

MC1505

10 TO 1500 MHz TO-8 DOUBLE-BALANCED MIXER

Typical Values	MC1505
LO & RF	10-1500 MHz
IF	DC to 1000
Third Order I.P.	+20.0 dBm
Conversion Loss	7.5 dB
LO Drive (nominal)	+10.0 dBm
High Isolation (LO to RF)	35.0 dB

SPECIFICATIONS*

Parameter	Port	Frequency (MHz)	Guaranteed -55 to +85 °C	
			Typ. (dB)	Max. (dB)
SSB Conversion Loss and SSB Noise Figure	f_R	20 to 600	6.5	8.0
	f_L	10 to 800	6.5	8.0
	f_I	DC to 200	6.5	8.0
	f_R	10 to 1500	7.5	8.5
	f_L	10 to 1500	7.5	8.5
	f_I	DC to 200	7.5	8.5
	f_I	DC to 1000	8.0	9.0
Conversion Comp. Desensitization Level	f_R	Level = +7 dBm	—	1.0
	f_{R2}	Level = +5 dBm	—	1.0
Isolation	f_L at R	10 to 800	Typ. (dB)	Min. (dB)
			40	27
	f_L at I	800 to 1200	35	25
			30	24
	f_L at R	1200 to 1500	25	20
25			20	
f_L at I		24	15	
Third Order Intercept		LO = +10.0 dBm	+17.0 dBm	—
		LO = +13.0 dBm	+20.0 dBm	—

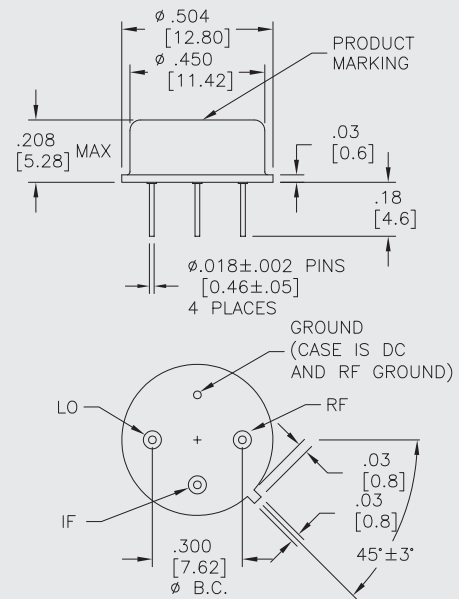
- * 1) Measured in a 50-ohm system with nominal LO drive of +10.0 dBm as a downconverter.
- 2) The I-port frequency range extends to DC for phase detection, pulse modulation, or attenuation applications.
- 3) Noise figure is specified only down to 1 MHz for the IF frequency to avoid 1/f contributions.

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

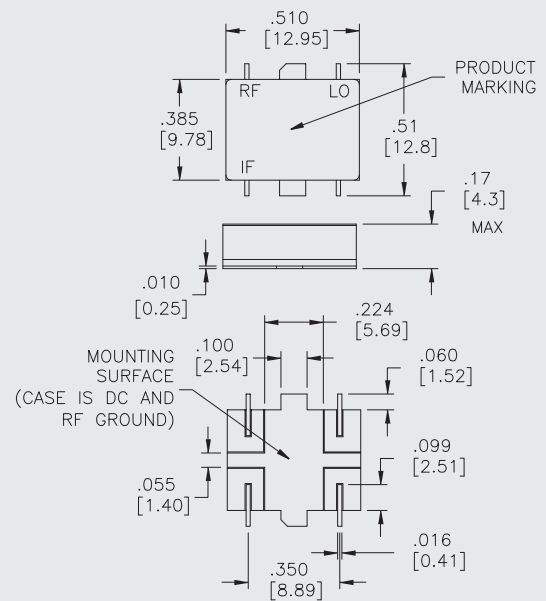
MC1505

TO-8 Package for Mixer



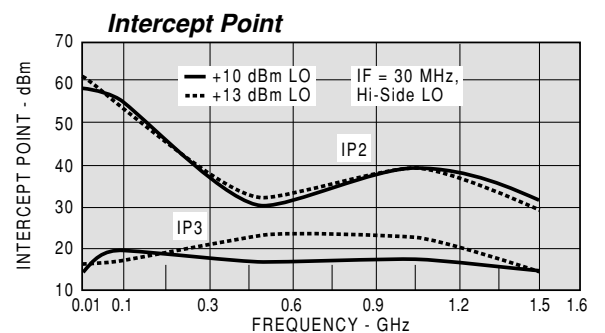
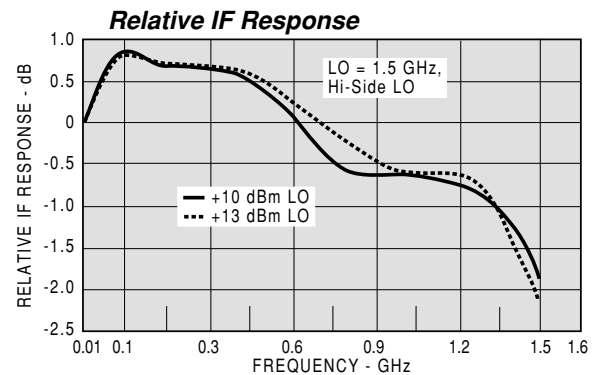
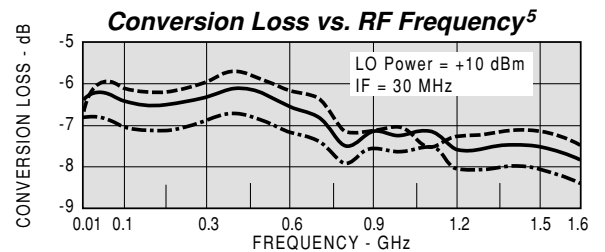
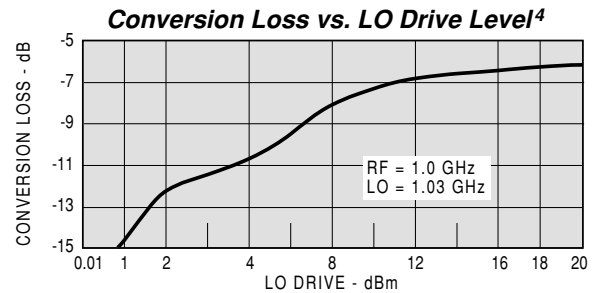
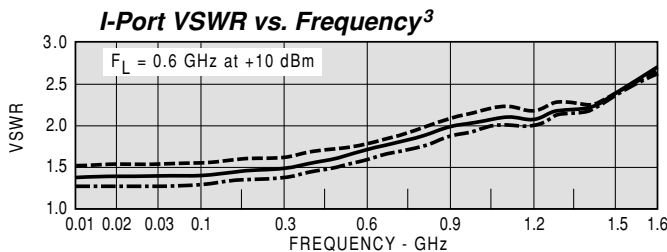
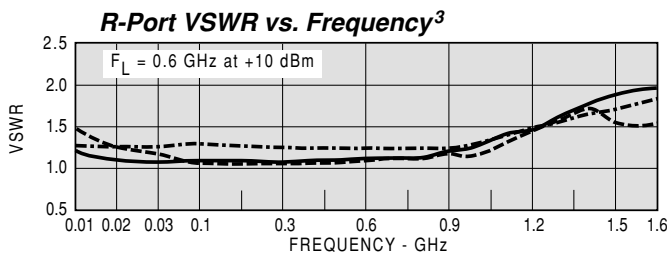
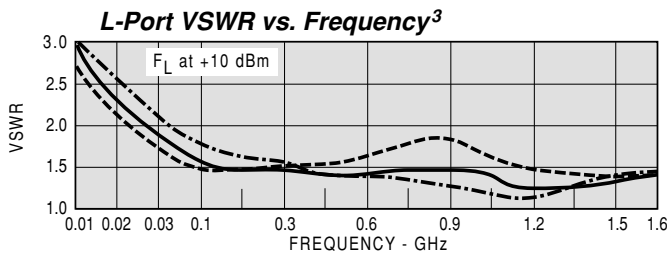
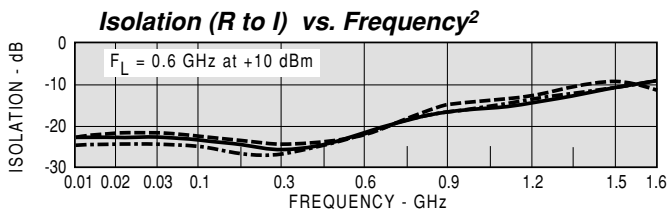
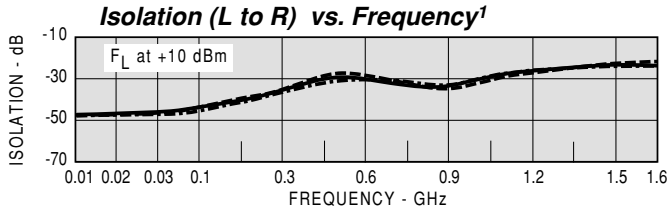
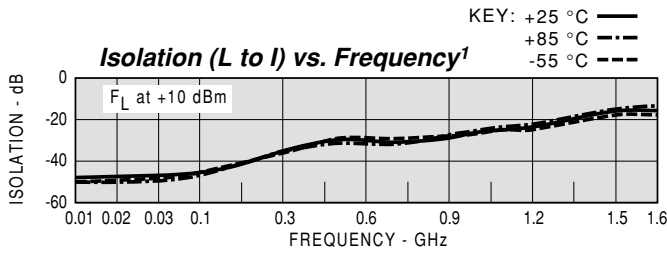
MTS1505

Surface Mount Package for Mixer



DIMENSIONS ARE IN INCHES [MILLIMETERS]

TYPICAL PERFORMANCE



Harmonic Intermodulation Products (single tone)

HARMONICS OF f _R	0	1	2	3	4	5
5	83.5	75.5	82.4	74.1	83.3	73.3
4	84.8	80.0	84.3	75.6	84.1	76.2
3	82.1	80.9	81.8	80.2	79.4	80.8
2	82.3	73.1	81.9	73.0	83.5	73.9
1	70.0	56.9	69.3	55.9	75.5	53.8
0	67.5	65.2	69.8	57.9	80.9	55.1
5	72.9	53.9	66.6	53.9	63.5	54.1
4	70.7	55.7	69.7	55.8	67.2	55.6
3	22.8	0.0	33.9	11.5	39.9	21.5
2	23.7	0.0	36.5	15.1	44.0	38.2
1		20.8	18.3	36.1	28.0	25.7
0		28.8	23.9	41.5	34.7	33.9

HARMONICS OF f_L

F_R = 100 MHz @ -10 dBm
F_L @ +10 dBm

F_L = 130 MHz
F_L @ +13 dBm

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.
⁴ The minimum recommended drive level is +10 dBm. The maximum recommended drive level is +20 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 +10.0 dBm.