M2A / M2AC

Double-Balanced Mixer

Rev. V3

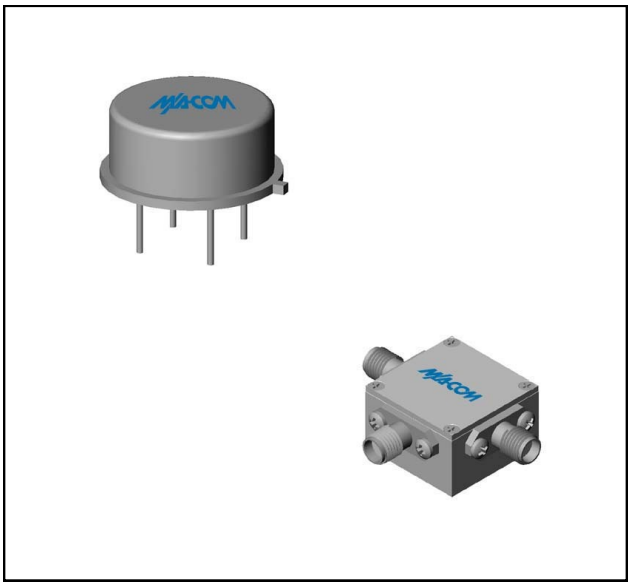
Features

- 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.

Product Image



Ordering Information

Part Number	Package
M2A	TO-8
M2AC	SMA Connectorized

Electrical Specifications: Z_0 = 50Ω Lo = +7 dBm (Downconverter application only)

Parameter	Test Conditions	Units	Typical	Guaranteed	
				+25ºC	-54º to +85ºC *
SSB Conversion Loss (max)	fR = 0.02 to 0.6 GHz, fL = 0.01 to 0.8 GHz, fI = 0.001 to 0.2 GHz fR = 0.01 to 1.5 GHz, fL = 0.01 to 1.5 GHz , fI = 0.001 to 0.2 GHz fI = 0.001 to 0.8 GHz	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	—	—

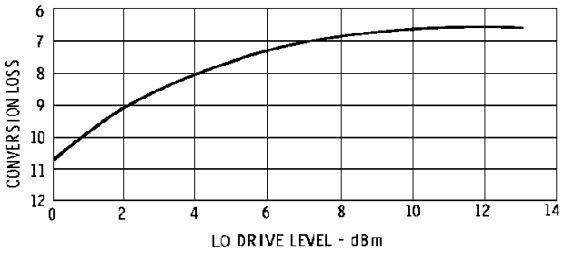
* The M2AC specification limits apply at 0ºC to +50ºC.

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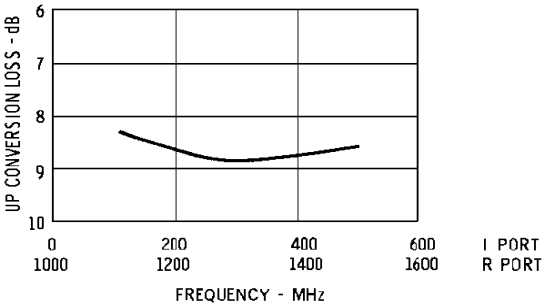
Typical Performance Curves

Conversion Loss



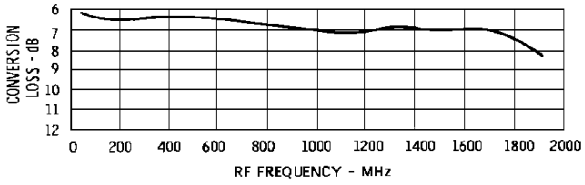
F_R = 1000 MHz
F_L = 1020 MHz
F_I = 20 MHz

Conversion Loss



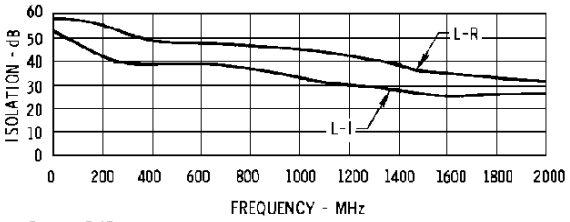
F_{LO} = 1000 MHz AT +7 dBm
P_{IF} = -10 dBm

Conversion Loss



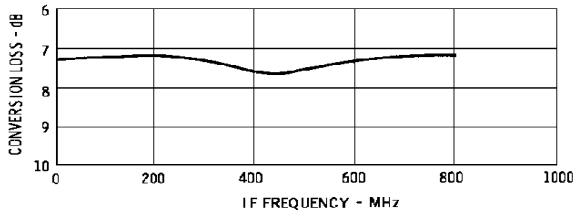
$F_{IF} = F_{LO} - F_{RF}$ = 20 MHz
P_{LO} = +7 dBm
P_{RF} = -10 dBm

Isolation



P_{LO} = +7 dBm

Conversion Loss



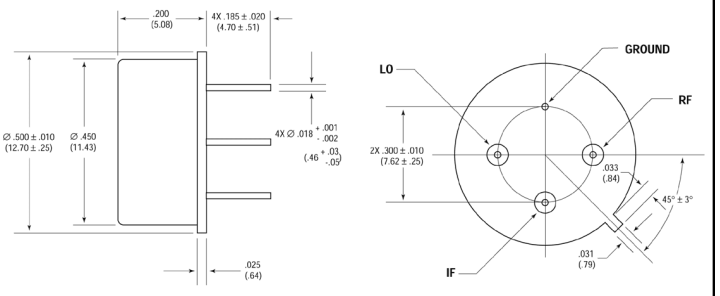
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Absolute Maximum Ratings

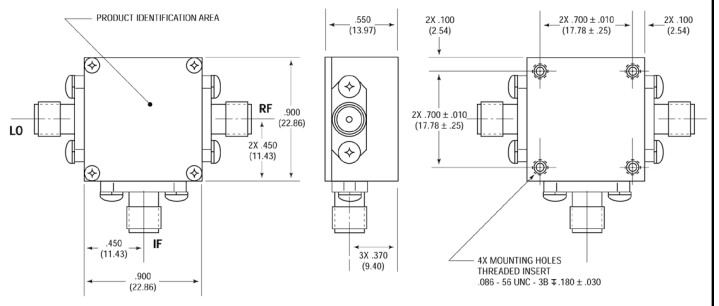
Parameter	Absolute Maximum
Operating Temperature	-54ºC to +100ºC
Storage Temperature	-65ºC to +100ºC
Peak Input Power	+23 dBm max @ +25ºC +17 dBm max @ +100ºC
Peak Input Current	50 mA DC

Outline Drawing: TO-8 *



Weight: 2 grams (0.07 oz.) max

Outline Drawing: SMA Connectorized *



Weight: 21 grams (0.74 oz.) max

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

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