

High Performance Double-Balanced Mixer, 5 - 1000 MHz

V 3.00

MD-113

Features

- Low Cost Flatpack
- Conversion Loss: 7 dB Typical
- Impedance: 50 Ohms Nominal
- Maximum Input Power: 300 mW max. @ 25°C,
Derated linearly to 85°C @ 3.2 mW/°C
- IF Port Current: 50 mA Max.
- MIL-STD-883 Screening Available

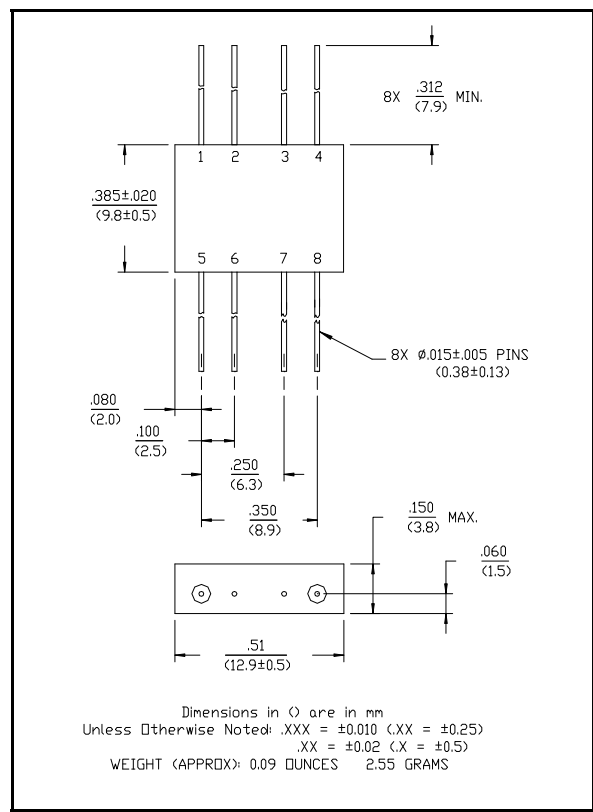
Description

Transformers convert the LO and RF paths to balanced lines connecting to a low barrier, Schottky diode ring quad. These transformers help provide excellent isolation between ports. Conversion Loss is low. The direct connection of the IF port to the diode quad allows these mixers to be used as phase detectors and bi-phase modulators.

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	5 - 1000 DC - 1000	MHz MHz	— —	— —	— —
Conversion Loss		5 - 50 MHz 50 - 500 MHz 500 - 1000 MHz	dB dB dB	— — —	— — —	7.5 7.5 8.0
Isolation	LO to RF	5 - 50 MHz	dB	35	—	—
		50 - 500 MHz	dB	30	—	—
		500 - 1000 MHz	dB	25	—	—
	LO to IF	5 - 50 MHz	dB	30	—	—
		50 - 500 MHz	dB	25	—	—
		500 - 1000 MHz	dB	20	—	—
	RF to IF	5 - 50 MHz	dB	25	—	—
		50 - 500 MHz	dB	20	—	—
		500 - 1000 MHz	dB	15	—	—
DC Polarity	Negative	—	—	—	—	—
DC Offset			mV	—	≤2	—
RF Input	1 dB Compression 1 dB Desensitization		dBm	—	0	—
			dBm	—	-2	—

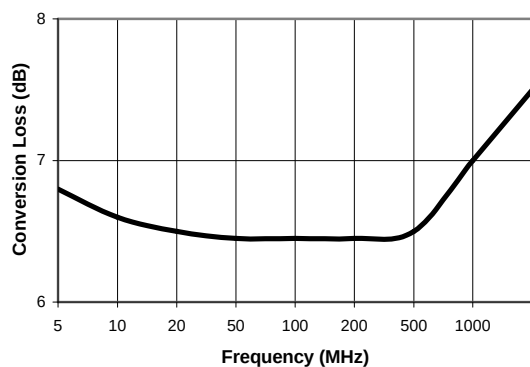
1. All specifications apply when operated at +7 dBm available LO power with 50 ohm source and load impedance.

Electrical Specifications: $T_A = -55^{\circ}\text{C}$ to $+85^{\circ}\text{C}$

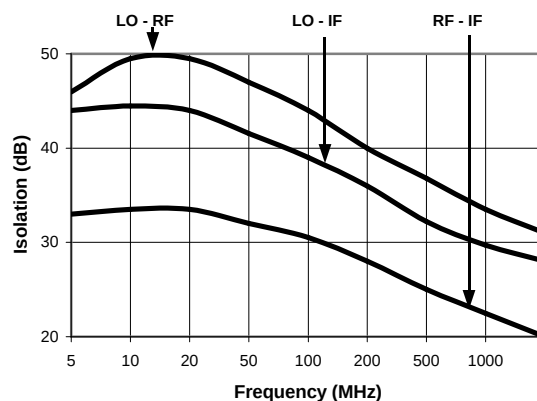
Parameter	Test Conditions	Frequency	Units	Min	Typ	Max
SSB Noise Figure	Within 1 dB of Conversion Loss Max.	—	—	—	—	—
Typical Two Tone IM Ratio	With -10 dBm input, each input 25 MHz and 35 MHz IF	100 - 550 MHz	dB	—	≥ 47	—
		550 - 800 MHz	dB	—	≥ 38	—
		800 - 1000 MHz	dB	—	≥ 44	—

Typical Performance Curves

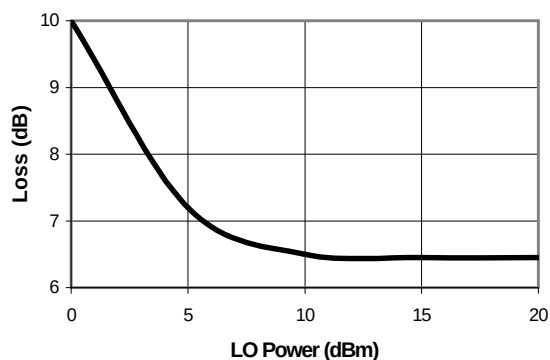
Conversion Loss (RF = -5 dBm, LO = $+7$ dBm)



Isolation



Conversion Loss vs. LO Power (LO = 1.060 GHz, RF = 1.000 GHz @ -10 dBm)



Ordering Information

Part Number	Package
MD-113 PIN	FP-2

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.