

Electronics

Open Carrier Double-Balanced Mixer For Microwave Telecommunications



MC4107

Features

- LO & RF: 2.0 TO 10.0 GHz
- IF: DC TO 2.0 GHz
- LO DRIVE: +7 dBm (NOMINAL)
- MICROSTRIP INTERFACE

Description

The MC4107 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.



Ordering Information

Part Number	Package		
MC4107	Open Carrier		
MC4107-2	Open Carrier		

Electrical Specifications: $Z_0 = 50\Omega$ Lo = +7 dBm (Downconverter application only)

Deremeter	Test Conditions	Units	Typical Guaranteed		
Parameter	Test Conditions			+25°C	-54º to +85ºC
SSB Conversion Loss (max) & SSB Noise Figure (max)	fR = 4 to 8 GHz, fL = 4 to 8 GHz, fl = 0 to 1 GHz fR = 3 to 9 GHz, fL = 3 to 9 GHz, fl = 0 to 1.5 GHz fR = 2 to 10 GHz, fL = 2 to 10 GHz, fl = 0 to 2 GHz	dB dB dB	5.7 6.7 7.3	6.5 7.5 8.0	7.0 8.0 8.5
Isolation, L to R (min)	fR = 4 to 8 GHz fR = 3 to 9 GHz fR = 2 to 10 GHz	dB dB dB	35 24 24	28 17 17	26 15 15
Isolation, L to I (min)	fR = 4 to 8 GHz fR = 3 to 9 GHz fR = 2 to 10 GHz	dB dB dB	28 22 20	20 15 12	18 13 10
Isolation, R to I (min)	fL = 2 to 10 GHz	dB	30		
1 dB Conversion Comp.	fL = +7 dBm	dBm	+0		
Input IP3	fR1 = 3.9 GHz at –10 dBm, fR2 = 3.92 at –10 dBm, fL = 4.2 GHz at +7 dBm fR1 = 7.4 GHz at –10 dBm, fR2 = 7.42 at –10 dBm, fL = 6.4 GHz at +7 dBm	dBm dBm	+10 +12		

1

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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℃ +17 dBm max @ +85℃		
Peak Input Current	50 mA DC		

Outline Drawing: Open Carrier * MC4107



*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.

3

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