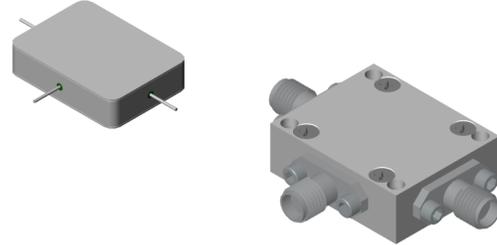


### Features

- LO = 2.5 - 10.5 GHz
- RF = 4.5 - 8.5 GHz
- IF = DC - 2.0 GHz
- Low Drive: 20 dBm (nominal)
- High OIP3: 24 dBm



### Description

The M76H is a double balanced mixer, designed for use in military, commercial and test equipment applications. The design utilizes Schottky ring quad diodes and broadband soft dielectric and 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. 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.

### Electrical Specifications: $Z_0 = 50 \Omega$ $Lo = +20$ dBm (downconverter application only)

| Parameter  | Test Conditions   | Units | Typical | Guaranteed |               |
|--|---|-------|---------|------------|---------------|
|  |   |       |         | +25°C      | -54° to +85°C |
| SSB Conversion Loss (max.) & SSB Noise Figure (max.) | RF = 4.5 - 8.0 GHz, LO = 2.5 - 10.0 GHz, IF = 0.03 - 2.0 GHz            | dB    | 5.5     | 7.0        | 7.5           |
|  | RF = 8.0 - 8.5 GHz, LO = 6.5 - 9.5 GHz, IF = 0.03 - 1.5 GHz             |       | 6.5     | 8.0        | 8.3           |
|  | RF = 8.0 - 8.5 GHz, LO = 6.0 - 10.5 GHz, IF = 0.03 - 2.0 GHz            |       | 8.0     | 9.5        | 9.8           |
| Isolation, LO to RF (min.)                           | LO = 2.5 - 10.5 GHz   | dB    | 35      | 22         | 21            |
| Isolation, LO to IF (min.)                           | LO = 2.5 - 6.5 GHz  | dB    | 22      | 15         | 14            |
|  | LO = 6.5 - 10.5 GHz   |       | 30      | 20         | 19            |
| 1 dB Conversion Comp.                                | LO = 20 dBm   | dBm   | 15      | —          | —             |
| Input IP3  | RF1 = 6.12 GHz @ 0 dBm, RF2 = 6.18 GHz @ 0 dBm, LO = 7.2 GHz @ = 20 dBm | dBm   | 24      | —          | —             |

### Ordering Information

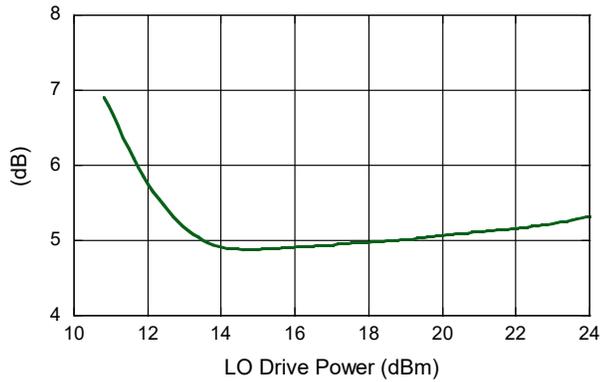
| Part Number | Package           |
|-------------|-------------------|
| M76H        | Minpac            |
| M76HC       | SMA Connectorized |

### Absolute Maximum Ratings

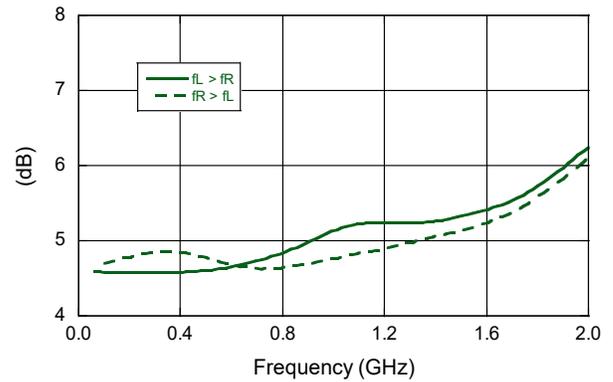
| Parameter             | Absolute Maximum                  |
|-----------------------|-----------------------------------|
| Peak Input Power      | 25 dBm @ +25°C<br>23 dBm @ +100°C |
| Peak Input Current    | 100 mA DC                         |
| Operating Temperature | -54°C to +100°C           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

## Typical Performance Curves

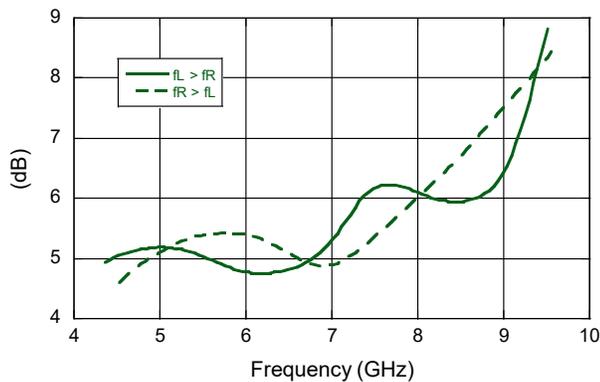
**Conversion Loss vs. LO Drive Power**  
 RF = 5 GHz, IF = 1 GHz, LO > RF



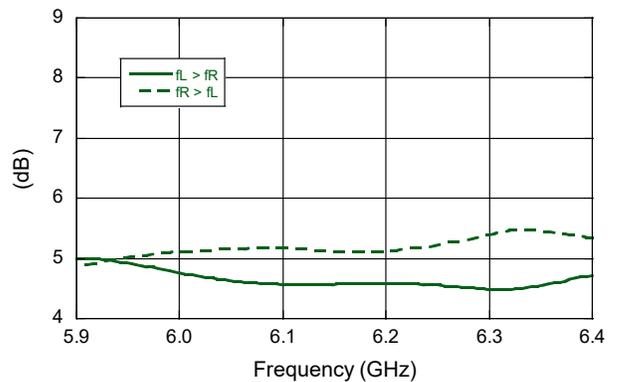
**Conversion Loss vs. Frequency (Up Conversion)**  
 RF = 7 GHz, Input to R-Port, LO Power = 20 dBm



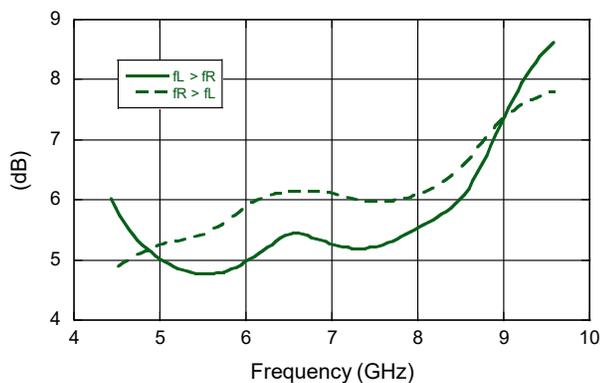
**Conversion Loss vs. Frequency (Down Conversion)**  
 IF = 1 GHz, Output @ I-Port, LO Power = 20 dBm



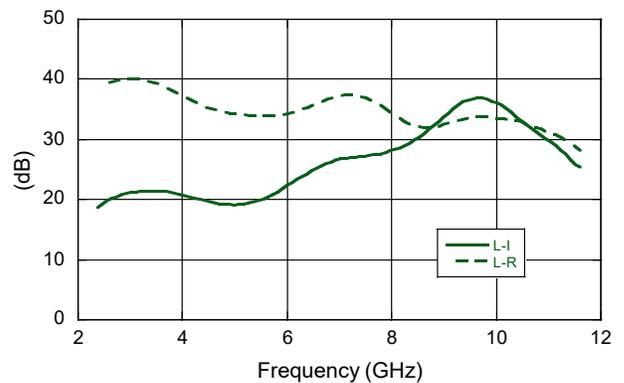
**Conversion Loss vs. Frequency (Up Conversion)**  
 IF = 1 GHz, Input to I-Port, LO Power = 20 dBm



**Conversion Loss vs. Frequency (Down Conversion)**  
 IF = 2 GHz, Output @ I-Port, LO Power = 20 dBm

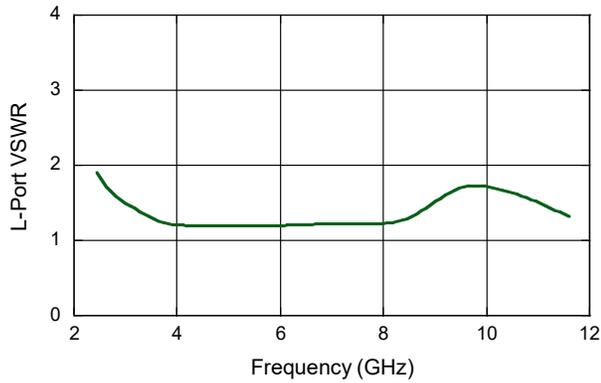


**Isolation vs. Frequency**  
 LO Power = 20 dBm

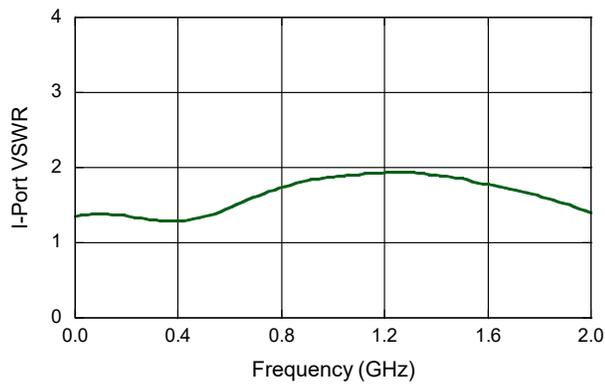


## Typical Performance Curves

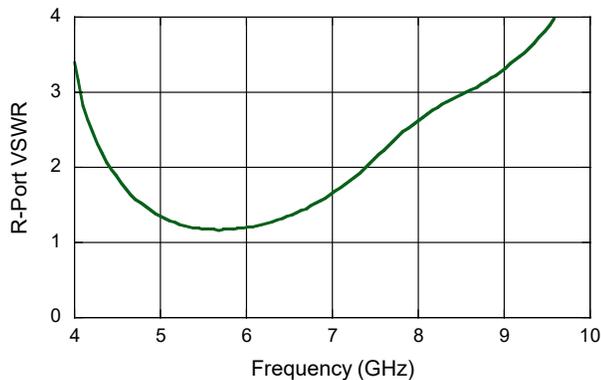
**L-Port VSWR (LO = 20 dBm)**



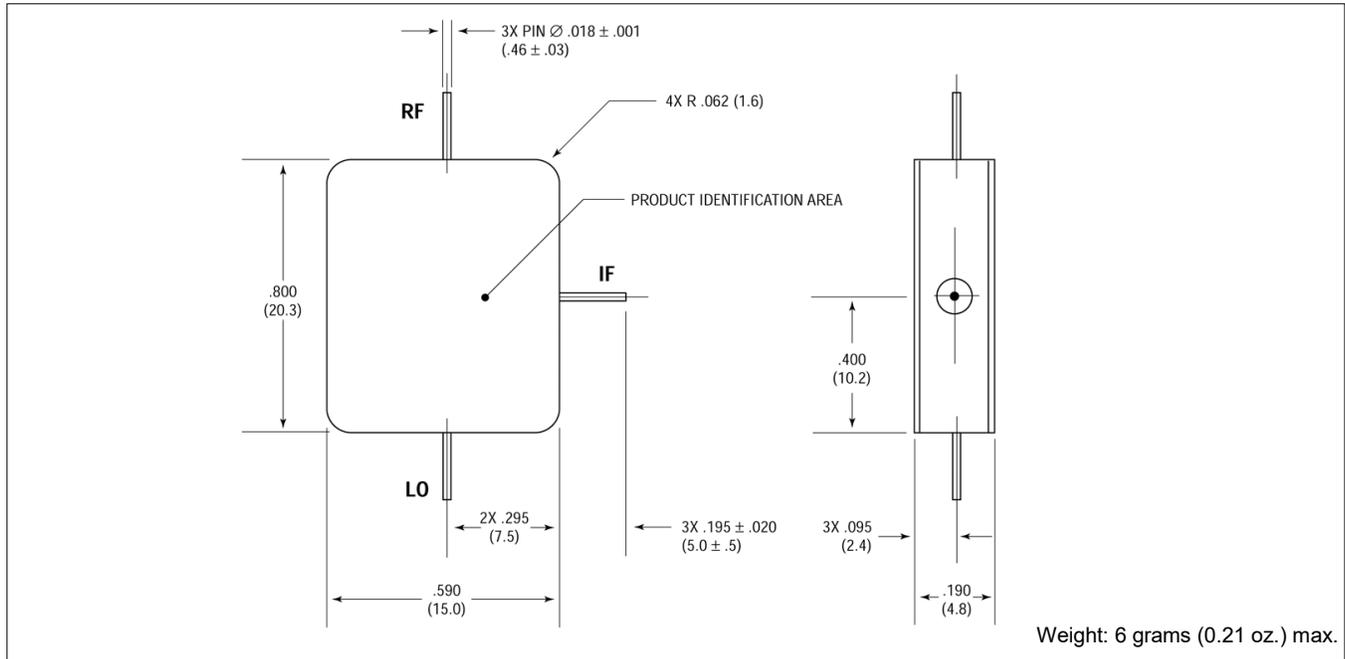
**I-Port VSWR (LO = 7.2 GHz @ 20 dBm)**



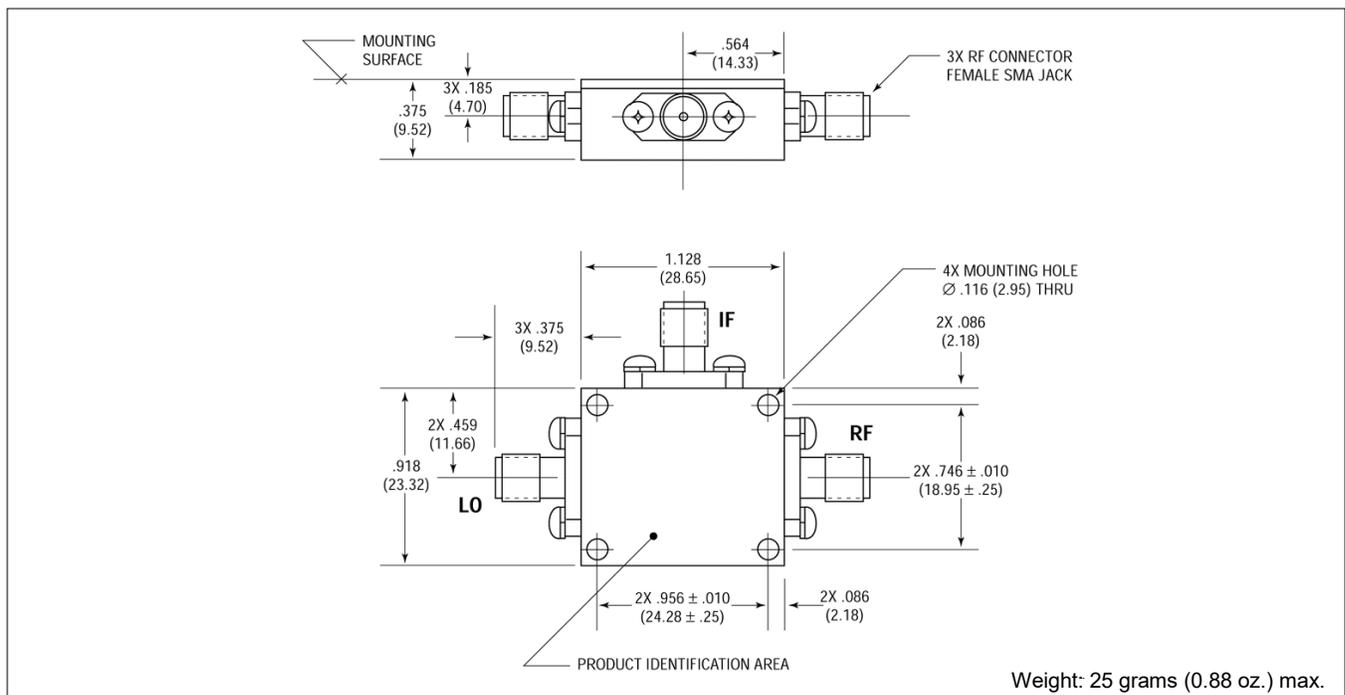
**R-Port VSWR (LO = 7.2 GHz @ 20 dBm)**



### Outline Drawing: Minpac\*



### Outline Drawing: SMA Connectorized\*



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

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