

## Double-Balanced Mixer

Rev. V5

### Features

- LO & RF: 10 TO 1600 MHz
- IF: DC TO 800 MHz
- LO DRIVE: +13 dBm (NOMINAL)
- HIGH ISOLATION: 40 dB (TYP.)

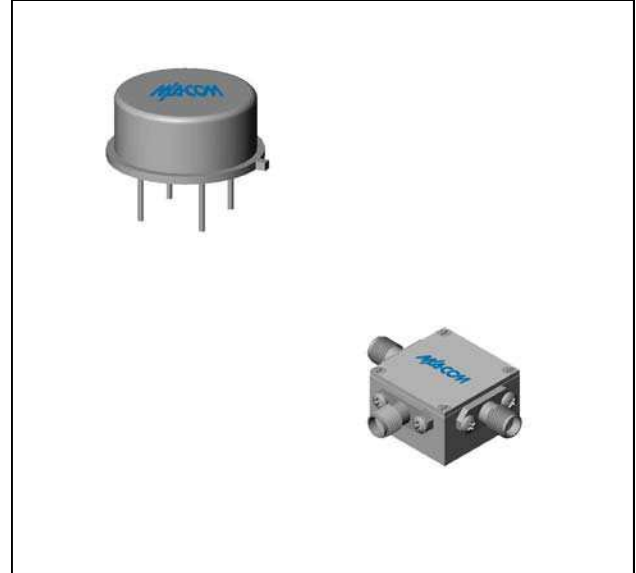
### Description

The M2B is a double balanced mixer, designed for use in military, commercial, and test equipment applications. The design utilizes Schottky ring quad diodes and broadband ferrite baluns to attain excellent performance. This mixer can also be used as a phase detector and/or bi-phase modulator since the IF port is DC coupled to the diodes. Environmental screening is available to MIL-STD-883, MIL-STD-202, or MIL-DTL-28837, consult factory.

### Ordering Information

| Part Number | Package           |
|-------------|-------------------|
| M2B         | TO-8              |
| M2BC        | SMA Connectorized |

### Product Image



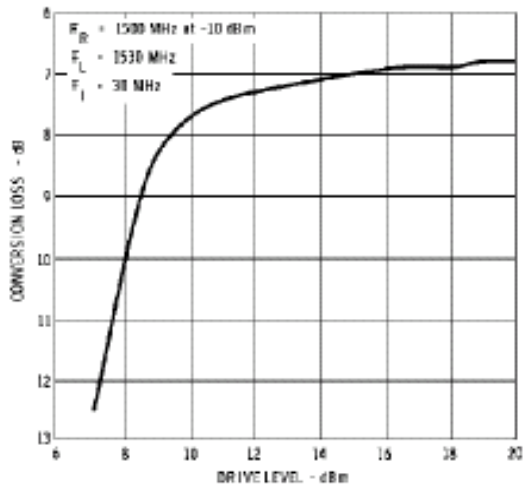
### Electrical Specifications: $Z_0 = 50\Omega$ $Lo = +13$ dBm (Downconverter application only)

| Parameter  | Test Conditions  | Units | Typical | Guaranteed |                 |
|--|--|-------|---------|------------|-----------------|
|  |  |       |         | +25°C      | -54° to +85°C * |
| SSB Conversion Loss (max) & SSB Noise Figure (max) | fR = 0.02 to 0.6 GHz, fL = 0.01 to 0.8 GHz, fl = 0.0004 to 0.2 GHz<br>fR = 0.01 to 1.6 GHz, fL = 0.01 to 1.6 GHz, fl = 0.0004 to 0.8 GHz | dB    | 7.0     | 8.0        | 8.5             |
|  |  |       | 8.0     | 9.0        | 9.5             |
| Isolation, L to R (min)                            | fL = 0.01 to 0.7 GHz   | dB    | 50      | 40         | 38              |
|  | fL = 0.7 to 1.2 GHz  | dB    | 45      | 30         | 28              |
|  | fL = 1.2 to 1.6 GHz  | dB    | 35      | 25         | 23              |
| Isolation, L to I (min)                            | fL = 0.01 to 0.7 GHz   | dB    | 40      | 30         | 28              |
|  | fL = 0.7 to 1.2 GHz  | dB    | 30      | 20         | 18              |
|  | fL = 1.2 to 1.6 GHz  | dB    | 25      | 18         | 16              |
| 1 dB Conversion Comp.                              | fL = +13 dBm   | dBm   | +7      |            |                 |
| Input IP3  |  | dBm   | +22     |            |                 |

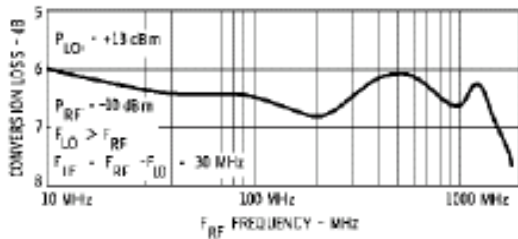
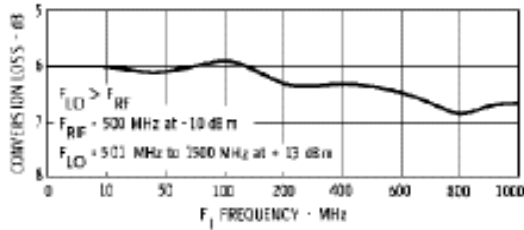
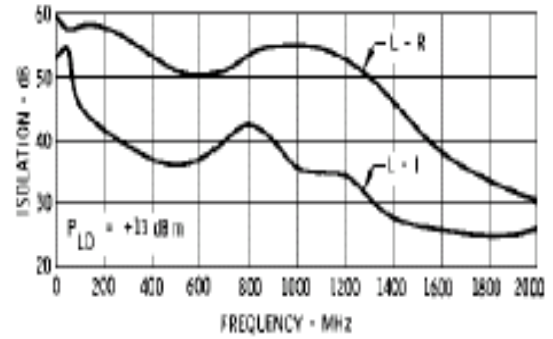
\* The M2BC specification limits apply at 0°C to +50°C.

### Typical Performance Curves

Conversion Loss



Isolation



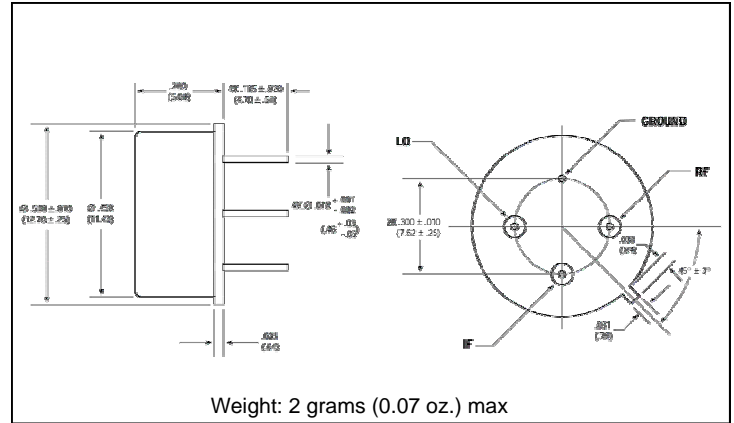
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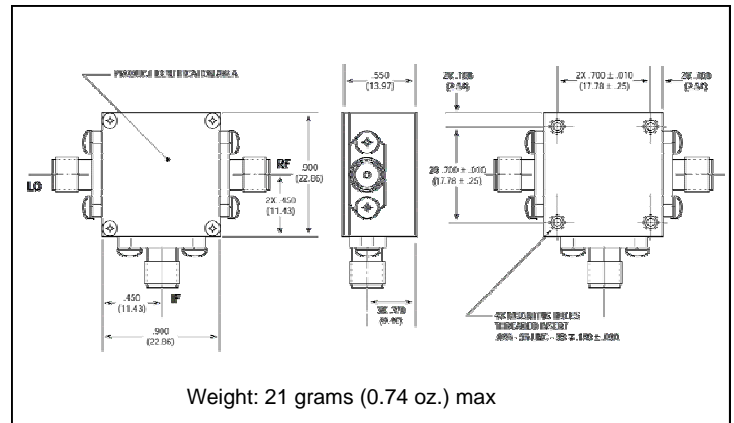
### Absolute Maximum Ratings

| Parameter             | Absolute Maximum                            |
|-----------------------|---|
| Operating Temperature | -54°C to +100°C                             |
| Storage Temperature   | -65°C to +100°C                             |
| Peak Input Power      | +23 dBm max @ +25°C<br>+17 dBm max @ +100°C |
| Peak Input Current    | 50 mA DC                                    |

### Outline Drawing: TO-8 \*



### Outline Drawing: SMA Connectorized \*



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