M9H / M9HC

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

Product Image

Ordering Information

Part Number	Package
M9H	TO-8
M9HC	SMA Connectorized

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

Parameter	Test Conditions	Units	Typical	Guaranteed	
			25ºC	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, fI=0.002 to 0.2GHz fR=0.01 to 1.5 GHz, fL=0.01 to 1.6 GHz, fI=0.001 to 0.6GHz fI=0.002 to 0.2 GHz fI=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		

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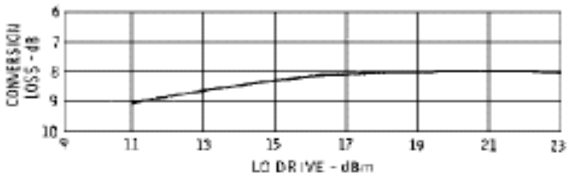
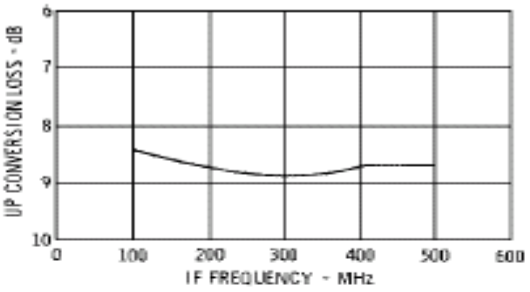
Typical Performance Curves

Conversion Loss vs. LO Drive



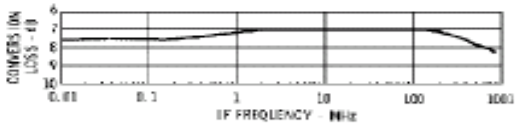
F_{RF} = 1000 MHz AT -10 dBm
F_{LO} = 1030 MHz

Upconversion Loss vs. Frequency

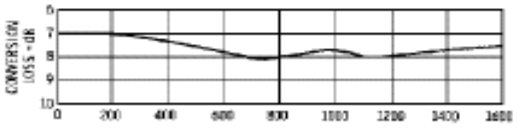


F_{LO} = 100 MHz AT +20 dBm $F_{RF} = F_{LO} + F_{IF}$
P_{LO} = -10 dBm

Conversion Loss vs. Frequency

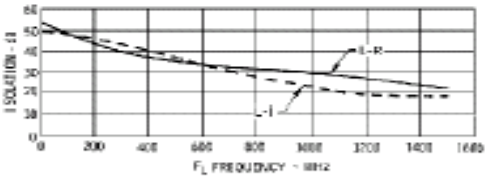


F_{RF} = 1000 MHz AT -10 dBm
P_{LO} = +20 dBm

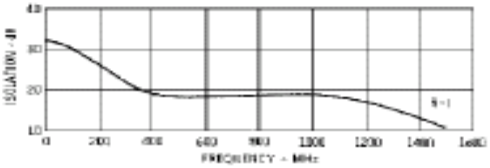


$F_{IF} = F_{LO} - F_{RF}$ = 20 MHz
P_{RF} = -10 dBm
P_{LO} = +20 dBm

Isolation vs. Frequency

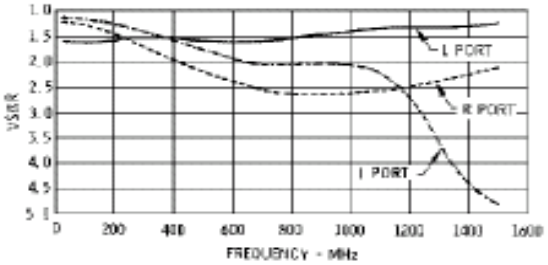


P_{LO} = +20 dBm



F_{LO} = 1000 MHz AT +20 dBm

VSWR



$P_{RF} = P_{IF}$ = -10 dBm
P_{LO} = +20 dBm
F_{LO} = 1000 MHz

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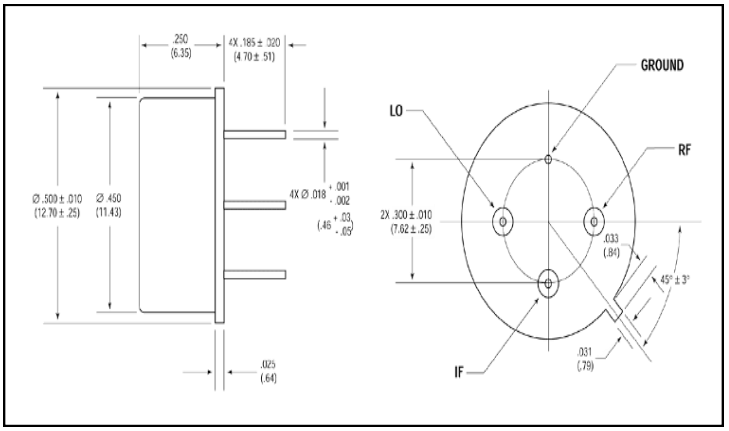
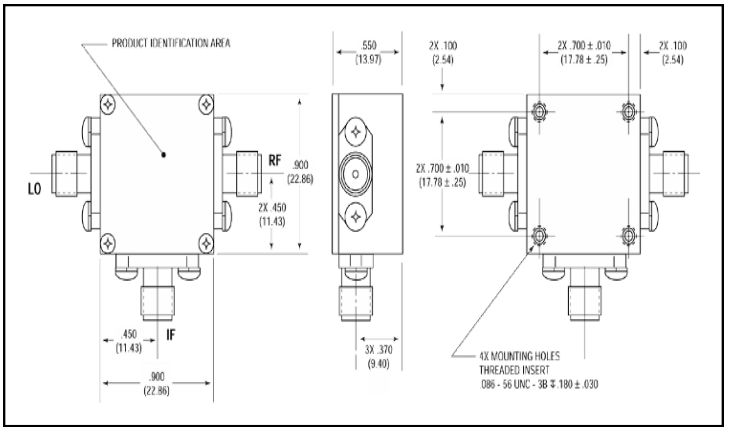
Absolute Maximum Ratings

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

Outline Drawing: TO-8



Outline Drawing: SMA Connectorized



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