

## Triple-Balanced Mixer

Rev. V5

### Features

- LO 10 to 2400 MHz
- RF 10 to 2400 MHz
- IF 10 to 1000 MHz
- Lo Drive: 13 dBm (nominal)
- High Intercept: 22 dBm
- High Isolation: 40 dB

### Description

The M2T is a triple balanced mixer, designed for use in military, commercial and test equipment applications. The design utilizes Schottky ring quad diodes and broadband soft dielectric baluns to attain excellent performance. The use of high temperature solder and welded assembly processes used internally makes it ideal for use in manual, semi-automated assembly.

Environmental screening available to MIL-STD-883, MIL-STD-202 or MIL-DTL-28837, consult factory.



TO-8



SMA connectorized

### Ordering Information

| Part Number | Package           |
|-------------|-------------------|
| M2T         | TO-8              |
| M2TC        | SMA Connectorized |

### Electrical Specifications: $Z_0 = 50 \Omega$ , $Lo = +13$ dBm (Downconverter application only)

| Parameter  | Test Conditions   | Units | Typical | Guaranteed |                            |
|--|---|-------|---------|------------|----------------------------|
|  |   |       | +25°C   | +25°C      | -54° to +85°C <sup>1</sup> |
| SSB Conversion Loss (max.) & SSB Noise Figure (max.) | fR = 0.01 - 2.4 GHz, fL = 0.01 - 2.4 GHz, fl = 0.05 - 1 GHz | dB    | 7.5     | 9.5        | 10.0                       |
|  | fR = 0.01 - 2.4 GHz, fL = 0.01 - 2.4 GHz, fl = 0.01 - 1 GHz |       | 9.0     | 10.0       |                            |
|  | fR = 0.5 - 1.5 GHz, fL = 0.5 - 1.5 GHz, fl = 0.01 - 1 GHz   |       | 7.0     | 8.5        |                            |
| Isolation, L to R (min.)                             | fL = 0.01 - 1.2 GHz   | dB    | 40      | 35         | 33                         |
|  | fL = 1.2 - 2.4 GHz  |       | 40      | 30         | 28                         |
| Isolation, L to I (min.)                             | fL = 0.01 - 1.2 GHz   | dB    | 40      | 35         | 33                         |
|  | fL = 1.2 - 2.4 GHz  |       | 40      | 30         | 28                         |
| 1 dB Conversion Comp.                                | fL @ +13 dBm  | dBm   | +11     | —          | —                          |
| Input IP3  | —   | dBm   | +22     | —          | —                          |

1. The M2TC specification limits apply at 0°C to +50°C.

### Absolute Maximum Ratings

| Parameter             | Absolute Maximum                 |
|-----------------------|----------------------------------|
| Peak Input Power      | 25 dBm @ +25°C<br>4 dBm @ +100°C |
| Peak Input Current    | 75 mA DC                         |
| Operating Temperature | -54°C to +100°C                  |
| Storage Temperature   | -65°C to +100°C                  |

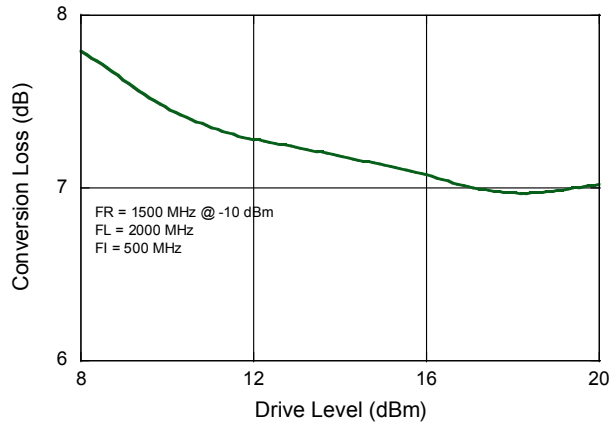
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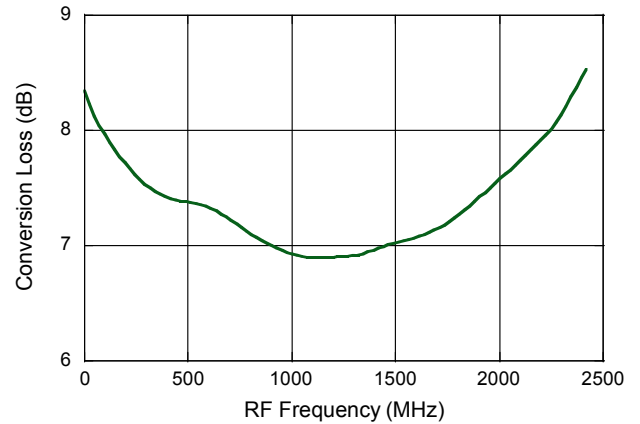
DC-0007799

### Typical Performance Curves

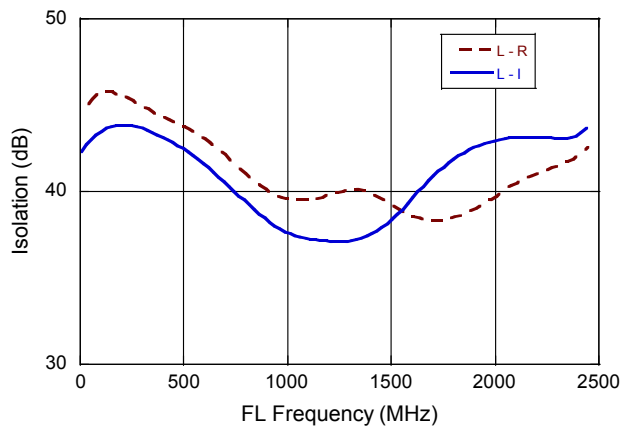
**Conversion Loss**



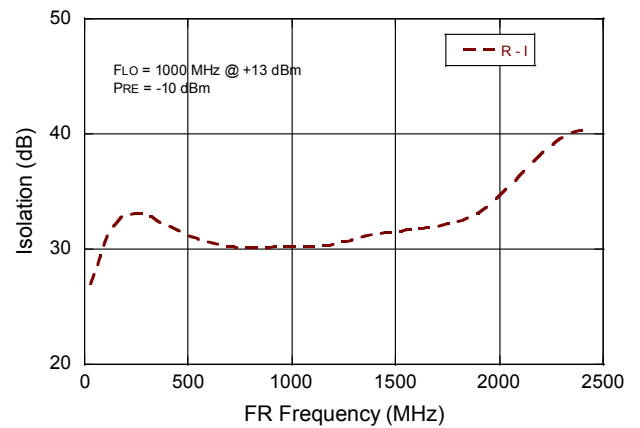
**Conversion Loss**



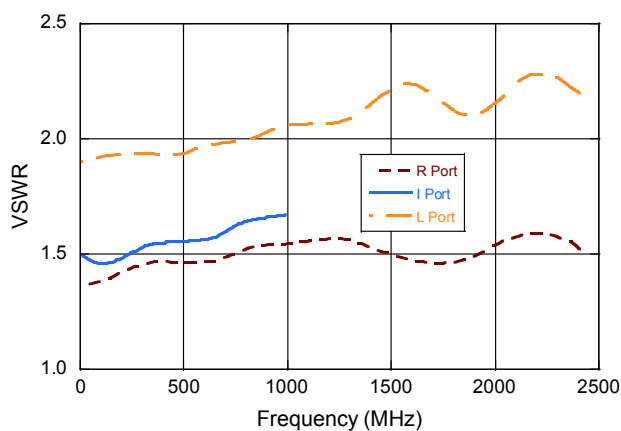
**Isolation**



**Isolation**



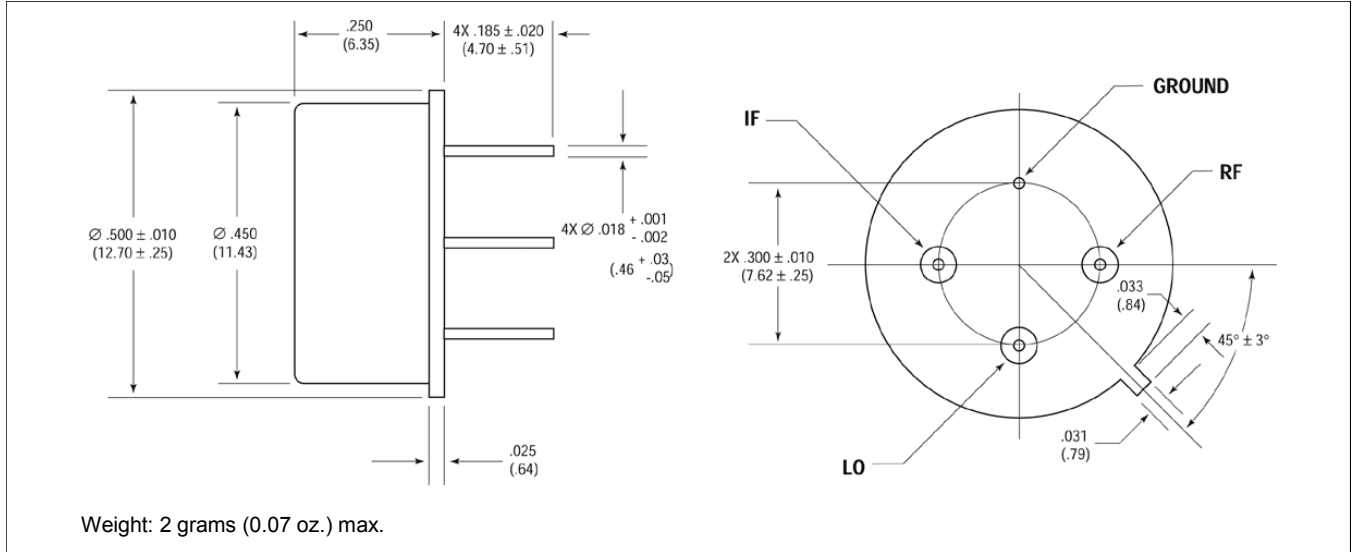
**VSWR**



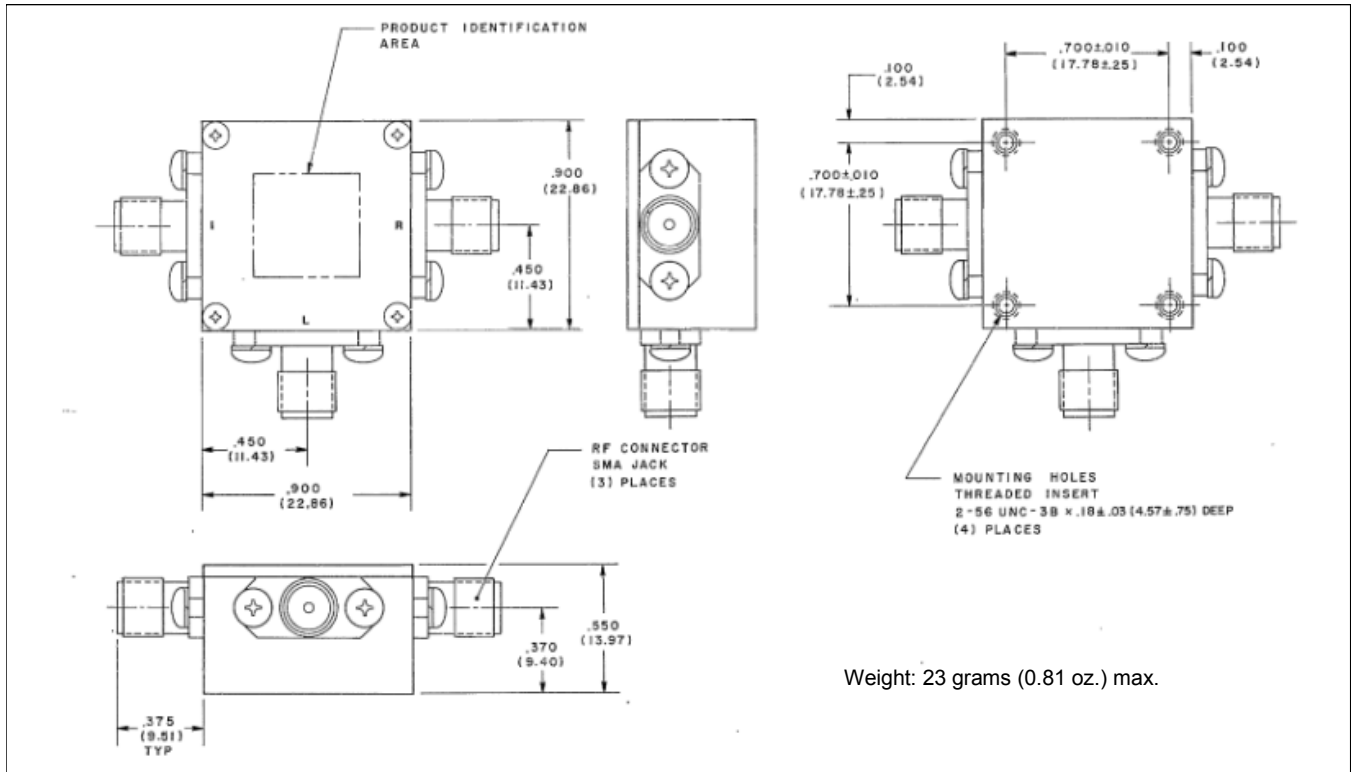
## Triple-Balanced Mixer

Rev. V5

### Outline Drawing: TO-8\*



### Outline Drawing: SMA Connectorized\*



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\* Dimensions are inches (millimeters)  $\pm 0.015$  (0.38) unless otherwise specified.

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