

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

Rev. V2

#### **Features**

LO & RF: 2.0 TO 10.0 GHz

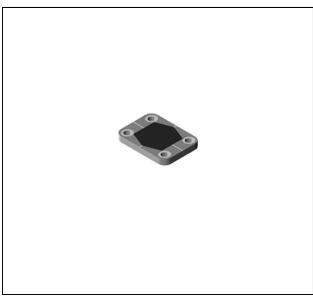
IF: DC TO 2.0 GHz

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.

### Product Image



### **Ordering Information**

Part Number	Package	
MC4107	Open Carrier	
MC4107-2	Open Carrier	

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

Devemeter	Toot Conditions		Typical	Guaranteed	
Parameter Test Conditions		Units		+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		

Commitment to produce in volume is not guaranteed.

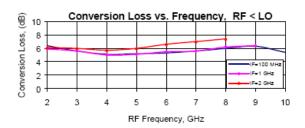
• North America Tel: 800.366.2266 • Europe Tel: +353.21.244.6400

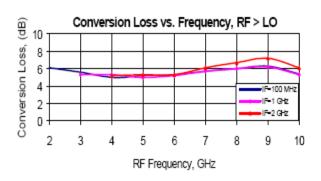


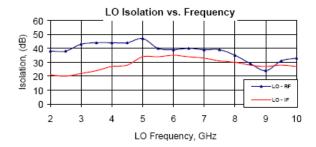
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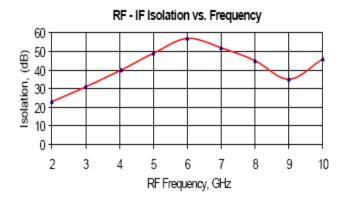
Rev. V2

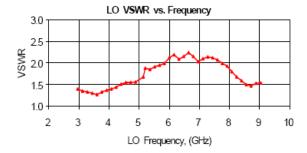
### **Typical Performance Curves**

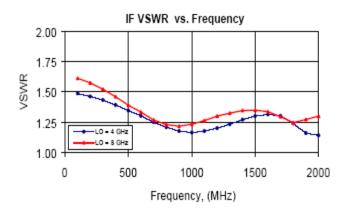


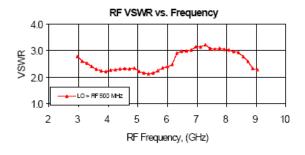












- ADVANCED: Data Sheets contain information regarding a product M/A-COM Technology Solutions is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed.

  PRELIMINARY: Data Sheets contain information regarding a product M/A-COM Technology.
- and/or prototype measurements. Commitment to develop is not guaranteed.

  PRELIMINARY: Data Sheets contain information regarding a product M/A-COM Technology

  Solutions has under development. Performance is based on engineering tests. Specifications are
  typical. Mechanical outline has been fixed. Engineering samples and/or test data may be available.

  Commitment to produce in volume is not guaranteed.
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- India Tel: +91.80.4155721 China Tel: +86.21.2407.1588

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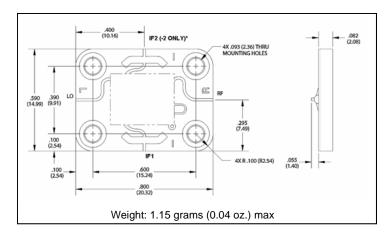
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### **Absolute Maximum Ratings**

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 \* 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.