

MD-158

Double-Balanced Mixer, 5 - 1500 MHz

Rev. V4

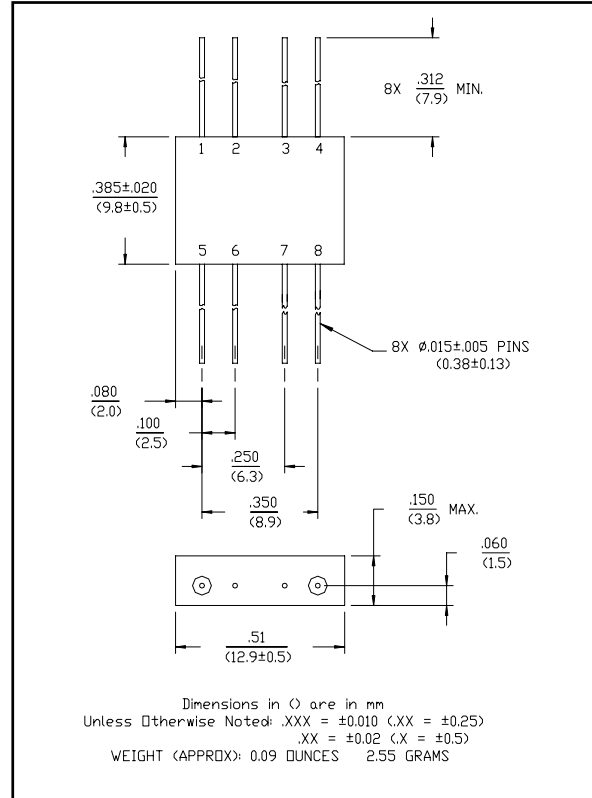
Features

- Low VSWR
- Conversion Loss: 6 dB Typical Midband
- LO-RF Isolation: 35 dB Typical Midband
- Conversion Loss Flatness: 1.5 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. Advanced transformer design yields improved VSWR.

FP-2



Pin Configuration

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

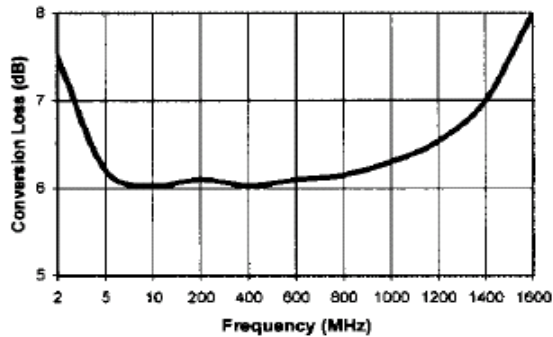
Electrical Specifications¹: T_A = -55°C to +85°C

Parameter	Test Conditions	Frequency	Units	Min	Typ	Max
Frequency Range	RF, LO Ports IF Port	5 - 1500	MHz	—	—	—
		DC - 1000	MHz	—	—	—
Conversion Loss		5 - 1000 MHz	dB	—	—	7.0
		5 - 1300 MHz	dB	—	—	9.0
		5 - 1500MHz	dB	—	—	10.0
Isolation	LO to RF	5 – 1500 MHz	dB	20	—	—
		5 - 1000 MHz	dB	25	—	—
		5 - 600 MHz	dB	30	—	—
	LO to IF	5 – 1500 MHz	dB	17	—	—
		5 - 1000 MHz	dB	20	—	—
	RF to IF	5 – 1500 MHz	dB	8	—	—
5 - 1000 MHz		dB	18	—	—	
5 - 600 MHz		dB	20	—	—	
DC Polarity	Negative	—	—	—	—	—
DC Offset			mV	—	≤1	—
RF Input	1 dB Compression 1 dB Desensitization		dBm	—	+1	—
			dBm	—	-1	—
SSB Noise Figure	Within 1 dB of Conversion Loss Max.	—	—	—	—	—
Typical Two Tone IM Ratio	With -10 dBm input, each input 60 MHz and 70 MHz IF	300 MHz	dB	—	50	—
		1000 MHz	dB	—	48	—

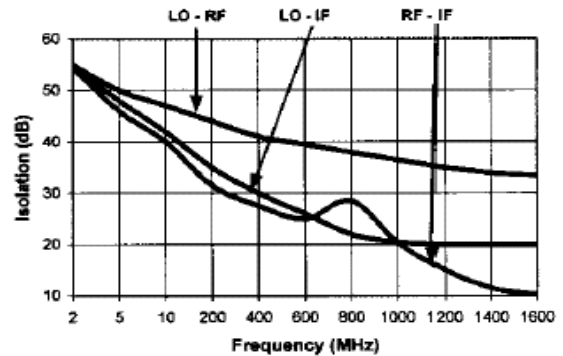
1. All specifications apply when operated at +7 dBm available LO power with 50 ohm source and load impedance.

Typical Performance Curves

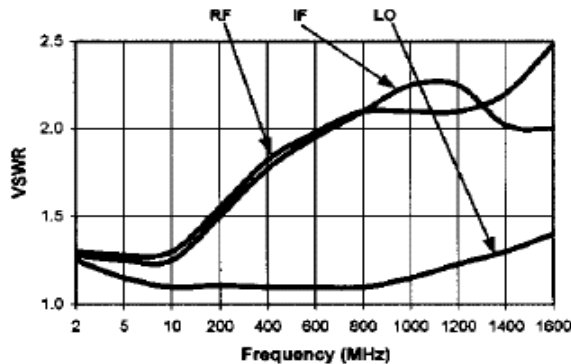
Conversion Loss



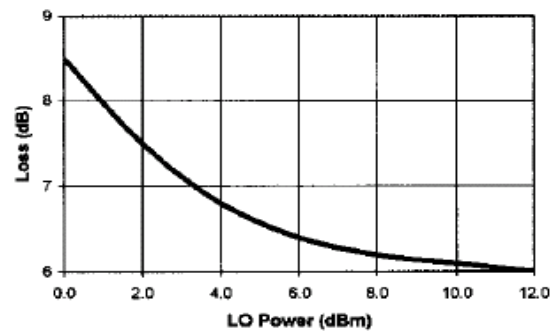
Isolation



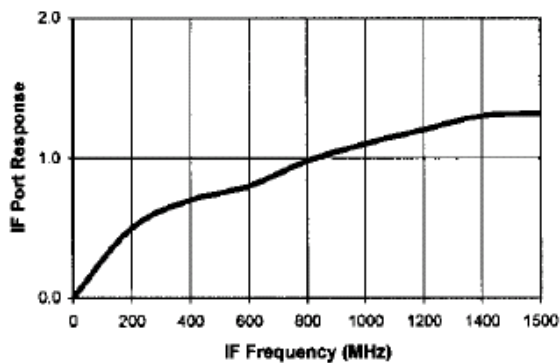
VSWR



Conversion Loss vs. LO Power (RF @ 1000 MHz—10 dBm, IF = 50 MHz)



IF Port Response



Ordering Information

Part Number	Package
MD-158 PIN	FP-2