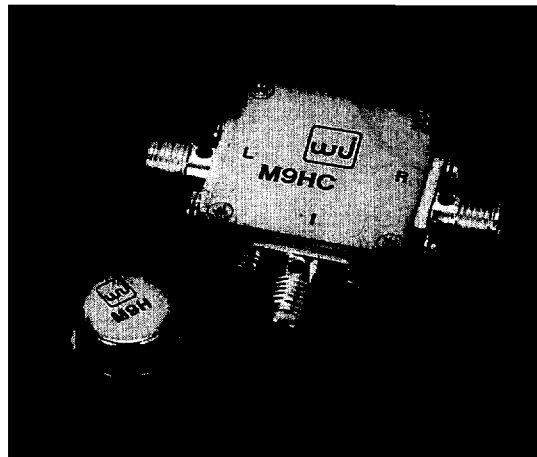


WJ M9H / M9HC

DOUBLE-BALANCED MIXER

- ◆ LO 10 TO 1600 MHz
- ◆ RF 10 TO 1500 MHz
- ◆ IF DC TO 600 MHz
- ◆ LO DRIVE +20 dBm (NOMINAL)
- ◆ HIGH INTERCEPT POINT: +30 dBm TYP.
(UPCONV.); +24 dBm TYP. (DOWNCONV.)
- ◆ MIL-M-28837 EQUIVALENT LEVEL SCREENING
AVAILABLE



Guaranteed Specifications^{1,2,3}

Characteristics	Typ.	+25°C	-54°C to +85°C	Test Conditions
SSB Conversion Loss and SSB Noise Figure (Max.)	7.0 dB 8.0 dB 8.5 dB 9.0 dB	8.0 dB 9.0 dB 9.0 dB 9.5 dB	8.3 dB 9.3 dB 9.3 dB 9.8 dB	f_R 20 to 400 MHz f_L 10 to 600 MHz f_I 2 to 200 MHz f_I 1 to 600 MHz f_R 10 to 1500 MHz f_L 10 to 1600 MHz f_I 2 to 200 MHz f_I 1 to 600 MHz
Isolation (Min.)				
f_L at R	35 dB	28 dB	27 dB	f_L 10 to 400 MHz
f_L at I	40 dB	28 dB	27 dB	f_L 400 to 1000 MHz
f_L at R	30 dB	23 dB	22 dB	f_L 1000 to 1500 MHz
f_L at I	22 dB	16 dB	15 dB	
f_L at R	22 dB	20 dB	19 dB	f_R 10 to 1000 MHz
f_L at I	18 dB	13 dB	12 dB	f_R 1000 to 1500 MHz
f_R at I	20 dB			
f_R at I	10 dB			
Conversion Compression	1.0 dB			$f_R = +15$ dBm $f_L = +20$ dBm
Desensitization	1.0 dB			$f_{R2} = +14$ dBm $f_L = +23$ dBm

Notes:

1. Measured in a 50-ohm system with nominal LO drive and downconverter application only, unless otherwise specified.
The I-Port frequency range extends to DC for phase detection, pulse modulation, or attenuator applications. I-Port VSWR degrades from a 50-ohm system at low IF frequencies.
2. Guaranteed conversion loss values for M9HC are 0.5 dB worse than values listed and are guaranteed over 0°C to 50°C temperature range only.
3. Typical values are measured at +25°C and are not guaranteed.

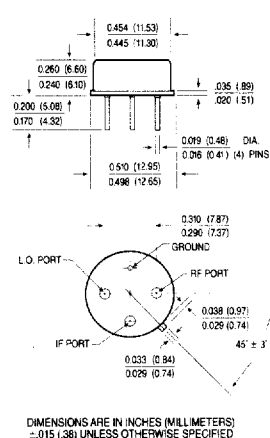
Absolute Maximum Ratings

Operating Temperature -54°C to +100°C
 Storage Temperature -65°C to +100°C
 Peak Input Power for any Single Port +23 dBm Peak
 Peak Input Power for all Port +24 dBm Peak
 Peak Input Current at 25°C 100 mA DC

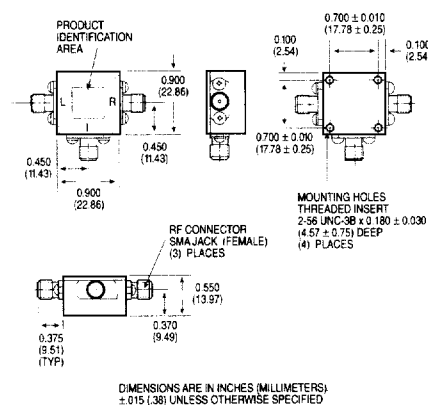
Weight M9H: 2.0 grams (0.07 oz.) max.
 M9HC: 22 grams (0.78 oz.) max.

Outline Drawings

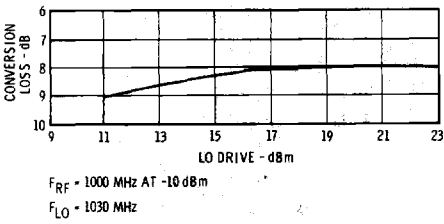
M9H



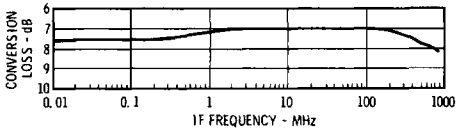
M9HC



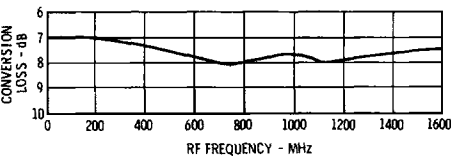
Conversion Loss vs. LO Drive



Conversion Loss vs. Frequency

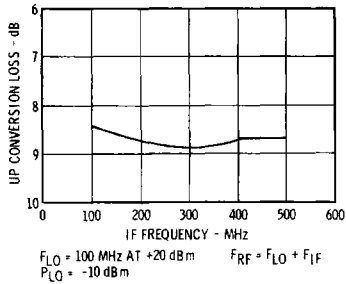


$F_{RF} = 1000 \text{ MHz AT } -10 \text{ dBm}$
 $P_{LO} = +20 \text{ dBm}$



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

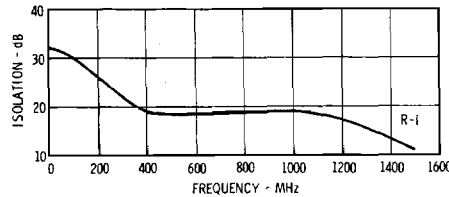
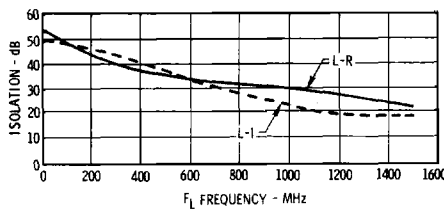
Upconversion Loss vs. Frequency



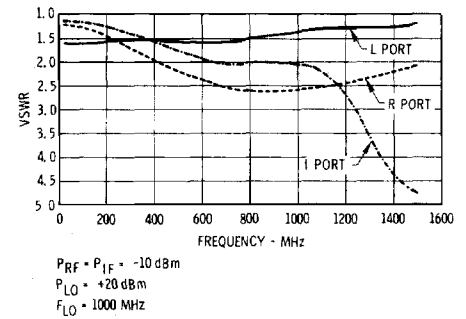
Conversion Loss in Upconversion Mode:

The input signal is at the I-port and the output signal is at the R-port. LO port is equal to 1000 MHz at +20 dBm.

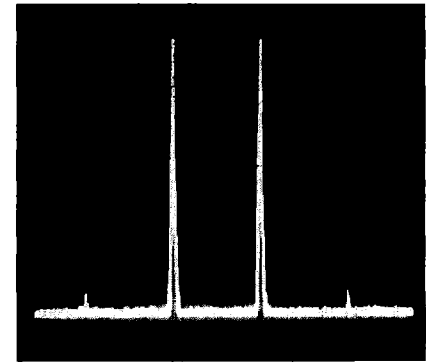
Isolation vs. Frequency



VSWR



Two-Tone Intermodulation Performance



$f_{R1} = 430 \text{ MHz}$ $f_{R2} = 425 \text{ MHz}$
 $P_{RF1} = P_{RF2} = -5 \text{ dBm}$
 $f_L = 484 \text{ MHz}$ $P_{LO} = +20 \text{ dBm}$
 $f_I = 54 \text{ MHz @ } 10 \text{ dBm/div.}$

Two-Tone Intermodulation Performance: The photo displays typical relative suppression of 3rd order two-tone measurement, with P_{RF1} equal to P_{RF2} at -5 dBm.