M4T / SM4T

LOAD INSENSITIVE MIXER

- LO, RF } 1 TO 3400 MHz
- IF 1 TO 2000 MHz
- LO DRIVE +10 dBm (NOMINAL)
- INSENSITIVE TO SYSTEM MISMATCH
- HIGH INTERCEPT +18 dB (TYP.)
- AVAILABLE IN SURFACE MOUNT
- MIL–M–28837 EQUIVALENT LEVEL SCREENING AVAILABLE

Guaranteed Specifications [1,2]

Characteristics	Typ.	+25°C	-54°C to +85°C	Test Conditions
SSB Conversion Loss and SSB Noise Figure (Max.)	6.5 dB	7.5 dB	8.0 dB	f_L & f_R 5 to 3500 MHz, f_I 1 to 500 MHz
	8.0 dB	9.0 dB	9.5 dB	f_L & f_R 1 to 3000 MHz, f_I 1 to 1500 MHz
	9.0 dB	10.5 dB	11.0 dB	f_L & f_R 1 to 3400 MHz, f_I 1 to 2000 MHz
Isolation (Min.)				
f_L at I	40 dB	35 dB	33 dB	f_L 10 to 1500 MHz
	30 dB	25 dB	23 dB	f_L 10 to 3400 MHz
f_L at R	40 dB	35 dB	33 dB	f_L 10 to 1500 MHz
	30 dB	25 dB	23 dB	f_L 10 to 3400 MHz
f_R at I	25 dB			f_R 1 to 3400 MHz
Third-Order Input Intercept Point	+18 dBm			f_L 2000 MHz, +10 dBm f_{R1} = 1900 MHz at -10 dBm f_{R2} = 1910 MHz at -10 dBm
Conversion Compression	1.0 dB			f_R at +7 dBm f_L at +13 dBm
Desensitization Level	1.0 dB			f_{R_2} at +5 dBm
Third-Order Intermodulation Suppression Degradation	3 dB			If VSWR ≤ 3:1 at I-Port

Notes:
1. Measured in a 50-ohm system with nominal LO drive and downconverter application only, unless otherwise specified.
2. Typical values are measured at +25°C and are not guaranteed.

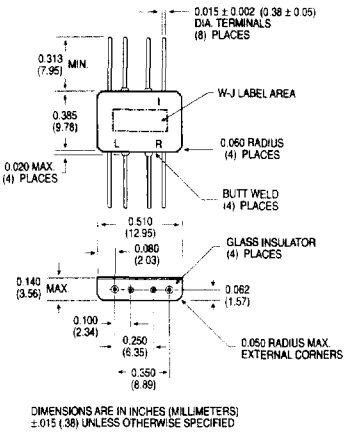
Absolute Maximum Ratings

Operating Temperature .....-54°C to +100°C
Storage Temperature .....-65°C to +100°C
Peak Input Power .....+27 dBm max at +25°C, derate to + 17 dBm at +100°C
Peak Input Current at 25°C .....50 mA DC

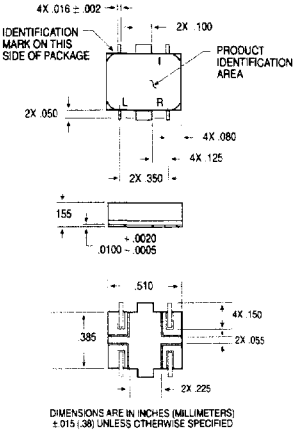
Weight M4T: 2 grams (0.07 oz.) max.
SM4T: 3 grams (0.11 oz.) max.

Outline Drawings

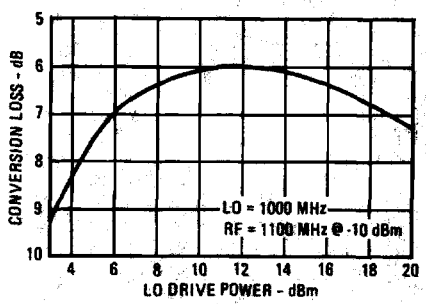
M4T



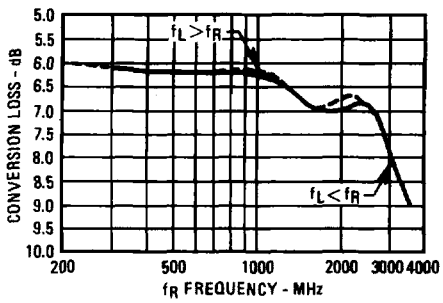
SM4T



Conversion Loss

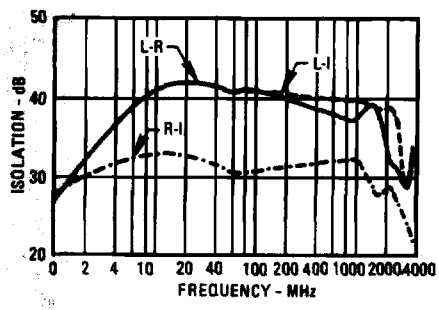


Conversion Loss vs. Drive Level: The minimum recommended drive level is +7 dBm. The maximum recommended drive level is +18 dBm.



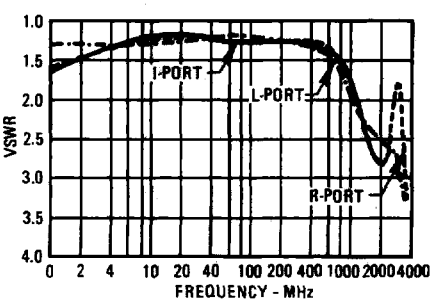
Conversion Loss vs. Input Frequency: Conversion loss of the mixer when used in an SSB system. Data plotted for a f_I of 100 MHz with f_L at +10 dBm.

Isolation



Isolation vs. Frequency: Level of f_L signal fed through to R- and I-port with respect to the level of the f_L signal at L-port. R-I Isolation plotted with f_L at 1500 MHz.

VSWR



VSWR vs. Frequency: VSWR is the L-, I-, and R-ports in a 50 ohm system with f_L at +10 dBm. R- and I-port VSWR plotted with f_L at 1500 MHz.

Typical Intermodulation Performance

HARMONICS OF f_R	0	1	2	3	4	5	6	7	8
4	<70	<70	<70	<70	<70	<70	<70	<70	<70
3	<70	67	<70	61	<70	58	69	57	69
2	55	65	64	63	68	62	<70	63	<70
1	41	0	31	11	34	17	37	22	39
0	X	19	20	27	34	34	43	39	45

HARMONICS OF f_L

Test Conditions

f_L = 200 MHz, +10 dBm
f_R = 210 MHz, -10 dBm

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