

MMP12241 2.0 TO 12.0 GHz COUGAR MIXERPAK DOUBLE-BALANCED MIXER

Typical Values

LO & RF	2.0 - 13.0 GHz
IF	DC - 2.0 GHz
Third Order I.P.	+10.0 dBm
Conversion Loss	5.0 dB
LO Drive (nominal)	+7.0 dBm
High Isolation (LO to RF)	35.0 dB
Cougar MixerPak - Seam Sealed Hermetic Package	

MMP12241

2.0 - 13.0 GHz
DC - 2.0 GHz
+10.0 dBm
5.0 dB
+7.0 dBm
35.0 dB

SPECIFICATIONS*

Guaranteed
-55 to +85 °C

Parameter	Port	Frequency (GHz)	Typ. (dB)	Max. (dB)	
SSB Conversion Loss and SSB Noise Figure	f_R	3.0 to 12.0	6.0	7.0	
	f_L	3.0 to 12.0	6.0	7.0	
	f_I	DC to 1.0	6.0	7.0	
	f_R	2.0 to 12.0	7.0	8.5	
	f_L	2.0 to 12.0	7.0	8.5	
	f_I	DC to 1.0	7.0	8.5	
	f_I	1.0 to 2.0	8.5	9.5	
Conversion Comp. Desensitization	f_R	Level = +7 dBm	-	1.0	
	f_{R2}	Level = +5 dBm	-	1.0	
Isolation			Typ. (dB)	Min. (dB)	
	f_L at R	f_L	2.0 to 6.0	40	30
	f_L at I	f_L	2.0 to 6.0	22	15
	f_R at I	f_R	6.0 to 10.0	35	25
	f_L at R	f_L	6.0 to 12.0	45	30
	f_L at I	f_L	6.0 to 12.0	25	15
f_R at I	f_R	2.0 to 12.0	30	18	
Third Order Intercept		LO = +7 dBm	+10 dBm	-	
		LO = +10 dBm	+13 dBm	-	

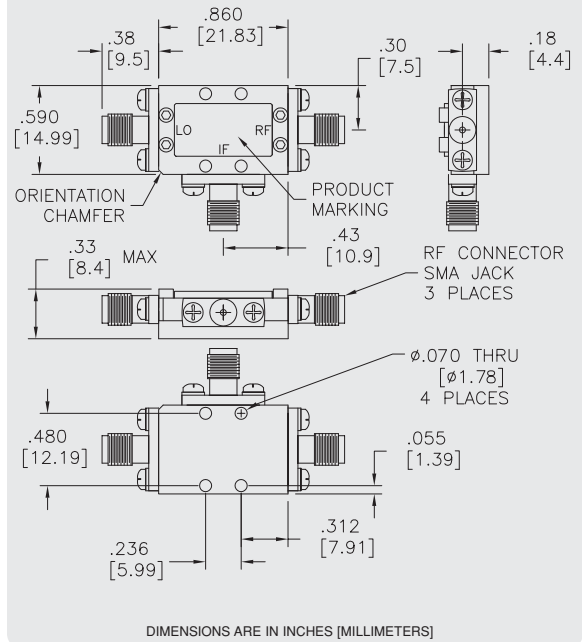
* Measured in a 50-ohm system with nominal LO drive of +7 dBm as a downconverter.

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

MMP12241

Cougar MixerPak



Harmonic Intermodulation Products (single tone)

HARMONICS OF f_R	5	100	>100	>100	>100	77	71
	4	>100	>100	96	94	74	69
	3	94	90	92	73	73	72
	2	94	92	89	65	66	64
	1	78	73	62	46	59	73
	0	76	70	56	44	56	71
HARMONICS OF f_L	5	65	52	49	51	87	55
	4	62	44	50	44	71	56
	3	19	0	26	38	58	54
	2	19	0	25	41	56	62
	1		3	29	15	50	16
	0		5	31	16	53	20

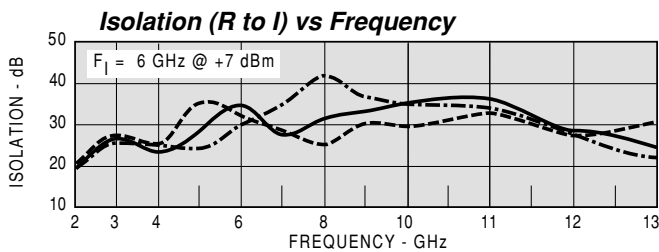
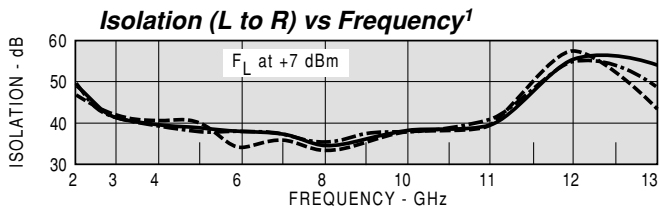
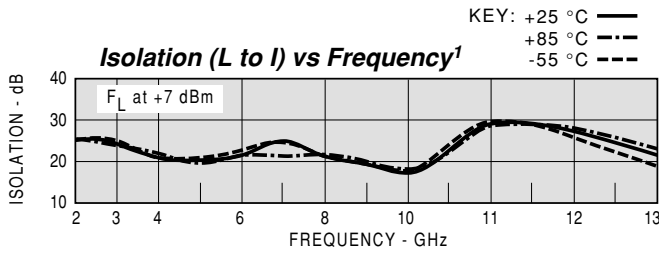
$F_R = 2000 \text{ MHz @ } -10 \text{ dBm}$ $F_L = 2030 \text{ MHz}$
 $F_L @ +7 \text{ dBm}$ $F_L @ +10 \text{ dBm}$

Harmonic Intermodulation Products (single tone)

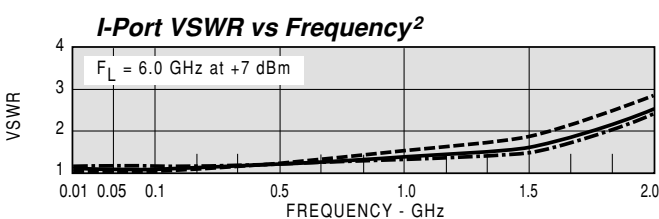
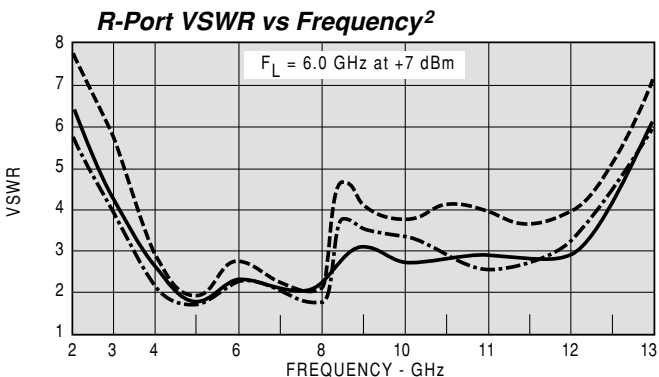
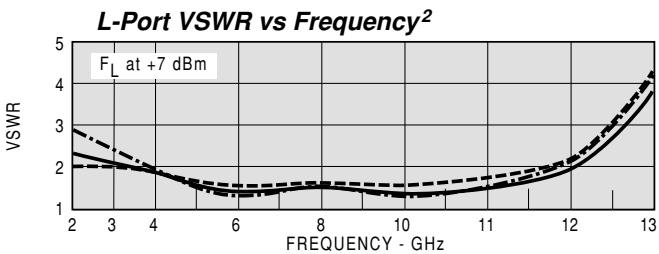
HARMONICS OF f_R	5	>100	>100	>100	>100	>100	99
	4	>100	>100	97	>100	96	77
	3	100	85	93	88	>100	84
	2	95	81	87	82	93	78
	1	71	88	72	51	76	96
	0	67	84	68	49	73	90
HARMONICS OF f_L	5	63	51	60	51	67	53
	4	61	49	69	49	67	52
	3	20	0	41	53	43	37
	2	20	0	40	55	45	39
	1		-4	49	13	38	21
	0		-2	51	14	42	24

$F_R = 4000 \text{ MHz @ } -10 \text{ dBm}$ $F_L = 4030 \text{ MHz}$
 $F_L @ +7 \text{ dBm}$ $F_L @ +10 \text{ dBm}$

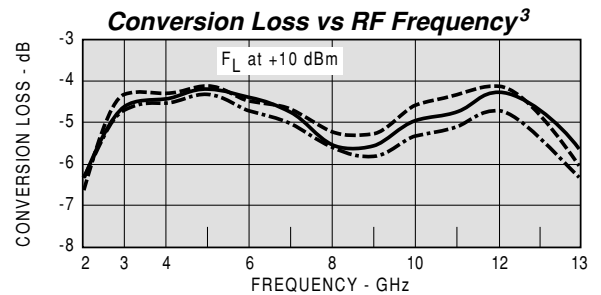
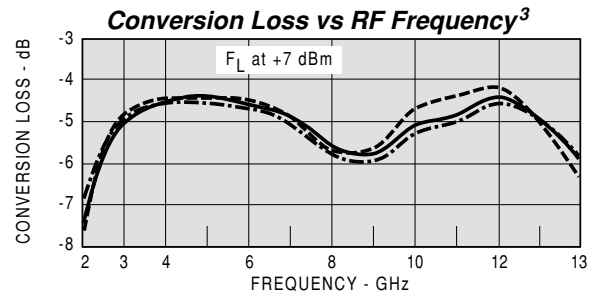
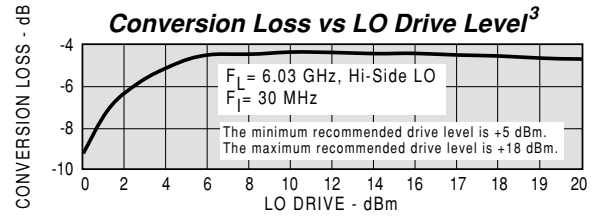
TYPICAL PERFORMANCE



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.



²VSWR 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.

