

## Features

- Low Conversion Loss
- 1 dB Compression: +21 dBm
- LO Drive Level: +11 to +23 dBm
- DC - 100 MHz IF Bandwidth
- Lead-Free SOIC-8 Package
- 100% Matte Tin Plating over Copper
- Halogen-Free “Green” Mold Compound
- 260°C Reflow Compatible
- RoHS\* Compliant Version of MD54-0004

## Description

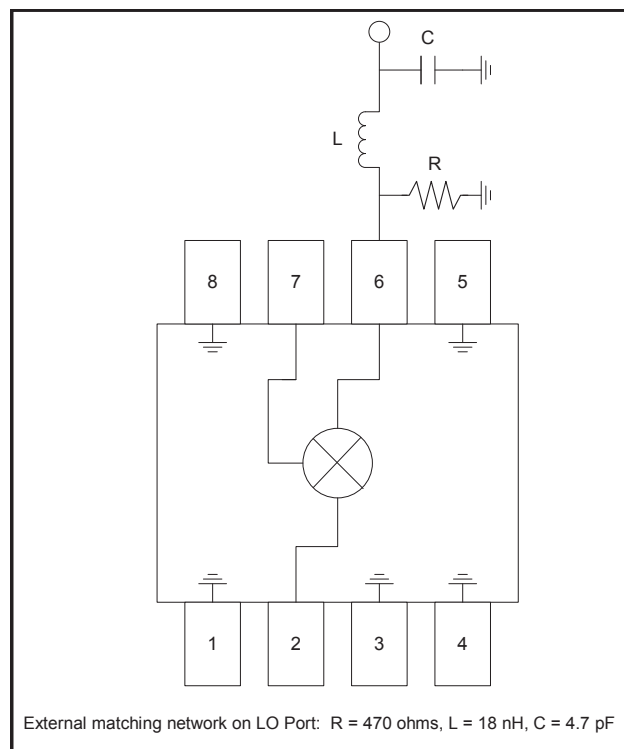
M/A-COM's MAMXSS0011 is a passive mixer that achieves the performance of a double balanced diode mixer in a lead-free surface mount plastic SOIC-8 package. The MAMXSS0011 is ideally suited for use where high level RF signals and very wide dynamic range are required.

Typical applications include frequency up/down conversion, modulation, demodulation in systems such as cellular receivers and transmitters and 900 MHz ISM band applications.

The MAMXSS0011 uses FETs as mixing elements to achieve very wide dynamic range in a low cost plastic package. The mixer operates with LO drive levels of +11 dBm to +23 dBm. DC bias is not required.

M/A-COM's MAMXSS0011 is fabricated using a mature 1-micron GaAs process. The process features full IC passivation for increased performance and reliability.

## Functional Diagram



## Pin Configuration

Pin No.	Function	Pin No.	Function
1	Ground	5	Ground
2	RF Port	6	LO Port
3	Ground	7	IF Port
4	Ground	8	Ground

## Ordering Information <sup>1</sup>

Part Number	Package
MAMXSS0011	Bulk Packaging
MAMXSS0011TR	1000 piece reel
MAMXSS0011SMB	Designer's Kit

1. Reference Application Note M513 for reel size information.

\* Restrictions on Hazardous Substances, European Union Directive 2002/95/EC.

## MMIC Medium Level Mixer 800 - 1000 MHz

Rev. V3

### Electrical Specifications:

Test Conditions: RF = 900 MHz (-10 dBm), LO = 840 MHz (13 dBm), IF = 60 MHz, T<sub>A</sub> = +25°C

Parameter	Test Conditions	Units	Min	Typ	Max
Conversion Loss	—	dB	—	7.5	9.5
Isolation	LO to RF	dB	—	38	—
	LO to IF	dB	—	22	—
	RF to IF	dB	—	12	—
VSWR	LO Port	Ratio	—	2.5:1	—
	RF Port	Ratio	—	2.0:1	—
	IF Port	Ratio	—	2.0:1	—
Input 1 dB Compression	RF Freq. = 900 MHz, LO = +13 dBm	dBm	—	+21	—
Two-Tone IM Ratio <sup>2</sup>	Two tones at -10 dBm each, Tone spacing 100 kHz, IF = 60 MHz	dBc	45	60	—

2. IMR vs RF drive level can be calculated by the formula:  $IMR = 45 - (1.5 \times P_{IN})$

### Absolute Maximum Ratings<sup>3,4</sup>

Parameter	Absolute Maximum
RF Input Power <sup>5</sup>	+22 dBm
LO Drive Power <sup>5</sup>	+23 dBm
Operating Temperature	-40°C to +85°C
Storage Temperature	-65°C to +150°C

- Exceeding any one or combination of these limits may cause permanent damage to this device.
- M/A-COM does not recommend sustained operation near these survivability limits.
- Total combined power for RF and LO ports should not exceed +23 dBm.

### Handling Procedures

Please observe the following precautions to avoid damage:

### Static Sensitivity

Gallium Arsenide Integrated Circuits are sensitive to electrostatic discharge (ESD) and can be damaged by static electricity. Proper ESD control techniques should be used when handling these devices.

### Spurious Table

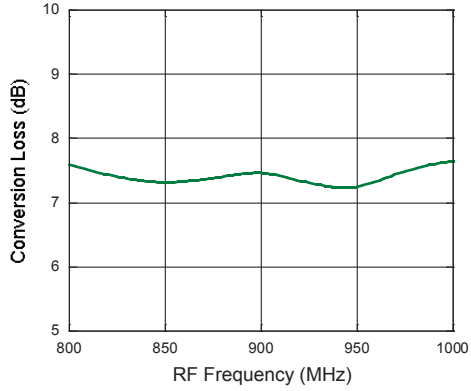
Harmonic of LO	4x	8.9	40.1	70.1	69.9	73.4
		-1.1	39.9	61.6	63.9	64.4
	3x	2.2	34.2	59.8	67.3	73
		-7.7	34.1	63.8	64.5	63
	2x	2.9	23.7	72.8	72.9	71.9
		-7.1	23.8	64.7	63.3	61.9
1x	-2.2	0	61.4	71.3	71.1	
	-12.2	0	63.3	61.8	61.9	
0x	X	4.7	65.1	71.5	72.1	
	X	4.8	61.3	61.9	62.3	
	0x	1x	2x	3x	4x	
Harmonic of RF						

The spurious table shows the spurious signals resulting from the mixing of the RF and LO input signals, assuming down conversion. Mixing products are indicated by the number of dB below the conversion loss. The lower frequency mixing term is shown for two different RF input levels. The top number is for an RF input power of -5 dBm, the lower number is for -15 dBm.

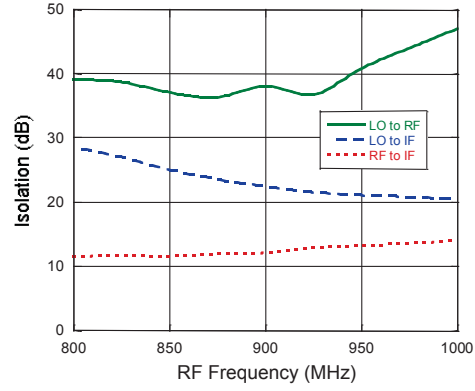
$|mF_{RF} - nF_{LO}|$ , RF = -5 dBm  
 $|mF_{RF} - nF_{LO}|$ , RF = -15 dBm  
 RF Frequency = 900 MHz  
 LO Frequency = 840 MHz

## Typical Performance Curves

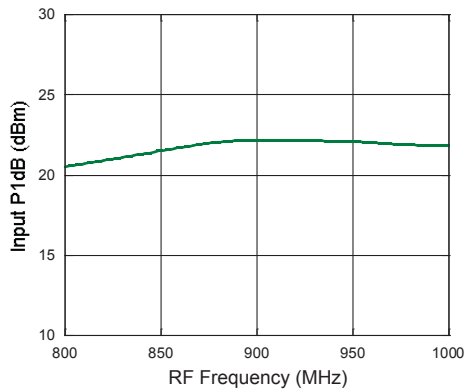
### Conversion Loss



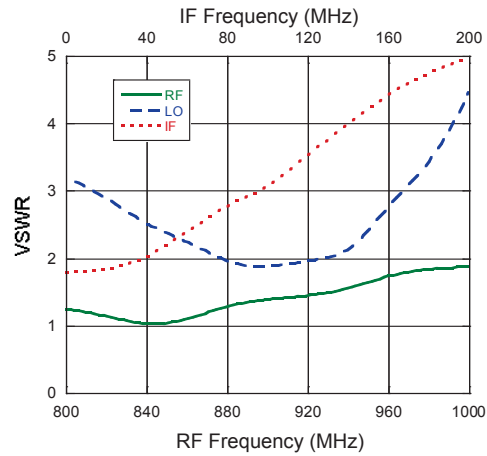
### Isolation



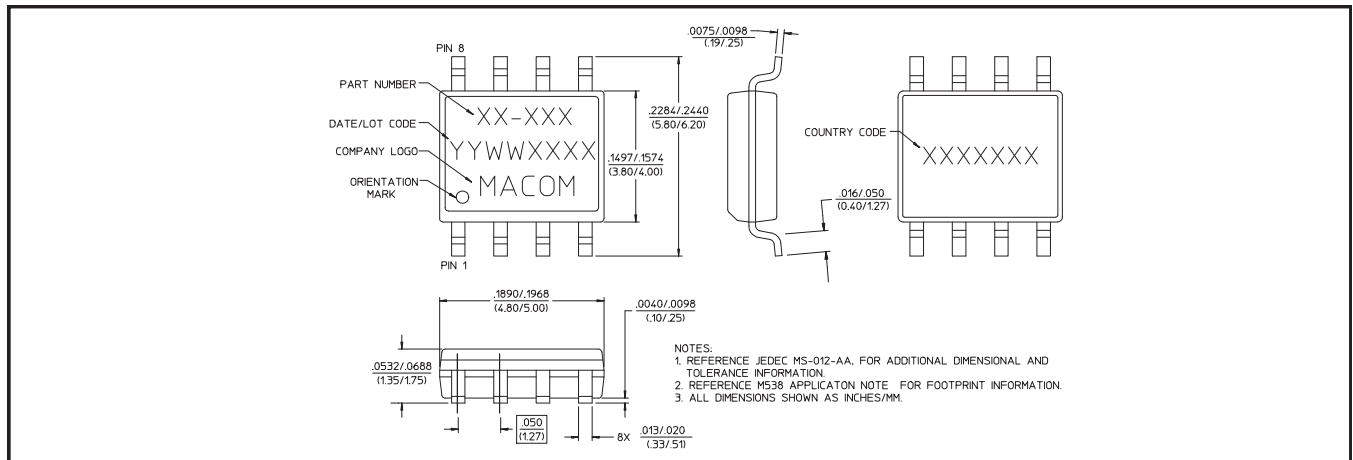
### Input P1dB



### RF, LO and IF VSWR



## Lead-Free SOIC-8†



† Reference Application Note M538 for lead-free solder reflow recommendations.

M/A-COM Technology Solutions Inc. All rights reserved.

Information in this document is provided in connection with M/A-COM Technology Solutions Inc ("MACOM") products. These materials are provided by MACOM as a service to its customers and may be used for informational purposes only. Except as provided in MACOM's Terms and Conditions of Sale for such products or in any separate agreement related to this document, MACOM assumes no liability whatsoever. MACOM assumes no responsibility for errors or omissions in these materials. MACOM may make changes to specifications and product descriptions at any time, without notice. MACOM makes no commitment to update the information and shall have no responsibility whatsoever for conflicts or incompatibilities arising from future changes to its specifications and product descriptions. No license, express or implied, by estoppels or otherwise, to any intellectual property rights is granted by this document.

THESE MATERIALS ARE PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, RELATING TO SALE AND/OR USE OF MACOM PRODUCTS INCLUDING LIABILITY OR WARRANTIES RELATING TO FITNESS FOR A PARTICULAR PURPOSE, CONSEQUENTIAL OR INCIDENTAL DAMAGES, MERCHANTABILITY, OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT. MACOM FURTHER DOES NOT WARRANT THE ACCURACY OR COMPLETENESS OF THE INFORMATION, TEXT, GRAPHICS OR OTHER ITEMS CONTAINED WITHIN THESE MATERIALS. MACOM SHALL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION, LOST REVENUES OR LOST PROFITS, WHICH MAY RESULT FROM THE USE OF THESE MATERIALS.

MACOM products are not intended for use in medical, lifesaving or life sustaining applications. MACOM customers using or selling MACOM products for use in such applications do so at their own risk and agree to fully indemnify MACOM for any damages resulting from such improper use or sale.

## X-ON Electronics

Largest Supplier of Electrical and Electronic Components

*Click to view similar products for [RF Mixer](#) category:*

*Click to view products by [MACOM](#) manufacturer:*

Other Similar products are found below :

[M80C](#) [HMC337-SX](#) [F1763EVBI](#) [mamx-009646-23dbml](#) [HMC339-SX](#) [F1751NBGI](#) [CSM5T](#) [CHR3664-QEG](#) [NJM2552V-TE1](#)  
[HMC220BMS8GE](#) [HMC8192-SX](#) [LTC5569IUF#PBF](#) [LTC5540IUH#PBF](#) [HMC220BMS8GETR](#) [MAX2055EUP+TD](#) [M85C](#) [M74C](#)  
[CSM4TH](#) [HMC8191-SX](#) [CMD251C3](#) [MD-174-PIN](#) [CMD253C3](#) [HMC8192LG](#) [HMC553AG-SX](#) [HMC521A-SX](#) [HMC521ACHIPS](#)  
[HMC558A](#) [HMC553AG](#) [HMC8191](#) [MAMX-011023-SMB](#) [EMRS-1TR](#) [ADL5355ACPZ-R7](#) [HMC399MS8TR](#) [HMC141LH5](#) [HMC333TR](#)  
[HMC214MS8TR](#) [HMC175MS8TR](#) [HMC1043LC3TR](#) [F0552NLGI](#) [F1701NBGI](#) [F0502NLGI](#) [F1763NBGI](#) [MDS-189-PIN](#) [MAX2042AETP+](#)  
[MAX2032ETP+](#) [MAX2043ETX+](#) [CSM2-13](#) [CSM4T](#) [HMC1056LP4BETR](#) [LTC5510IUF#PBF](#)