

## Surface Mount Double-Balanced Mixer, 10 - 500 MHz

Rev. V4

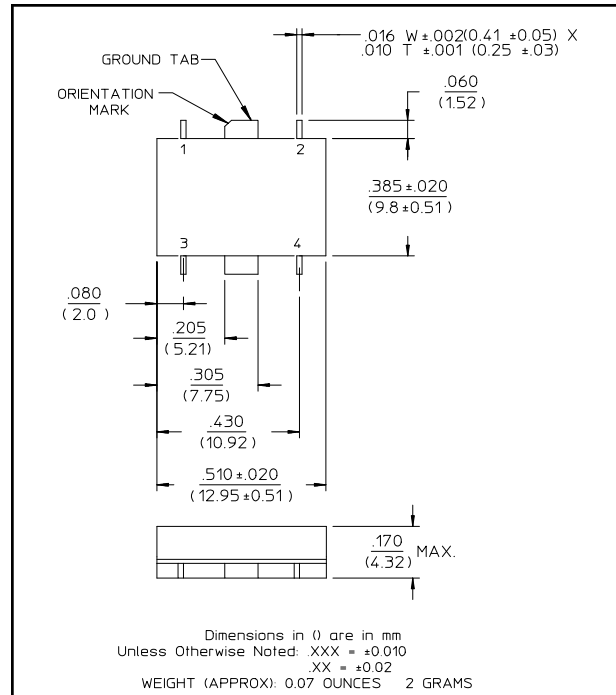
### Features

- Fully Hermetic Package
- Low Cost
- Conversion Loss: 7 dB Typical Midband
- Impedance: 50 Ohms Nominal
- Maximum Input Power: 400 mW Max, Derated to 85°C @ 3.2 mW/°C
- X Port Current: 50 mA Max.
- MIL-STD-883 Screening Available

### Description

Transformers convert the LO and RF paths to balanced lines connecting to a medium 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.

### SF-1



### Electrical Specifications<sup>1</sup>: T<sub>A</sub> = -55°C to +85°C

Parameter	Test Conditions	Frequency	Units	Min	Typ	Max
Frequency Range	RF, LO Ports IF Port	10 - 500 DC - 500	MHz MHz	—	—	—
Conversion Loss		5 - 150 MHz 150 - 500 MHz	dB dB	— —	— —	7.0 9.0
Isolation	LO to RF	5 - 150 MHz 150 - 500 MHz	dB dB	40 35	— —	— —
	LO to IF	5 - 150 MHz 150 - 500 MHz	dB dB	35 25	— —	— —
	RF to IF	5 - 150 MHz 150 - 500 MHz	dB dB	25 20	— —	— —
DC Polarity	Negative	—	—	—	—	—
DC Offset	—	—	mV	—	≤1	—
RF Input	1 dB Compression 1 dB Desensitization	— —	dBm dBm	— —	+2.5 0	— —
SSB Noise Figure	Within 1 dB of Conversion Loss Max	—	—	—	—	—
Typical Two-Tone IM Ratio	with a -10 dBm input, each input, 25 MHz and 35 MHz IF	100 - 350 MHz 350 - 500 MHz	dB dB	— —	55 40	— —

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

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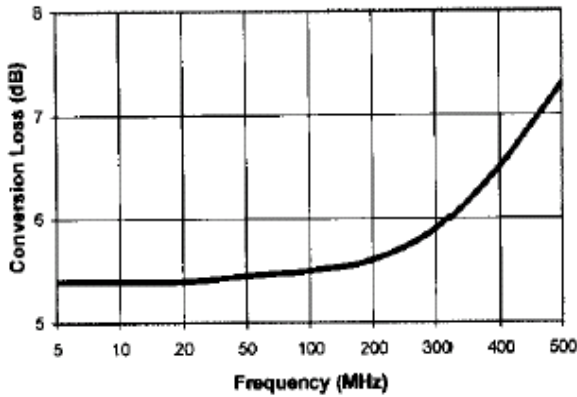
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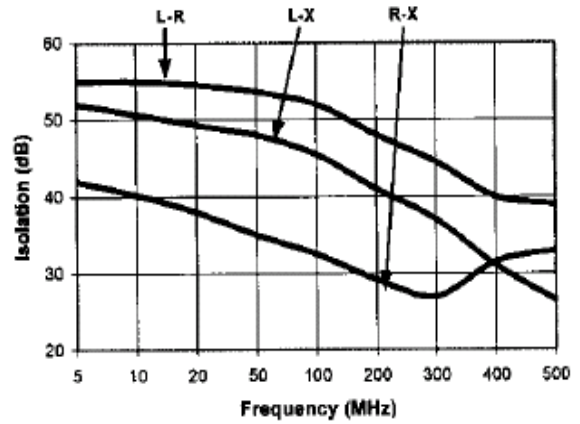
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## Typical Performance Curves

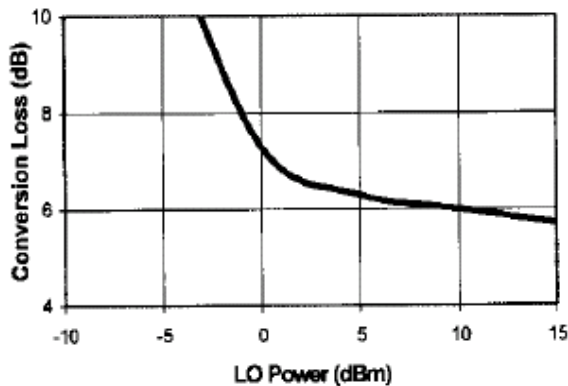
**Conversion Loss (LO = +7 dBm,  
RF = -5 dBm, IF = 5 MHz)**



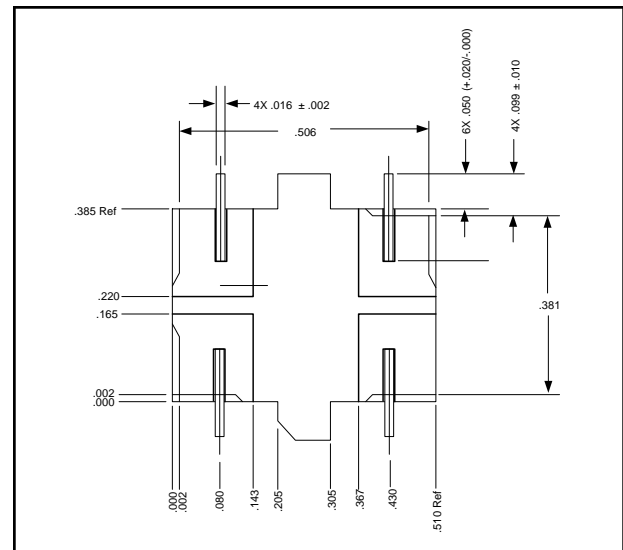
**Isolation (Input = +7 dBm)**



**Conversion Loss vs. LO Power  
(RF = 200 MHz, RF = 140 MHz @  
-10 dBm, IF = 60 MHz)**



## Bottom View of SF-1



## Ordering Information

Part Number	Package
MDS-223 PIN	SF-1

## Pin Configuration

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