

# MMP18441 4.0 TO 18.0 GHz COUGAR MIXERPAK DOUBLE-BALANCED MIXER

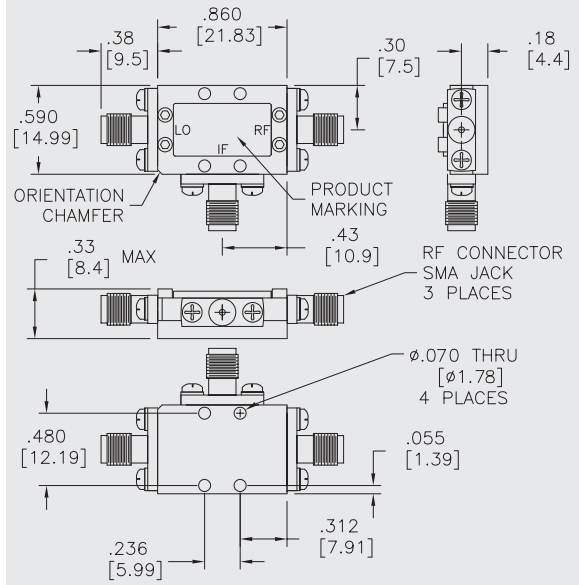
**Typical Values**

LO & RF	4.0 - 18.0 GHz
IF	DC - 4.0 GHz
Third Order I.P.	+12.0 dBm
Conversion Loss	6.0 dB
LO Drive (nominal)	+10.0 dBm
High Isolation (LO to RF)	35.0 dB
Cougar MixerPak - Seam Sealed Hermetic Package	

**MMP18441**

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**Cougar MixerPak**



## SPECIFICATIONS\*

Guaranteed  
-55 to +85 °C

Parameter	Port	Frequency (GHz)	Typ. (dB)	Max. (dB)	
SSB Conversion Loss and SSB Noise Figure	$f_R$	5.0 to 17.0	5.5	6.5	
	$f_L$	5.0 to 17.0	5.5	6.5	
	$f_I$	DC to 2.0	5.5	6.5	
	$f_R$	4.0 to 18.0	7.0	8.0	
	$f_L$	4.0 to 18.0	7.0	8.0	
	$f_I$	DC to 2.0	7.0	8.0	
	$f_I$	2.0 to 4.0	8.5	9.5	
Conversion Comp. Desensitization	$f_R$	Level = +2 dBm	-	1.0	
	$f_{R2}$	Level = 0 dBm	-	1.0	
Isolation			Typ. (dB)	Min. (dB)	
	$f_L$ at R	$f_L$	4.0 to 10.0	40	30
	$f_L$ at I	$f_L$	4.0 to 10.0	25	15
	$f_R$ at I	$f_R$	4.0 to 10.0	30	12
	$f_L$ at R	$f_L$	10.0 to 18.0	30	20
	$f_L$ at I	$f_L$	10.0 to 18.0	30	22
$f_R$ at I	$f_R$	10.0 to 18.0	45	30	
Third Order Intercept		LO = +10 dBm	+12 dBm	-	

DIMENSIONS ARE IN INCHES [MILLIMETERS]

### Harmonic Intermodulation Products (single tone)

HARMONICS OF $f_R$	HARMONICS OF $f_L$				
	0	1	2	3	4
5	94	>100	>100	>100	99
4	>100	>100	97	>100	90
3	>100	>100	>100	91	90
2	97	>100	>100	96	94
1	96	84	59	55	60
0	93	80	54	51	55
	68	57	57	53	69
	64	63	53	51	68
	6	0	19	39	67
	5	0	17	39	68
		-7	41	22	65
		-6	43	22	63

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

### Harmonic Intermodulation Products (single tone)

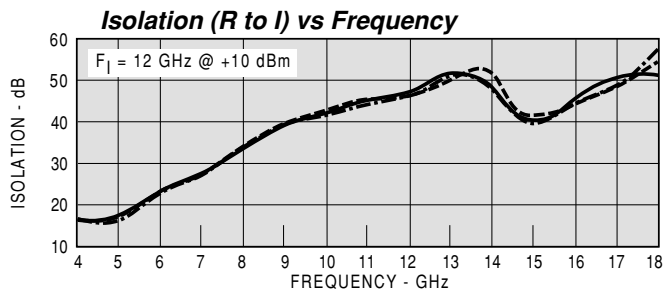
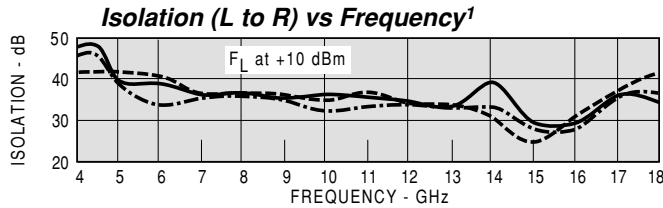
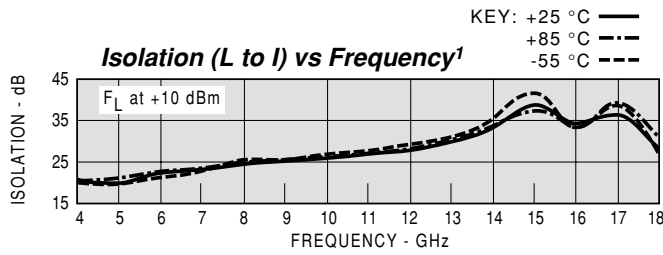
HARMONICS OF $f_R$	HARMONICS OF $f_L$				
	0	1	2	3	4
5	86	93	>100	>100	99
4	85	>100	>100	99	95
3	97	97	>100	>100	86
2	95	99	>100	94	85
1	100	>100	69	57	71
0	96	>100	65	56	68
	73	53	59	54	74
	72	52	60	55	76
	18	0	31	55	55
	18	0	31	56	60
		-6	78	29	36
		-3	71	32	39

$F_R = 6000$  MHz @ -10 dBm       $F_L = 6030$  MHz  
 $F_L$  @ +10 dBm        $F_L$  @ +13 dBm

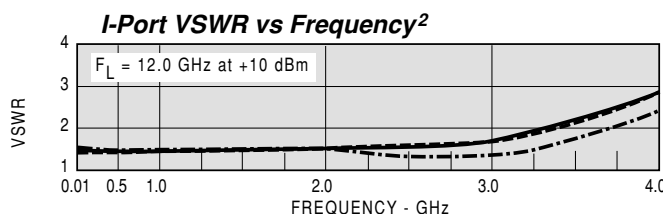
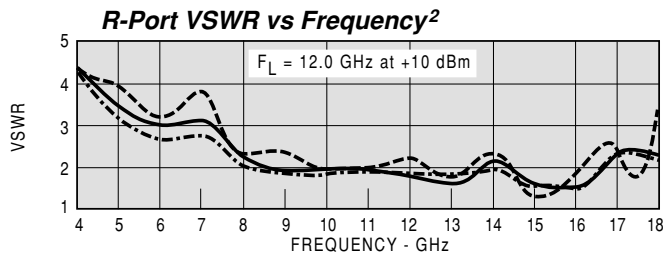
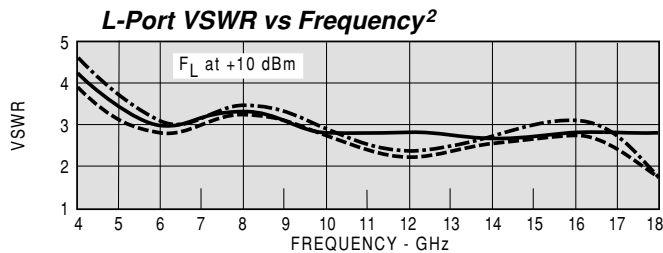
## ABSOLUTE MAXIMUM RATINGS

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

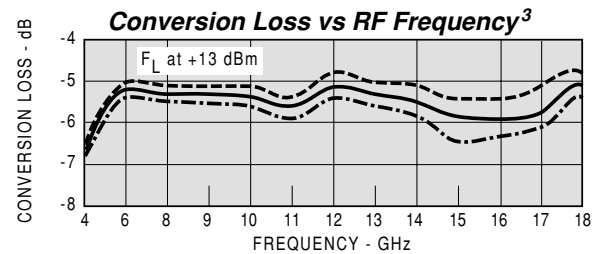
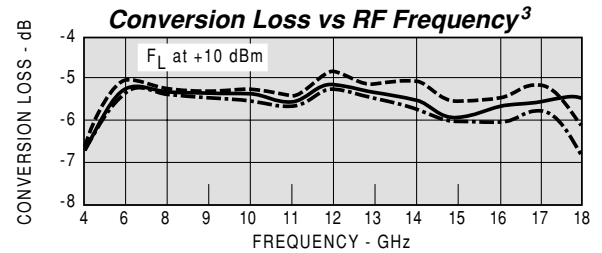
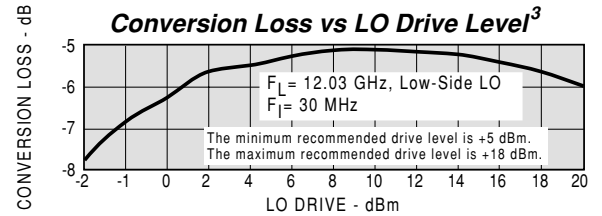
## TYPICAL PERFORMANCE



<sup>1</sup>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.



<sup>2</sup> 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.



<sup>3</sup>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.

