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)	Typ. (dB)	Guaranteed -55° to +85° C 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	1 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	1 to 200	7.5	8.5
	f_I	1 to 1000	8.0	9.0
Conversion Comp. Desensitization Level	f_R	Level = +7 dBm	—	1.0
	f_{R2}	Level = +5 dBm	—	1.0
			Typ. (dB)	**Min. (dB)**
Isolation				
f_L at R	f_L	10 to 800	40	27
f_L at I			35	25
f_L at R	f_L	800 to 1200	30	24
f_L at I			25	20
f_L at R	f_L	1200 to 1500	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	—

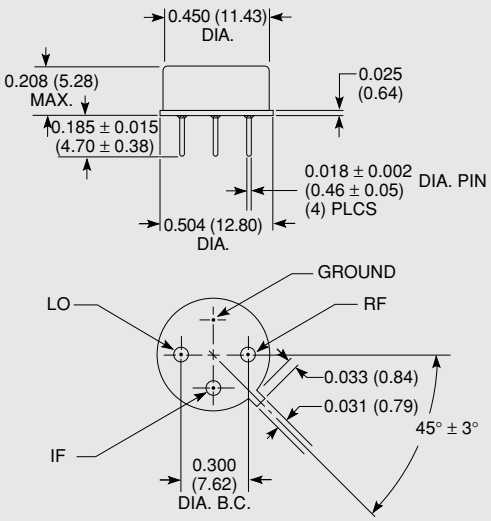
* 1) Measured in a 50-ohm system with nominal LO drive of +10.0 dBm as a downconverter.
2) The I-port frequency range extends to DC for phase detection, pulse modulation, or attenuation applications.
3) Noise figure is specified only down to 1 MHz for the IF frequency to avoid 1/F contributions.

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

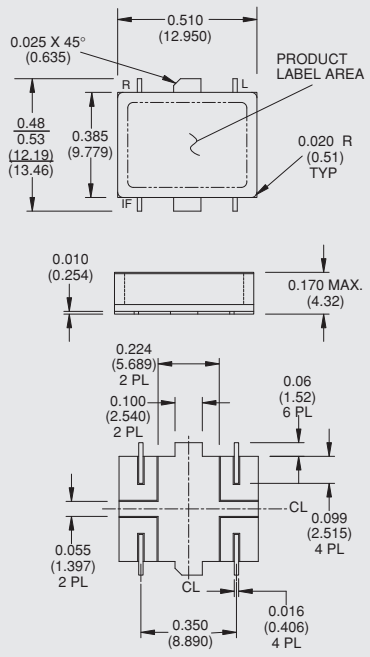
MC1505

TO-8 Package for Mixer



MTS1505

Surface Mount Package for Mixer

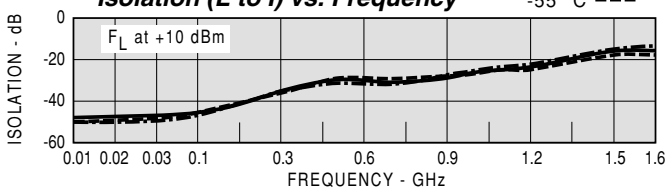


DIMENSIONS ARE IN INCHES (MILLIMETERS)

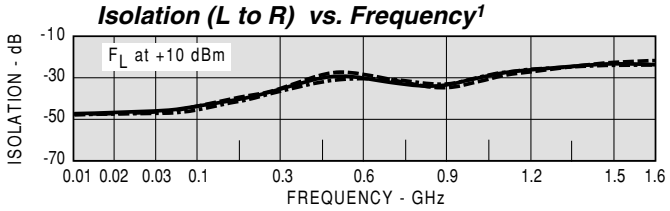
TYPICAL PERFORMANCE

KEY: +25 °C —— +85 °C -·-·- -55 °C - - -

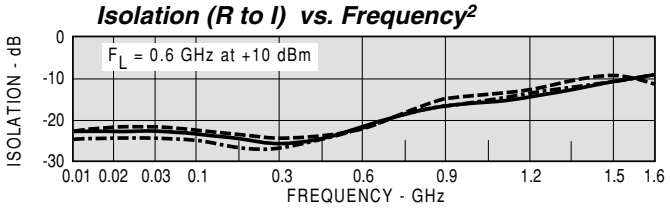
Isolation (L to I) vs. Frequency[1]



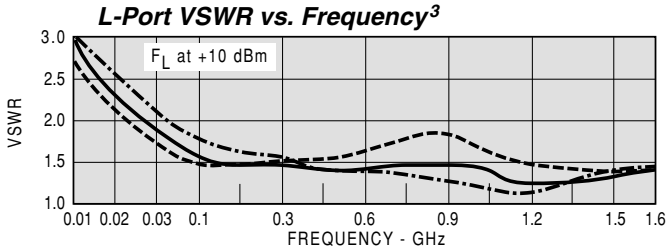
Isolation (L to R) vs. Frequency[1]



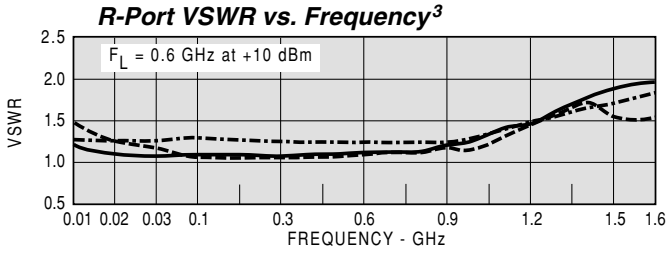
Isolation (R to I) vs. Frequency[2]



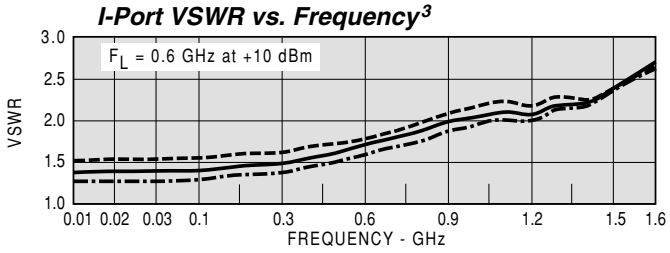
L-Port VSWR vs. Frequency[3]



R-Port VSWR vs. Frequency[3]



I-Port VSWR vs. Frequency[3]



[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.

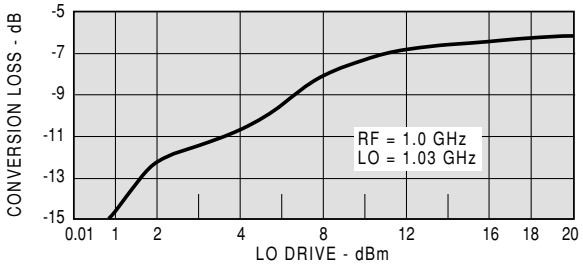
[3] VSWR of the I- and R-ports in a 50-ohm system. Some variation in the R-port VSWR will occur as a function of the L-port frequency as shown above.

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

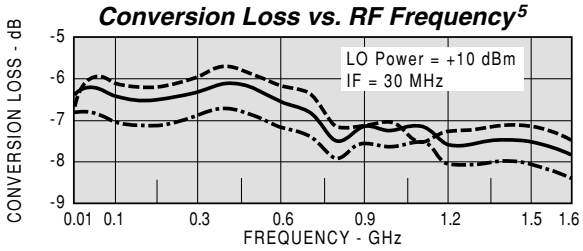
[5] Conversion loss of the mixer when used in an SSB system. The frequency ordinate refers to the R-port (f_R) with f_I at 30 MHz. Data plotted with an f_L level of +10.0 dBm.

TYPICAL PERFORMANCE

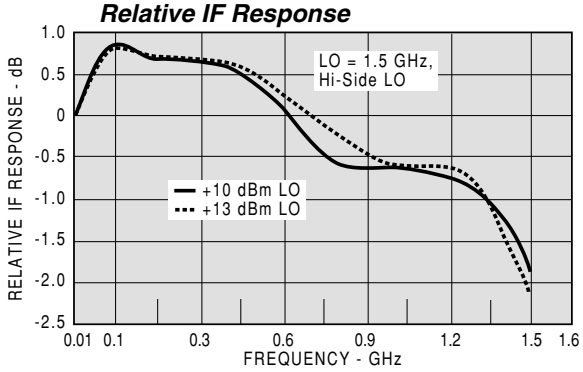
Conversion Loss vs. LO Drive Level[4]



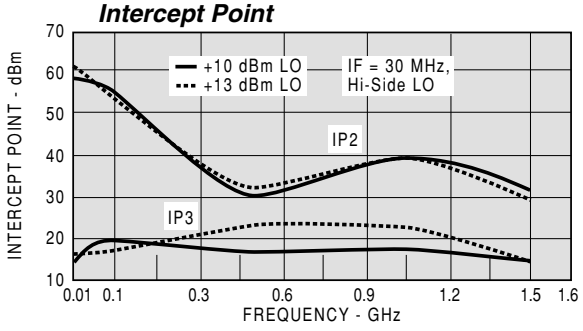
Conversion Loss vs. RF Frequency[5]



Relative IF Response



Intercept Point



Harmonic Intermodulation Products

(single tone)

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

F_R = 100 MHz @ -10 dBm, F_L @ +10 dBm; F_L = 130 MHz, F_L @ +13 dBm