

## Triple-Balanced Mixer

Rev. V2

### Features

- LO 2 TO 18 GHz
- RF 2 TO 18 GHz
- IF 2 TO 8 GHz
- LO DRIVE +21 dBm (nominal)
- WIDE BANDWIDTH
- HIGH THIRD-ORDER I.P. +24 dBm (TYP.)

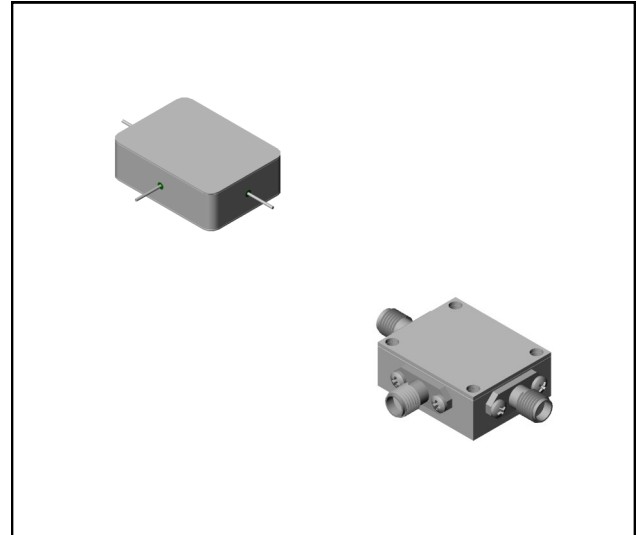
### Description

M88H 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 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.

### Ordering Information

| Part Number | Package           |
|-------------|-------------------|
| M88H        | Minpac            |
| M88HC       | SMA Connectorized |

### Product Image



### Electrical Specifications: $Z_0 = 50\Omega$ $Lo = +21$ dBm (Downconverter Application only)

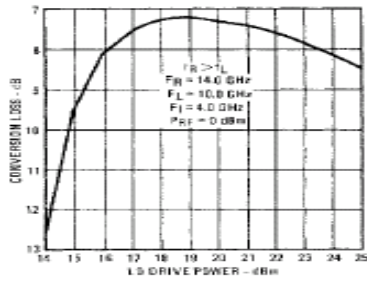
| Parameter  | Test Conditions   | Units      | Typical | Guaranteed |               |
|--|---|------------|---------|------------|---------------|
|  |   |            |         | +25°C      | -54° to +85°C |
| SSB Conversion Loss (max) & SSB Noise Figure (max) | fR = 2 to 10 GHz, fL = 2 to 18 GHz, fI = 2 to 8 GHz<br>fR = 10 to 18 GHz, fL = 2 to 18 GHz, fI = 2 to 8 GHz                                     | dB<br>dB   | 7.5     | 10.0       | 10.3          |
|  |   |            | 8.0     | 10.5       | 10.8          |
| Isolation, L to R (min)                            | fL = 2 to 18 GHz  | dB         | 28      | 15         | 14            |
| Isolation, L to I (min)                            | fL = 2 to 18 GHz  | dB         | 32      | 17         | 16            |
| 1 dB Conversion Comp.                              | fL = +21 dBm  | dBm        | +17     |            |               |
| Input IP3  | fR1 = 6 GHz at 0 dBm, fR2 = 6.01 GHz at 0 dBm, fL = 8 GHz at +21 dBm<br>fR1 = 14 GHz at 0 dBm, fR2 = 14.01 GHz at 0 dBm, fL = 10 GHz at +21 dBm | dBm<br>dBm | +26     |            |               |
|  |   |            | +24     |            |               |

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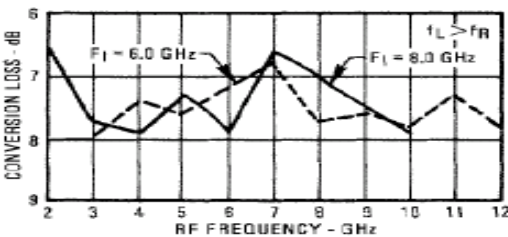
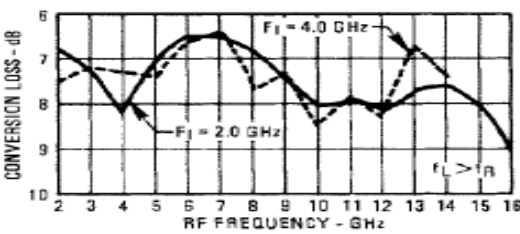
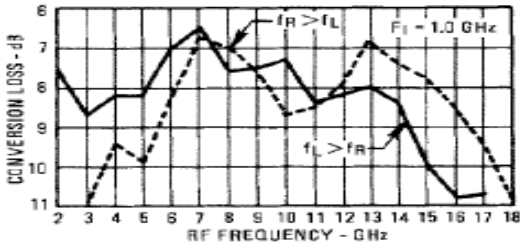
### Typical Performance Curves

Conversion Loss vs Lo Drive Power

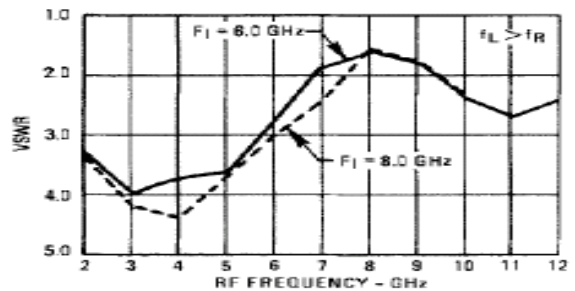
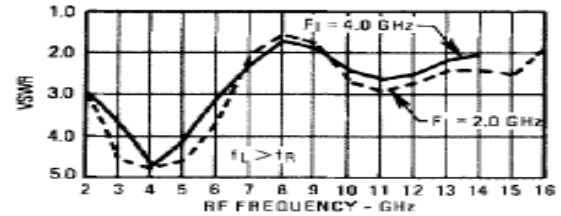
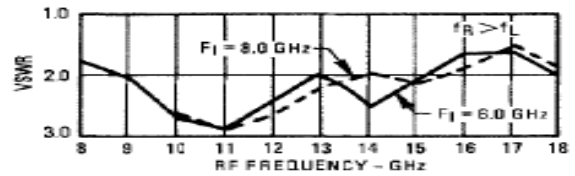
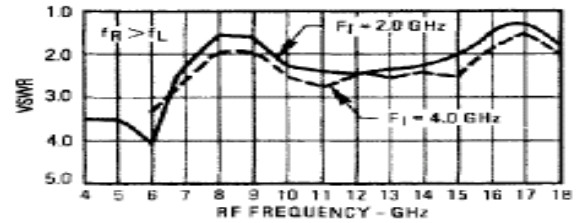


Drive Level: The maximum recommended drive level is +24 dBm.

Conversion Loss vs Input Frequency  
Lo @ +21 dBm



R-Port VSWR Lo @ +21 dBm



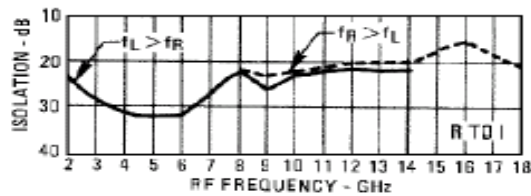
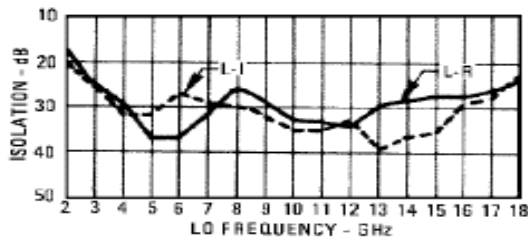
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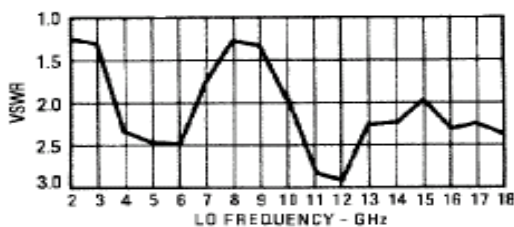
### Absolute Maximum Ratings

| Parameter             | Absolute Maximum                            |
|-----------------------|---|
| Operating Temperature | -54°C to +100°C                             |
| Storage Temperature   | -65°C to +100°C                             |
| Peak Input Power      | +27 dBm max @ +25°C<br>+24 dBm max @ +100°C |
| Peak Input Current    | 100 mA DC                                   |

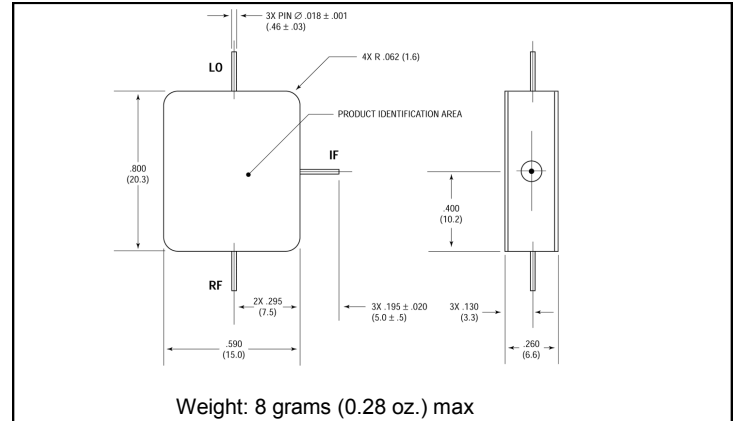
### Isolation vs Frequency



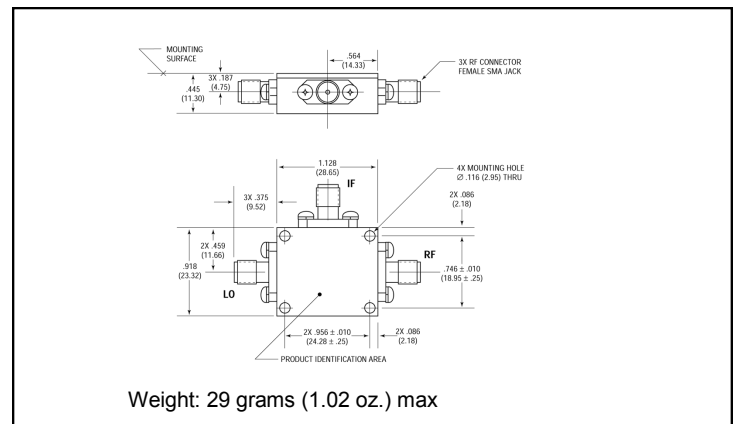
### L-Port VSWR @ +21 dBm



### Outline Drawing: Minpac \*



### Outline Drawing: SMA Connectorized \*



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

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