

Double-Balanced Mixer

Rev. V3

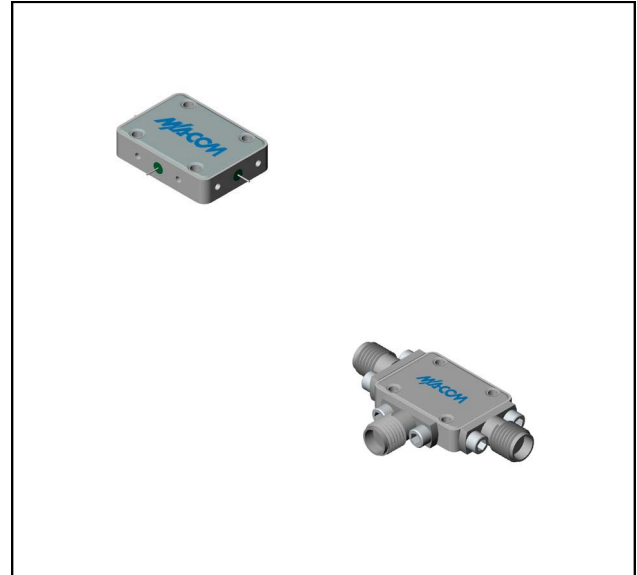
Features

- LO 7.0 to 15.0 GHz
- RF 8.0 to 12.5 GHz
- IF DC to 2500 MHz
- LO Drive +10 dBm (nominal)
- Low Noise Figure

Description

The MY77 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 |
|-------------|-------------------|
| MY77 | Versapac |
| MY77C | SMA Connectorized |

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

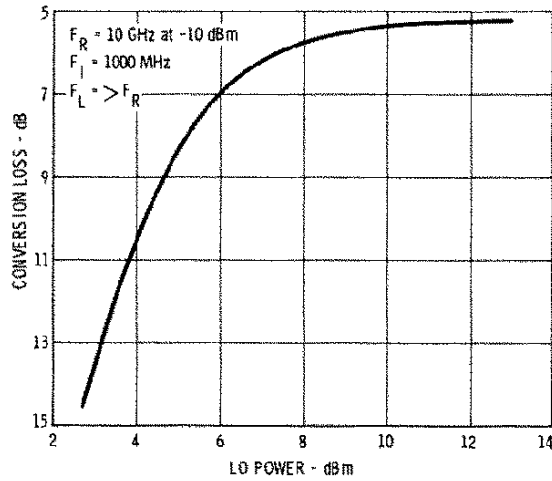
| Parameter | Test Conditions | Units | Typical | Guaranteed | |
|----------------------------|---|-------|---------|------------|---------------|
| | | | | +25°C | -54° to +85°C |
| SSB Conversion Loss (max) | fR = 8 to 12.5 GHz, fL = 7 to 13.5 GHz, fl = 30 to 1000 MHz | dB | 5.0 | 7.0 | 7.5 |
| | fR = 8 to 12.5 GHz, fL = 7 to 14.5 GHz, fl = 1000 to 2000 MHz | | 5.5 | 7.5 | 8.0 |
| | fR = 8 to 12.5 GHz, fL = 7 to 15.0 GHz, fl = 2000 to 2500 MHz | | 6.0 | 8.0 | 8.5 |
| SSB Noise Figure (max) | Within 1 dB of conversion loss | dB | — | — | — |
| Isolation, L to R (min) | fL = 7 to 15 GHz | dB | 35 | 20 | 18 |
| | fL = 8 to 12 GHz | | 35 | 20 | 18 |
| Isolation, L to I (min) | fL = 7 to 14 GHz | dB | 30 | 15 | 13 |
| | fL = 14 to 15 GHz | | 20 | 10 | 8 |
| 1 dB Conversion Comp. | fL = +10 dBm | dBm | +4 | | |
| Input IP3 | fR1 = 10.0 GHz at -6 dBm, fR2 = 10.01 GHz at -6 dBm, fL = 11.0 GHz at +10 dBm | dBm | +15 | | |
| Single Tone IM Suppression | fL fR | dB | 60 | | |
| | 2 x 2 | | 70 | | |
| | 2 x 3 | | 37 | | |
| | 3 x 2 | | 59 | | |
| | 3 x 3 | | >70 | | |
| | 3 x 4 | | >70 | | |
| | 4 x 3 | | >70 | | |
| 4 x 4 | >70 | | | | |

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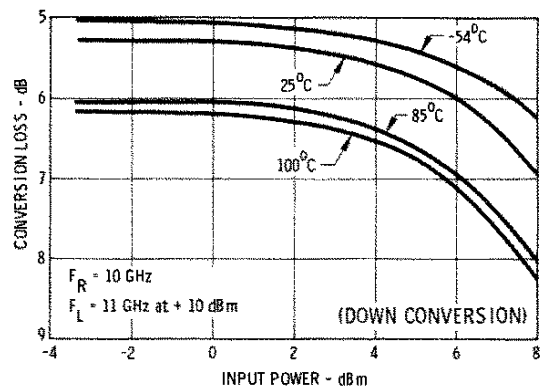
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Typical Performance Curves

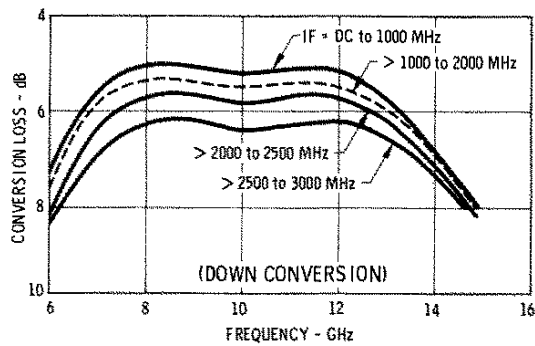
Conversion Loss Vs. LO Drive



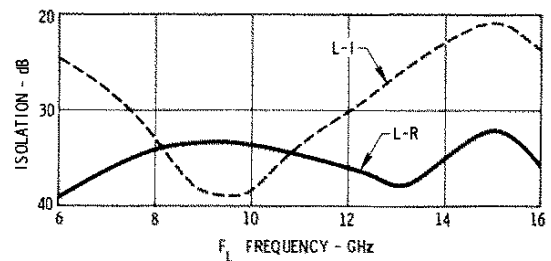
Conversion Loss vs. RF Input Power



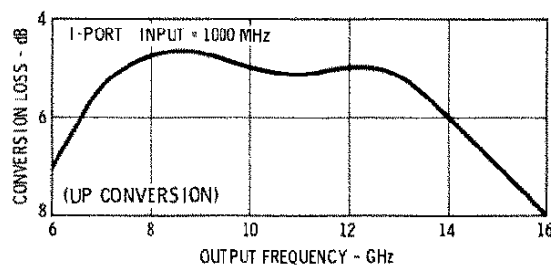
Conversion Loss vs. Frequency



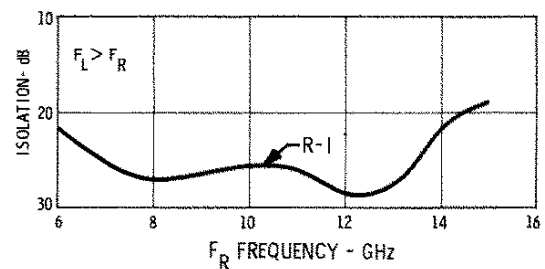
Isolation vs. Frequency



Conversion Loss vs. Output Frequency



Isolation vs. Frequency



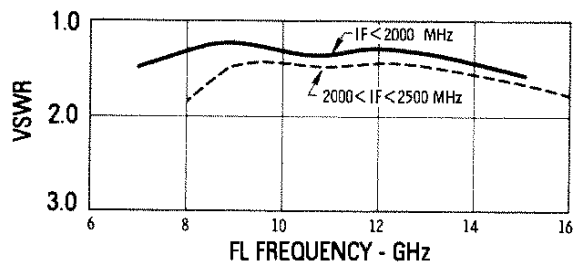
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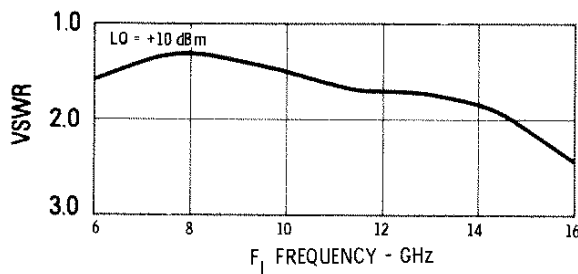
Absolute Maximum Ratings

| 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 |

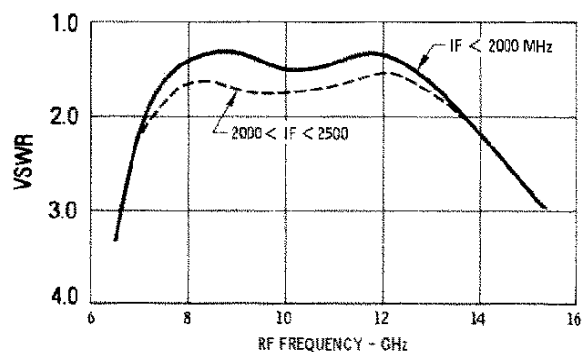
I-Port VSWR vs. f_L



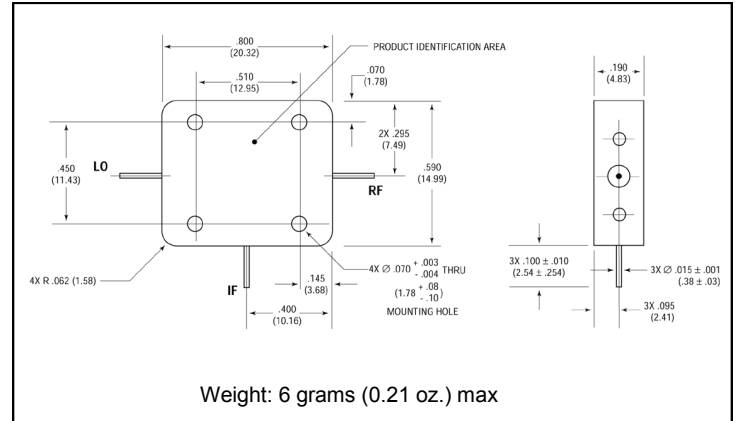
L-Port VSWR vs. Frequency



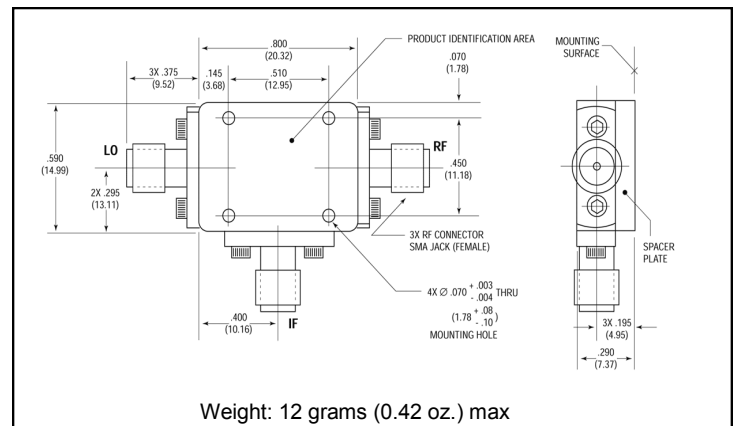
R-Port VSWR vs. Frequency



Outline Drawing: Versapac *



Outline Drawing: SMA Connectorized *



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