MD- / MDS-189

High Level Termination Insensitive Mixer, 1 - 3500 MHz

Rev. V4

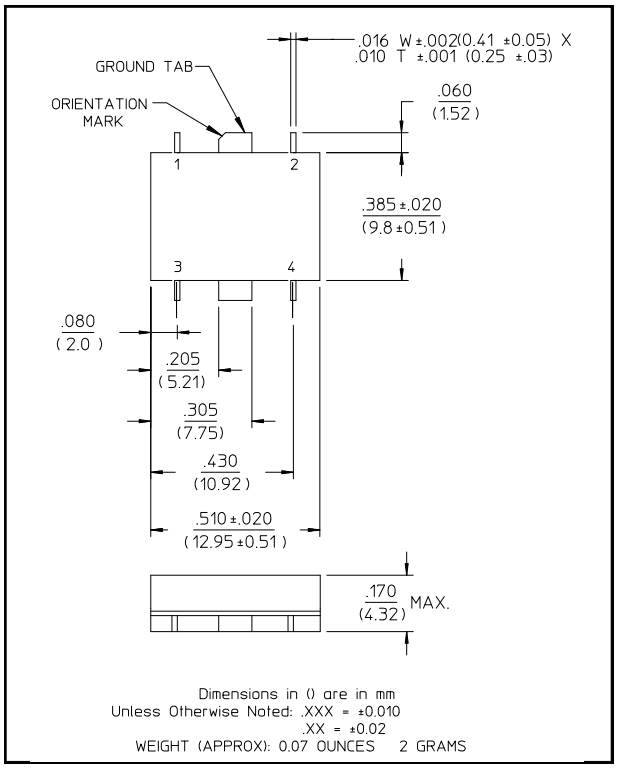
Features

- Operates Over Full PCN/PCS/PHS/MSS Bands
- Low Conversion Loss
- Fully Hermetic Package
- Intermodulation Ratio Insensitive to System Mismatches
- VSWR: <2.0:1 Typical Midband
- Isolation: 35 dB Typical Midband
- High IIP_3 (+28 dBm Typical 1-3500 MHz)

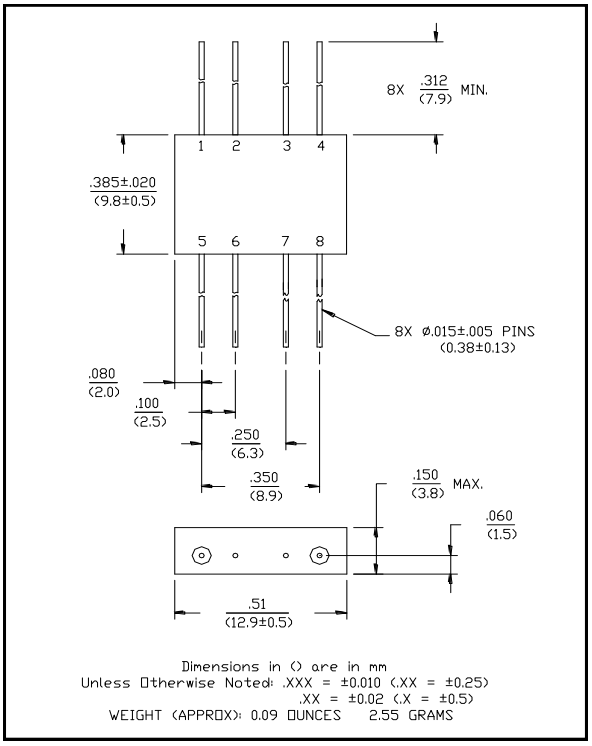
Description

M/A-COM's MD-189 and MDS-189 are high level termination insensitive mixers. These devices are packaged in 8-lead flatpack and SMT packages. These mixers offer consistent and repeatable flat intermodulation performance and flat conversion loss with low spurious signal generation independent of system mismatch from 1 to 3500 MHz. The MD -189 and MDS-189 are ideally suited for RF/IF communications applications requiring high intercept point performance.

SF-1 (MDS-189)



FP-2 (MD-189)



Pin Configuration (MD-189)

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

Pin Configuration (MDS-189)

Pin No.	Function	Pin No.	Function
1	GND	3	LO
2	IF	4	RF

Absolute Maximum Ratings [1]

Parameter	Absolute Maximum
Max Input Power[2] Total Power	0.5W Derated to 85°C @ 3.2 mW/°C
LO Power	+27 dBm

1. Operation of this device above any one of these parameters nay cause permanent damage.
2. Ambient Temperature (T_A) = +25°C

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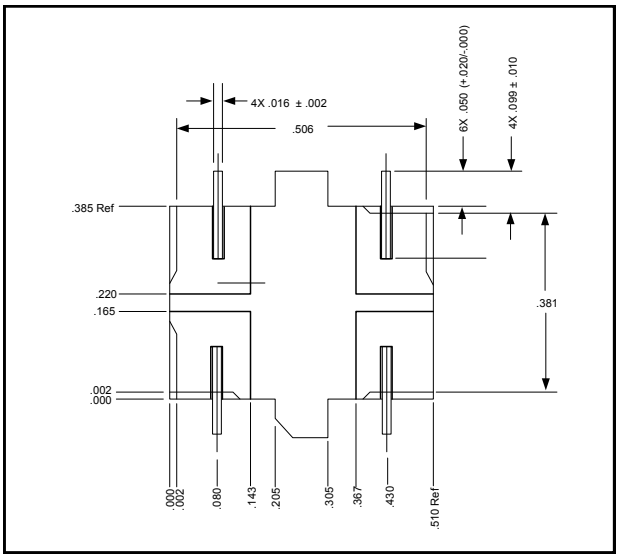
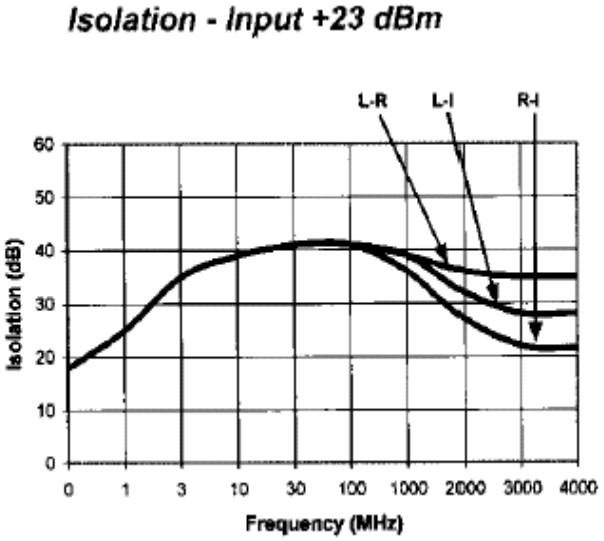
Electrical Specifications[1]: T_A = -55°C to +85°C
Frequency: RF, LO Ports = 1-3500 MHz, IF Port = 5-1500 MHz

Parameter	Test Conditions	Frequency	Units	Min	Typ	Max
Conversion Loss	LO @ 23 dBm IF @ 60 MHz	5 - 1000 MHz 1000 - 3000 MHz 1 - 3500 MHz	dB dB dB	— — —	6.5 7.5 8.0	7.0 8.5 9.5
Isolation	LO to RF	1 - 2000 MHz 2000 - 3500 MHz	dB dB	30 25	35 30	— —
	LO to IF	1 - 2000 MHz 2000 - 3500 MHz	dB dB	25 20	30 25	— —
	RF to IF	10 - 500 MHz 1 - 3500 MHz	dB dB	30 15	35 20	— —
Input Compression (1 dB)	LO @ 23 dBm IF @ 60 MHz	—	—	—	+20	—
IIP_3	LO @ 23 dBm IF @ 60 MHz	—	dBm	—	+28	—
Desensitivity (1dB)	LO @ 23 dBm IF @ 60 MHz	— —	dBm dBm	— —	+17	— —
SSB Noise Figure	LO @ 23 dBm IF @ 60 MHz Within 1 dB of Conversion Loss Max	—	—	—	—	—

Bottom View of SF-1



Typical Performance Curves



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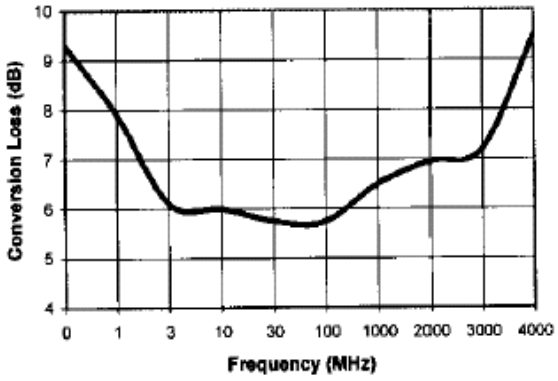
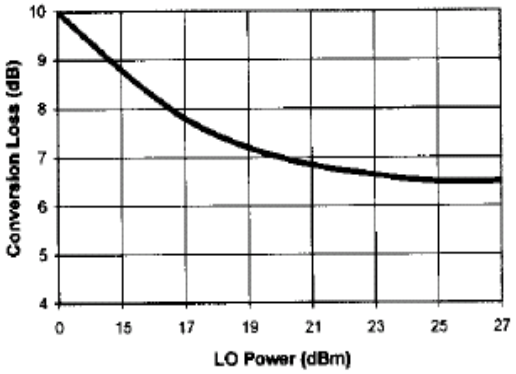
High Level Termination Insensitive Mixer, 1 - 3500 MHz

Typical Performance Curves

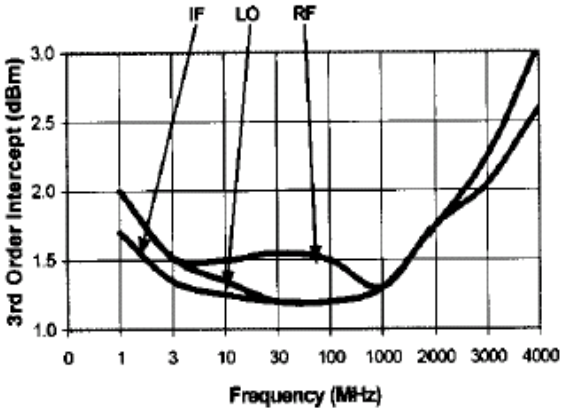
Conversion Loss - LO @ +23 dBm, IF @ 60 MHz



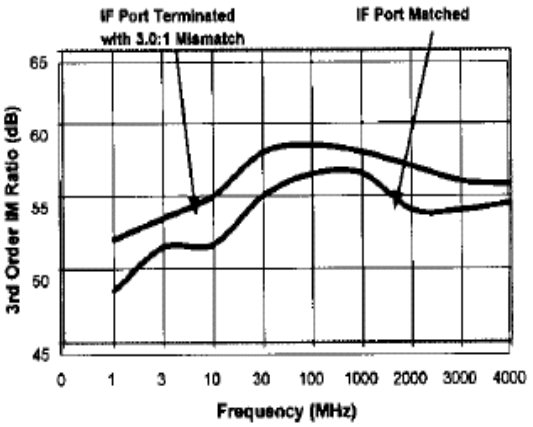
Conversion Loss vs. LO Power - RF @ 2000 MHz 0 dBm, IF @ 60 MHz



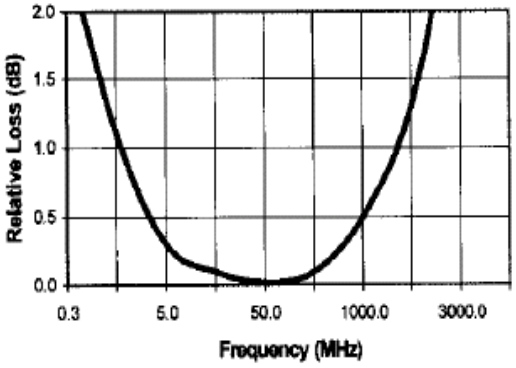
VSWR



3rd Order IM Ratio - LO @ +23 dBm,



IF Port Response



Ordering Information

Part Number	Package
MD-189 PIN	FP-2
MDS-189 PIN	SF-1

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