MC4513

Open Carrier Double-Balanced Mixer For Microwave Telecommunications

Rev. V2

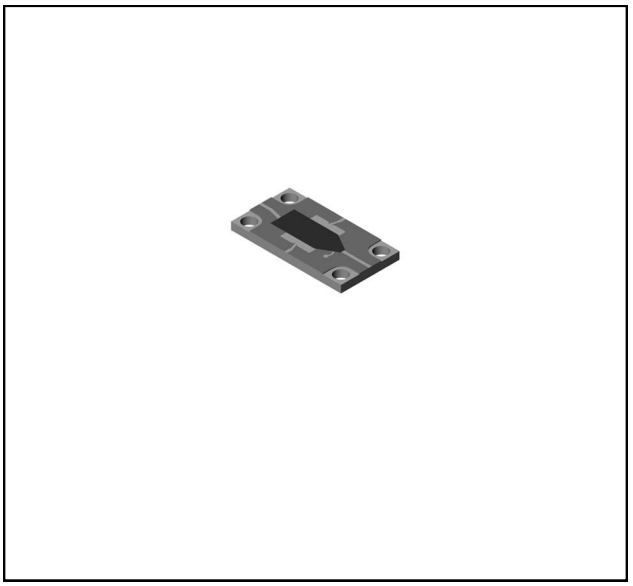
Features

- LO & RF: 4.0 TO 20.0 GHz
- IF: DC TO 4.0 GHz
- LO DRIVE: +13 dBm (NOMINAL)
- MICROSTRIP INTERFACE

Description

The MC4513 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



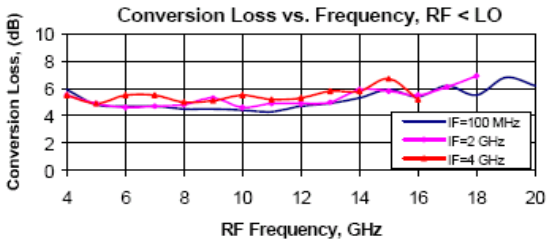
Ordering Information

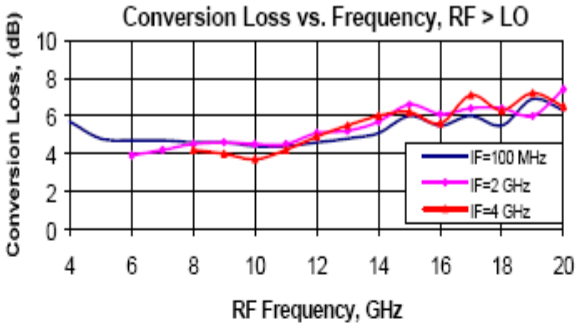
Part Number	Package
MC4513	Open Carrier
MC4513-2	Open Carrier

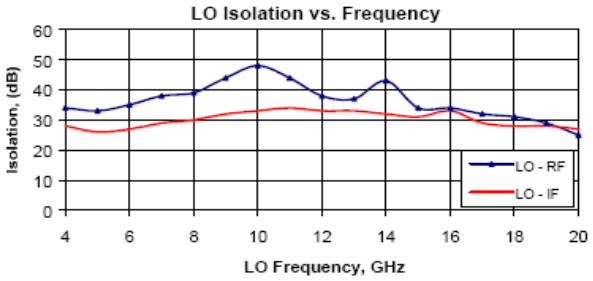
Electrical Specifications: $Z_0 = 50\Omega$ Lo = +13 dBm (Downconverter application only)

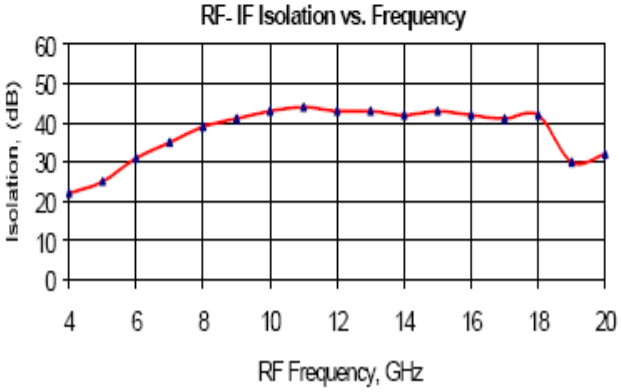
Parameter	Test Conditions	Units	Typical	Guaranteed	
				+25°C	-54° to +85°C
SSB Conversion Loss (max) & SSB Noise Figure (max)	fR =6 to 18 GHz , fL = 6 to 18 GHz , fI = 0 to 2 GHz fR =6 to 18 GHz , fL = 6 to 18 GHz , fI = 0 to 4 GHz fR =4 to 20 GHz , fL = 4 to 20 GHz , fI = 0 to 4 GHz	dB dB dB	6.0 6.5 7.0	7.5 8.0 8.5	8.0 8.5 9.0
Isolation, L to R (min)	fL = 8 to 16 GHz fL = 6 to 18 GHz fL = 4 to 20 GHz	dB dB dB	38 33 25	28 22 15	26 20 13
Isolation, L to I (min)	fL = 8 to 16 GHz fL = 6 to 18 GHz fL = 4 to 20 GHz	dB dB dB	36 33 25	25 22 15	23 20 13
Isolation, R to I (min)	fL = 4 to 20 GHz	dB	32		
1 dB Conversion Comp.	fL = +13 dBm	dBm	+5		
Input IP3	fR1 = 8.4 GHz at –5 dBm, fR2 = 8.42 GHz at –5 dBm, fL = 8.6 GHz at +13 dBm fR1 = 14.4 GHz at –5 dBm, fR2 = 14.42 GHz at –5 dBm, fL = 15.4 GHz at +13 dBm	dBm dBm	+16 +17		

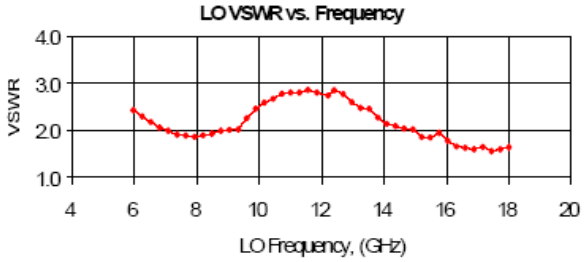
Typical Performance Curves

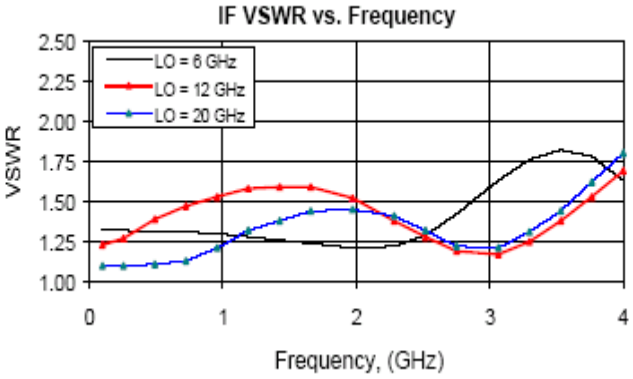


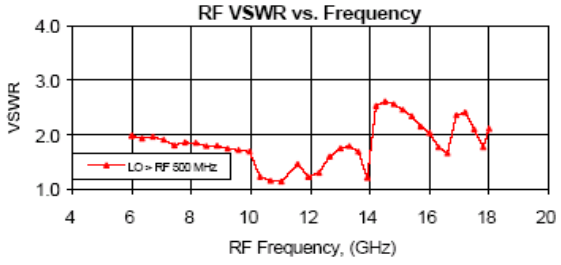












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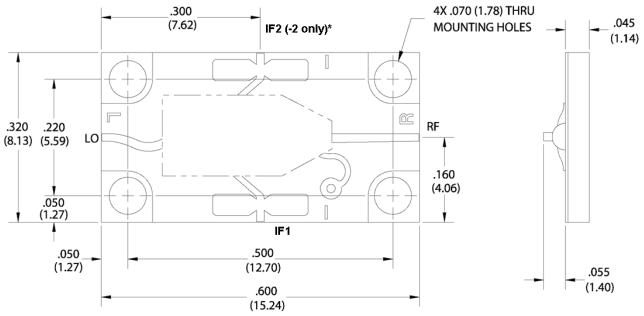
Absolute Maximum Ratings

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

Outline Drawing: Open Carrier * MC4513



Weight: 0.2 grams (0.007 oz.) max

*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.

Mouser Electronics

Authorized Distributor

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MACOM:
MC4513