M2A / M2AC

Double-Balanced Mixer



Rev. V3

Features

- LO 10 to 1500 MHz
- RF 10 to 1500 MHz
- IF DC to 800 MHz
- LO Drive +7 dBm (nominal)
- High Isolation 35 dB (typ)

Description

The M2A is a double balanced mixer, designed for use in military, commercial, and test equipment applications. The design utilizes Schottky ring quad diodes and broadband ferrite baluns to attain excellent performance. This mixer can also be used as a phase detector and/or bi-phase modulator since the IF port is DC coupled to the diodes. Environmental screening is available to MIL-STD-883, MIL-STD-202, or MIL-DTL-28837, consult factory.

Ordering Information

Part Number	Package		
M2A	TO-8		
M2AC	SMA Connectorized		

Product Image



Electrical Specifications: $Z_0 = 50\Omega$ Lo = +7 dBm (Downconverter application only)

Parameter	Test Conditions	Units	Typical	Guaranteed	
Parameter Test Conditions		Units		+25ºC	-54º to +85ºC *
SSB Conversion Loss (max)	$ \begin{array}{l} {\rm fR} = 0.02 \mbox{ to } 0.6 \mbox{ GHz}, \mbox{ fL} = 0.01 \mbox{ to } 0.8 \mbox{ GHz}, \mbox{ fI} = 0.001 \mbox{ to } 0.2 \mbox{ GHz} \\ {\rm fR} = 0.01 \mbox{ to } 1.5 \mbox{ GHz}, \mbox{ fL} = 0.01 \mbox{ to } 1.5 \mbox{ GHz}, \mbox{ fI} = 0.001 \mbox{ to } 0.2 \mbox{ GHz} \\ {\rm fI} = 0.001 \mbox{ to } 0.8 \mbox{ GHz} \end{array} $	dB	7.0 7.5 8.0	7.5 8.5 9.0	8.0 9.0 9.5
SSB Noise Figure (max)	Within 1 db of conversion loss	dB			
Isolation, L to R (min)	fL = 0.01 to 0.5 GHz fL = 0.5 to 1.2 GHz fL = 1.2 to 1.5 GHz	dB	45 40 35	35 28 25	
Isolation, L to I (min)	fL = 0.01 to 0.5 GHz fL = 0.5 to 1.2 GHz fL = 1.2 to 1.5 GHz	dB	40 30 25	30 20 18	
1 dB Conversion Comp.	fL = +7 dBm	dBm	0		
Input IP3		dBm	+12		

* The M2AC specification limits apply at 0°C to +50°C.

Commitment to produce in volume is not guaranteed.

1

• North America Tel: 800.366.2266 • Europe Tel: +353.21.244.6400 • India Tel: +91.80.4155721 • China Tel: +86.21.2407.1588

Visit www.macomtech.com for additional data sheets and product information.

Solutions has under development. Performance is based on engineering tests. Specifications are typical. Mechanical outline has been fixed. Engineering samples and/or test data may be available. M/A-COM Technology Solutions Inc. and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.

ADVANCED: Data Sheets contain information regarding a product M/A-COM Technology Solutions is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed. PRELIMINARY: Data Sheets contain information regarding a product M/A-COM Technology

M2A / M2AC



Rev. V3

Typical Performance Curves

Conversion Loss



Conversion Loss





solation



Conversion Loss

ADVANCED: Data Sheets contain information regarding a product M/A-COM Technology Solutions is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed. **PRELIMINARY:** Data Sheets contain information regarding a product M/A-COM Technology Solutions has under development. Performance is based on engineering tests. Specifications are typical. Mechanical outline has been fixed. Engineering samples and/or test data may be available.

Commitment to produce in volume is not guaranteed.

North America Tel: 800.366.2266
 Europe Tel: +353.21.244.6400
 India Tel: +91.80.4155721
 China Tel: +86.21.2407.1588

Visit www.macomtech.com for additional data sheets and product information.

M/A-COM Technology Solutions Inc. and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.

M2A / M2AC





Rev. V3

Absolute Maximum Ratings

Parameter	Absolute Maximum		
Operating Temperature	-54°C to +100°C		
Storage Temperature	-65⁰C to +100⁰C		
Peak Input Power	+23 dBm max @ +25⁰C +17 dBm max @ +100⁰C		
Peak Input Current	50 mA DC		

Outline Drawing: TO-8 *



Outline Drawing: SMA Connectorized *



* Dimensions are inches (millimeters) ±0.015 (0.38) unless otherwise specified.

3

- ADVANCED: Data Sheets contain information regarding a product M/A-COM Technology Solutions is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed. **PRELIMINARY:** Data Sheets contain information regarding a product M/A-COM Technology Solutions has under development. Performance is based on engineering tests. Specifications are typical. Mechanical outline has been fixed. Engineering samples and/or test data may be available. Commitment to produce in volume is not guaranteed.
- North America Tel: 800.366.2266
 Europe Tel: +353.21.244.6400
 India Tel: +91.80.4155721
 China Tel: +86.21.2407.1588
- Visit www.macomtech.com for additional data sheets and product information.

M/A-COM Technology Solutions Inc. and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.