MD- / MDC-179

Termination Insensitive Mixer, 1 - 4000 MHz

Rev. V3

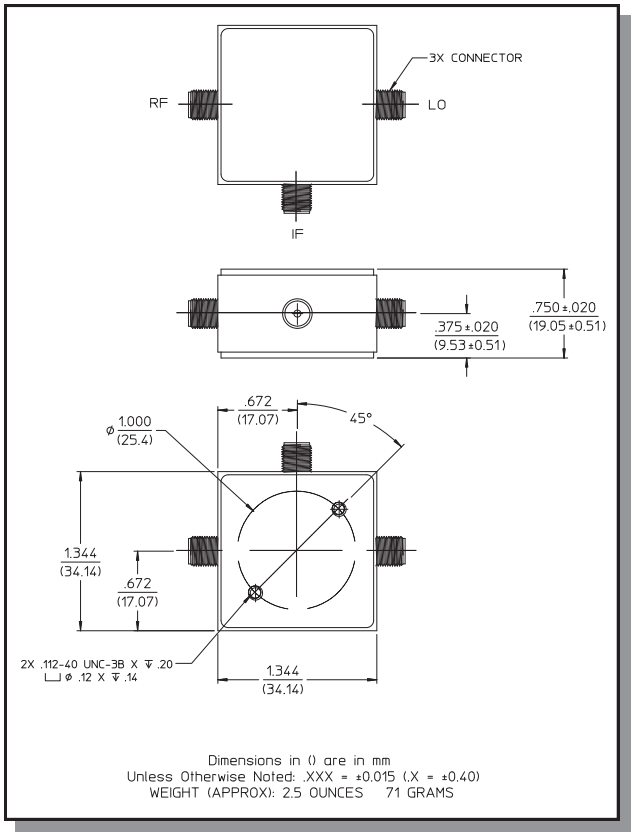
Features

- Intermodulation Ratio is Insensitive to Port Mismatches
- VSWR: <2.0:1 Typical Midband
- Isolation: 35 dB Typical Midband
- 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.
- MIL-STD-883 Screening Available

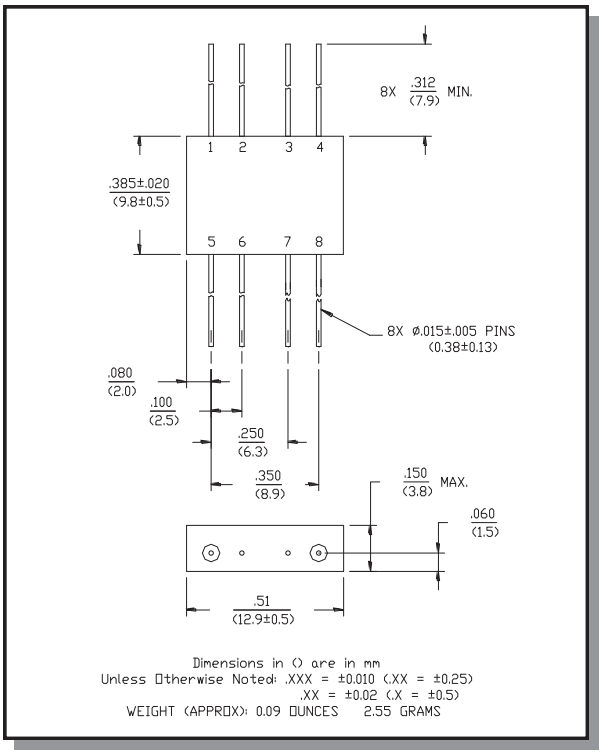
Description

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.

C-7 (MDC-179)



FP-2 (MD-179)



Pin Configuration (MD-179)

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

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Electrical Specifications[1]: T_A = -55°C to +85°C

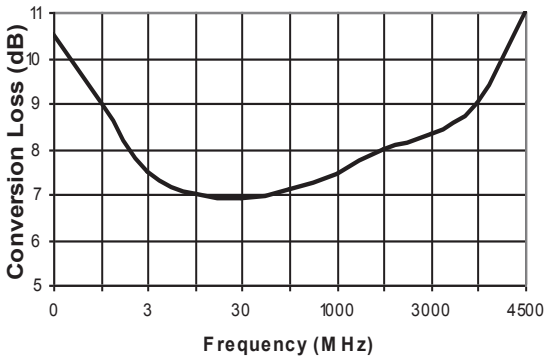
Parameter	Test Conditions	Frequency	Units	Min	Typ	Max
Frequency Range	RF, LO Ports IF Port	1 - 4000 5 - 1500	MHz MHz	— —	— —	— —
Conversion Loss [2,3]		5 - 1000 MHz 5 - 2500 MHz 5 - 3500 MHz 1 - 4000 MHz	dB dB dB dB	— — — —	— — — —	7.5 8.5 9.5 10.5
Isolation	LO to RF	5 - 1000 MHz 1 - 4000 MHz	dB dB	30 20	— —	— —
	LO to IF	5 - 1000 MHz 1 - 4000 MHz	dB dB	30 20	— —	— —
	RF to IF	10 - 500 MHz 1 - 4000 MHz	dB dB	30 16	— —	— —
RF Input	1 dB Compression 1 dB Desensitization	— —	dBm dBm	— —	+5 +3	— —
SSB Noise Figure	Within 1 dB of Conversion Loss Max	—	—	—	—	—
Typical Two-Tone IM Ratio	with a –10 dBm input, each tone 60 MHz IF	10 MHz 500 MHz 3000 MHz	dB dB dB	— — —	49 52 50	— — —
3rd Order Intermodulation Ratio Degradation	@ IF VSWR 3:1	—	dB	—	3	—

1. All specifications apply when operated at +7 dBm available LO power with 50 Ohm source and load impedance.
2. For IF Frequencies of 5 - 300 MHz and RF of –10 dBm or less.
3. For MDC-179, add 1.0 dB to conversion loss.

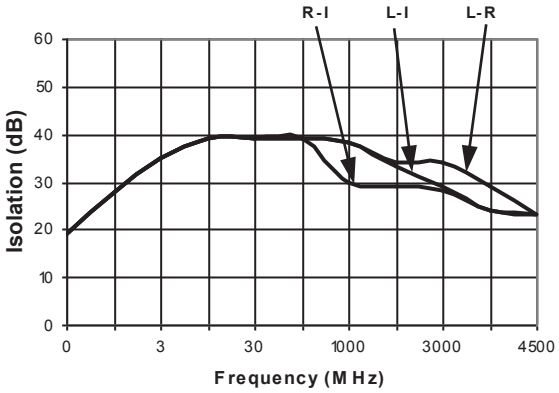
This product contains elements protected by United States Patent Number 4,224,572.

Typical Performance Curves

Conversion Loss - LO @ +7 dBm, IF @ 60 MHz

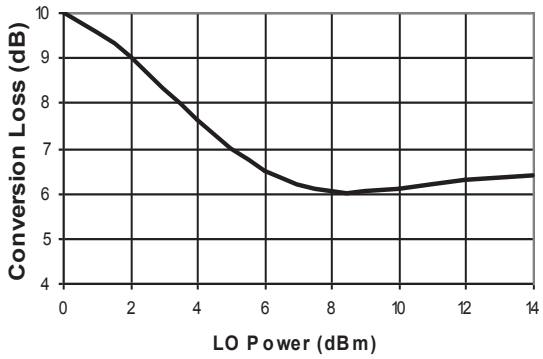


Isolation - Input +7 dBm

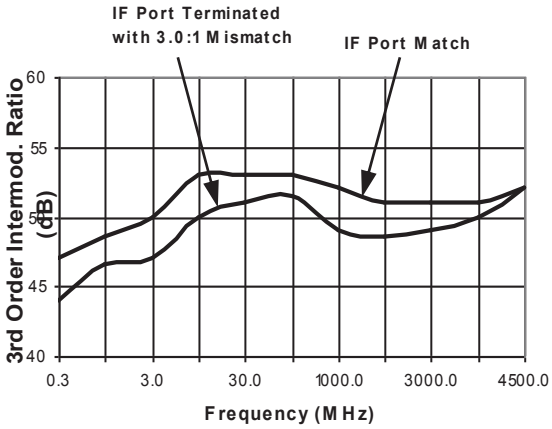


Typical Performance Curves

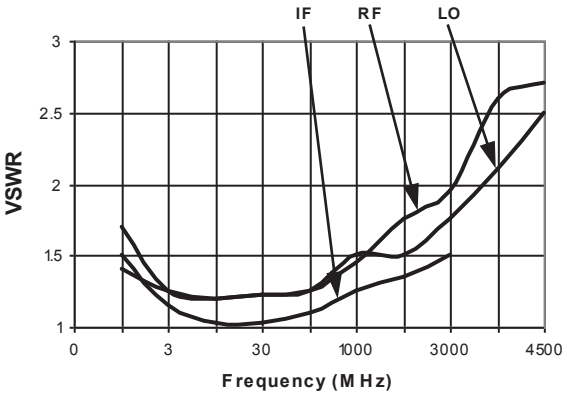
Conversion Loss vs. LO Power - RF @ 2000 MHz –10 dBm, IF @ 60 MHz



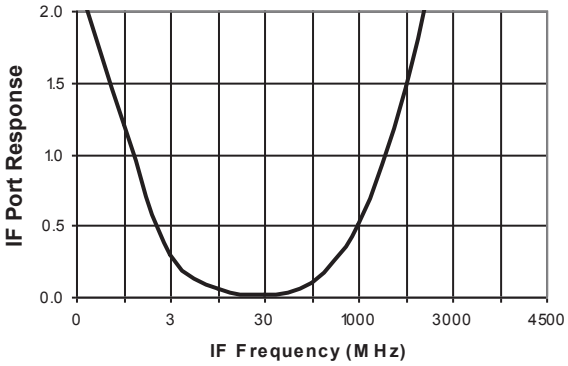
3rd Order IM Ratio - Input +7 dBm



VSWR



IF Port Response



Ordering Information

Part Number	Package
MD-179 PIN	FP-2
MDC-179 SMA	C-7