

Termination-Insensitive Mixer, 1 - 500 MHz

MD-161

Features

- Third Order Intermodulation Ratio is Insensitive to Port Mismatches
- Conversion Loss: 6 dB Typical Midband
- DC Coupled IF Port
- High Level Phase Detector
- Impedance: 50 Ohms Nominal
- Maximum Input Power: 350 mW max. @ 25°C, Derated to 85°C @ 3.2 mW/°C
- LO Power +24 dBm Max.
- IF Port Current: 50 mA Max.
- MIL-STD-883 Screening Available

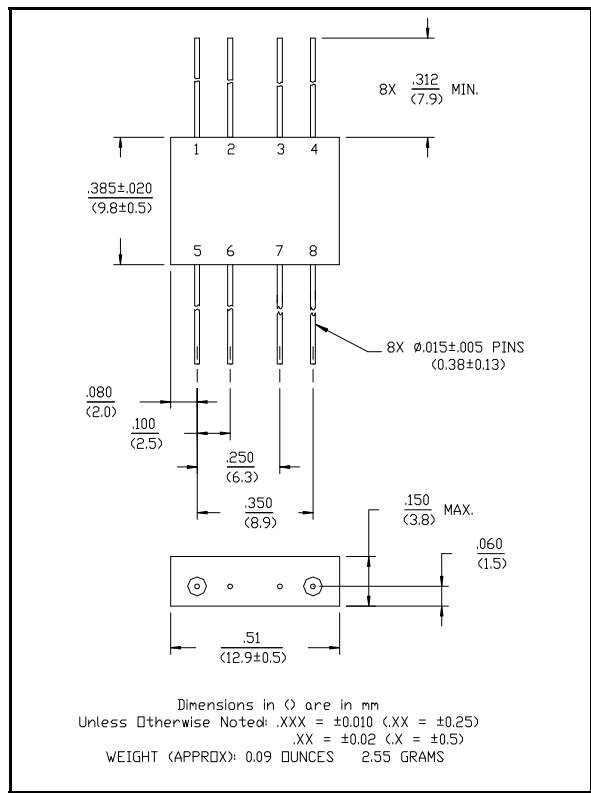
Description

The unique design of the termination insensitive mixer (TIM) enables it to apply high reverse voltage to diodes during their “off” phase, in the LO cycle. This allows for higher power level performance with minimum distortion. In addition the TIM has internal loads that provide a good match and also absorb mixer generated LO frequency terms. Combined, these features give the mixer its insensitivity to external mismatches, plus superior VSWR.

Pin Configuration

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

FP-2



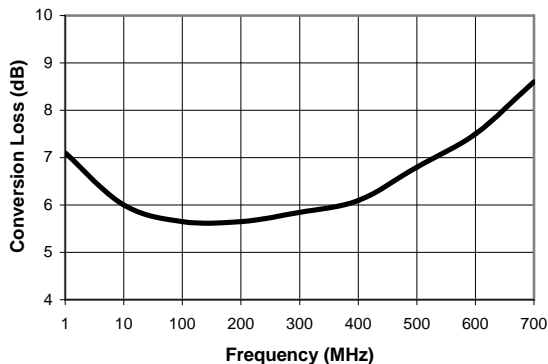
Electrical Specifications¹: T_A = -55°C to +85°C

Parameter	Test Conditions	Frequency	Units	Min	Typ	Max
Frequency Range	RF, LO Ports IF Port	1 - 500 DC - 500	MHz MHz	— —	— —	— —
Conversion Loss		5 - 300 MHz 1 - 500 MHz	dB dB	— —	— —	7 8
Isolation	LO to RF LO to IF RF to IF	1 - 500 MHz 1 - 500 MHz 1 - 300 MHz 300 - 500 MHz	dB dB dB dB	25 30 20 17	— — — —	— — — —
DC Polarity	Positive	—	—	—	—	—
DC Offset	—	—	mV	—	≤5	—
RF Input	1 dB Compression 1 dB Desensitization		dBm dBm	— —	+10 +7	— —
SSB Noise Figure	Within 1 dB of Conversion Loss Max.	—	—	—	—	—
Typical Two Tone IM Ratio	With -10 dBm input, each tone and 60 MHz IF	100 MHz 500 MHz	dB dB	— —	50 55	— —
3rd Order Intermodulation Ratio Degradation	@ IF VSWR 3:1		dB	—	3	—

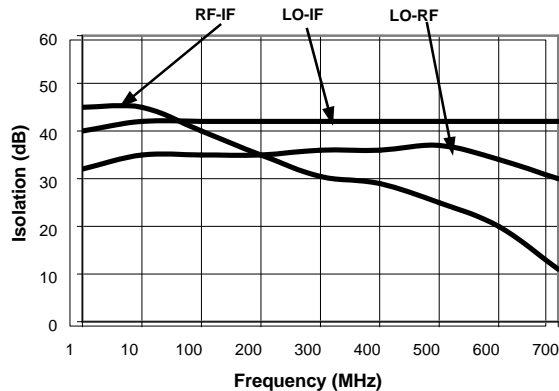
1. All specifications apply when operated at +13 dBm available LO power with 50 ohm source and load impedance.

Typical Performance Curves

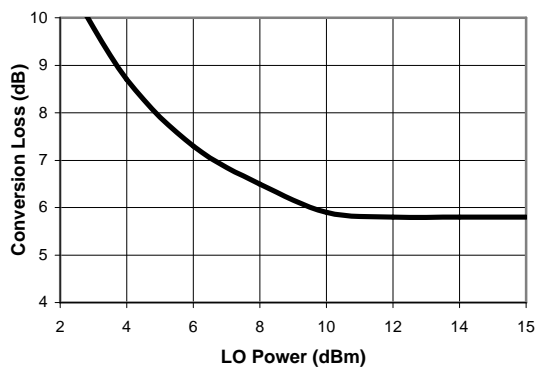
Conversion Loss (LO @ +13 dBm, IF @ 50 MHz)



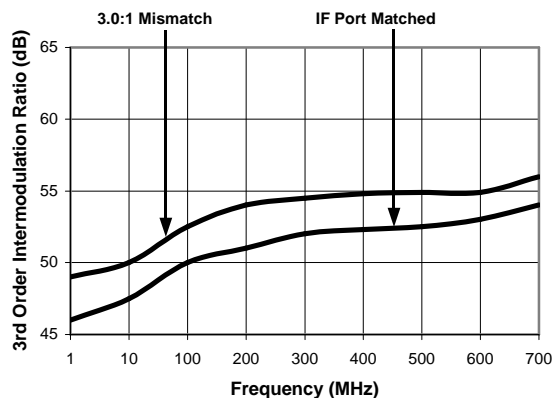
Isolation



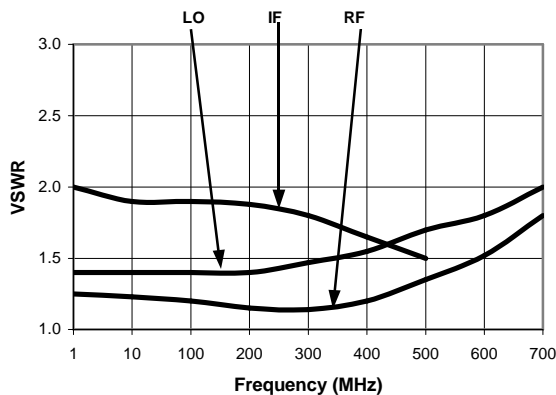
Conversion Loss vs. LO Power (RF @ 300 MHz, IF @ 50 MHz)



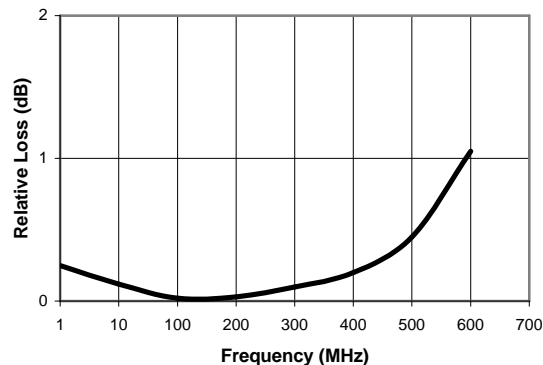
3rd Order IM Ratio (LO @ +13 dBm, RF @ -10 dBm)



VSWR



IF Port Response



Specifications subject to change without notice.

- North America: Tel. (800) 366-2266
- Asia/Pacific: Tel.+81-44-844-8296, Fax +81-44-844-8298
- Europe: Tel. +44 (1344) 869 595, Fax+44 (1344) 300 020

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

Ordering Information

Part Number	Package
MD-161 PIN	FP-2

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