

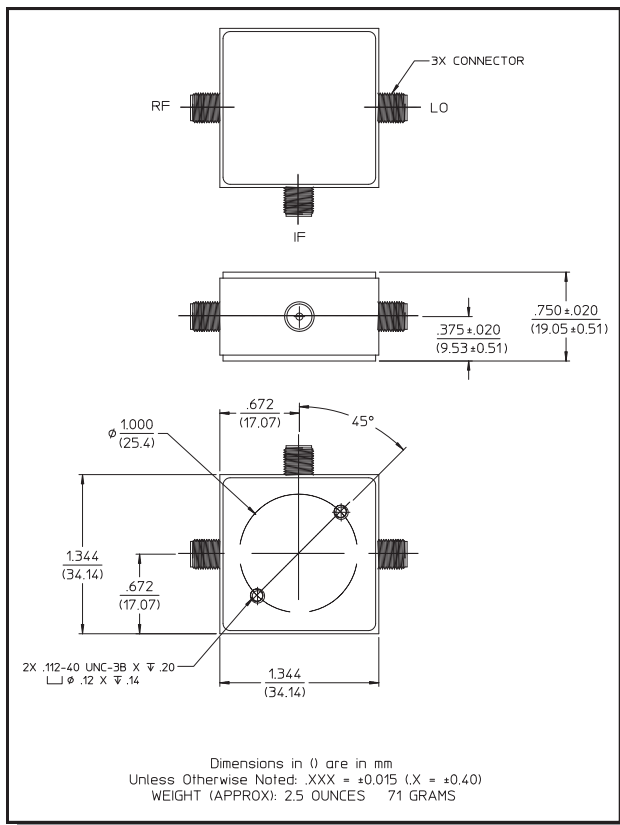
### Features

- n Intermodulation Ratio is Insensitive to Port Mismatches
- n VSWR: <2.0:1 Typical Midband
- n Isolation: 35 dB Typical Midband
- n Impedance: 50 Ohms Nominal
- n Maximum Input Power: 350 mW Max @ 25°C, Derated to 85°C @ 3.2 mW/°C
- n LO Power: +24 dBm Max.
- n MIL-STD-883 Screening Available

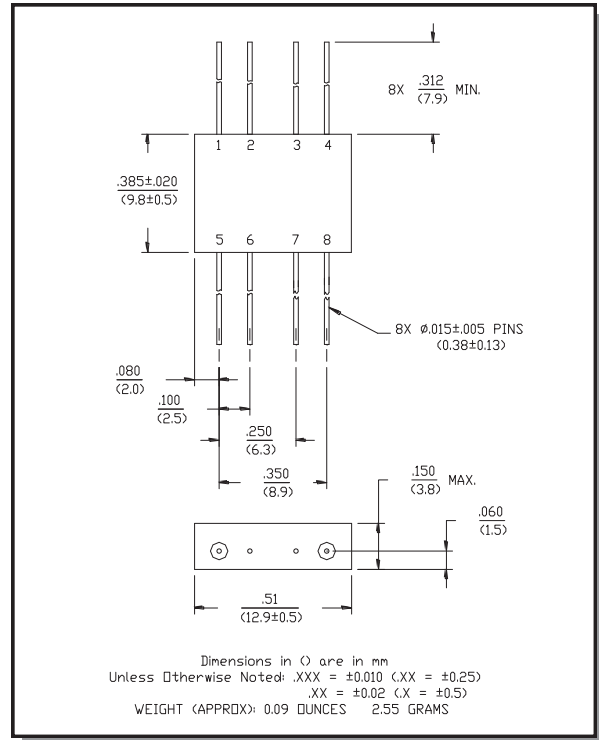
### Description

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       |

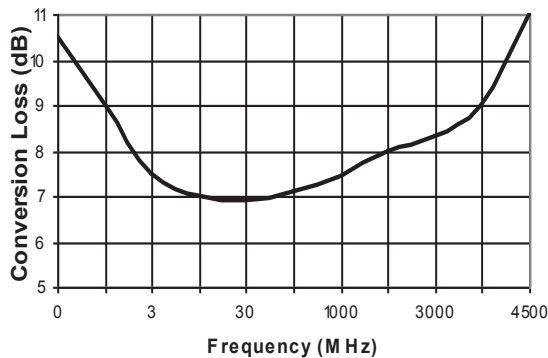
## Electrical Specifications<sup>1</sup>: $T_A = -55^\circ\text{C}$ to $+85^\circ\text{C}$

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

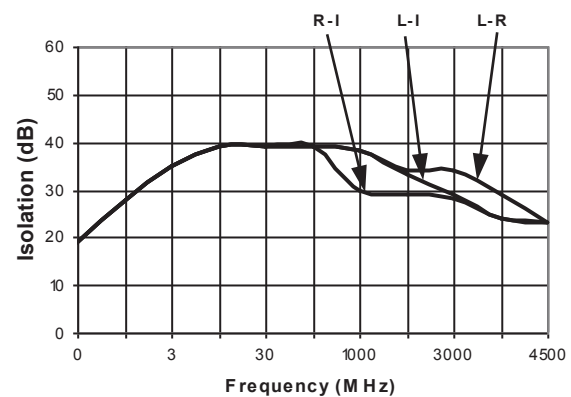
- All specifications apply when operated at +7 dBm available LO power with 50 Ohm source and load impedance.
  - For IF Frequencies of 5 - 300 MHz and RF of  $-10$  dBm or less.
  - For MDC-179, add 1.0 dB to conversion loss.
- This product contains elements protected by United States Patent Number 4,224,572.

## Typical Performance Curves

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

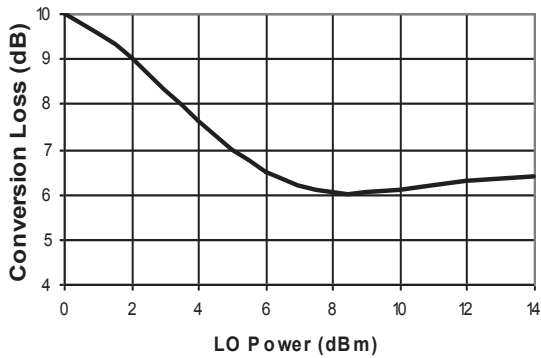


**Isolation - Input +7 dBm**

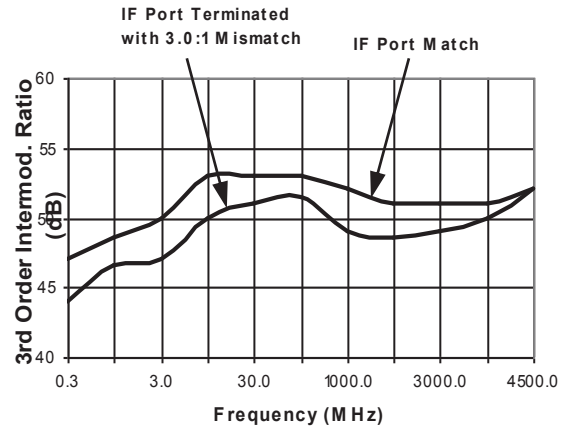


## Typical Performance Curves

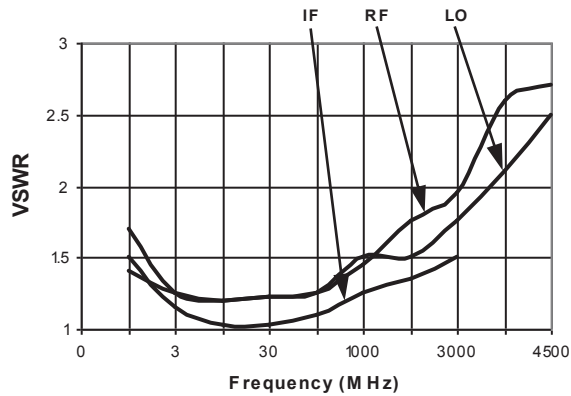
**Conversion Loss vs. LO Power - RF @ 2000 MHz -10 dBm, IF @ 60 MHz**



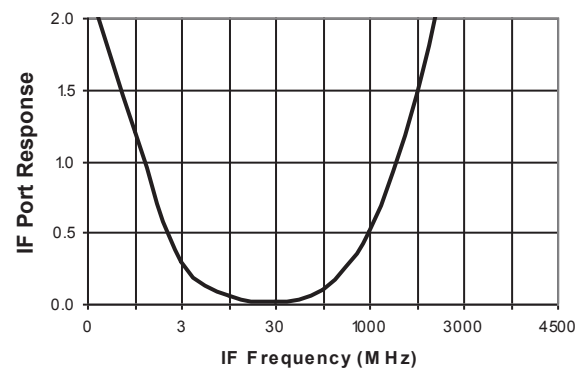
**3rd Order IM Ratio - Input +7 dBm**



**VSWR**



**IF Port Response**



## Ordering Information

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

M/A-COM Technology Solutions Inc. All rights reserved.

Information in this document is provided in connection with M/A-COM Technology Solutions Inc ("MACOM") products. These materials are provided by MACOM as a service to its customers and may be used for informational purposes only. Except as provided in MACOM's Terms and Conditions of Sale for such products or in any separate agreement related to this document, MACOM assumes no liability whatsoever. MACOM assumes no responsibility for errors or omissions in these materials. MACOM may make changes to specifications and product descriptions at any time, without notice. MACOM makes no commitment to update the information and shall have no responsibility whatsoever for conflicts or incompatibilities arising from future changes to its specifications and product descriptions. No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document.

THESE MATERIALS ARE PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, RELATING TO SALE AND/OR USE OF MACOM PRODUCTS INCLUDING LIABILITY OR WARRANTIES RELATING TO FITNESS FOR A PARTICULAR PURPOSE, CONSEQUENTIAL OR INCIDENTAL DAMAGES, MERCHANTABILITY, OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT. MACOM FURTHER DOES NOT WARRANT THE ACCURACY OR COMPLETENESS OF THE INFORMATION, TEXT, GRAPHICS OR OTHER ITEMS CONTAINED WITHIN THESE MATERIALS. MACOM SHALL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION, LOST REVENUES OR LOST PROFITS, WHICH MAY RESULT FROM THE USE OF THESE MATERIALS.

MACOM products are not intended for use in medical, lifesaving or life sustaining applications. MACOM customers using or selling MACOM products for use in such applications do so at their own risk and agree to fully indemnify MACOM for any damages resulting from such improper use or sale.