

MC1507

10 TO 1500 MHz TO-8 DOUBLE-BALANCED MIXER

Typical Values

LO & RF	MC1507 10-1500 MHz
IF	DC to 1000
Third Order I.P.	+23.0 dBm
Conversion Loss	6.5 dB
LO Drive (nominal)	+15.0 dBm
High Isolation (LO to RF)	35.0 dB

SPECIFICATIONS*

Guaranteed
-55 to +85 °C

Parameter	Port	Frequency (MHz)	Typ. (dB)	Max. (dB)
SSB Conversion Loss and SSB Noise Figure	f _R	20 to 600	7.0	8.5
	f _L	10 to 800	7.0	8.5
	f _I	DC to 200	7.0	8.5
	f _R	10 to 1500	7.5	9.0
	f _L	10 to 1500	7.5	9.0
	f _I	DC to 200	7.5	9.0
	f _I	DC to 1000	8.5	10.0
Conversion Comp. Desensitization Level	f _R	Level = +3 dBm	—	1.0
	f _{R2}	Level = +1 dBm	—	1.0
Isolation	f _L at R	10 to 800	Typ. (dB)	Min. (dB)
	f _L at I		40	32
	f _L at R	800 to 1200	35	25
	f _L at I		35	22
	f _L at R	1200 to 1500	25	20
f _L at I		35	22	
Third Order Intercept		LO = +15.0 dBm	+23.0 dBm	—

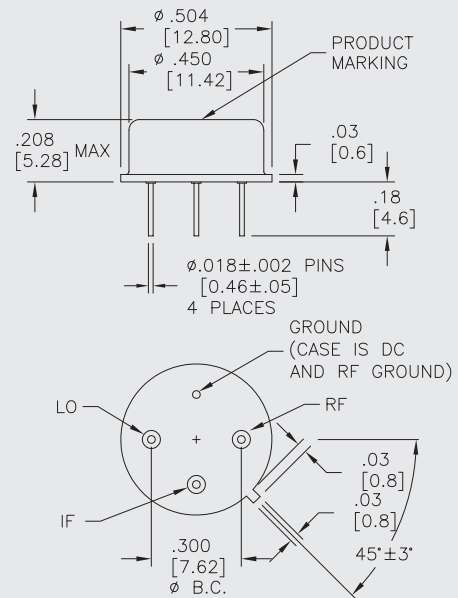
- * 1) Measured in a 50-ohm system with nominal LO drive of +15.0 dBm as a downconverter.
- 2) The I-port frequency range extends to DC for phase detection, pulse modulation, or attenuation applications.
- 3) Noise figure is specified only down to 1 MHz for the IF frequency to avoid 1/F contributions.

ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-65 to +125 °C
Peak Input Power	+23 dBm @ 25 °C derate to +17 dBm @ 100 °C
Peak Input Current @ 25°C	50 mA DC

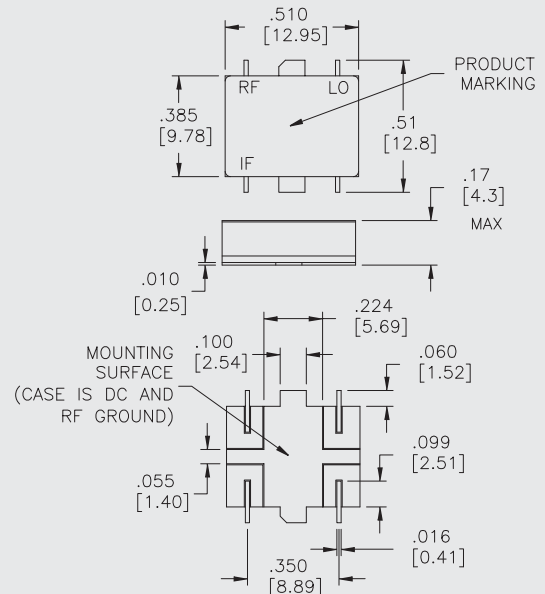
MC1507

TO-8 Package for Mixer



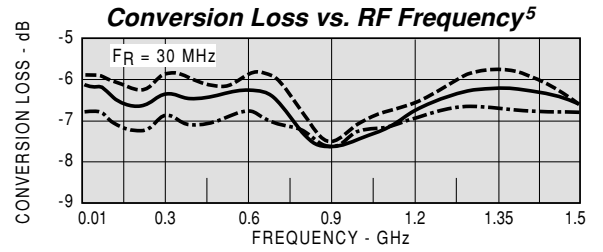
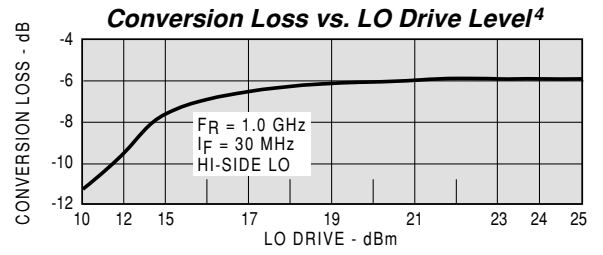
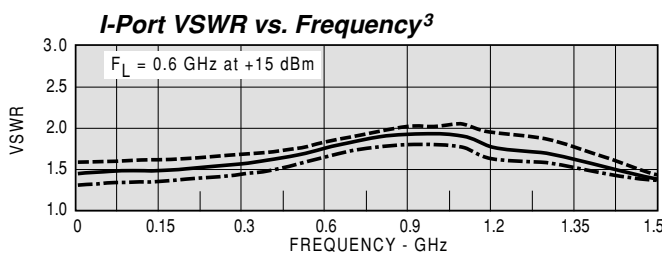
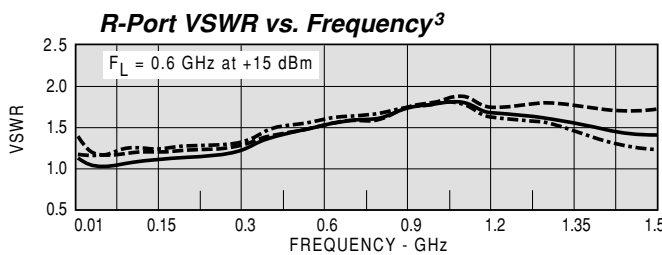
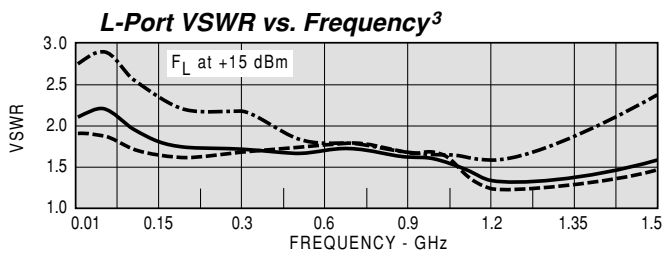
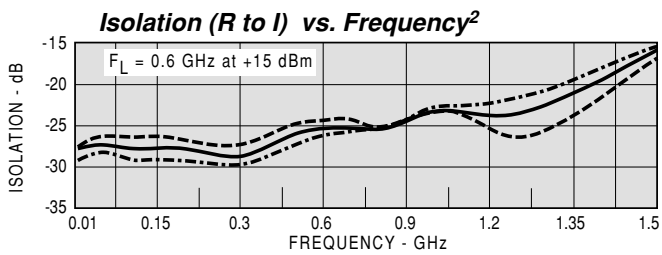
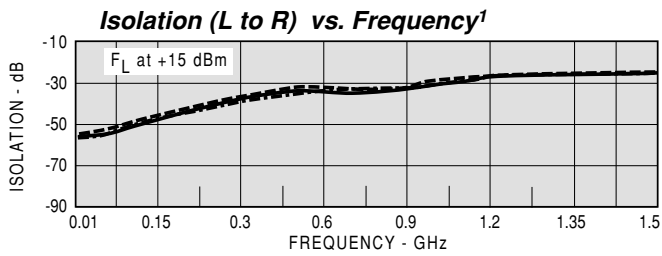
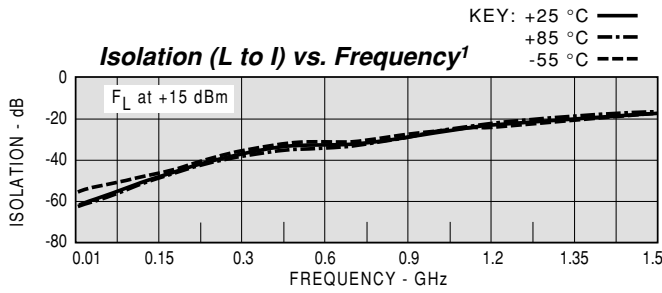
MTS1507

Surface Mount Package for Mixer



DIMENSIONS ARE IN INCHES [MILLIMETERS]

TYPICAL PERFORMANCE



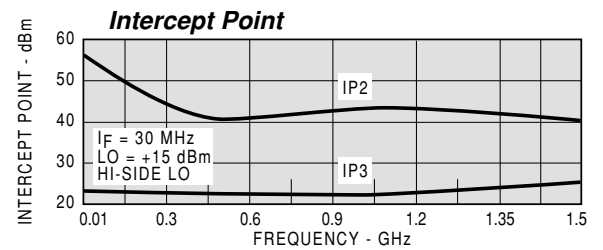
⁴ The minimum recommended drive level is +15 dBm. The maximum recommended drive level is +25 dBm.

⁵ Conversion loss of the mixer when used in an SSB system. The frequency ordinate refers to the R-port (f_R) with f_I at 30 MHz. Data plotted with an f_L level of +15.0

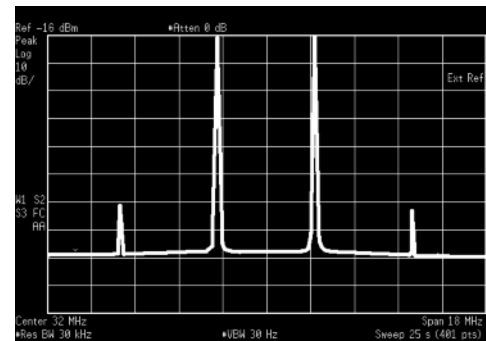
Harmonic Intermodulation Products (single tone)

HARMONICS OF f_R	0	1	2	3	4	5
5	96.1	91.0	90.4	91.1	90.5	90.5
4	96.4	98.2	96.3	96.6	96.2	96.2
3	95.8	90.6	90.8	91.1	90.7	90.3
2	96.7	96.4	96.0	95.4	96.4	94.8
1	86.5	81.3	83.8	70.8	86.9	89.1
0	97.8	80.1	80.5	65.7	83.9	83.0
5	38.7	43.7	75.1	55.6	86.4	68.1
4	37.8	41.7	63.7	59.1	68.6	55.8
3	13.0	0.0	32.9	22.9	35.7	36.3
2	12.2	0.0	36.7	24.4	34.2	34.1
1		-6.1	8.4	3.9	14.3	9.1
0		-4.1	12.8	6.7	17.8	12.1

$F_R = 1000$ MHz @ -10 dBm $F_L = 1030$ MHz
 F_L @ +15 dBm F_L @ +18 dBm



IP3



$F_R = 1500/1496$ MHz @ -10 dBm $F_L = 1530$ MHz @ +15 dBm
Vertical Scale: 10 dB/DIV

¹ 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.
² Level of the f_R signal fed through the I-port with respect to the level of the f_R signal at the R-port.
³ VSWR of the I- and R-ports in a 50-ohm system. Some variation in the R-port VSWR will occur as a function of the L-port frequency as shown above.