

MM8221 2.0 TO 8.0 GHz DOUBLE-BALANCED MIXER

Typical Values	MM8221
LO & RF	2.0 - 8.0 GHz
IF	DC - 1.5 GHz
Third Order I.P.	+10.0 dBm
Conversion Loss	5.5 dB
LO Drive (nominal)	+7.0 dBm
High Isolation (LO to RF)	45.0 dB
Mixer Carrier	

SPECIFICATIONS*

Parameter	Port	Frequency (GHz)	Guaranteed -55 to +85 °C		
			Typ. (dB)	Max. (dB)	
SSB Conversion Loss and SSB Noise Figure	f_R	3.0 to 8.0	5.0	6.5	
	f_L	3.0 to 8.0	5.0	6.5	
	f_I	DC to 0.5	5.0	6.5	
	f_R	2.0 to 8.0	6.5	7.5	
	f_L	2.0 to 8.0	6.5	7.5	
	f_I	DC to 0.5	6.5	7.5	
	f_I	0.5 to 1.5	8.0	9.0	
Conversion Comp. Desensitization	f_R	Level = +1 dBm	-	1.0	
	f_{R2}	Level = -1 dBm	-	1.0	
Isolation			Typ. (dB)	Min. (dB)	
	f_L at R	f_L	2.0 to 8.0	45	35
	f_L at I	f_L	4.0 to 8.0	45	38
	f_R at I	f_R	4.0 to 8.0	30	20
	f_L at R	f_L	2.0 to 8.0	45	35
	f_L at I	f_L	2.0 to 8.0	35	22
Third Order Intercept		LO = +7 dBm	+10 dBm	-	
		LO = +10 dBm	+12 dBm	-	

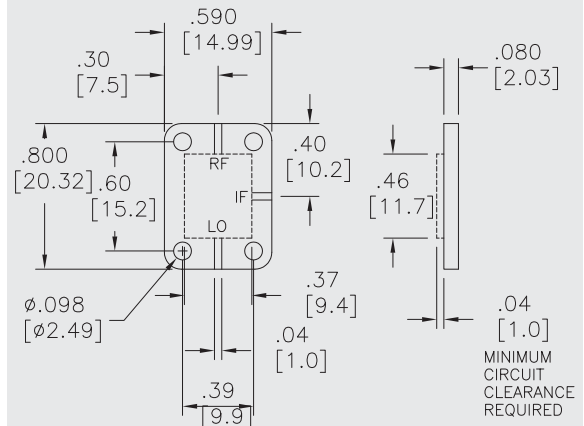
* Measured in a 50-ohm system with nominal LO drive of +7 dBm as a downconverter.

ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-65 to +150 °C
Peak RF Input Power All Ports	+22 dBm @ 25 °C
	derate to +17 dBm @ 100 °C

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DIMENSIONS ARE IN INCHES (MILLIMETERS)

Harmonic Intermodulation Products (single tone)

HARMONICS OF f_R	HARMONICS OF f_L					
	0	1	2	3	4	5
5	100	>100	>100	>100	>100	90
4	>100	99	>100	>100	>100	88
3	>100	>100	>100	78	>100	75
2	>100	100	>100	74	90	73
1	99	83	76	55	74	83
0	95	79	72	54	72	80
	72	41	66	40	77	73
	70	41	64	40	76	69
	21	0	32	38	71	59
	21	0	32	39	71	62
		-9	36	23	40	32
		-6	41	24	44	34

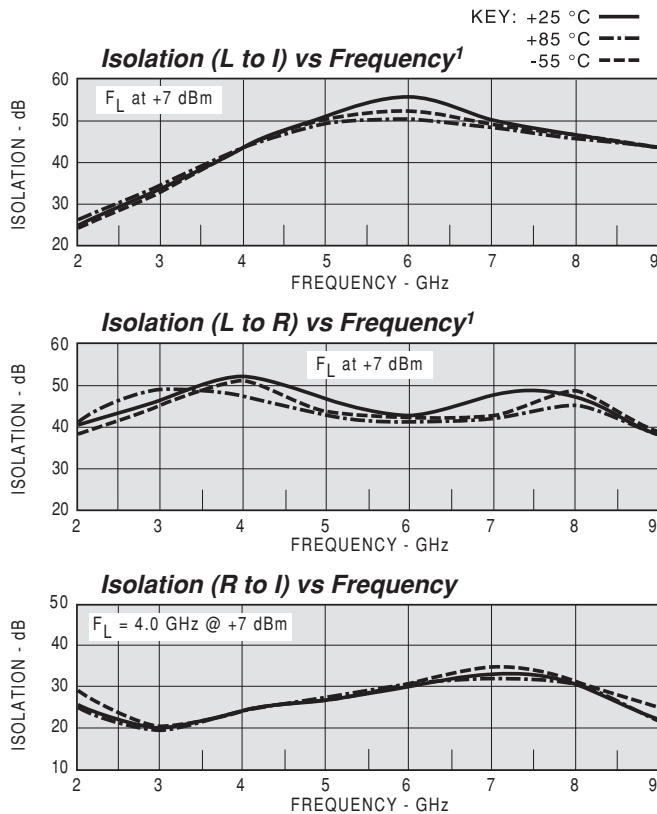
$F_R = 2000$ MHz @ -10 dBm $F_L = 2030$ MHz
 $F_L @ +7$ dBm $F_L @ +10$ dBm

Harmonic Intermodulation Products (single tone)

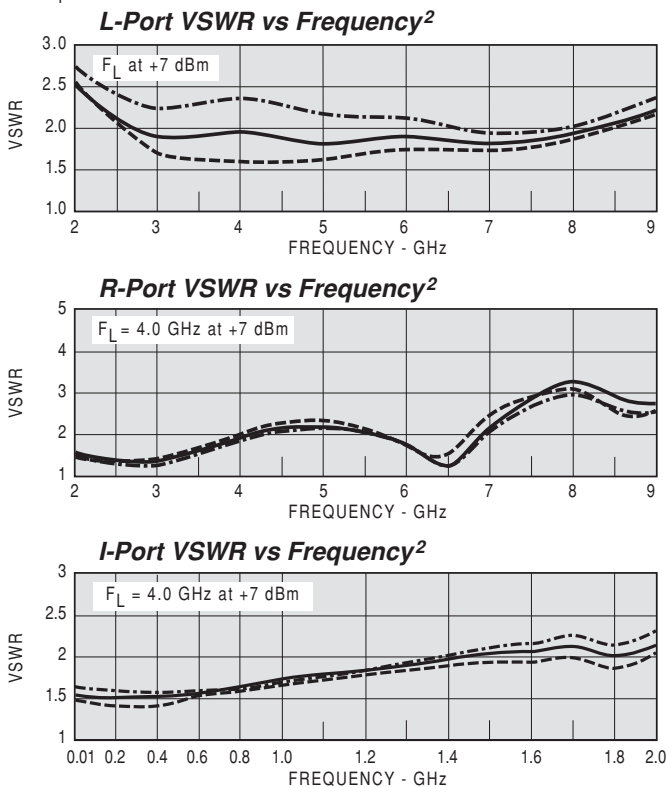
HARMONICS OF f_R	HARMONICS OF f_L					
	0	1	2	3	4	5
5	>100	>100	>100	>100	>100	98
4	>100	>100	>100	>100	>100	91
3	>100	98	99	91	>100	92
2	>100	96	>100	91	97	88
1	70	84	93	54	>100	>100
0	68	83	87	52	>100	99
	>100	52	76	53	83	59
	89	51	68	53	82	59
	47	0	56	47	41	50
	46	0	58	48	40	52
		-1	42	18	49	33
		2	45	19	52	36

$F_R = 4000$ MHz @ -10 dBm $F_L = 4030$ MHz
 $F_L @ +7$ dBm $F_L @ +10$ dBm

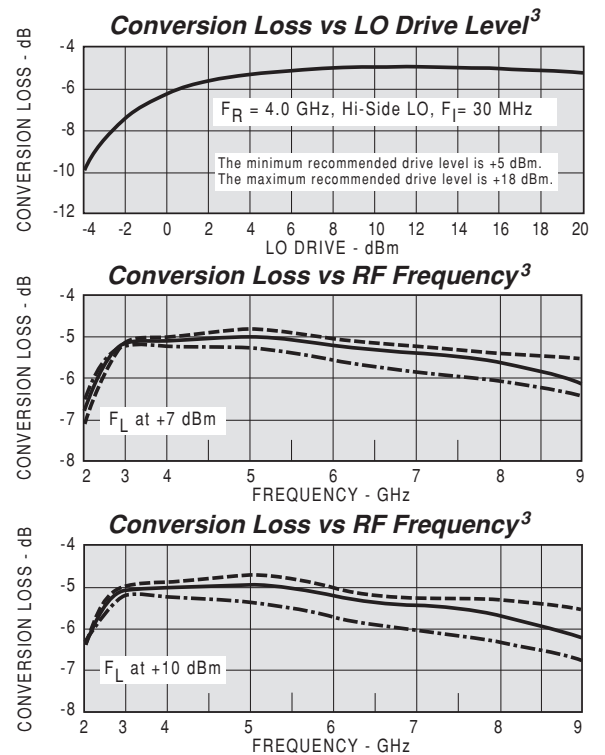
TYPICAL PERFORMANCE



¹Level 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 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.



³Conversion 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.

