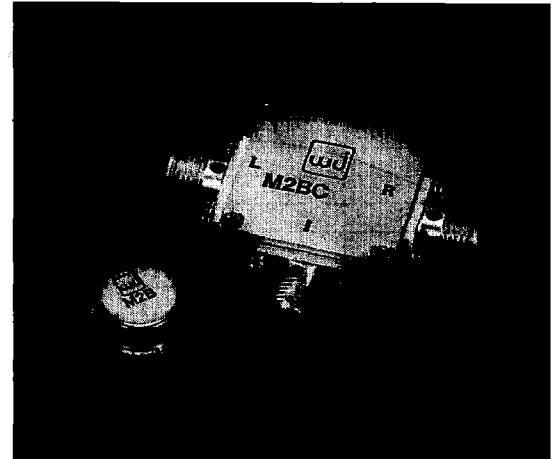




M2B / M2BC

DOUBLE-BALANCED MIXER

- ◆ LO } 10 TO 1600 MHz
- RF }
- ◆ IF DC TO 800 MHz
- ◆ LO DRIVE +13 dBm (nominal)
- ◆ HIGH ISOLATION 40 dB (TYP.)
- ◆ MIL-M-28837 EQUIVALENT LEVEL SCREENING AVAILABLE



Outline Drawings

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	f_R 20 to 600 MHz f_L 10 to 800 MHz f_I 0.4 to 200 MHz f_R 10 to 1600 MHz f_L 10 to 1600 MHz f_I 0.4 to 800 MHz	
	8.0 dB	9.0 dB	9.5 dB		
Isolation (Min.)	f_L at R	50 dB	40 dB	38 dB	f_L 10 to 700 MHz
	f_L at I	40 dB	30 dB	28 dB	
	f_L at R	45 dB	30 dB	28 dB	f_L 700 to 1200 MHz
	f_L at I	30 dB	20 dB	18 dB	
	f_L at R	35 dB	25 dB	23 dB	f_L 1200 to 1600 MHz
	f_L at I	25 dB	18 dB	16 dB	
Conversion Compression	1.0 dB			$f_R = +7$ dBm	
Desensitization Level	1.0 dB			$f_{R2} = +5$ dBm	
Third-Order Input Intercept Point	+22 dBm			$f_L = +13$ dBm	

Notes:

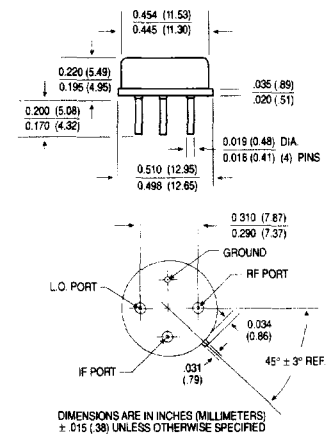
1. Measured in a 50-ohm system with nominal LO drive and downconverter application only, unless otherwise specified. The I-Port frequency range extends to DC for phase detection, pulse modulation, or attenuator applications, I-Port VSWR degrades from a 50-ohm system at low IF frequencies.
2. Guaranteed conversion loss values for M2BC are 0.5 dB worse than values listed and 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

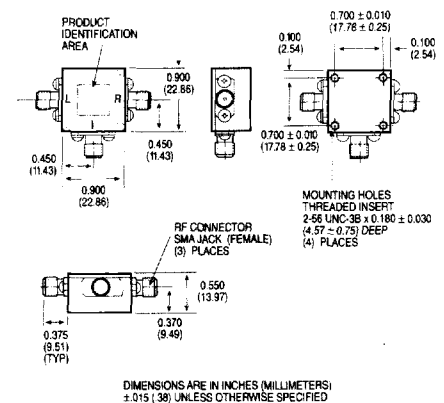
Operating Temperature-54°C to +100°C
 Storage Temperature-65°C to +100°C
 Peak Input Power+23 dBm at +25°C, derate to +17 dBm +100°C
 Peak Input Current at 25°C50 mA DC

Weight M2B: 2 grams (0.07 oz.) max.
 M2BC: 22 grams (0.78 oz.) max.

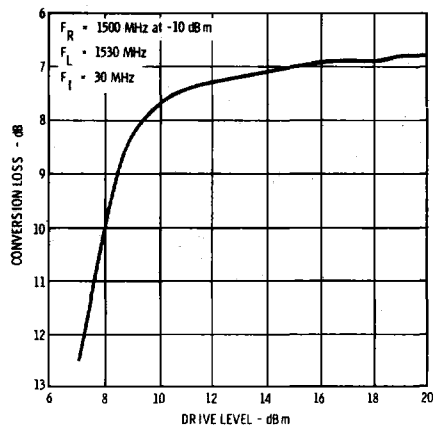
M2B



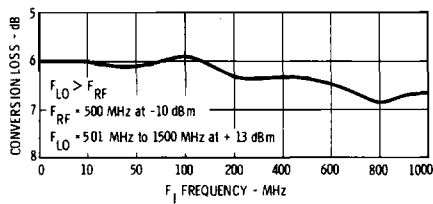
M2BC



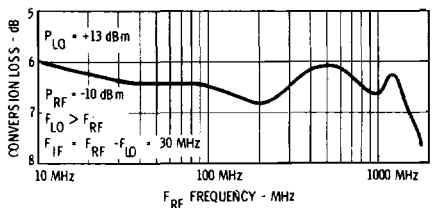
Conversion Loss



Conversion Loss vs. LO Drive Level: The minimum recommended drive level is +11 dBm. The maximum recommended drive level is +17 dBm.

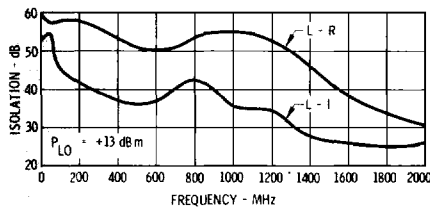


Conversion Loss vs. f_I Frequency: Conversion loss of the mixer when used in an SSB system. The frequency ordinate refers to the I-port (f_I) with f_R at 500 MHz and f_L from 501 to 1500 MHz.



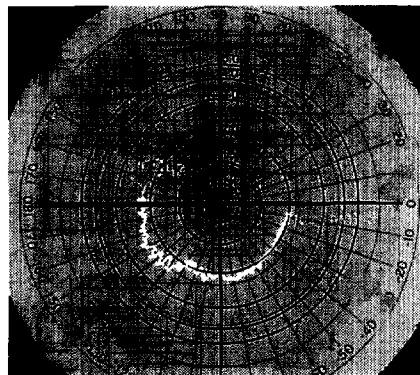
Conversion Loss vs. Input Frequency: Conversion loss of the mixer when used in an SSB system. The frequency ordinate refers to the R-port (f_R) with f_I equal to 30 MHz. Data plotted with f_L level of +13 dBm.

Isolation



Isolation vs. Frequency: Level of the f_L signal fed through to the R- and I-ports with respect to the level of the f_L signal at the L-port.

VSWR



L-Port (0.1-1.5 GHz)



I-Port (0.1-0.8 GHz)

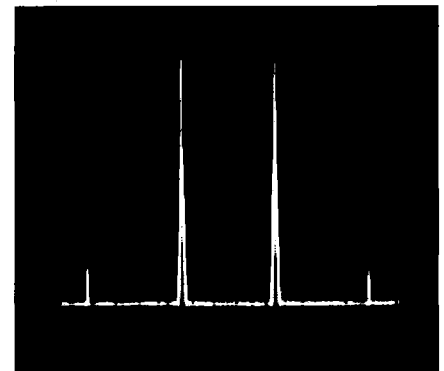
VSWR



R-Port (0.1-1.5 GHz)

Reflection Coefficient vs. Frequency: Reflection coefficient of the L-, I- and R-ports in a 50-ohm system with f_L at +13 dBm. R- and I-port reflection coefficient is plotted for f_L at 1.0 GHz.

Two-Tone Intermodulation Performance



$f_{RF1} = 500 \text{ MHz}$ $f_{RF2} = 505 \text{ MHz}$
 $P_{RF1} = P_{RF2} = -5 \text{ dBm}$
 $f_{LO} = 1150 \text{ MHz}$ $P_{LO} = +13 \text{ dBm}$
 $f_I = 641 \text{ MHz @ } 10 \text{ dB/div.}$

Two-Tone Intermodulation Performance: The photo displays typical relative suppression of 3rd order two-tone measurement, with P_{FR1} equal to P_{FR2} at -5 dBm.