

MMP12324

3.5 TO 12.0 GHz COUGAR MIXERPAK DOUBLE-BALANCED MIXER

Typical Values

LO & RF	MMP12324
IF	3.5 - 12.0 GHz
Third Order I.P.	DC - 2.0 GHz
Conversion Loss	+12.0 dBm
LO Drive (nominal)	5.0 dB
High Isolation (LO to RF)	+13.0 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 8.0	4.5	6.5	
	f_L	3.5 to 8.0	4.5	6.5	
	f_I	DC to 1.0	4.5	6.5	
	f_R	3.5 to 12.0	5.5	7.0	
	f_L	3.5 to 12.0	5.5	7.0	
	f_I	DC to 1.0 DC to 2.0	5.5 7.5	7.0 8.5	
Conversion Comp. Desensitization	f_R	Level = 5 dBm	-	1.0	
	f_{R2}	Level = 7 dBm	-	1.0	
Isolation			Typ. (dB)	Min. (dB)	
	f_L at R	f_L	3.5 to 10.0	45	35
	f_L at I	f_L	3.5 to 6.0	32	25
	f_R at I	f_R	3.5 to 6.0	15	9
	f_L at R	f_L	10.0 to 12.0	40	35
	f_L at I	f_L	6.0 to 12.0	40	32
f_R at I	f_R	6.0 to 12.0	22	15	
Third Order Intercept		LO = +13 dBm	+20 dBm	-	

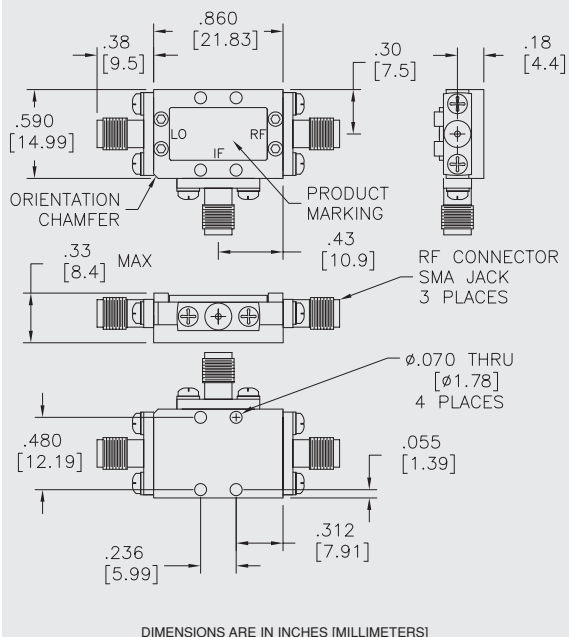
* Measured in a 50-ohm system with nominal LO drive of +13 dBm as a downconverter.

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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Cougar MixerPak



Harmonic Intermodulation Products (single tone)

HARMONICS OF f_R	0	1	2	3	4	5
5	98	99	> 100	94	97	97
4	> 100	96	> 100	> 100	97	> 100
3	99	> 100	97	91	99	93
2	93	97	> 100	89	93	84
1	84	90	67	62	74	89
0	79	83	63	58	73	93
	77	47	55	46	66	74
	69	48	55	46	62	74
	5	0	21	38	37	49
	5	0	22	39	38	47
		-3	13	28	15	17
		-1	15	30	25	22

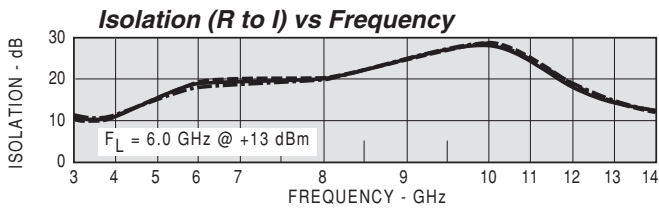
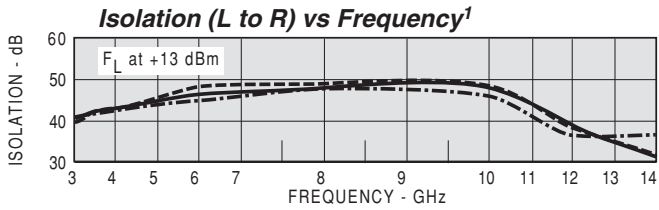
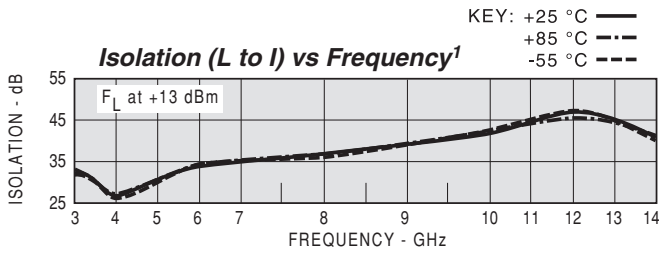
$F_R = 3500$ MHz @ -10 dBm $F_L = 3530$ MHz
 $F_L @ +13$ dBm $F_L @ +16$ dBm

Harmonic Intermodulation Products (single tone)

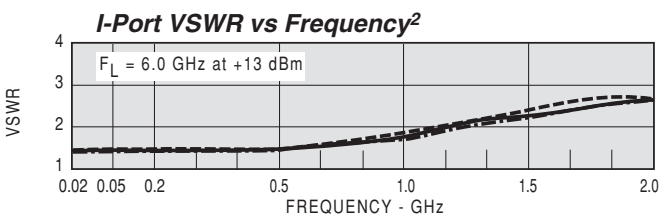
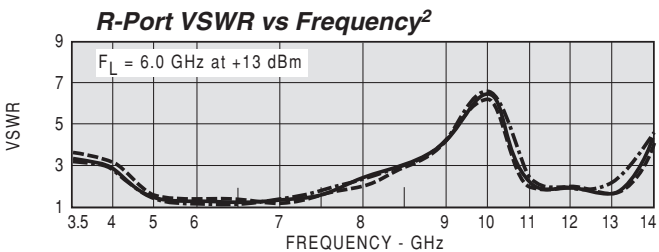
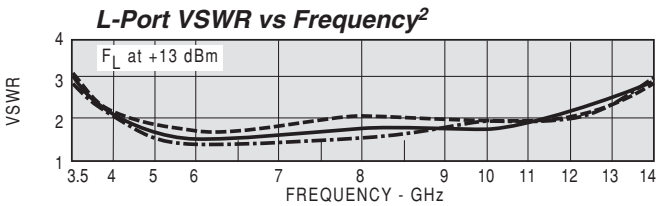
HARMONICS OF f_R	0	1	2	3	4	5
5	92	> 100	> 100	> 100	99	> 100
4	> 100	> 100	95	97	> 100	96
3	99	> 100	> 100	79	99	80
2	94	> 100	92	72	86	74
1	80	89	69	65	71	85
0	76	86	66	60	69	80
	67	44	66	43	63	53
	62	41	59	40	62	77
	8	0	24	36	37	54
	8	0	24	37	37	58
		-1	17	42	25	17
		0	18	41	28	22

$F_R = 4000$ MHz @ -10 dBm $F_L = 4030$ MHz
 $F_L @ +13$ dBm $F_L @ +16$ dBm

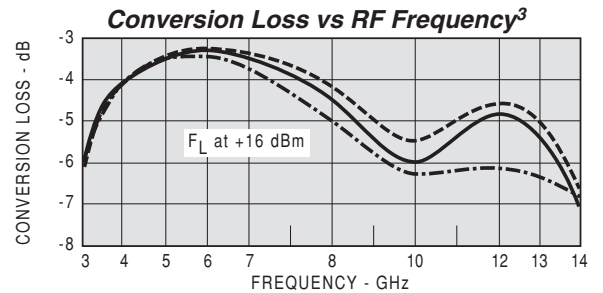
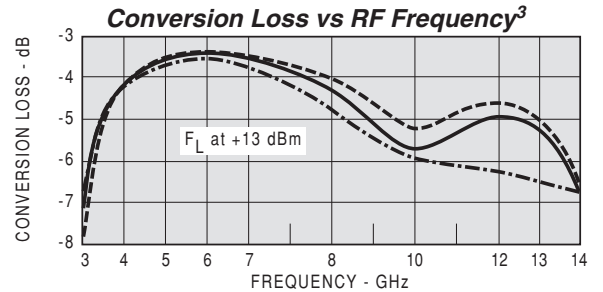
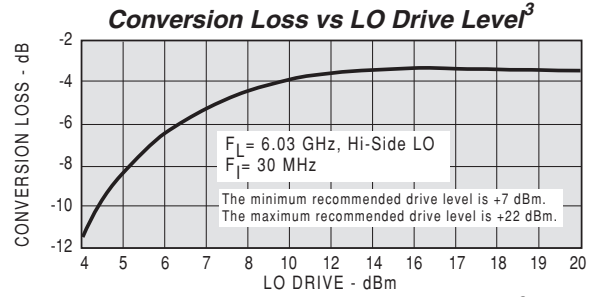
TYPICAL PERFORMANCE



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.

