MD- / MDS-149

Double-Balanced Mixer, 10 - 1500 MHz

Rev. V4

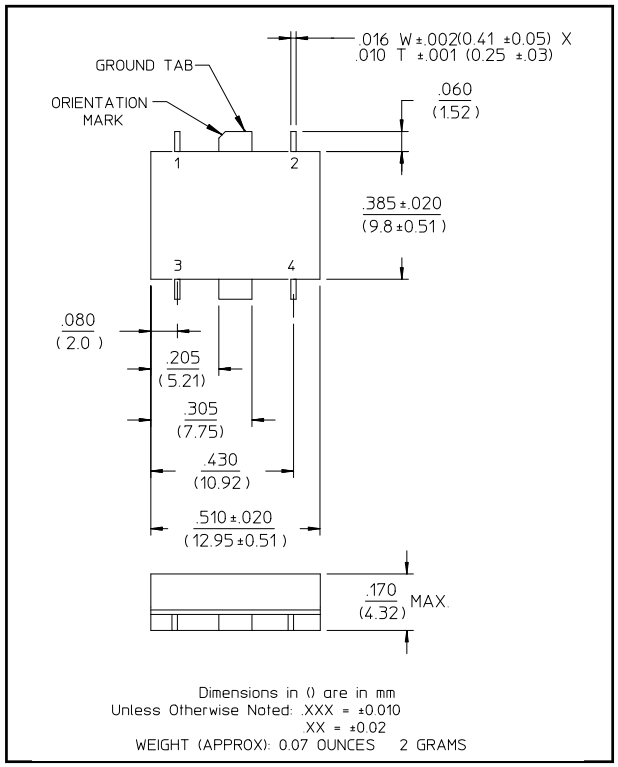
Features

- Over Two-Decade Frequency Range
- Conversion Loss: 6 dB Typical Midband
- LO-RFIsolation: 40 dB Typical Midband
- Fully Hermetic Package
- Impedance: 50 Ohms Nominal
- Maximum Input Power: 300 mW Max, Derated to 85°C @ 3.2 mW/°C
- IF Port Current: 50 mA Max.
- MIL-STD-883 Screening Available

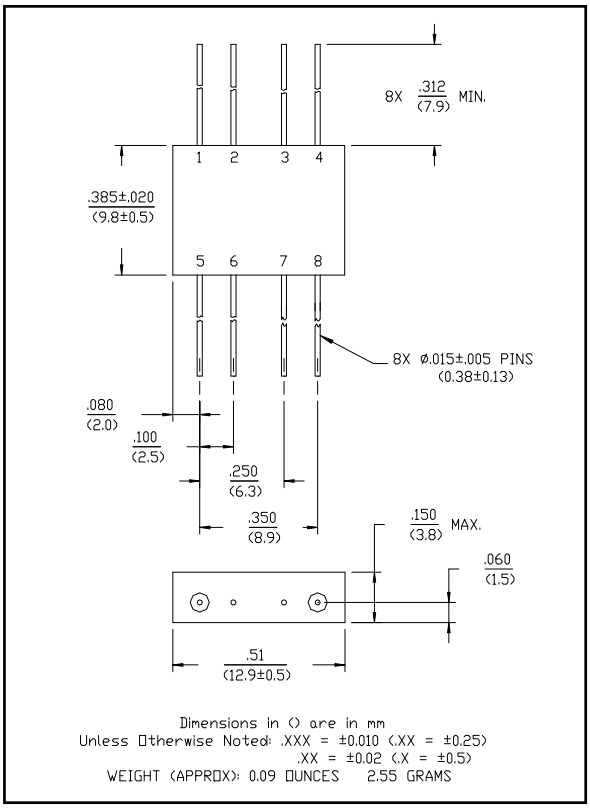
Description

Transformers convert the LO and RF paths to balanced lines connecting to a 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 (MDS-149)



FP-2 (MD-149)



Pin Configuration (MD-149)

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-149)

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

• **North America** Tel: 800.366.2266 • **Europe** Tel: +353.21.244.6400
• **India** Tel: +91.80.4155721 • **China** Tel: +86.21.2407.1588
Visit www.macomtech.com for additional data sheets and product information.

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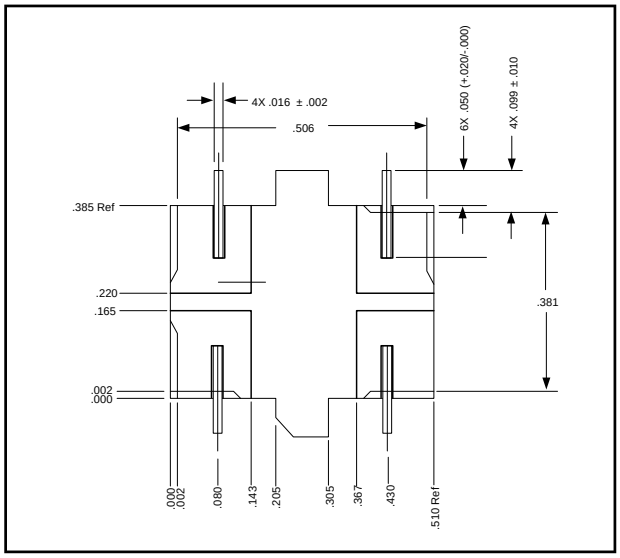
Electrical Specifications[1]: T_A = -55°C to +85°C

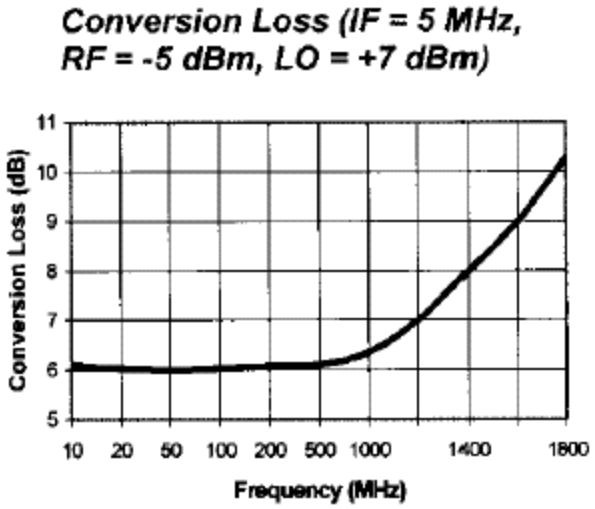
Parameter	Test Conditions	Frequency	Units	Min	Typ	Max
Frequency Range	RF, LO Ports IF Port	10 - 1500 DC - 1500	MHz MHz	—	—	—
Conversion Loss		10 - 1000 MHz 1000 - 1500 MHz	dB dB	— —	— —	7.5 10
Isolation	LO to RF	10 - 100 MHz 100 - 1000 MHz 1000 - 1500 MHz	dB dB dB	35 30 20	— — —	— — —
	LO to IF	10 - 100 MHz 100 - 1000 MHz 1000 - 1500 MHz	dB dB dB	35 20 12	— — —	— — —
	RF to IF	10 - 100 MHz 100 - 1000 MHz 1000 - 1500 MHz	dB dB dB	30 18 8	— — —	— — —
DC Polarity	Negative	—	—	—	—	—
DC Offset	—	—	mV	—	≤4	—
RF Input	1 dB Compression 1 dB Desensitization	— —	dBm dBm	— —	0 -2.0	— —
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	100-500 MHz 500-1000 MHz 1000-1500 MHz	dB dB dB	— — —	48 43 35	— — —

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

Bottom View of SF-1



Typical Performance Curves



ADVANCED: Data Sheets contain information regarding a product M/A-COM Technology Solutions is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed.
PRELIMINARY: Data Sheets contain information regarding a product M/A-COM Technology Solutions has under development. Performance is based on engineering tests. Specifications are typical. Mechanical outline has been fixed. Engineering samples and/or test data may be available. Commitment to produce in volume is not guaranteed.

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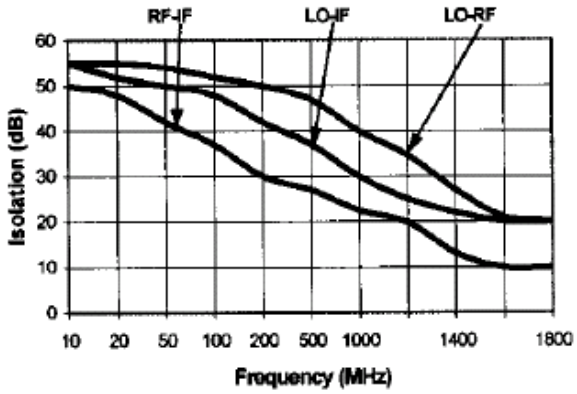
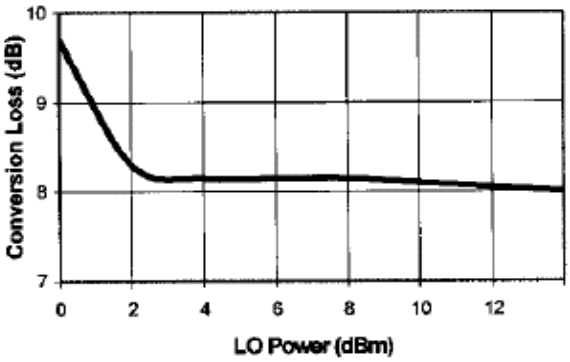
Typical Performance Curves

Isolation



Conversion Loss vs. LO Power (RF = 1450 MHz, -10 dBm, LO = 1500 MHz)



Ordering Information

Part Number	Package
MD-149 PIN	FP-2
MDS-149 PIN	SF-1

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