

**Open Carrier Double-Balanced Mixer
For Microwave Telecommunications**

MC4110
V1

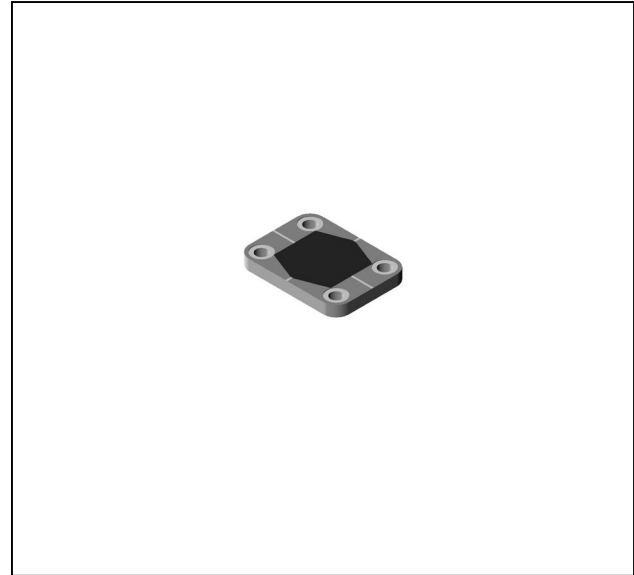
Features

- LO 2.0 to 10.0 GHz
- RF 2.0 to 10.0 GHz
- IF DC to 2.0 GHz
- LO Drive +10 dBm (nominal)
- Microstrip Interface

Description

The MC4110 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 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. Environmental screening available to MIL-STD-883, MIL-STD-202, or MIL-DTL-28837, consult factory.

Product Image



Ordering Information

| Part Number | Package |
|-------------|--------------|
| MC4110 | Open Carrier |
| MC4110 -2 | Open Carrier |

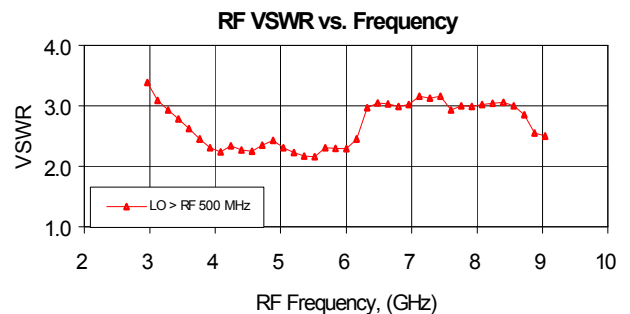
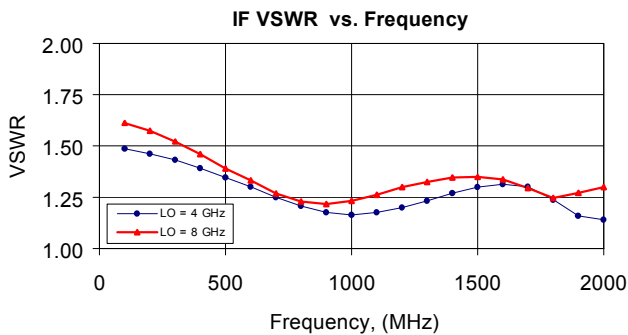
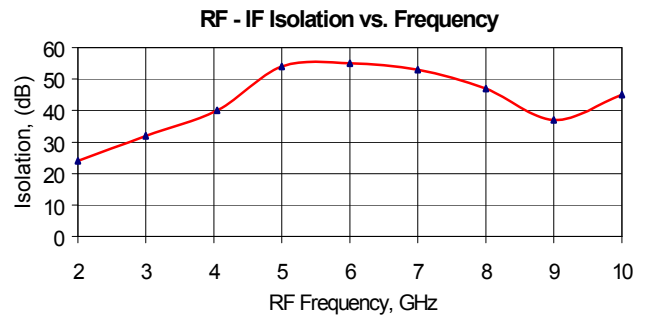
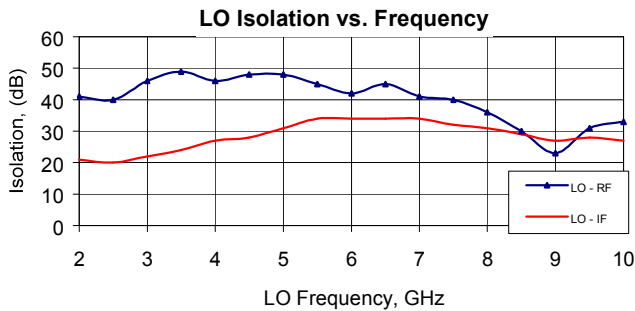
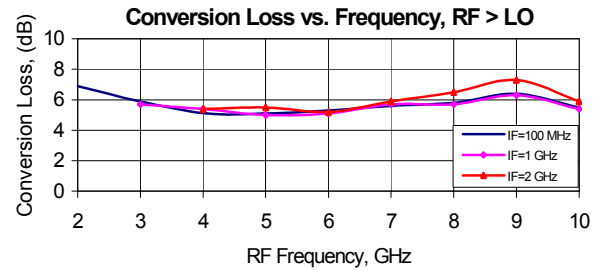
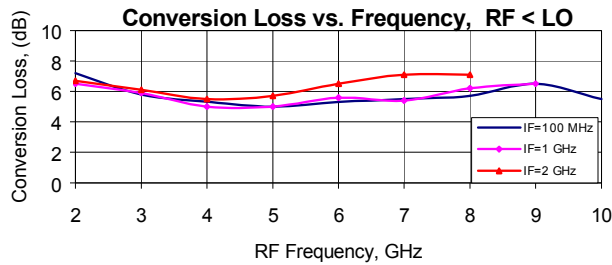
Electrical Specifications: $Z_0 = 50\Omega$ $L_o = +10$ dBm (Downconverter application only)

| Parameter | Test Conditions | Units | Typical | Guaranteed | |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|----------------------------|-------------------|-------------------|
| | | | | +25°C | -40° to +85°C |
| SSB Conversion Loss (max) | fR = 4 to 8 GHz, fL = 4 to 8.GHz, fl = DC to 1 GHz fR = 3 to 9 GHz, fL = 3 to 9 GHz, fl = DC to 1.5 GHz fR = 2 to 10 GHz, fL = 2 to 10 GHz, fl = DC to 2 GHz | dB | 5.5 dB 6.2 dB 7.2 dB | 6.5 7.5 8.0 | 7.0 8.0 8.5 |
| SSB Noise Figure (max) | Within 1 dB of conversion loss | dB | — | — | — |
| Isolation, L to R (min) | fL = 4.0 to 8.0 GHz fL = 3.0 to 9.0 GHz fL = 2.0 to 10.0 GHz | dB | 35 22 22 | 28 17 17 | 26 15 15 |
| Isolation, L to I (min) | fL = 4.0 to 8.0 GHz fL = 3.0 to 9.0 GHz fL = 2.0 to 10.0 GHz | dB | 28 22 20 | 20 15 12 | 18 13 10 |
| Isolation, R to I (min) | fR = 2.0 to 10.0 GHz | dB | 30 | | |
| 1 dB Conversion Comp. | fL = +10 dBm | dBm | +3 | | |
| Input IP3 | fR1 = 3.90 GHz at -5 dBm, fR2 = 3.92 at -5 dBm, fL = 4.2 GHz at +10 dBm fR1 = 7.40 GHz at -5 dBm, fR2 = 7.42 GHz at -5 dBm, fL = 6.4 GHz at +10 dBm. | dBm | +12 +14 | | |

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Typical Performance Curves



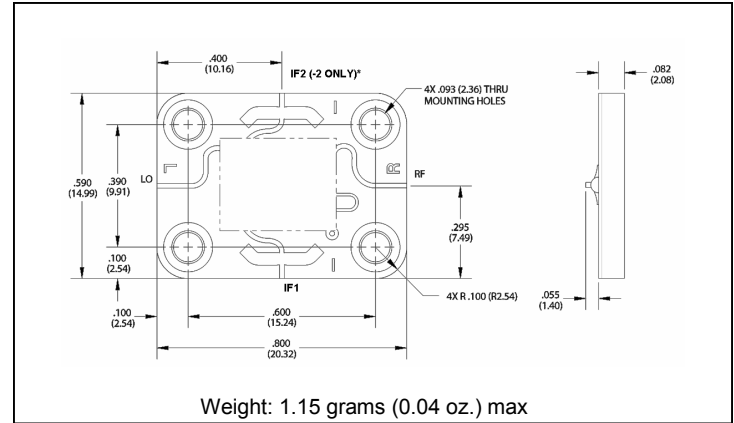
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Absolute Maximum Ratings

| Parameter | Absolute Maximum |
|-----------------------|--------------------------------------------|
| Operating Temperature | -40°C to +85°C |
| Storage Temperature | -65°C to +100°C |
| Peak Input Power | +20 dBm max @ +25°C +17 dBm max @ +85°C |
| Peak Input Current | 50 mA DC |

Outline Drawing: Open Carrier *MC4110



*For the base model, only the 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.