M2E / M2EC / SM2E

Double-Balanced Mixer

Rev. V4

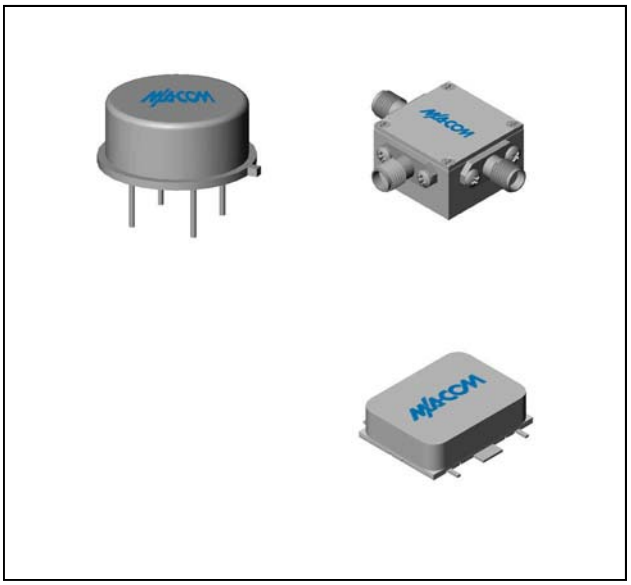
Features

- LO 10 TO 1000 MHz
- RF 10 TO 1000 MHz
- F DC TO 600 MHz
- LO DRIVE: +20 dBm (nominal)
- HIGH INTERCEPT POINT: +30 dBm (TYP.)
- HERMETICALLY SEALED

Description

The M2E 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
M2E	TO-8
M2EC	SMA Connectorized
SM2E	Surface Mount

Electrical Specifications: $Z_0 = 50\Omega$ Lo = +20 dBm (Downconverter application only)

Parameter	Test Conditions	Units	Typical	Guaranteed	
				+25ºC	-54º to +85ºC *
SSB Conversion Loss (max) & SSB Noise Figure (max)	fR = 0.01 to 0.3 GHz, fL = 0.01 to 0.3 GHz, fI = 0.01 to 0.2 GHz fR = 0.01 to 0.3 GHz, fL = 0.01 to 0.3 GHz , fI = 0.01 to 0.6 GHz fR = 0.01 to 1 GHz, fL = 0.01 to 1 GHz, fI = 0.01 to 0.2 GHz fR = 0.01 to 1 GHz, fL = 0.01 to 1 GHz , fI = 0.01 to 0.6 GHz	dB dB dB dB	7.0 8.0 8.5 10.0	7.5 9.0 9.5 11.0	7.8 9.3 9.8 11.3
Isolation, L to R (min)	fL = 0.01 to 0.1 GHz fL = 0.1 to 0.4 GHz fL = 0.4 to 1 GHz	dB dB dB	40 35 25	35 25 18	34 24 17
Isolation, L to I (min)	fL = 0.01 to 0.1 GHz fL = 0.1 to 0.4 GHz fL = 0.4 to 1 GHz	dB dB dB	45 35 20	35 25 14	34 24 13
1 dB Conversion Comp.	fL = +25 dBm	dBm	+20		
Input IP3		dBm	+30		

* The M2EC specification limits apply at 0ºC to +50ºC.

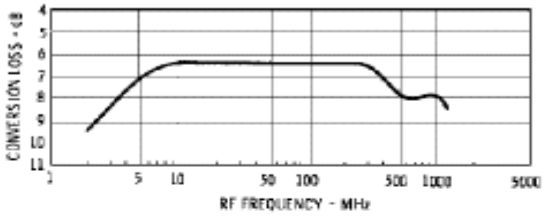
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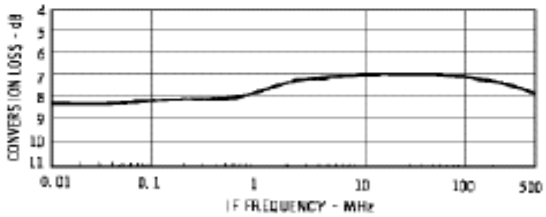
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Typical Performance Curves

Conversion Loss vs. Frequency

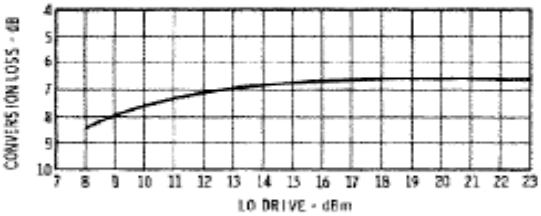


$f_{LO} > f_{RF}$
P_{LO} = +20 dBm
P_{RF} = -10 dBm
f_{IF} = BETWEEN 1 MHz and 100 MHz



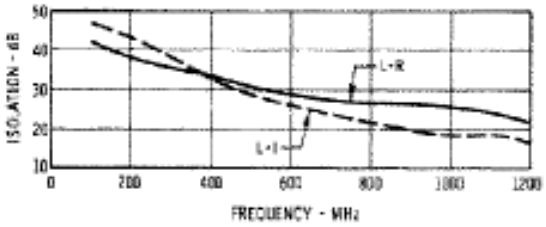
$f_{LO} > f_{RF}$
P_{LO} = +20 dBm
f_{RF} = 100 MHz @ -10 dBm

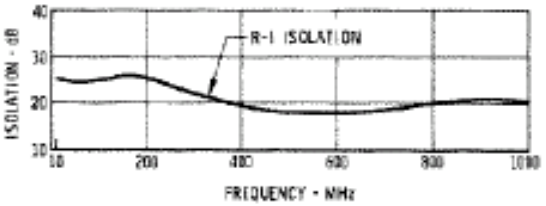
Conversion Loss vs. LO Drive



f_{LO} = 400 MHz
f_{RF} = 300 MHz @ -10 dBm

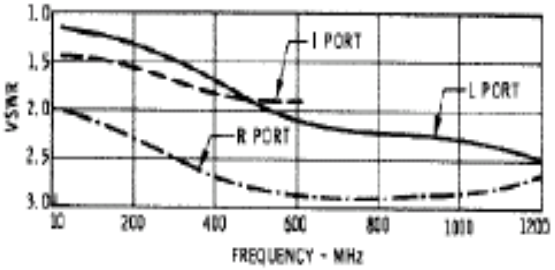
Isolation





f_{LO} = 700 MHz @ +20 dBm
P_{RF} = -10 dBm

VSWR



$P_{RF} = P_{IF}$ = -10 dBm
P_{LO} = +20 dBm
f_{LO} = 1000 MHz

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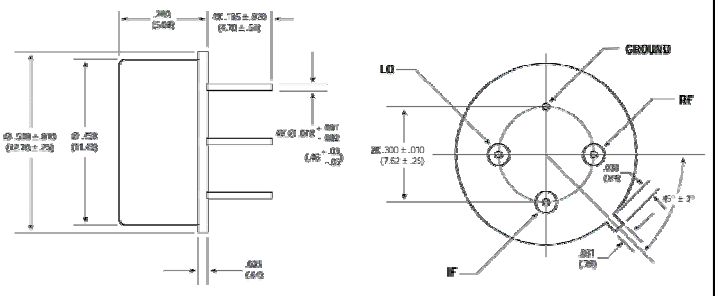
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Absolute Maximum Ratings

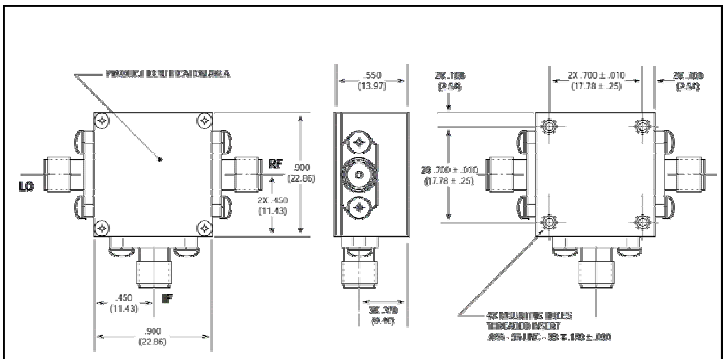
Parameter	Absolute Maximum
Operating Temperature	-54ºC to +100ºC
Storage Temperature	-65ºC to +100ºC
Peak Input Power	+27 dBm max @ +25ºC dBm max @ +100ºC
Peak Input Current	100 mA DC

Outline Drawing: TO-8 *



Weight: 2 grams (0.07 oz.) max

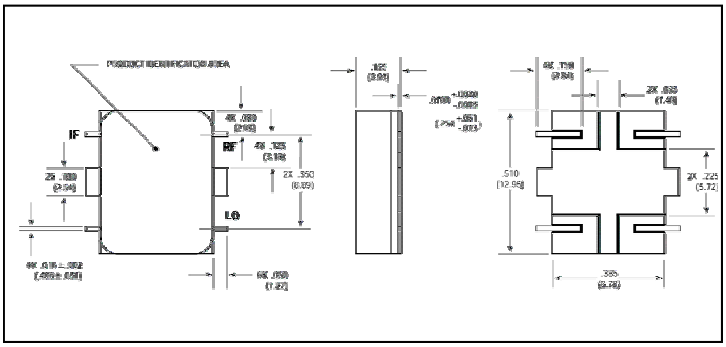
Outline Drawing: SMA Connectorized *



Weight: 21 grams (0.74 oz.) max

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

Outline Drawing: Surface Mount *



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

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