36	130	7	35	Pallet

LDMOS

Frequency (MHz)	Part Number	Operating Voltage (V)	Pout (W)	Min. Gain (dB)	Min. Efficiency (%)	Package
Packaged Products						
800 - 1000	MAPLST0810-030CF	26V	30W	17	50	P-239
800 - 1000	MAPLST0810-045CF	26V	45W	17	50	P-239
800 - 1000	MAPLST0810-090CF	26V	90W	17	50	P-238
800 - 1700	MAPL-000817-015C00 ◆	26V	15W	15	40	—
800 - 2200	MAPLST0822-002PP ◆	28V	2W	14	40	—
1600 - 1700	MAPLST1617-030CF	26V	30W	14	40	P-237
1880 - 1920	MAPLST1900-030CF	26V	30W	13	40	P-237
1880 - 1920	MAPLST1900-060CF	26V	60W	13	40	P-238
1800 - 2000	MAPLST1820-030CF	26V	30W	13	40	P-237
1800 - 2000	MAPLST1820-060CF	26V	60W	13	40	P-238
1800 - 2000	MAPLST1820-090CF	26V	90W	13	40	P-240
2100 - 2200	MAPLST2122-15CF	28V	15W	13	40	P-239
2100 - 2200	MAPLST2122-30CF	28V	30W	12.	40	P-237
2100 - 2200	MAPLST2122-60CF	28V	60W	12.5	40	P-238
2100 - 2200	MAPLST2122-90CF	28V	90W	12	40	P-240

DMOS MOSFET

Frequency (MHz)	Part Number	Operating Voltage (V)	Pout (W)	Min. Gain (dB)	Min. Efficiency (%)	Package
Packaged Products						
30 - 88	FH2114	24	75	13	65	P58
30 - 88	FH2164	12	8	13	55	P-82
30 - 175	DU1215S	12	15	9.5	60	P54
30 - 175	DU1230S	12	30	10	60	P54
30 - 175	DU1260T	12	60	8	60	P70
30 - 175	DU2805S	28	5	11	55	P54
30 - 175	DU2810S	28	10	13	55	P54
30 - 175	DU28120T	28	120	13	60	P-70
30 - 175	DU28120V	28	120	13	60	P-34A
30 - 175	DU28200M	28	200	13	55	P-25
30 - 175	DU2820S	28	20	13	60	P-54
30 - 175	DU2840S	28	40	13	60	P54
30 - 175	DU2860T	28	60	13	60	P70
30 - 175	DU2860U	28	60	13	60	P-90
30 - 175	DU2880T	28	80	13	60	P-58
30 - 175	DU2880U	28	80	13	60	P90
30 - 175	DU2880V	28	80	13	60	P34A
100 - 500	UF2805B	28	5	10	50	P-83B
100 - 500	UF28100H	28	100	10	50	BAL-3
100 - 500	UF28100M	28	100	10	50	P-25
100 - 500	UF28100V	28	100	10	50	P-34A
100 - 500	UF2810P	28	10	10	50	P-82
100 - 500	UF28150J	28	150	8	55	P-84
100 - 500	UF2815B	28	15	10	50	P-83B
100 - 500	UF2820P	28	20	10	50	P-82
100 - 500	UF2820R	28	20	10	50	P-56
100 - 500	UF2840G ◆	28	40	10	50	SS-1E
100 - 500	UF2840P	28	40	10	50	P-82
500 - 1000	LF2802A ◆	28	2	10	40	SS-1D
500 - 1000	LF2805A ◆	28	5	10	50	SS-1D
500 - 1000	LF2810A ◆	28	10	10	50	SS-1D

TMOS

Frequency (MHz)	Part Number	Operating Voltage (V)	Pout (W)	Min. Gain (dB)	Min. Efficiency (%)	Package
Packaged Products						
2 - 80	MRF154	50	600	17	45	P-214
2 - 80	MRF157	50	600	21	45	P-214
2 - 150	MRF140	28	150	15	40	P208
2 - 150	MRF150	50	150	17	45	P208
2 - 175	MRF141	28	150	18	40	P208
2 - 175	MRF141G	28	300	12	50	P-217
2 - 175	MRF148A	50	30	18	40	P-216
2 - 175	MRF151	50	150	13	40	P208
2 - 175	MRF151G	50	300	14	50	P-217
2 - 175	MRF173	28	80	11	60	P208
2 - 175	MRF173CQ	28	80	13	60	P209
2 - 200	MRF174	28	125	9	50	P208
2 - 225	MRF175GV	28	200	14	65	P-218
2 - 225	MRF176GV	50	200	17	55	P-218
2 - 400	MRF175GU	28	150	12	55	P-218
2 - 400	MRF134	28	5	11	50	P-222
2 - 400	MRF136	28	15	16	60	P-222
2 - 400	MRF136Y	28	30	14	54	P-215
2 - 400	MRF137	28	30	13	60	P-222
2 - 400	MRF175LU	28	100	10	55	P-225
2 - 400	MRF176GU	50	150	14	50	P-218
2 - 400	MRF177	28	100	12	60	P-226
2 - 500	MRF158	28	2	16	55	P-228
2 - 500	MRF160	28	4	16	55	P-221
2 - 500	MRF166C	28	20	13.5	50	P-204
2 - 500	MRF166W	28	40	14	50	P-202
2 - 500	MRF275G	28	150	10	50	P-218
2 - 500	MRF275L	28	100	8.8	55	P-225
100 - 200	MRF171A	28	45	17	60	P-216

Plastic Leadless Packages

Package Type	Approx Outline Dimensions (mm)	
1.2 x 1.5 mm PDFN	1.2 x 1.5 x 0.75	
2 mm 8LD PDFN	2 x 2 x 0.9	
3 mm 12LD PQFN	3 x 3 x 0.9	
3 mm 16LD PQFN	3 x 3 x 0.9	
4 mm 16LD PQFN	4 x 4 x 0.9	
4 mm 20LD PQFN	4 x 4 x 0.9	
4 mm 20LD PQFN (LP)	4 x 4 x 0.75	
5 mm 20LD PQFN	5 x 5 x 0.9	
5 mm 28LD PQFN	5 x 5 x 0.9	
6 mm 28LD PQFN	6 x 6 x 0.9	
4 x 6 mm 28LD PQFN	4 x 6 x 0.9	
4 x 7 mm 36LD PQFN	4 x 7 x 0.9	

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	
SOT-89	4.5 x 4 x 1.5	

Plastic Leaded Packages

Package Type	Approx Outline Dimensions (mm)	
SOT-143	2.9 x 2.4 x 1	
SC70 3LD (SOT-323)	2 x 2.1 x 1	
SC70 6LD (SOT-363)	2 x 2.1 x 1	
SOIC-8/SOIC-8EP	4.9 x 6 x 1.6	
SOIC-14	8.7 x 6 x 1.6	
SOIC-16	9.9 x 6 x 1.6	
SOW-16	10.3 x 10.3 x 2.5	
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	3 x 4.9 x 1	
QSOP-16	4.9 x 6 x 1.6	
QSOP-24	8.7 x 6 x 1.6	
QSOP-28	9.9 x 6 x 1.6	


Ceramic/Chip Diode Packages

Package Type	Approx Outline Dimensions (mm)	
30 Ceramic	3.2 dia. x 5.7	
132 Ceramic	0.6 x 0.6 x 0.2	
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	


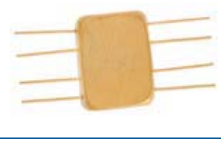

Metal/Ceramic Packages

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	

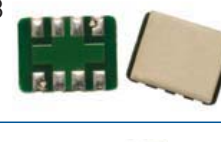





Metal/Ceramic Packages

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	





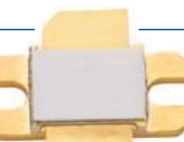

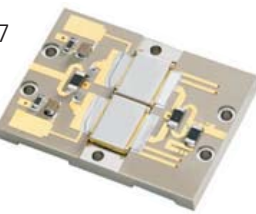

Passive Packages

Package Type	Approx Outline Dimensions (mm)	
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-138	4.2 x 5.3 x 3.9	
SM-152	4.2 x 5.3 x 4.3	

Transistor Packages

Package Type	Approx Outline Dimensions (mm)	
211-11, Style 2 Ceramic	26 x 26 x 7	
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	
375-04, Style 2 Ceramic	34 x 21 x 5	
368-03, Style 2 Ceramic	38 x 50 x 9	
PH1214-M Series Ceramic	23 x 10 x 4.5	
PPF-16 (actual size)	7 x 7 x 2	

Transistor Packages

Package Type	Approx Outline Dimensions (mm)	
P-8TF	20.8 x 6.4 x 3.5	
P-51H	22.9 x 10.2 x 5.5	
P-94C	22.9 x 10.2 x 5.5	
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 (1/4 size)	50.8 x 35.8 x 7	
Pallet (1/4 size)	50.8 x 35.8 x 7	

Decibels – Volts – Watts Conversion Table

50-Ohm System Terminated											
dBm	V	P _o	dBm	V	P _o	dBm	mV	P _o	dBm	μV	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

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

Wavelength and Frequency

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

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

- λ = wavelength in meters (m)
- F = frequency in hertz (Hz)
- ε_r = relative dielectric constant of propagation medium
- c = velocity of light (300,000,000 m/s)
- μ_r = relative permeability of propagation medium

The dielectric (ε) is a property of the medium in which the wave propagates. The value of ε is defined as 1.000 for a perfect vacuum, and very nearly 1.0 for dry air (typically 1.006). In most practical applications, the value of ε in dry air is taken to be 1.000. For mediums other than air or vacuum, however, the velocity of propagation is slower, and the value of ε relative to a vacuum is higher. Teflon®, for example, can be made with dielectric constant values (ε) from about 2 to 11.

Frequency vs. Wavelength

Frequency	Wavelength
1 MHz	300 meters (m)
10 MHz	30 m
100 MHz	3 m
300 MHz	1 m—100 centimeters (cm)
1 GHz	30 cm
10 GHz	3 cm
100 GHz	3 millimeters (mm)
300 GHz	1 mm—10 ⁻³ m
3 x 10 ¹⁴	1 micron—10 ⁻⁶ m

The Effect of VSWR on Transmitted Power

VSWR	VSWR (dB)	Return Loss (dB)	Trans. Loss (dB)	Volt. Refl. Coeff.	Power Trans. (%)	Power Refl. (%)
1.00	.0	∞	.000	.00	100	.0
1.01	.1	46.1	.000	.00	100	.0
1.02	.2	40.1	.000	.01	100	.0
1.03	.3	36.6	.001	.01	100	.0
1.04	.4	34.2	.002	.02	100	.0
1.05	.4	32.3	.003	.02	99.9	.1
1.06	.5	30.7	.004	.03	99.9	.1
1.07	.6	29.4	.005	.03	99.9	.1
1.08	.7	28.3	.006	.04	99.9	.1
1.09	.7	27.3	.008	.04	99.8	.2
1.10	.8	26.4	.010	.05	99.8	.2
1.11	.9	25.7	.012	.05	99.7	.3
1.12	1	24.9	.014	.06	99.7	.3
1.13	1.1	24.3	.016	.06	99.6	.4
1.14	1.1	23.7	.019	.07	99.6	.4
1.15	1.2	23.1	.021	.07	99.5	.5
1.16	1.3	22.6	.024	.07	99.5	.5
1.17	1.4	22.1	.027	.08	99.4	.6
1.18	1.4	21.7	.030	.08	99.3	.7
1.19	1.5	21.2	.033	.09	99.2	.8
1.20	1.6	20.8	.036	.09	99.2	.8
1.21	1.7	20.4	.039	.1	99.1	.9
1.22	1.7	20.1	.043	.1	99	1
1.23	1.8	19.7	.046	.1	98.9	1.1
1.24	1.9	19.4	.05	.11	98.9	1.1
1.25	1.9	19.1	.054	.11	98.8	1.2
1.26	2	18.8	.058	.12	98.7	1.3
1.27	2.1	18.5	.062	.12	98.6	1.4
1.28	2.1	18.2	.066	.12	98.5	1.5
1.29	2.2	17.9	.07	.13	98.4	1.6
1.3	2.3	17.7	.075	.13	98.3	1.7
1.32	2.4	17.2	.083	.14	98.1	1.9
1.34	2.5	16.8	.093	.15	97.9	2.1
1.36	2.7	16.3	.102	.15	97.7	2.3
1.38	2.8	15.9	.112	.16	97.5	2.5
1.4	2.9	15.6	.122	.17	97.2	2.8
1.42	3	15.2	.133	.17	97	3
1.44	3.2	14.9	.144	.18	96.7	3.3
1.46	3.3	14.6	.155	.19	96.5	3.5
1.48	3.4	14.3	.166	.19	96.3	3.7
1.5	3.5	14	.177	.2	96	4
1.52	3.6	13.7	.189	.21	95.7	4.3
1.54	3.8	13.4	.201	.21	95.5	4.5
1.56	3.9	13.2	.213	.22	95.2	4.8
1.58	4	13	.225	.22	94.9	5.1
1.6	4.1	12.7	.238	.23	94.7	5.3
1.62	4.2	12.5	.25	.24	94.4	5.6

The Effect of VSWR on Transmitted Power (continued)

VSWR	VSWR (dB)	Return Loss (dB)	Trans. Loss (dB)	Volt. Refl. Coeff.	Power Trans. (%)	Power Refl. (%)
1.64	4.3	12.3	.263	.24	94.1	5.9
1.66	4.4	12.1	.276	.25	93.8	6.2
1.68	4.5	11.9	.289	.25	93.6	6.4
1.7	4.6	11.7	.302	.26	93.3	6.7
1.72	4.7	11.5	.315	.26	93	7
1.74	4.8	11.4	.329	.27	92.7	7.3
1.76	4.9	11.2	.342	.28	92.4	7.6
1.78	5	11	.356	.28	92.1	7.9
1.8	5.1	10.9	.37	.29	91.8	8.2
1.82	5.2	10.7	.384	.29	91.5	8.5
1.84	5.3	10.6	.398	.30	91.3	8.7
1.86	5.4	10.4	.412	.3	91	9
1.88	5.5	10.3	.426	.31	90.7	9.3
1.9	5.6	10.2	.440	.31	90.4	9.6
1.92	5.7	10	.454	.32	90.1	9.9
1.94	5.8	9.9	.468	.32	89.9	10.2
1.96	5.8	9.8	.483	.32	89.5	10.5
1.98	5.9	9.7	.497	.33	89.2	10.8
2	6	9.5	.512	.33	88.9	11.1
2.5	8	7.4	.881	.43	81.6	18.4
3	9.5	6	1.249	.5	75	25
3.5	10.9	5.1	1.603	.56	69.1	30.9
4	12	4.4	1.938	.6	64	36
4.5	13.1	3.9	2.255	.64	59.5	40.5
5	14	3.5	2.553	.67	55.6	44.4
5.5	14.8	3.2	2.834	.69	52.1	47.9
6	15.6	2.9	3.1	.71	49	51
6.5	16.3	2.7	3.351	.73	46.2	53.8
7	16.9	2.5	3.59	.75	43.7	56.2
7.5	17.5	2.3	3.817	.76	41.5	58.5
8	18.1	2.2	4.033	.78	39.5	60.5
8.5	18.6	2.1	4.24	.79	37.7	62.3
9	19.1	1.9	4.437	.8	36	64
9.5	19.6	1.8	4.626	.81	34.5	65.5
10	20	1.7	4.807	.82	33.1	66.9
11	20.8	1.6	5.149	.83	30.6	69.4
12	21.6	1.5	5.466	.85	28.4	71.6
13	22.3	1.3	5.762	.86	26.5	73.5
14	22.9	1.2	6.04	.87	24.9	75.1
15	23.5	1.2	6.301	.88	23.4	76.6
16	24.1	1.1	6.547	.88	22.1	77.9
17	24.6	1	6.78	.89	21	79
18	25.1	1	7.002	.89	19.9	80.1
19	25.6	.9	7.212	.9	19	81
20	26	.9	7.413	.90	18.1	81.9
25	28	.7	8.299	.92	14.8	85.2
30	29.5	.6	9.035	.94	12.5	87.5

Worldwide Wireless Telecommunications Standards

Standard	Designation	Transmit Frequency Range (MHz)		Generation
		Handset	Base Station	
AMPS		824 - 849	869 - 894	Analog
TDMA	Cellular	824 - 849	869 - 894	2G
	PCS	1850 - 1910	1930 - 1990	
GSM	400	450.4 - 457.6	460.4 - 467.6	2G
	400	478.8 - 486	488.8 - 496	2G
	850	824 - 849	869 - 894	2G
	900	880 - 915	925 - 960	2G
	1800	1710 - 1785	1805 - 1880	2G
CDMAone	Cellular	824 - 849	869 - 894	2G
	PCS	1850 - 1910	1930 - 1990	2G
GPRS/EDGE	400	450.4 - 457.6	460.4 - 467.6	2.5G
	400	478.8 - 486	488.8 - 496	2.5G
	850	824 - 849	869 - 894	2.5G
	900	880 - 915	925 - 960	2.5G
	1800	1710 - 1785	1805 - 1880	2.5G
CDMA2000 1x EV-DO/EV-DV	450	452.5 - 457.475	462.5 - 467.475	3G
	800	824 - 849	869 - 894	3G
	1700	1750 - 1780	1840 - 1870	3G
	1900	1850 - 1910	1930 - 1990	3G
W-CDMA (UMTS)	1900	1920 - 1980	2110 - 2170	3G
	2100	1920 - 1980	2110 - 2170	3G
TD-SCDMA1		2010 - 2025	2010 - 2025	3G

¹ Several additional frequency ranges have been set aside for use at the operator's or granting authority's discretion

Cordless Telephone/Wireless Data

Standard	Frequency (MHz)
CT2 Cordless	864 - 868
CT2+ Cordless	944 - 948
DECT Cordless	1880 - 1900
Bluetooth	2402 - 2495
IEEE 802.11a	5150 - 5350
IEEE 802.11b	2401 - 2483
IEEE 802.11g	2401 - 2483
ISM (US)	902 - 928
ISM (US)	2400 - 2500
ISM (US)	5725 - 5875

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