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

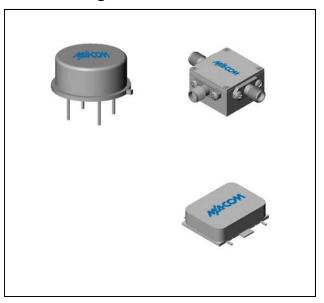
Description

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.

Ordering Information

Part Number	Package	
M2E	TO-8	
M2EC	SMA Connectorized	
SM2E	Surface Mount	

Product Image



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

Dovernator	Tank Considitions	11-26-	Typical	Guaranteed	
Parameter Test Conditions		Units		+25°C	-54º to +85ºC *
SSB Conversion Loss (max) & SSB Noise Figure (max)	$\begin{split} fR &= 0.01 \text{ to } 0.3 \text{ GHz, } fL = 0.01 \text{ to } 0.3 \text{ GHz, } fl = 0.01 \text{ to } 0.2 \text{ GHz} \\ fR &= 0.01 \text{ to } 0.3 \text{ GHz, } fL = 0.01 \text{ to } 0.3 \text{ GHz, } fl = 0.01 \text{ to } 0.6 \text{ GHz} \\ fR &= 0.01 \text{ to } 1 \text{ GHz, } fL = 0.01 \text{ to } 1 \text{ GHz, } fl = 0.01 \text{ to } 0.2 \text{ GHz} \\ fR &= 0.01 \text{ to } 1 \text{ GHz, } fL = 0.01 \text{ to } 1 \text{ GHz, } fl = 0.01 \text{ to } 0.6 \text{ GHz} \end{split}$	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 0°C to +50°C.

Commitment to produce in volume is not guaranteed.

ADVANCED: Data Sheets contain information regarding a product M/A-COM Technology Solutions

[•] North America Tel: 800.366.2266 • Europe Tel: +353.21.244.6400

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.

[•] India Tel: +91.80.4155721 • China Tel: +86.21.2407.1588

Visit www.macomtech.com for additional data sheets and product information.

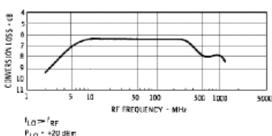


Double-Balanced Mixer

Rev. V4

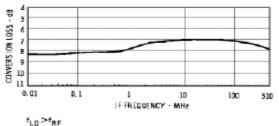
Typical Performance Curves

Conversion Loss vs. Frequency



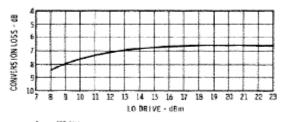
P_{LO} • +20 dBm P_{RF} - -10 dBm

r_{LF} - BETWEEN 1 MHz and 100 MHz



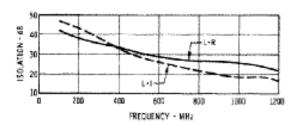
P_{LO} = +20 dilim fag = 100 MHz @ -18 d8m

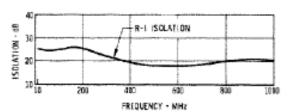
Conversion Loss vs. LO Drive



f_{LO} = 400 MHz PRF × 300 MHz 8 − 10 dBm

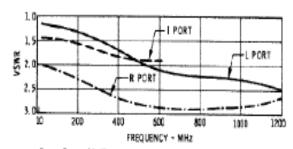
Isolation





f_{LD} • 700 MHz 8 + 20 d8m Pgg = -10 dBm

VSWR



Pgg - Pgg - - 10 dBm

P_{LÖ} * +20 dBm

f_{LO} • 1000 MHz

• India Tel: +91.80.4155721

• China Tel: +86.21.2407.1588 Visit www.macomtech.com for additional data sheets and product information.

M2E / M2EC / SM2E



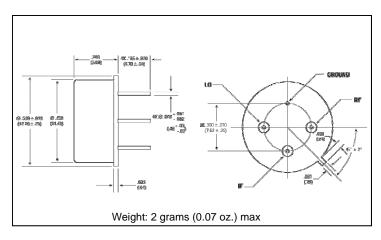
Double-Balanced Mixer

Rev. V4

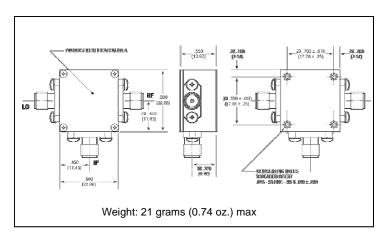
Absolute Maximum Ratings

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

Outline Drawing: TO-8 *

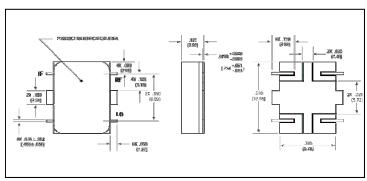


Outline Drawing: SMA Connectorized *



* 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.

Commitment to produce in volume is not guaranteed.

- India Tel: +91.80.4155721 • China Tel: +86.21.2407.1588 Visit www.macomtech.com for additional data sheets and product information.