

## 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

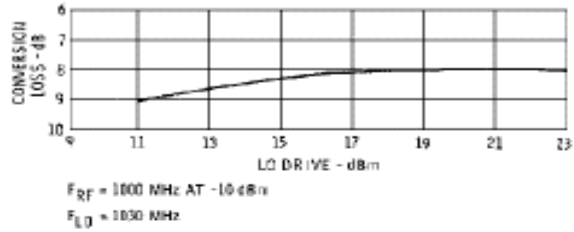
Part Number	Package
M9H	TO-8
M9HC	SMA Connectorized

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

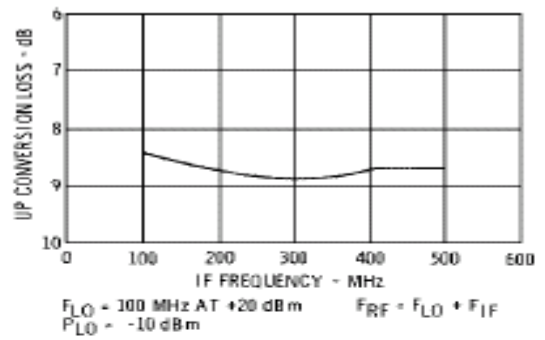
Parameter	Test Conditions	Units	Typical	Guaranteed	
			25°C	0° to 50°C	-54° to +85°C
SSB Conversion Loss & SSB Noise Figure (max)	fR=0.02 to 0.4 GHz, fL=0.01 to 0.6 GHz, fl=0.002 to 0.2GHz	dB	7.0	8.0	8.3
	fR=0.01 to 1.5 GHz, fL=0.01 to 1.6 GHz, fl=0.001 to 0.6GHz	dB	8.0	9.0	9.3
	fl=0.002 to 0.2 GHz	dB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

### Typical Performance Curves

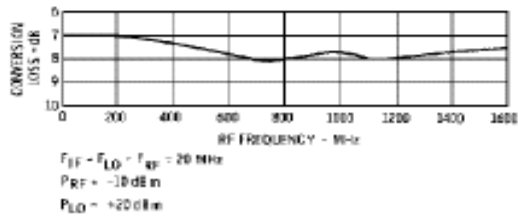
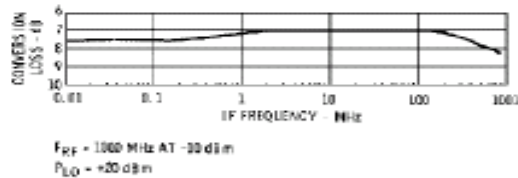
**Conversion Loss vs. LO Drive**



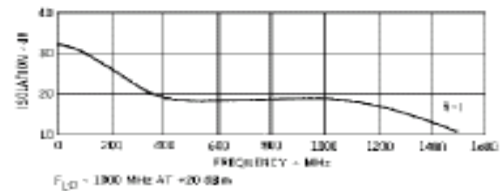
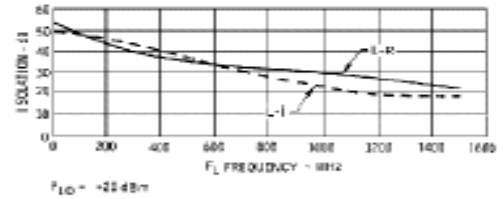
**Upconversion Loss vs. Frequency**



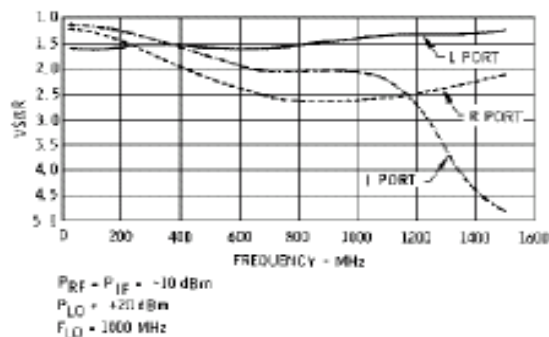
**Conversion Loss vs. Frequency**



**Isolation vs. Frequency**



**VSWR**



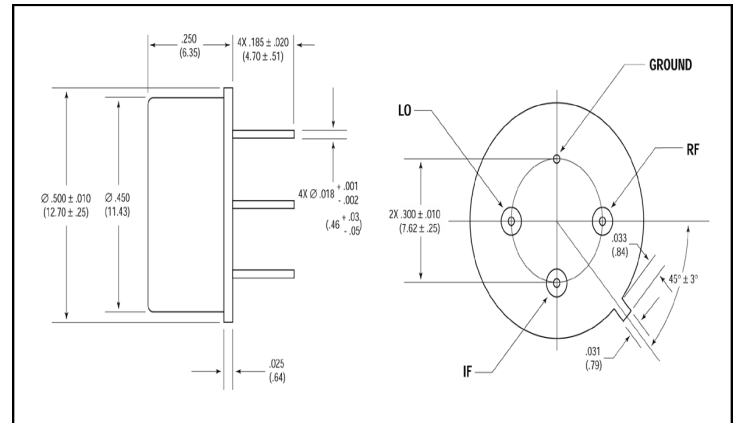
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### Absolute Maximum Ratings

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

