

# IQM11621

## 6.0 TO 10.8 GHz IQ MIXER MODULATOR/DEMODULATOR

Typical Values	IQM11621
LO & RF .....	6.0 - 10.8GHz
IF .....	DC - 0.5 GHz
Third Order I.P. ....	+15.0 dBm
Conversion Loss .....	-9.0 dB
LO Drive (nominal) .....	+10.0 dBm
High Isolation (LO to RF) .....	30.0 dB
Standard Mixer Carrier	

### SPECIFICATIONS\*

Parameter	Port	Frequency (GHz)	Typ. (dB)	Guaranteed Max. (dB) -55 to +85 °C
<b>SSB Conversion Loss and SSB Noise Figure</b>	$f_R$	6.0 to 9.0	8.5	9.5
	$f_L$	6.0 to 9.0	8.5	9.5
	$f_I$	DC to 0.5	8.5	9.5
	$f_R$	9.0 to 10.8	9.0	10.0
	$f_L$	9.0 to 10.8	9.0	10.0
	$f_I$	DC to 0.5	9.0	10.0
<b>Conversion Comp. Desensitization</b>	$f_R$	Level = +3 dBm	-	1.0
	$f_{R2}$	Level = +2 dBm	-	1.0
<b>Isolation</b>	$f_L$ at R	6.0 to 8.0	Typ. 25	Min. 20
	$f_L$ at I	6.0 to 8.0	40	33
	$f_R$ at I	6.0 to 8.0	27	23
	$f_L$ at R	8.0 to 10.8	32	26
	$f_L$ at I	8.0 to 10.8	45	38
	$f_R$ at I	8.0 to 10.8	33	27
<b>Third Order Intercept</b>		LO = +10 dBm	+15 dBm	—
		LO = +13 dBm	+15 dBm	—
<b>Image Rejection Side Band Suppression</b>		RF = 6.0 to 10.8 GHz IF = 0.5 GHz	28 dB	23 dB
		RF = 6.0 to 10.8 GHz	0.5 dB	0.8 dB
<b>Amplitude Match</b>		RF = 6.0 to 10.8 GHz	0.5 dB	0.8 dB
<b>Phase Match (Demodulation)</b>		RF = 6.0 to 10.8 GHz	5.0°	8.0°
		RF = 6.0 to 7.5 GHz	±8.0°	±12.0°
<b>Phase Match (Modulation)</b>		RF = 7.5 to 10.8 GHz	±15.0°	±22.0°
		RF = 6.0 to 10.8 GHz	-13 dB	-14.5 dB

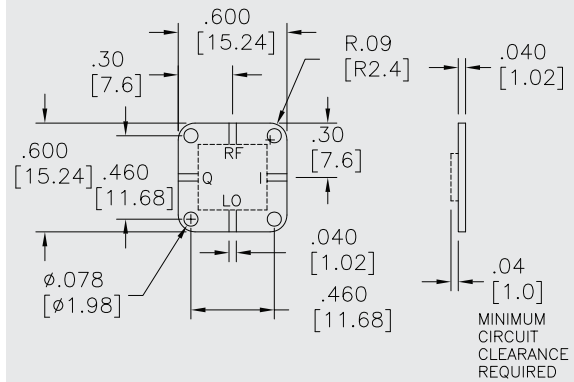
\* Measured in a 50-ohm system with nominal LO drive of +10 dBm as a downconverter.

### 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

### IQM11621

#### Mixer Carrier MC5



DIMENSIONS ARE IN INCHES (MILLIMETERS)

#### Harmonic Intermodulation Products (single tone)

HARMONICS OF $f_R$	HARMONICS OF $f_L$				
	0	1	2	3	4
5	86	83	89	90	92
4	86	84	89	90	93
3	84	89	89	90	90
2	83	89	89	87	84
1	86	75	68	63	77
0	86	73	65	61	74
	71	67	47	61	65
	68	67	43	58	63
	17	0	28	31	56
	18	0	29	33	62
	2	8	30	41	26
	5	10	30	42	31

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

$F_L = 6000$  MHz  
 $F_L @ +13$  dBm

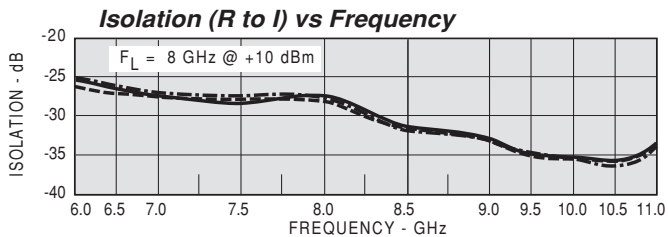
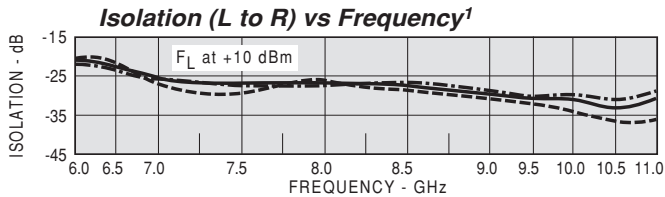
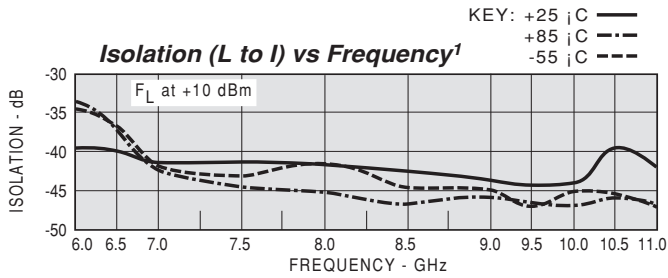
#### Harmonic Intermodulation Products (single tone)

HARMONICS OF $f_R$	HARMONICS OF $f_L$				
	0	1	2	3	4
5	N/A	76	89	90	92
4	N/A	77	89	90	92
3	76	88	90	92	90
2	76	88	90	93	87
1	87	90	92	72	99
0	89	89	90	71	92
	82	79	55	76	76
	80	74	52	71	78
	24	0	42	45	56
	23	0	46	46	53
	24	40	26	31	N/A
	32	42	29	37	N/A

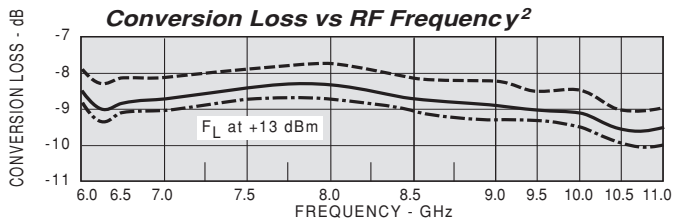
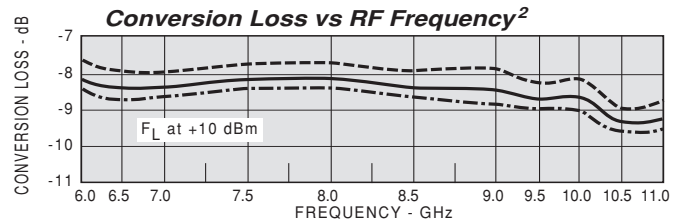
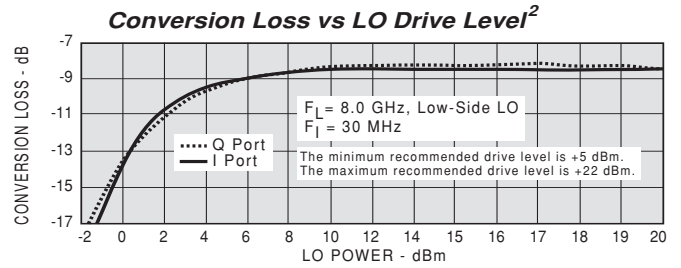
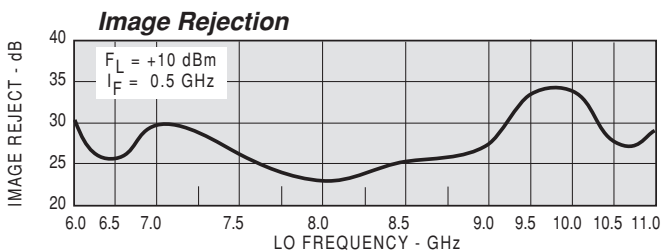
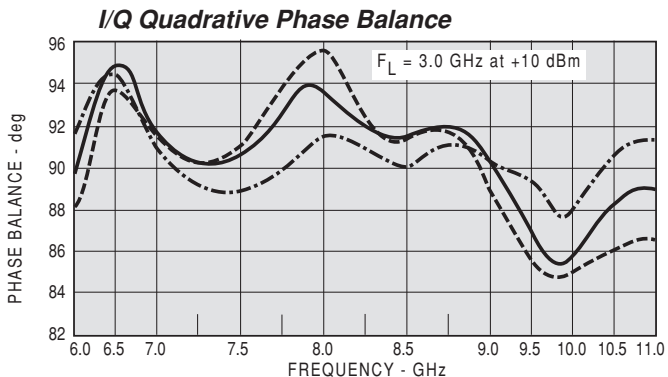
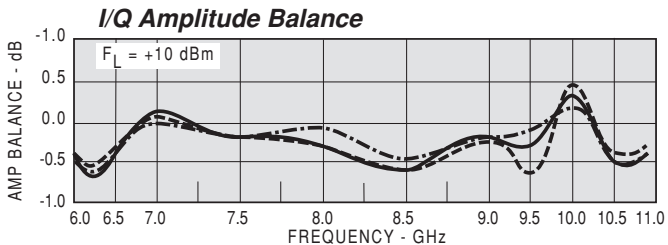
$F_R = 9000$  MHz @ -10 dBm  
 $F_L @ +10$  dBm

$F_L = 9000$  MHz  
 $F_L @ +13$  dBm

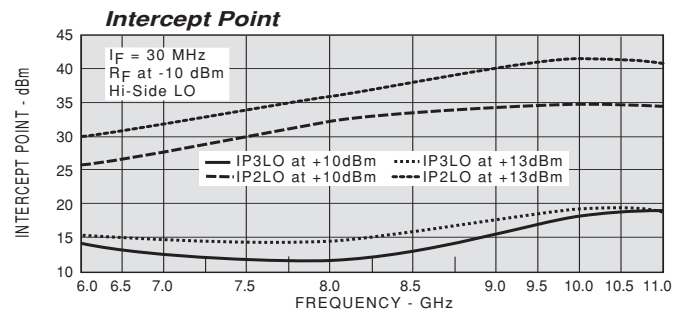
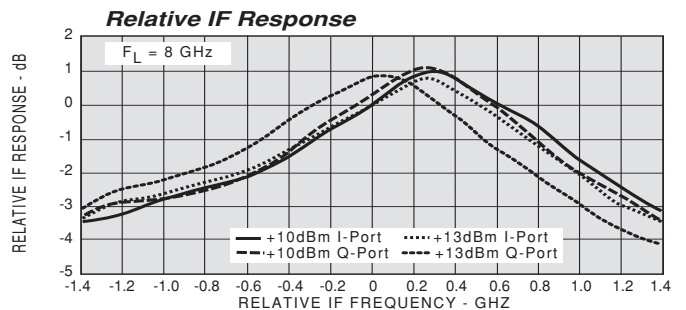
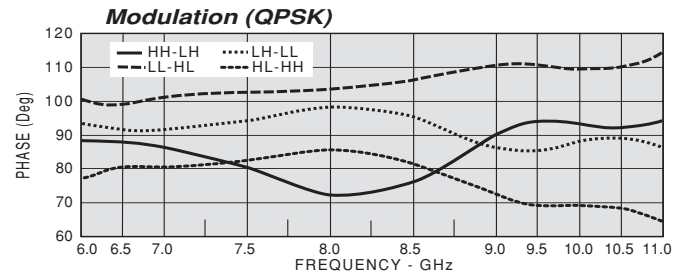
**TYPICAL PERFORMANCE**



<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>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.



P1dB data is available upon request.