M4G / SM4G

Double-Balanced Mixer

Rev. V3

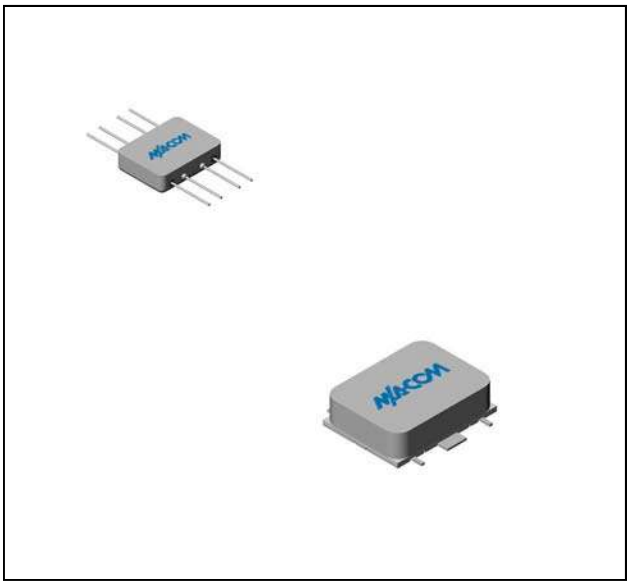
Features

- LO 800 TO 3500 MHz
- RF 800 TO 2400 MHz
- IF DC TO 1500 MHz
- LO DRIVE: +7 dBm (NOMINAL)
- HIGH ISOLATION: 30 dB (TYP.)

Description

The M4G 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.

Product Image



Ordering Information

Part Number	Package
M4G	Flatpack
SM4G	Surface Mount

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

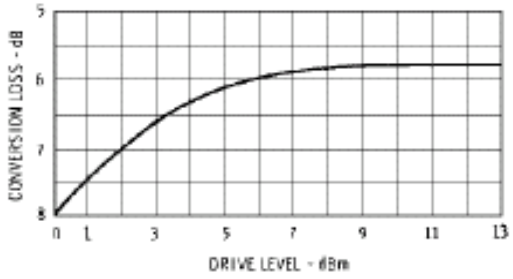
Parameter	Test Conditions	Units	Typical	Guaranteed	
				+25ºC	-54º to +85ºC *
SSB Conversion Loss (max) & SSB Noise Figure (max)	fR = 1.3 to 2.4 GHz, fL =0.8 to 3.5 GHz, fI =0.01 to 1.5 GHz fR = 0.8 to 2.4 GHz, fL =0.8 to 3.5 GHz, fI =0.01 to 1.5 GHz	dB dB	7.0 8.0	8.5 9.0	9.0 9.5
Isolation, L to R (min)	fL = 0.8 to 2 GHz fL = 1 to 3.5 GHz	dB dB	35 28	25 20	23 18
Isolation, L to I (min)	fL = 0.8 to 3.5 GHz	dB	25	18	16
1 dB Conversion Comp.	fL @ +7 dBm	dBm	+0		
Input IP3					

* The SM4G specification limits apply at 0ºC to +50ºC.

• **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.

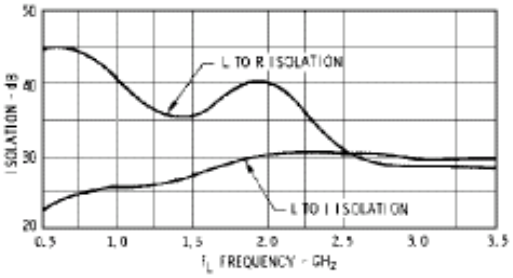
Typical Performance Curves

Conversion Loss

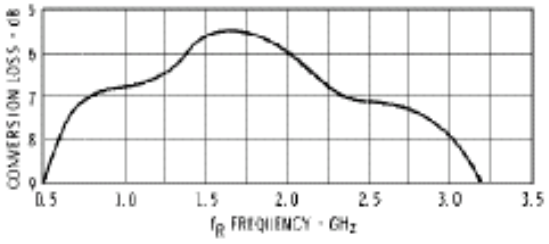


Conversion Loss vs. Drive Level: The minimum recommended drive level is +5 dBm. The maximum recommended drive level is +13 dBm.

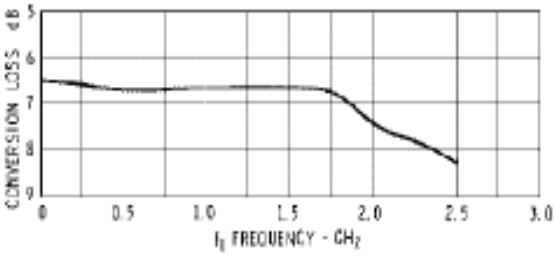
Isolation



Isolation vs. Frequency: Level of the f_L signal fed through to the R and I-ports with respect to the level of the f_L signal at the L-port.



Conversion Loss vs. Input Frequency: Conversion loss of the mixer when used in an SSB system. The frequency ordinate refers to the R-port (f_R) with f_I at 120 MHz and f_L less than f_R. Data plotted with an f_L level of +7 dBm.

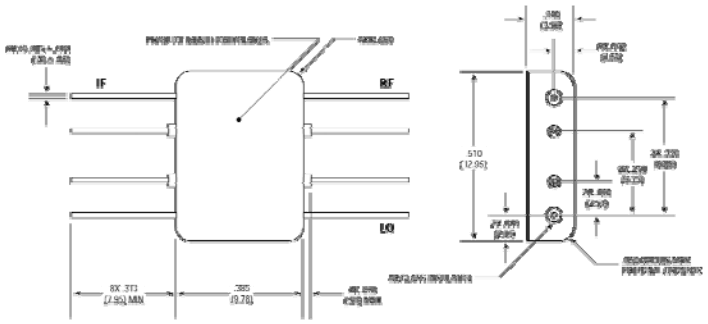


Conversion Loss vs. f_I Frequency: Conversion loss of the mixer when used in an SSB system. The frequency ordinate refers to the I-port (f_I) with f_R at 1.2 GHz and f_L swept from 1.2 to 3.7 GHz.

Absolute Maximum Ratings

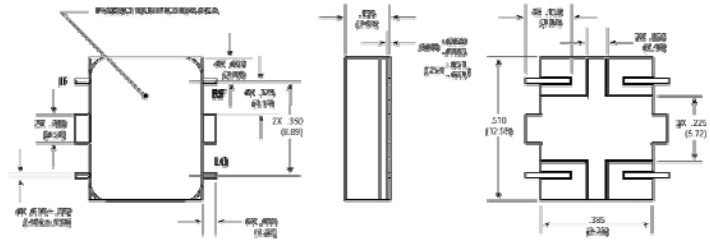
Parameter	Absolute Maximum
Operating Temperature	-54ºC to +100ºC
Storage Temperature	-65ºC to +100ºC
Peak Input Power	+23 dBm max @ +25ºC +17 dBm max @ +100ºC
Peak Input Current	50 mA DC

Outline Drawing: Flatpack *



Weight: 1 gram (0.04 oz.) max.

Outline Drawing: Surface Mount *



Weight: 2 grams (0.07 oz.) max.

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

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