

Open Carrier Triple-Balanced Mixer For Microwave Telecommunications

Rev. V2

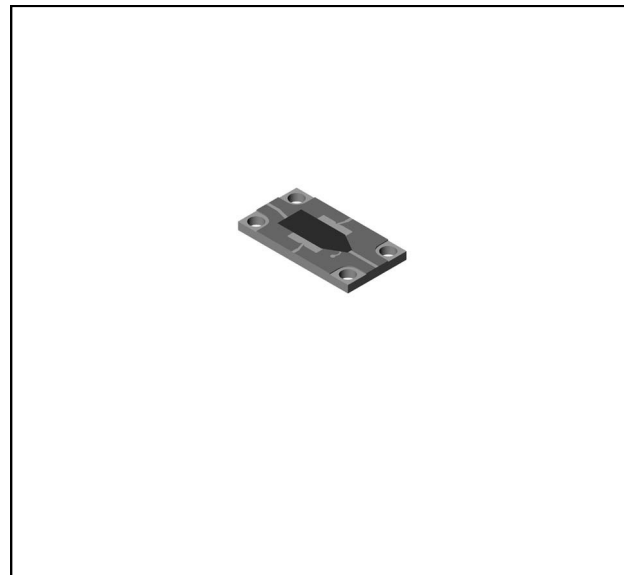
Features

- LO & RF: 2.0 TO 16.0 GHz
- IF: 1.0 TO 8.0 GHz
- LO DRIVE: +13 dBm (NOMINAL)
- MICROSTRIP INTERFACE

Description

The MC3013 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 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 |
|-------------|--------------|
| MC3013 | Open Carrier |
| MC3013-2 | Open Carrier |

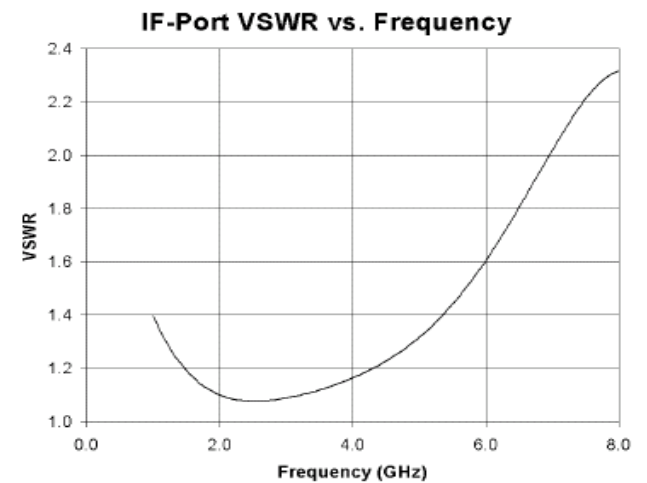
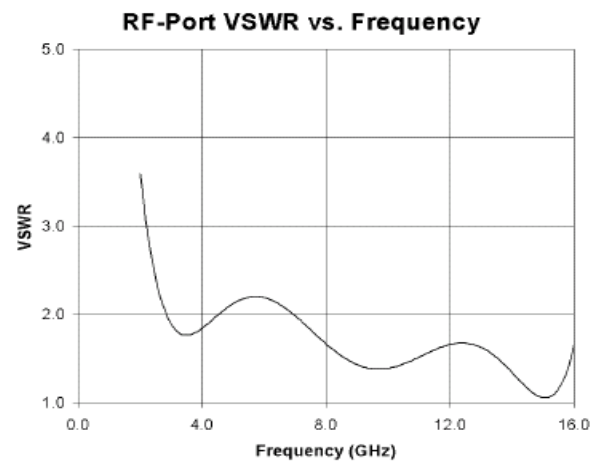
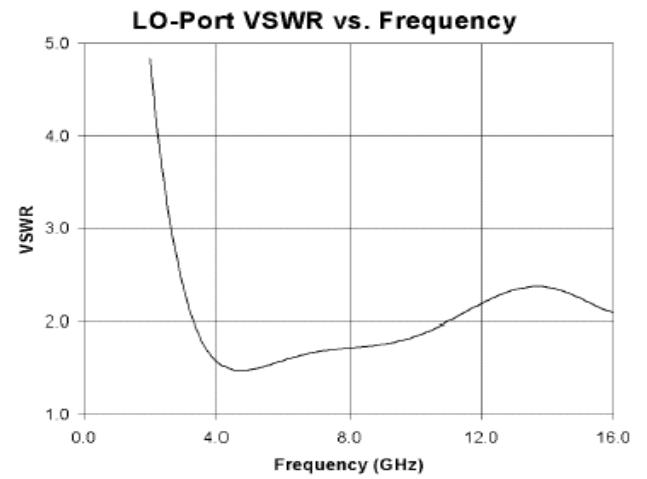
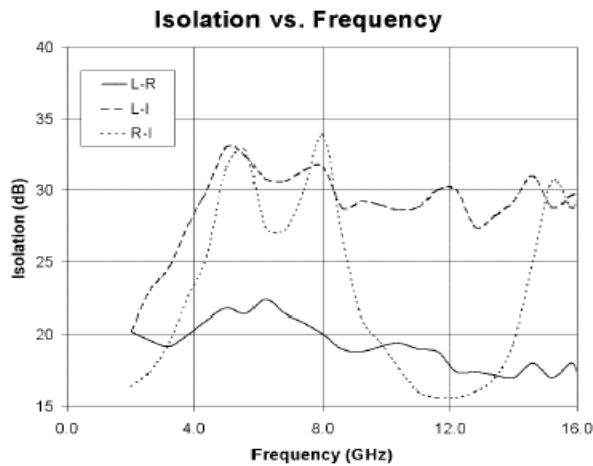
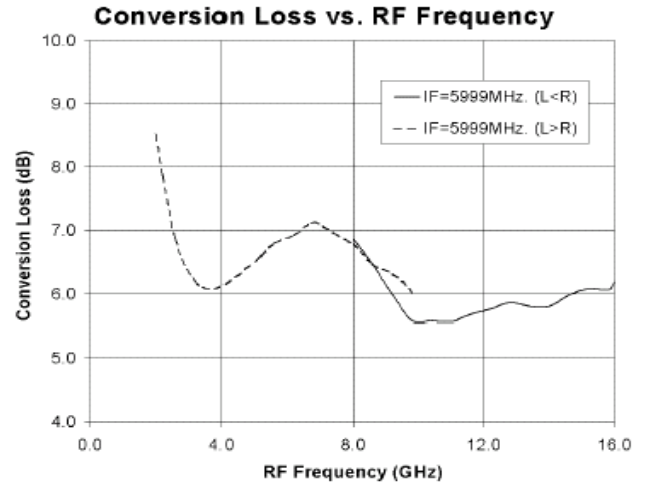
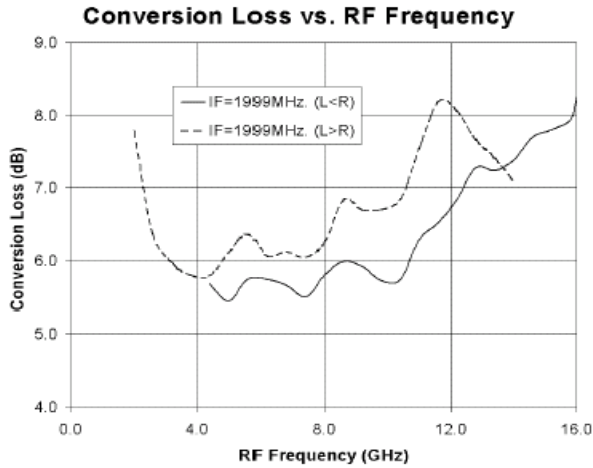
Electrical Specifications: $Z_0 = 50\Omega$ $Lo = +13$ dBm (Downconverter application only)

| Parameter | Test Conditions | Units | Typical | Guaranteed | |
|--|---|-------|---------|------------|---------------|
| | | | | +25°C | -54° to +85°C |
| SSB Conversion Loss (max) & SSB Noise Figure (max) | $fR = 2$ to 3 GHz, $fL = 2$ to 3 GHz, $fI = 1$ to 8 GHz | dB | 10.0 | 11.5 | 12.0 |
| | $fR = 3$ to 10 GHz, $fL = 3$ to 10 GHz, $fI = 1$ to 8 GHz | dB | 7.0 | 9.0 | 9.5 |
| | $fR = 10$ to 16 GHz, $fL = 10$ to 16 GHz, $fI = 1$ to 8 GHz | dB | 8.0 | 11.0 | 11.5 |
| Isolation, L to R (min) | $fL = 2$ to 12 GHz | dB | 20 | 15 | 13 |
| | $fL = 12$ to 16 GHz | dB | 17 | 12 | 10 |
| Isolation, L to I (min) | $fL = 2$ to 4 GHz | dB | 21 | 15 | 13 |
| | $fL = 4$ to 16 GHz | dB | 25 | 18 | 16 |
| Isolation, R to I (min) | $fL = 2$ to 16 GHz | dB | 25 | | |
| 1 dB Conversion Comp. | $fL = +13$ dBm | dBm | +7 | | |
| Input IP3 | $fR1 = 8$ GHz at -3 dBm, $fR2 = 8.01$ GHz at -3 dBm, $fL = 10$ GHz at $+13$ dBm | dBm | +17 | | |
| | $fR1 = 11$ GHz at -3 dBm, $fR2 = 11.01$ GHz at -3 dBm, $fL = 16$ GHz at $+13$ dBm | dBm | +17 | | |
| | $fR1 = 6$ GHz at -3 dBm, $fR2 = 6.01$ GHz at -3 dBm, $fL = 14$ GHz at $+13$ dBm | dBm | +17 | | |

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Typical Performance Curves



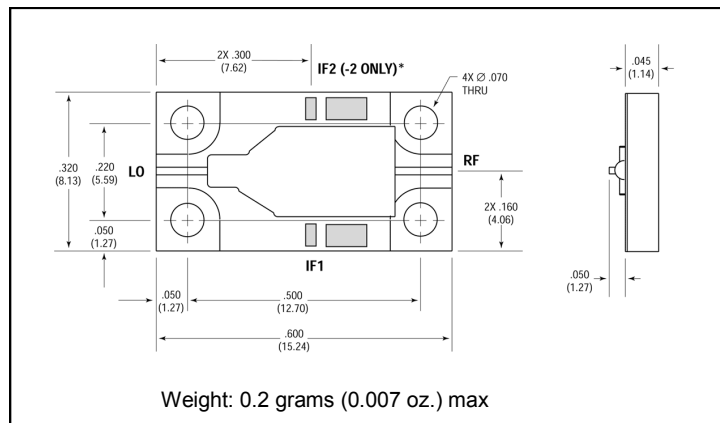
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Absolute Maximum Ratings

| Parameter | Absolute Maximum |
|-----------------------|--|
| Operating Temperature | -54°C to +85°C |
| Storage Temperature | -65°C to +100°C |
| Peak Input Power | +23 dBm max @ +25°C +20 dBm max @ +85°C |
| Peak Input Current | 50 mA DC |

Outline Drawing: Open Carrier* MC3013



*For base model, only IF1 port is connected.
For the “-2” model, only the IF2 port is connected.

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

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