# M8TH / M8THC

## Load Insensitive Mixer

Rev. V5

### Features

- LO 1 TO 3400 MHz
- RF 1 TO 3400 MHz
- IF 1 TO 2000 MHz
- LO DRIVE: +23 dBm (NOMINAL)
- INSENSITIVE TO SYSTEM MISMATCH
- HIGH INTERCEPT: +29 dBm (TYP.)

### Description

The M8TH is a termination insensitive mixer, designed for use in military, wireless and test equipment applications. The design utilizes Schottky bridge quad diodes, broadband ferrite baluns and internal loads to provide excellent performance without degradation due to external VSWR mismatches. Environmental screening available to MIL-STD-883, MIL-STD-202 or MIL-DTL-28837, consult factory.

### Product Image

### Ordering Information

| Part Number | Package |
|---|---|
| M8TH | TO-8 |
| M8THC | SMA Connectorized |

### Electrical Specifications: $Z_0 = 50\Omega$ Lo =+23 dBm (Downconverter application only)

| Parameter | Test Conditions | Units | Typical | Guaranteed | |
|---|---|---|---|---|---|
| | | | | +25ºC | -54º to +85ºC* |
| SSB Conversion Loss (max) & SSB Noise Figure (max) | fR = 0.005 to 2 GHz, fL = 0.005 to 2 GHz, fI = 0.001 to 0.5 GHz<br>fR = 0.001 to 3.4 GHz, fL = 0.001 to 3.4 GHz, fI = 0.001 to 2 GHz | dB<br>dB | 6.5<br>8.5 | 8.0<br>10.5 | 8.3<br>10.8 |
| Isolation, L to R (min) | fL = 0.01 to 1.5 GHz<br>fL = 0.01 to 3.4 GHz | dB<br>dB | 37<br>35 | 30<br>22 | 29<br>21 |
| Isolation, L to I (min) | fL = 0.01 to 1.5 GHz<br>fL = 0.01 to 3.4 GHz | dB<br>dB | 40<br>35 | 30<br>25 | 29<br>24 |
| Isolation, R to I (min) | fR = 0.01 to 3.4 GHz | dB | 21 | | |
| 1 dB Conversion Comp. | fL = +23 dBm | dBm | +17 | | |
| Input IP3 | fR1 = 1 GHz at 0 dBm, fR2 = 1.01 GHz at 0 dBm,<br>fL = 1.8 GHz at +22 dBm | dBm | +29 | | |

* The M8TC specification limits apply at 0ºC to +50ºC.

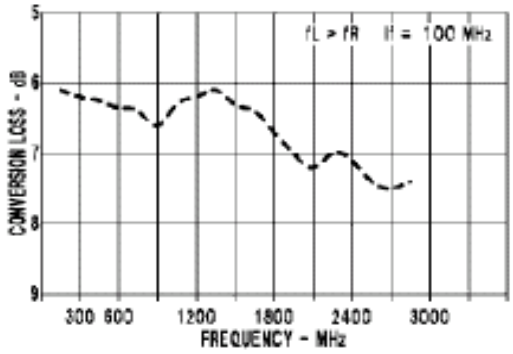




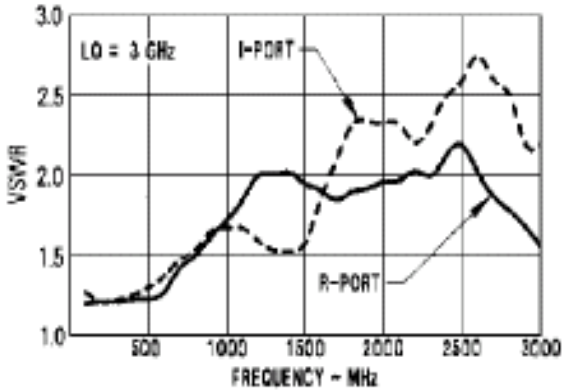
• **North America** Tel: 800.366.2266 • **Europe** Tel: +353.21.244.6400
• **India** Tel: +91.80.4155721 • **China** Tel: +86.21.2407.1588
Visit www.macomtech.com for additional data sheets and product information.

## Typical Performance Curves

### Conversion Loss vs. Frequency




### VSWR vs. Frequency





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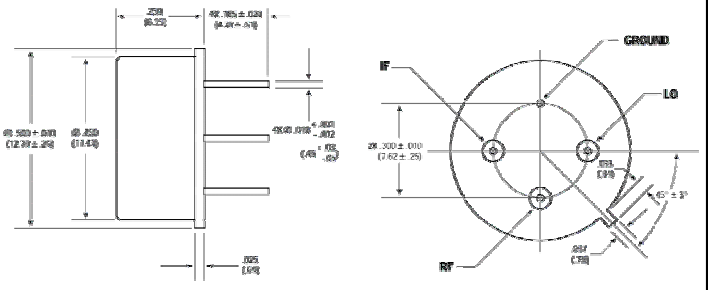
## Absolute Maximum Ratings

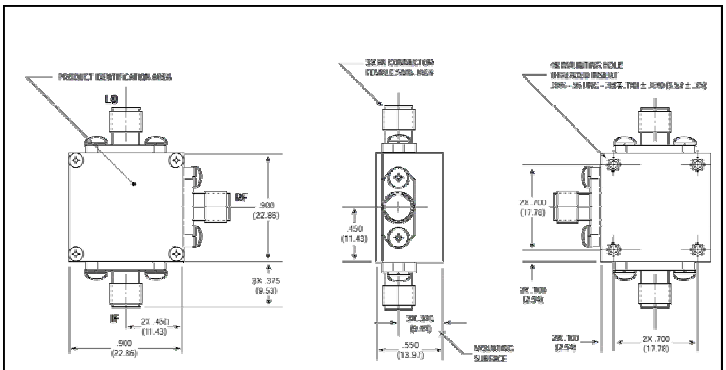
| Parameter | Absolute Maximum |
|---|---|
| Operating Temperature | -54ºC to +100ºC |
| Storage Temperature | -65ºC to +100ºC |
| Peak Input Power | +27 dBm max @ +25ºC<br>+23 dBm max @ +100ºC |
| Peak Input Current | mA DC |

## Outline Drawing: TO-8 *




Weight: 2 grams (0.07 oz.) max

## Outline Drawing: SMA Connectorized *




Weight: 22.5 grams (0.77 oz.) max

* Dimensions are inches (millimeters) ±0.015 (0.38) unless otherwise specified.





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