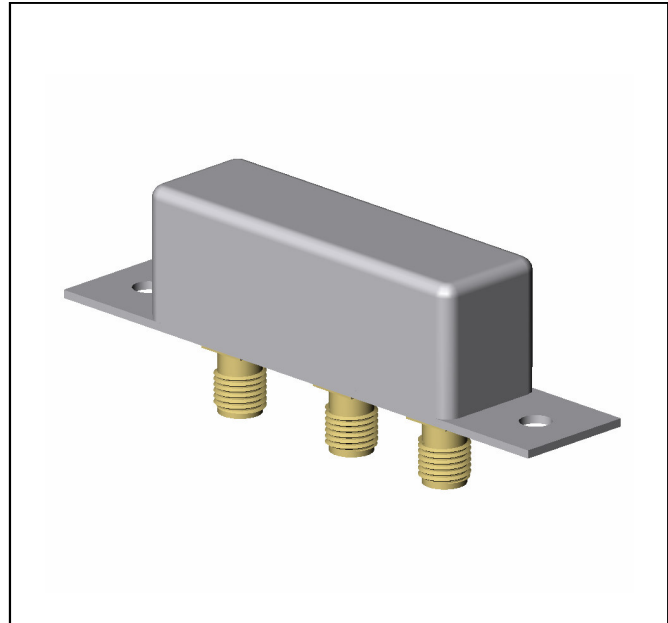


Double-Balanced Mixer

**M1J
V2**

Features

- LO and RF: 300 to 2000 MHz
- IF: DC to 1000 MHz
- LO Drive +7 dBm (nominal)
- High Isolation 50 dB (Typ.)



Guaranteed Specifications¹

Characteristics	Min	Typ.	Max.	Test Conditions
SSB Conversion Loss And SSB Noise Figure		6.0 dB	7.5 dB	fL & fR = 1000 to 1700 MHz
		6.5 dB	8.0 dB	fl = 10 to 500 MHz
		8.0 dB	9.0 dB	fl = 500 to 1000 MHz
		8.0 dB	9.0 dB	fL & fR = 600 to 2000 MHz
		9.5 dB	10.0 dB	fl = 10 to 1000 MHz
				fL & fR = 300 to 2000 MHz
				fl = 10 to 450 MHz
				fl = 450 to 1000 MHz
Isolation L at R L at I L at R L at I	40 dB	45 dB		fL 300 to 1000 MHz
	25 dB	35 dB		
	30 dB	40 dB		fL 1000 to 2000 MHz
	20 dB	30 dB		
Conversion Compression		1.0 dB		fR level = 0 dBm
Desensitization		1.0 dB		fR2 level = -2 dBm

Notes:

1. Measure 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.

Absolute Maximum Ratings

Storage Temperature	-65°C to +100°C
Operating Temperature	-54°C to +100°C
Peak RF Input Power	+26 dBm at +25°C, derate to +17 dB, at +100°C
Peak Input Current at 25°C	50 mA DC

Weight 31 gram (1.1 oz) max.

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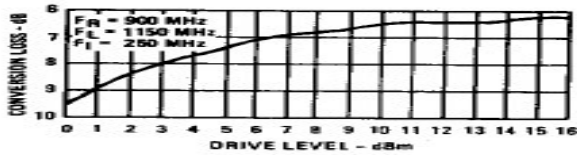
• **North America** Tel: 800.366.2266 / Fax: 978.366.2266
 • **Europe** Tel: 44.1908.574.200 / Fax: 44.1908.574.300
 • **Asia/Pacific** Tel: 81.44.844.8296 / Fax: 81.44.844.8298

Visit www.macom.com for additional data sheets and product information.

Double-Balanced Mixer

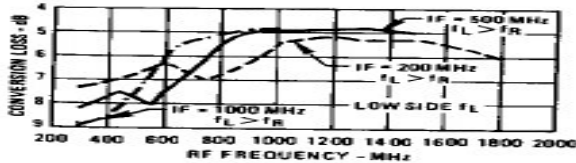
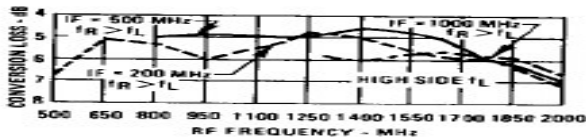
Typical Performance Curves at 25°C

Conversion Loss

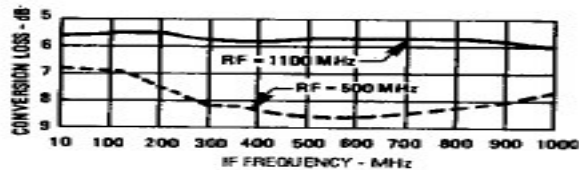


Conversion Loss vs. LO Drive Level: The minimum recommended drive level is +5 dBm. A lower drive level will degrade the conversion loss and noise figure over the full temperature and frequency range. Operation at +5 dBm is recommended to reduce the level of the intermodulation products in the last two rows of the intermodulation chart. It will also minimize the output noise below 2 kHz.

The maximum recommended drive level is +13 dBm. A higher drive level will significantly increase the noise figure and also degrade isolation. Operation at +13 dBm is recommended to achieve best two-tone performance and suppression of the intermodulation products in the rows above the second row in the intermodulation chart.

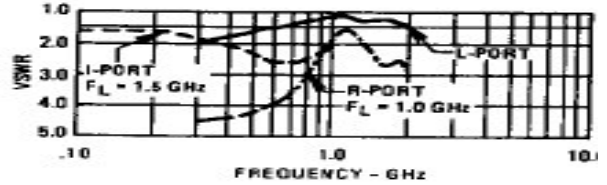


Conversion Loss vs. Input Frequency: Conversion loss of the mixer when used in SSB system. The frequency ordinate refers to the R-port (f_R) with f_L at 200, 500, and 1000 MHz. Data plotted with an f_L level of +7 dBm.



Conversion Loss vs. f_L Frequency: Conversion loss of the mixer when used in a SSB system. The frequency ordinate refers to the I-port when f_L is swept from 510 to 1500 MHz with f_R at 500 MHz and f_L swept from 1110 to 2100 MHz with f_R at 1100 MHz.

VSWR



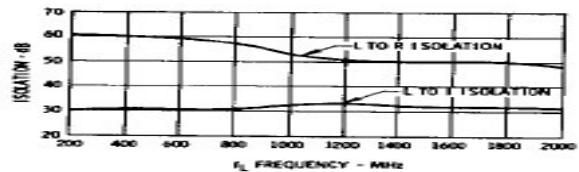
VSWR vs. Frequency: VSWR of the L-, I-, and R-ports in a 50-ohm system with f_L at +7 dBm. Some variation in the R-port VSWR will occur as a function of the L-port frequency.

Harmonic Intermodulation

5f _R	>71	>71	>71	>71	>71	>71
4f _R	>71	>71	>71	>71	>71	>71
3f _R	>71	53	68	56	71	51
2f _R	>71	63	67	61	>71	69
f _R	28	0	40	12	41	26
	29	0	41	10	42	19
		7	43	29	54	30
		3	36	27	54	29
	0	f _L	2f _L	3f _L	4f _L	5f _L

Harmonic Intermodulation Products: Intermodulation signals which result from the mixing of input signals are shown above. Mixing product suppression is indicated by the number of dB below the desired output level, $f_R - f_L$. Products are for the difference frequency $n f_L - m f_R$ and $m f_R - n f_L$. The performance was measured with f_R at 300 MHz, -10 dBm, and $f_L = 299$ MHz, +7 dBm for light area, +13 dBm for shaded area.

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.

