M4A / SM4A

Double-Balanced Mixer



Rev. V4

Features

- LO 10 TO 1500 MHz
- RF 10 TO 1500 MHz
- IF DC TO 1000 MHz
- LO DRIVE: +7 dBm (NOMINAL)
- HIGH ISOLATION: 35 dB (TYP.)

Description

The M4A 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
M4A	Flatpack
SM4A	Surface Mount

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

Deremeter	Test Conditions	Unito	Typical	Guaranteed	
Parameter Test Conditions		Units		+25⁰C	-54º to +85ºC *
SSB Conversion Loss (max) & SSB Noise Figure (max)	$eq:rescaled_$	dB dB dB dB	6.0 7.0 7.5 8.5	7.0 8.0 8.5 9.5	7.5 8.5 9.0 10.0
Isolation, L to R (min)	fL = 0.01 to 0.6 GHz fL = 0.6 to 1.2 GHz fL = 1.2 to 1.5 GHz	dB dB dB	40 35 30	30 25 25	28 23 23
Isolation, L to I (min)	fL = 0.1 to 0.6 GHz fL = 0.6 to 1.2 GHz fL = 1.2 to 1.4 GHz	dB dB dB	40 30 25	25 20 18	23 18 16
1 dB Conversion Comp.	fL @ +7 dBm	dBm	+0		
Input IP3					

* The SM4A specification limits apply at 0°C to +50°C.

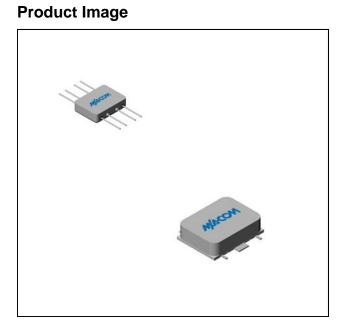
1

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 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.

PRELIMINARY: Data Sheets contain information regarding a product M/A-COM I echnology 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.

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.



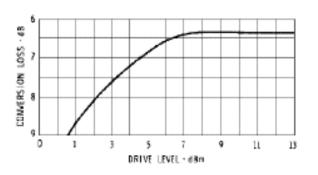
M4A / SM4A

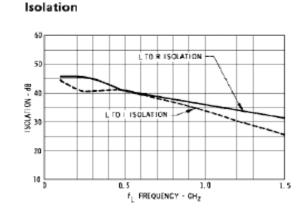


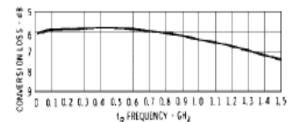
Rev. V4

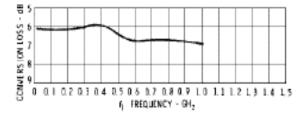
Typical Performance Curves

Conversion Loss









2

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. M/A-COM Technology Solutions Inc. and its affiliates reserve the right to make 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.

changes to the product(s) or information contained herein without notice.



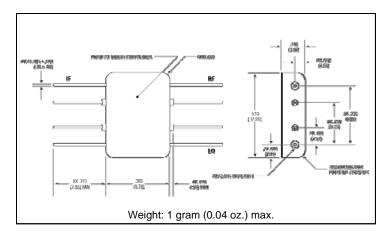


Rev. V4

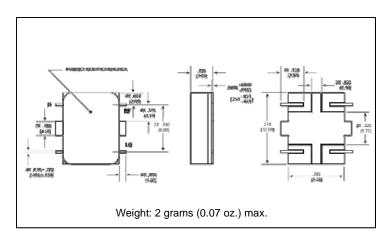
Absolute Maximum Ratings

Parameter	Absolute Maximum	
Operating Temperature	-54ºC to +100ºC	
Storage Temperature	-65°C to +100°C	
Peak Input Power	+23 dBm max @ +25⁰C +17 dBm max @ +100⁰C	
Peak Input Current	50 mA DC	

Outline Drawing: Flatpack *



Outline Drawing: Surface Mount *



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

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.