

### **Double-Balanced Mixer**

Rev. V3

#### **Features**

- LO 10 TO 1600 MHz
- RF 10 TO 1500 MHz
- IF 0 TO 600 MHz
- LO DRIVE: +20 dBm (NOMINAL)
- HIGH INTERCEPT POINT: +30 dBm TYP. (UPCONV.) +24 dBm TYP. (DOWNCONV.)

# **Description**

The M9H is a double balanced mixer, designed for use in military, commercial, and test equipment applications. The design utilizes Schottky ring quad diodes and broadband 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 Environmental screening is available to MIL-STD-883, diodes. MIL-STD-202, or MIL-DTL-28837, consult factory.

# Product Image



### **Ordering Information**

Part Number	Package
М9Н	TO-8
М9НС	SMA Connectorized

# Electrical Specifications: $Z_0 = 50\Omega$ Lo = +20 dBm (Downconverter Application only)

Davamatar	Tot Conditions	Units	Typical	cal Guaranteed	
Parameter	Test Conditions		25°C	0º to 50ºC	-54º to +85ºC
SSB Conversion Loss & SSB Noise Figure (max)	fR=0.02 to 0.4 GHz, fL=0.01 to 0.6 GHz, fl=0.002 to 0.2GHz fR=0.01 to 1.5 GHz, fL=0.01 to 1.6 GHz, fl=0.001 to 0.6GHz fl=0.002 to 0.2 GHz fl=0.001 to 0.6 GHz	dB dB dB dB	7.0 8.0 8.5 9.0	8.0 9.0 9.0 9.5	8.3 9.3 9.3 9.8
Isolation, L to R (min)	fL = 0.01 to 0.4 GHz fL = 0.4 to 1 GHz fL = 1 to 1.5 GHz	dB dB dB	35 30 22	28 23 20	27 22 19
Isolation, L to I (min)	fL = 0.01 to 0.4 GHz fL = 0.4 to 1 GHz fL = 1 to 1.5 GHz	dB dB dB	40 22 18	28 16 13	27 15 12
Isolation, R to I (min)	fL = 0.01  to  1  GHz fL = 1  to  1.5  GHz	dB dB	20 10		
1 dB Conversion Compression	fL @ +20 dBm	dBm	+15		
Input IP3		dBm dBm	+30 +24		

Commitment to produce in volume is not guaranteed.

<sup>•</sup> North America Tel: 800.366.2266 • Europe Tel: +353.21.244.6400 • India Tel: +91.80.4155721 • China Tel: +86.21.2407.1588 Visit www.macomtech.com for additional data sheets and product information.

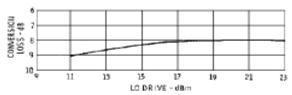


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# **Typical Performance Curves**

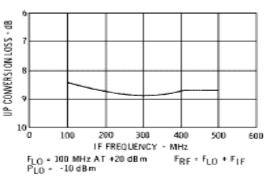
#### Conversion Loss vs. LO Drive



F<sub>RF</sub> = 1000 MHz AT -10 48 m

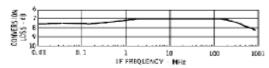
 $F_{\rm L,0} \approx 1030~{\rm MHz}$ 

# Upconversion Loss vs. Frequency

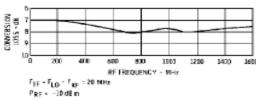


FRF \* FLO \* FIF

#### Conversion Loss vs. Frequency

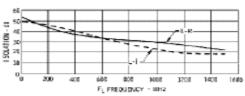


Fpc - 1000 MHz AT -00 dilm P<sub>LO</sub> = +20 d§ m

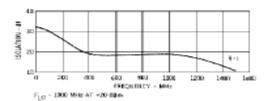


PLO ~ +20 dilm

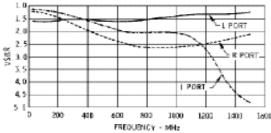
#### Isolation vs. Frequency



°<sub>10</sub> - +2148m



### VSWR



PRF - P | F - - 10 dBm

2

P<sub>LO</sub> + +2П ¢Вm F<sub>LO</sub> - 1000 инг

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

# M9H / M9HC



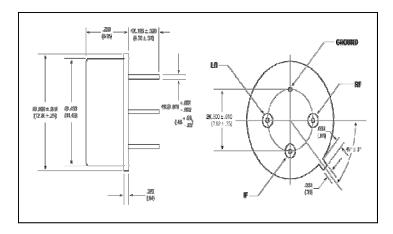
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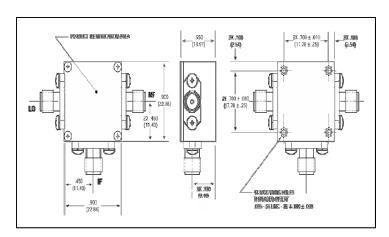
# **Absolute Maximum Ratings**

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

# **Outline Drawing: TO-8**



# **Outline Drawing: SMA Connectorized**



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