

MMP12321 3.5 TO 12.0 GHz COUGAR MIXERPAK DOUBLE-BALANCED MIXER

Typical Values

LO & RF	MMP12321
IF	3.5 - 12.0 GHz
Third Order I.P.	DC - 3.0 GHz
Conversion Loss	+12.0 dBm
LO Drive (nominal)	5.0 dB
High Isolation (LO to RF)	+7.0 dBm
Cougar MixerPak - Seam Sealed Hermetic Package	40.0 dB

SPECIFICATIONS*

Guaranteed
-55 to +85 °C

Parameter	Port	Frequency (GHz)	Typ. (dB)	Max. (dB)	
SSB Conversion Loss and SSB Noise Figure	f_R	3.5 to 12.0	4.5	6.0	
	f_L	3.5 to 12.0	4.5	6.0	
	f_I	DC to 1.0	4.5	6.0	
	f_R	3.5 to 12.0	7.0	8.0	
	f_L	3.5 to 12.0	7.0	8.0	
	f_I	1.0 to 3.0	7.0	8.0	
Conversion Comp. Desensitization	f_R	Level = +5 dBm	-	1.0	
	f_{R2}	Level = +3 dBm	-	1.0	
Isolation			Typ. (dB)	Min. (dB)	
	f_L at R	f_L	3.5 to 12.0	42	35
	f_L at I	f_L	8.0 to 12.0	42	32
	f_R at I	f_R	6.0 to 12.0	20	15
	f_L at I	f_L	3.5 to 8.0	32	25
	f_R at I	f_R	3.5 to 6.0	15	8
Third Order Intercept		LO = +7 dBm	+10 dBm	-	

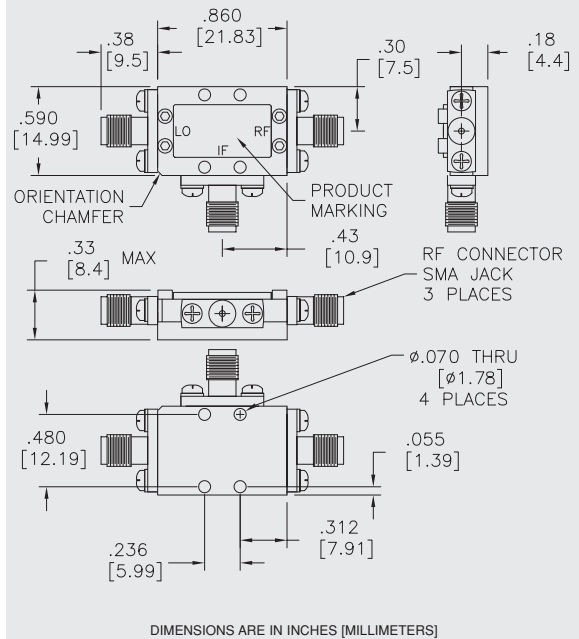
* Measured in a 50-ohm system with nominal LO drive of +7 dBm as a downconverter.

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

MMP12321

Cougar MixerPak



Harmonic Intermodulation Products (single tone)

	>100	>100	>100	>100	92	88
5	100	96	>100	>100	86	85
4	>100	>100	100	77	87	78
	94	>100	99	74	80	73
3	74	79	61	53	64	79
	72	76	58	50	62	79
2	68	43	51	42	67	67
	67	45	51	42	64	66
1	5	0	23	37	40	47
	4	0	23	39	40	51
0	5	21	33	33	26	27
	8	24	33	33	30	30
	0	1	2	3	4	5

$F_R = 3500 \text{ MHz @ } -10 \text{ dBm}$
 $F_L @ +7 \text{ dBm}$

$F_L = 3530 \text{ MHz}$
 $F_L @ +10 \text{ dBm}$

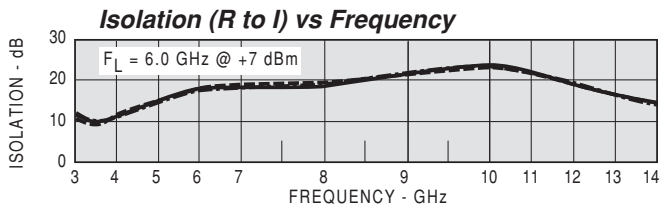
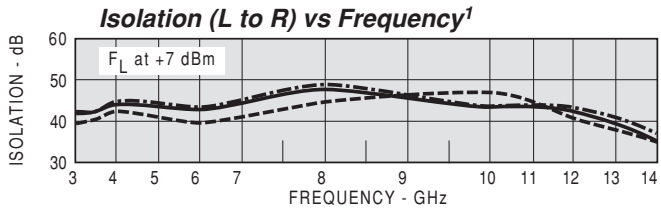
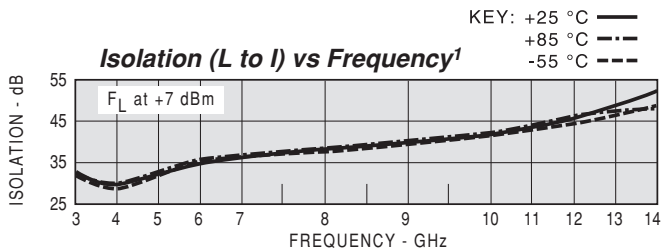
Harmonic Intermodulation Products (single tone)

	96	>100	>100	>100	87	79
5	96	>100	94	>100	83	75
4	95	96	88	67	81	69
	85	96	89	65	78	66
3	68	85	62	49	64	79
	65	79	59	47	60	75
2	62	39	59	39	58	70
	63	39	58	38	58	68
1	6	0	26	41	38	40
	6	0	26	42	39	42
0	5	22	38	38	24	23
	7	24	38	38	27	26
	0	1	2	3	4	5

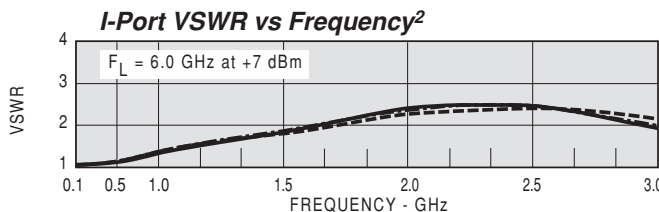
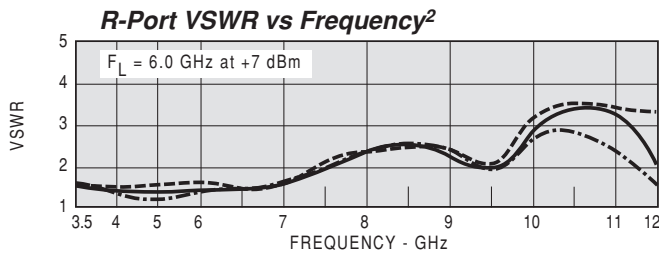
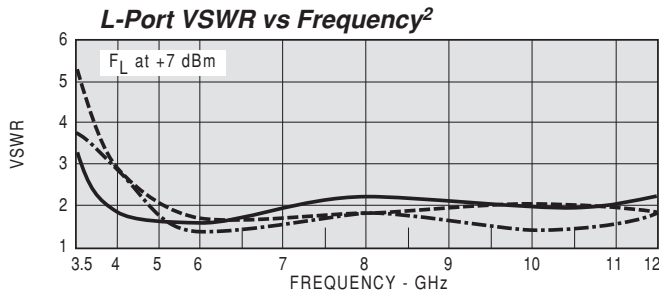
$F_R = 4000 \text{ MHz @ } -10 \text{ dBm}$
 $F_L @ +7 \text{ dBm}$

$F_L = 4030 \text{ MHz}$
 $F_L @ +10 \text{ dBm}$

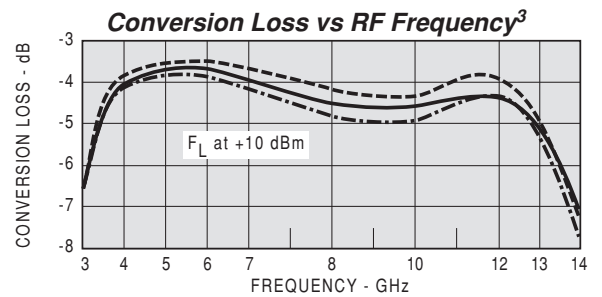
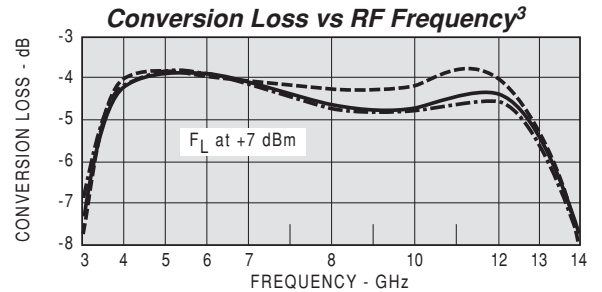
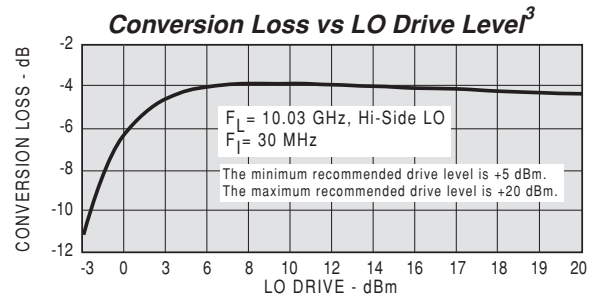
TYPICAL PERFORMANCE



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.

