MD- / MDS-148

Double-Balanced Mixer, 10 - 1500 MHz

Rev. V4

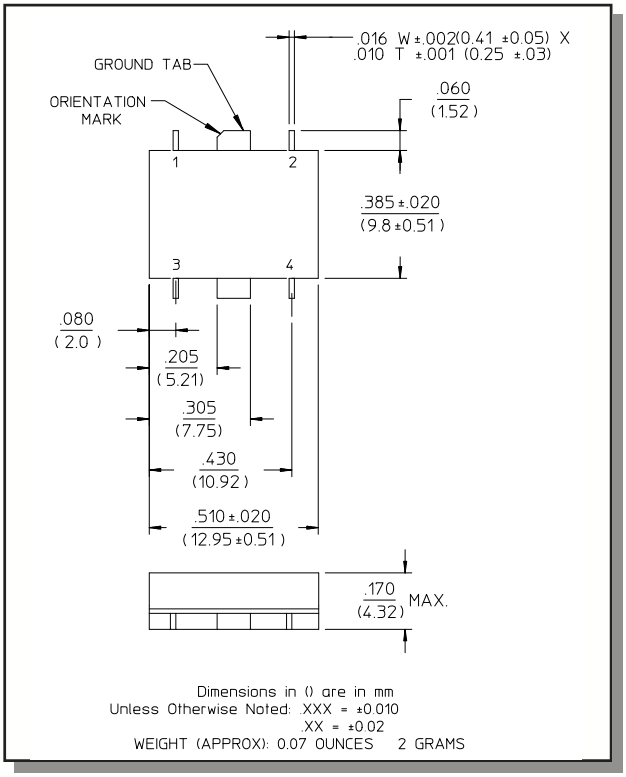
Features

- Fully Hermetic Package
- 1 dB Compression Point: +5 dBm
- Conversion Loss: 6 dB Typical Midband
- LO-RF/LO-IF Isolation: 40 dB Typical Midband
- Impedance: 50 Ohms Nominal
- Maximum Input Power: 300 mW Max, Derated to 85°C @ 3.2 mW/°C
- X Port Current: 50 mA Max.
- MIL-STD-883 Screening Available

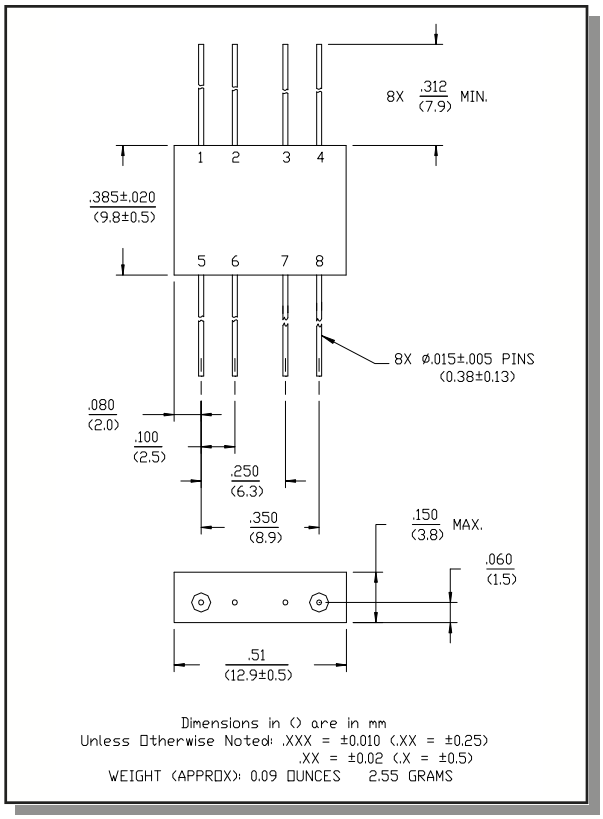
Description

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 (MDS-148)



FP-2 (MD-148)



Pin Configuration (MD-148)

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-148)

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

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.

• **North America** Tel: 800.366.2266 • **Europe** Tel: +353.21.244.6400
• **India** Tel: +91.80.43537383 • **China** Tel: +86.21.2407.1588
Visit www.macomtech.com for additional data sheets and product information.

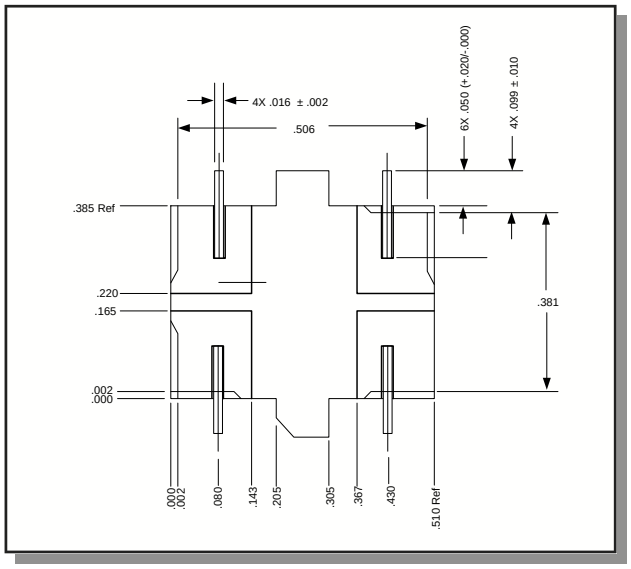
M/A-COM Technology Solutions Inc. and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.

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 - 800 MHz 800 - 1500 MHz	dB dB	— —	— —	7.5 10
Isolation	LO to RF	10 - 100 MHz 100 - 1000 MHz 1000 - 1500 MHz	dB dB dB	35 25 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	—	≤10	—
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 [2]	with a –10 dBm input, each input, 25 MHz and 35 MHz IF	1500 MHz	dB	—	50	—

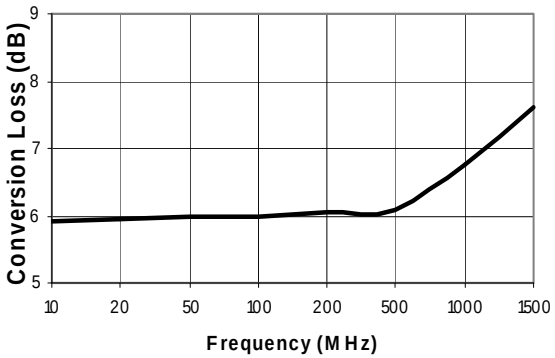
1. All specifications apply when operated at +10 dBm available LO power with 50 ohm source and load impedance.
2. Measured at 1500 MHz.

Bottom View of SF-1



Typical Performance Curves

Conversion Loss



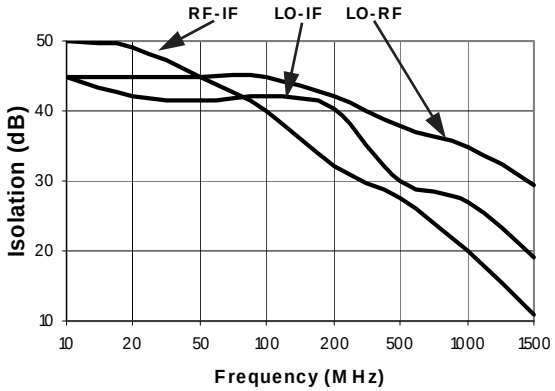
ADVANCED: Data Sheets contain information regarding a product M/A-COM Technology Solutions is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed.
PRELIMINARY: Data Sheets contain information 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.

• **North America** Tel: 800.366.2266 • **Europe** Tel: +353.21.244.6400
• **India** Tel: +91.80.43537383 • **China** Tel: +86.21.2407.1588
Visit www.macomtech.com for additional data sheets and product information.

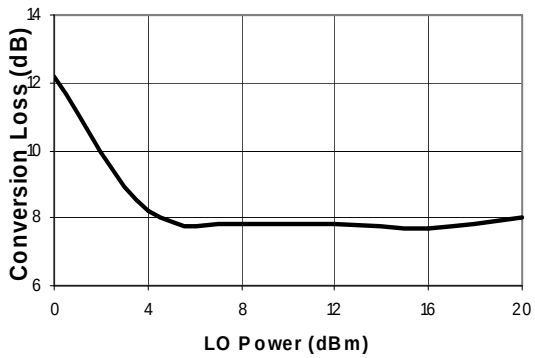
M/A-COM Technology Solutions Inc. and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.

Typical Performance Curves

Isolation



Conversion Loss vs. LO Power



Ordering Information

Part Number	Package
MD-148 PIN	FP-2
MDS-148 PIN	SF-1

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.

• **North America** Tel: 800.366.2266 • **Europe** Tel: +353.21.244.6400
• **India** Tel: +91.80.43537383 • **China** Tel: +86.21.2407.1588
Visit www.macomtech.com for additional data sheets and product information.

M/A-COM Technology Solutions Inc. and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.