

Double-Balanced Mixer

Rev. V3

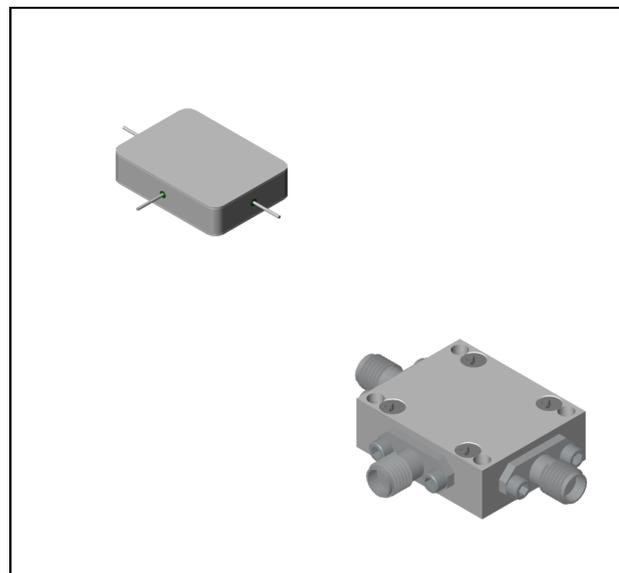
Features

- LO 2.5 TO 11.5 GHz
- RF 4.5 TO 9.5 GHz
- IF DC TO 2.0 GHz
- LO DRIVE: +10 dBm (NOMINAL)
- LOW NOISE FIGURE: 5.5 dB (TYP.)

Description

The M76 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.

Product Image



Ordering Information

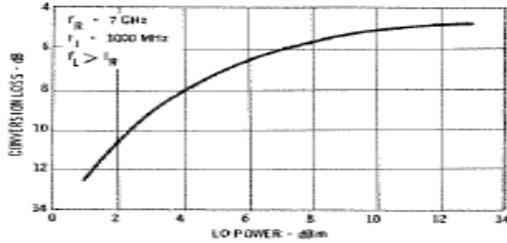
| Part Number | Package |
|-------------|-------------------|
| M76 | Minpac |
| M76C | SMA Connectorized |

Electrical Specifications: $Z_0 = 50\Omega$ $Lo = +10$ dBm (Downconverter application only)

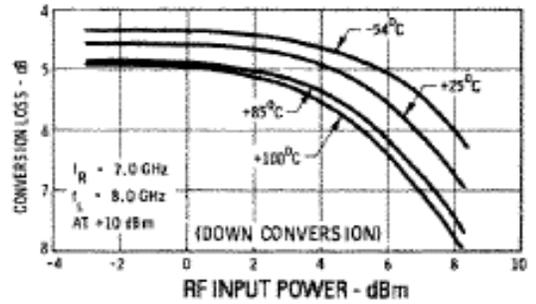
| Parameter | Test Conditions | Units | Typical | Guaranteed | |
|--|---|-------|---------|------------|---------------|
| | | | | +25°C | -54° to +85°C |
| SSB Conversion Loss (max) & SSB Noise Figure (max) | fR = 6 to 8 GHz, fL = 4 to 9 GHz, fI = 0.03 to 2 GHz | dB | 5.5 | 7.0 | 7.5 |
| | fR = 5 to 9 GHz, fL = 4 to 9 GHz, fI = 0.03 to 1 GHz | dB | 5.5 | 7.0 | 7.5 |
| | fR = 4 to 9.5 GHz, fL = 2.5 to 11.5 GHz, fI = 0.03 to 2 GHz | dB | 6.0 | 8.0 | 8.5 |
| Isolation, L to R (min) | fL = 2.5 to 9 GHz | dB | 40 | 25 | 23 |
| | fL = 9 to 11.5 GHz | dB | 30 | 20 | 18 |
| Isolation, L to I (min) | fL = 2.5 to 4 GHz | dB | 20 | 10 | 8 |
| | fL = 4 to 11.5 GHz | dB | 25 | 15 | 13 |
| 1 dB Conversion Comp. | fL = +10 dBm | dBm | +3 | | |
| Input IP3 | fR1=7 GHz at -6 dBm, fR2=7.01GHz at -6 dBm, fL = 8 GHz at +10 dBm | dBm | +13 | | |

Typical Performance Curves

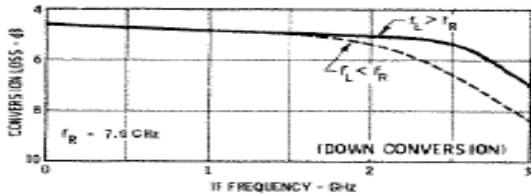
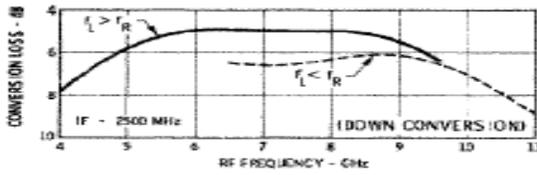
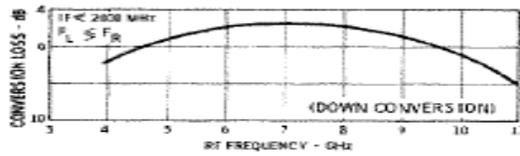
Conversion Loss Vs. LO Drive



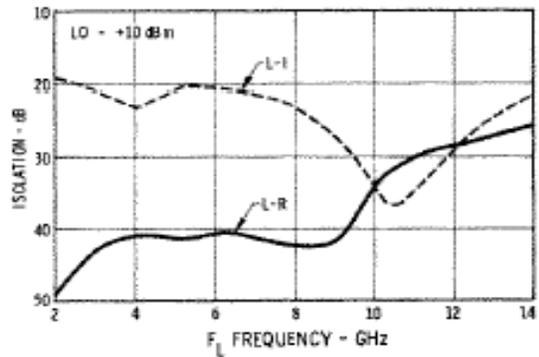
Conversion Loss vs. RF Input Power



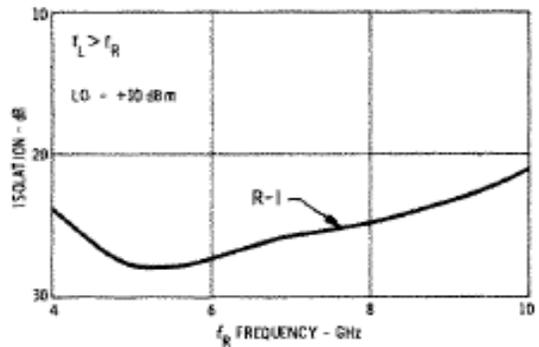
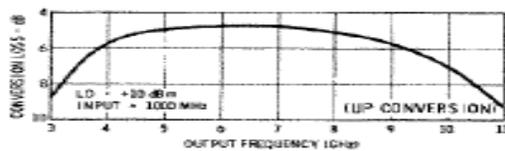
Conversion Loss vs. Frequency



Isolation vs. Frequency



Conversion Loss vs. Output Frequency



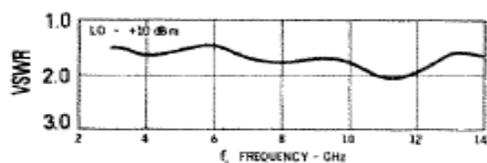
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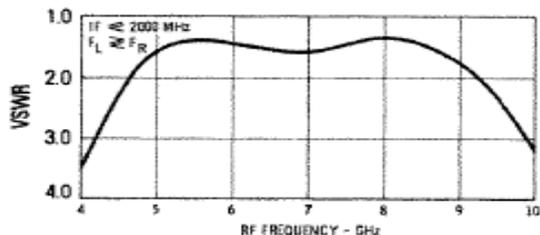
Absolute Maximum Ratings

| 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 +20 dBm max @ +100°C |
| Peak Input Current | 100 mA DC |

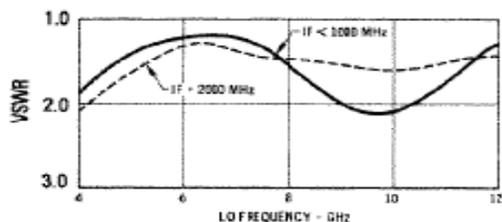
L-Port VSWR vs. Frequency



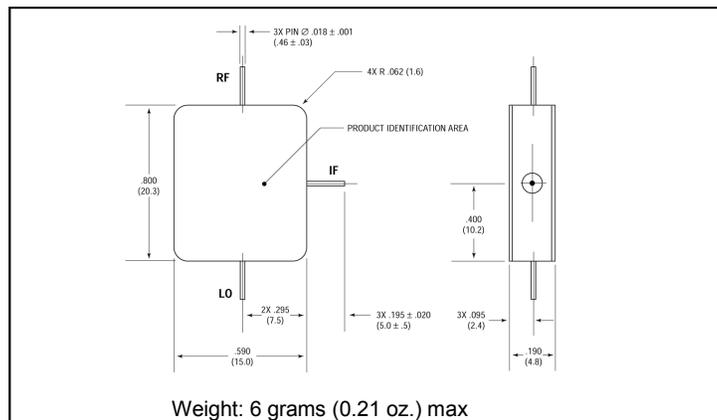
R-Port VSWR vs. Frequency



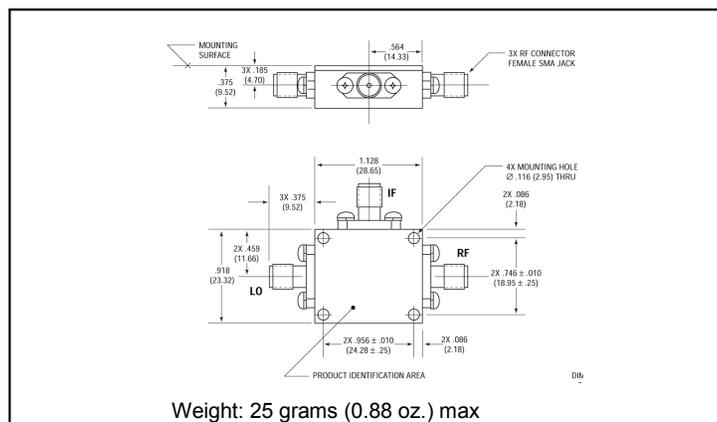
I-Port VSWR vs. f_L



Outline Drawing: Minpac *



Outline Drawing: SMA Connectorized *



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

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