

**Double-Balanced Mixer,  
10 MHz - 3 GHz**

**MD-123  
V3**

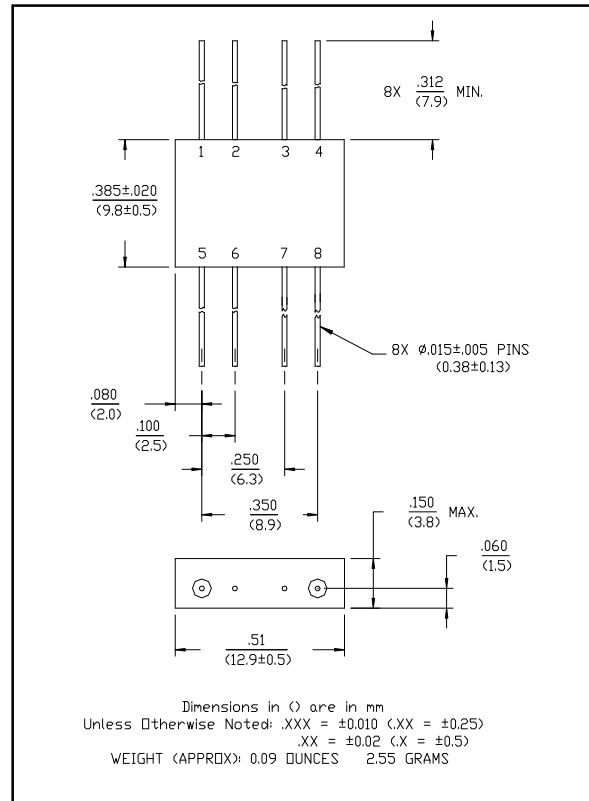
**Features**

- Usable to 4 GHz
- Impedance: 50 Ohms Nominal
- Maximum Input Power: 600 mW max. @ 25°C, Derated linearly to 85°C @ 3.2 mW/°C
- IF Port Current: 50 mA Max.
- MIL-STD Screening Available

**Description**

Transformers convert the LO and RF paths to balanced lines connecting to a low barrier, Schottky diode ring quad. These transformers help provide excellent isolation between ports.

**FP-2**



**Pin Configuration**

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

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**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<br>IF Port                                | 0.01 - 3 GHz    | GHz   | —   | —   | —   |
|                              |  | 0.01 - 3 GHz    | GHz   | —   | —   | —   |
| Conversion Loss              |  |                 | dB    | —   | —   | 8.0 |
| Isolation                    | LO to RF   | 10 - 500 MHz    | dB    | 25  | —   | —   |
|                              |  | 500 - 1000 MHz  | dB    | 30  | —   | —   |
|                              |  | 1000 - 3000 MHz | dB    | 25  | —   | —   |
|                              | LO to IF   | 10 - 500 MHz    | dB    | 20  | —   | —   |
|                              |  | 500 - 1000 MHz  | dB    | 25  | —   | —   |
|                              |  | 1000 - 3000 MHz | dB    | 25  | —   | —   |
| RF to IF                     | 10 - 500 MHz   | dB              | 20    | —   | —   |     |
|                              | 500 - 1000 MHz   | dB              | 25    | —   | —   |     |
|                              | 1000 - 3000 MHz  | dB              | 20    | —   | —   |     |
| DC Polarity                  | Negative   | —               | —     | —   | —   | —   |
| DC Offset                    |  |                 | mV    | —   | ≤ 7 | —   |
| RF Input                     | 1 dB Compression<br>1 dB Desensitization               |                 | dBm   | —   | +7  | —   |
|                              |  |                 | dBm   | —   | +5  | —   |
| SSB Noise Figure             | Within 1 dB of Conversion Loss<br>Max.                 | —               | —     | —   | —   | —   |
| Typical Two Tone IM<br>Ratio | With -10 dBm input, each input 25<br>MHz and 35 MHz IF | 100 - 2000 MHz  | dB    | —   | >56 | —   |

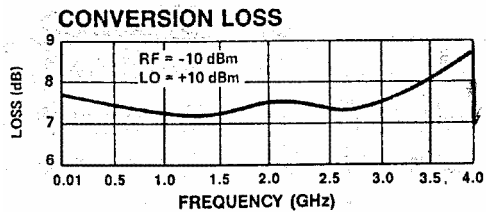
1. All specifications apply when operated at +10 to +13 dBm available LO power with 50 ohm source and load impedance.
2. Conversion Loss is specified for IF frequency of 10 MHz to 2 GHz. See IF port bandwidth graph.

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**Typical Performance Curves**

**Ordering Information**



| Part Number | Package |
|-------------|---------|
| MD-123 PIN  | FP-2    |

