Non-Catalog Model

Frequency Mixer LRMS-1WJ

Level 7 (LO Power +7 dBm)

Important Note

This is a non-catalog model and can be manufactured on specific request.
Pricing and delivery information can be supplied upon request.

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CASE STYLE : QQQ569

ELECTRICAL SPECIFICATIONS 50Ω @ +25°C					
Parameter		**Min.**	**Typ.**	**Max.**	**Units**
Frequency	**LO** (fL to fU)	2		750	MHz
	RF (fL to fU)	2		750	MHz
	IF	0		750	MHz
Conversion Loss	**mid band**		5.8	7.5	dB
	Total Range			8.5	dB
LO-RF Isolation	**Low Range**	45	70		dB
	Mid Range	28	45		dB
	Upper Range	22	38		dB
LO-IF Isolation	**Low Range**	45	60		dB
	Mid Range	25	40		dB
	Upper Range	20	30		dB
1 dB Comp. Input Power			+1		dBm

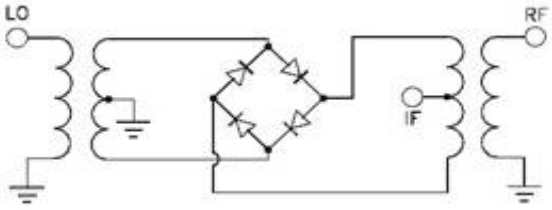
Notes: Low Range = [fL to 10fL] Mid Range = [10fL to fU/2] Upper Range = [fU/2 to fU]
mid band = [2fL to fU/2]

Phase detection, positive polarity.
Aqueous washable.

MAXIMUM RATINGS	
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power	50mW
IF Current	40mA

PIN CONNECTIONS	
LO	1
RF	4
IF	5
GROUND	2, 3, 6

Electrical Schematics



Frequency Mixer LRMS-1WJ

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB) @LO (dBm)		
		+4	+7	+10
2.0	32.0	6.44	6.15	6.06
4.0	34.0	6.24	5.93	5.84
5.0	35.0	6.20	5.89	5.82
10.0	40.0	6.24	5.90	5.79
30.1	60.1	5.99	5.66	5.50
50.1	80.1	6.01	5.69	5.57
70.1	100.1	6.00	5.73	5.58
110.1	140.1	6.11	5.78	5.68
170.1	200.1	6.13	5.83	5.72
190.1	220.1	6.11	5.84	5.72
230.1	260.1	6.07	5.84	5.74
250.1	280.1	6.09	5.82	5.72
290.1	320.1	6.10	5.84	5.72
310.1	340.1	6.09	5.84	5.75
350.1	380.1	6.03	5.76	5.77
370.1	400.1	6.12	5.90	5.80
410.1	440.1	6.25	6.01	5.87
430.1	460.1	6.23	5.96	5.79
470.1	500.1	6.33	6.07	5.95
490.1	520.1	6.33	6.08	5.96
550.1	580.1	6.40	6.13	6.02
590.1	620.1	6.52	6.30	6.20
610.1	640.1	6.60	6.39	6.26
650.1	680.1	6.80	6.56	6.44
670.1	700.1	6.86	6.63	6.52
710.1	740.1	6.97	6.76	6.60
730.1	760.1	7.09	6.84	6.67
770.1	800.1	7.22	6.93	6.75
790.1	820.1	7.25	6.97	6.77
830.1	860.1	7.42	7.09	6.89
850.1	880.1	7.48	7.12	6.96
890.1	920.1	7.63	7.20	7.01
910.1	940.1	7.83	7.37	7.14
950.1	980.1	8.19	7.66	7.38
970.1	1000.1	8.50	7.85	7.57
1010.1	1040.1	8.95	8.35	8.04
1070.1	1100.1	9.70	9.07	8.69
1090.1	1120.1	9.92	9.25	8.91
1130.1	1160.1	10.39	9.77	9.44
1150.1	1180.1	10.70	10.01	9.62

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm) @LO (dBm)		
		+4	+7	+10
10.1	40.1	18.99	21.08	21.36
30.1	60.1	17.10	17.52	17.80
50.1	80.1	18.40	17.17	17.79
70.1	100.1	19.15	18.28	18.28
110.1	140.1	16.26	16.71	23.72
130.1	160.1	16.22	16.80	29.19
170.1	200.1	15.92	19.23	25.28
190.1	220.1	17.24	19.70	24.84
230.1	260.1	17.17	19.18	18.74
250.1	280.1	18.49	20.29	19.40
290.1	320.1	17.01	23.23	24.68
310.1	340.1	24.46	20.51	21.56
350.1	380.1	15.36	16.34	18.49
370.1	400.1	13.41	15.40	16.38
410.1	440.1	16.27	14.87	18.05
430.1	460.1	18.83	18.71	22.25
470.1	500.1	16.22	21.29	19.12
490.1	520.1	16.13	19.67	19.17
530.1	560.1	17.83	21.11	18.53
550.1	580.1	13.87	16.63	19.08
590.1	620.1	12.50	14.05	16.44
610.1	640.1	11.02	13.11	16.57
650.1	680.1	9.26	11.29	13.80
670.1	700.1	8.39	10.64	14.74
710.1	740.1	7.36	9.46	12.54
730.1	760.1	6.98	9.16	11.98
770.1	800.1	6.92	9.57	13.01
790.1	820.1	7.19	10.04	14.21
830.1	860.1	8.20	12.22	16.11
850.1	880.1	9.03	12.84	20.16
890.1	920.1	10.59	16.29	27.84
910.1	940.1	11.48	15.51	18.06
950.1	980.1	13.81	20.68	19.28
970.1	1000.1	14.67	20.93	19.37
1010.1	1040.1	12.90	15.62	16.51
1030.1	1060.1	11.17	14.11	14.57
1070.1	1100.1	8.87	11.15	12.80
1090.1	1120.1	8.38	10.79	12.15
1130.1	1160.1	7.80	9.46	12.12
1150.1	1180.1	7.94	9.66	11.57

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+1dBm (dB) @LO (dBm)		
		+4	+7	+10
10.1	40.1	1.31	1.16	0.78
30.1	60.1	1.32	1.08	0.89
50.1	80.1	1.45	1.04	0.80
70.1	100.1	1.37	1.13	0.77
110.1	140.1	1.33	1.04	0.76
130.1	160.1	1.33	1.06	0.73
170.1	200.1	1.26	1.01	0.66
190.1	220.1	1.30	0.93	0.70
230.1	260.1	1.35	0.93	0.77
250.1	280.1	1.23	0.95	0.72
290.1	320.1	1.25	0.84	0.71
310.1	340.1	1.27	1.02	0.72
350.1	380.1	1.34	0.90	0.74
370.1	400.1	1.27	0.90	0.65
410.1	440.1	1.20	0.76	0.71
430.1	460.1	1.03	0.82	0.67
470.1	500.1	1.18	0.90	0.73
490.1	520.1	1.25	0.96	0.76
530.1	560.1	1.15	0.81	0.57
550.1	580.1	1.23	0.90	0.63
590.1	620.1	1.16	0.98	0.63
610.1	640.1	1.33	0.82	0.61
650.1	680.1	1.63	1.17	0.98
670.1	700.1	1.61	1.19	0.93
710.1	740.1	1.63	1.29	1.05
730.1	760.1	1.72	1.49	1.15
770.1	800.1	1.86	1.42	1.20
790.1	820.1	1.80	1.53	1.27
830.1	860.1	1.94	1.62	1.43
850.1	880.1	2.03	1.69	1.43
890.1	920.1	1.97	1.77	1.47
910.1	940.1	2.11	1.73	1.62
950.1	980.1	1.90	1.71	1.39
970.1	1000.1	1.80	1.64	1.28
1010.1	1040.1	1.50	1.31	1.18
1030.1	1060.1	1.37	1.07	0.91
1070.1	1100.1	1.20	1.01	0.78
1090.1	1120.1	1.16	0.89	0.87
1130.1	1160.1	1.06	0.94	0.81
1150.1	1180.1	1.04	0.90	0.78

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Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=375.1MHz (dB) @LO (dBm) +7
365.0	10.1	6.03
356.1	19.0	6.02
347.3	27.9	5.99
338.4	36.7	5.97
329.5	45.6	5.94
320.6	54.5	5.90
311.8	63.4	5.89
302.9	72.2	5.87
294.0	81.1	5.84
285.1	90.0	5.84
276.3	98.9	5.83
267.4	107.7	5.82
258.5	116.6	5.80
249.6	125.5	5.82
240.8	134.4	5.78
231.9	143.2	5.77
223.0	152.1	5.77
214.1	161.0	5.77
205.3	169.9	5.77
196.4	178.7	5.75
187.5	187.6	5.32
178.6	196.5	5.75
169.8	205.4	5.74
160.9	214.2	5.73
152.0	223.1	5.78
143.1	232.0	5.77
134.3	240.9	5.77
125.4	249.7	5.78
116.5	258.6	5.80
107.6	267.5	5.79
98.8	276.4	5.79
89.9	285.2	5.77
81.0	294.1	5.66
72.1	303.0	5.64
63.3	311.9	5.77
54.4	320.7	5.80
45.5	329.6	5.76
36.6	338.5	5.80
18.9	356.2	5.85
10.0	365.1	5.72

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=10.1MHz (dB) @LO (dBm) +7
10.0	20.1	5.78
28.7	38.8	5.64
47.4	57.5	5.62
66.2	76.3	5.68
84.9	95.0	5.69
103.6	113.7	5.75
122.3	132.4	5.71
141.0	151.1	5.75
159.7	169.8	5.78
178.5	188.6	5.79
197.2	207.3	5.81
215.9	226.0	5.85
234.6	244.7	5.85
253.3	263.4	5.89
272.1	282.2	5.89
290.8	300.9	5.92
309.5	319.6	5.93
328.2	338.3	5.94
346.9	357.0	5.91
365.6	375.7	5.94
384.4	394.5	5.96
403.1	413.2	5.92
421.8	431.9	5.98
440.5	450.6	6.01
459.2	469.3	6.00
477.9	488.0	6.06
496.7	506.8	6.12
515.4	525.5	6.14
534.1	544.2	6.17
552.8	562.9	6.21
571.5	581.6	6.24
590.3	600.4	6.20
609.0	619.1	6.24
627.7	637.8	6.20
646.4	656.5	6.16
665.1	675.2	6.15
683.8	693.9	6.19
702.6	712.7	6.20
721.3	731.4	6.14
740.0	750.1	6.08

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=750.1MHz (dB) @LO (dBm) +7
740.0	10.1	7.31
721.3	28.8	7.30
702.6	47.5	7.22
683.8	66.3	7.15
665.1	85.0	7.09
646.4	103.7	7.05
627.7	122.4	7.04
609.0	141.1	6.99
590.3	159.8	6.94
571.5	178.6	6.91
552.8	197.3	6.94
534.1	216.0	6.90
515.4	234.7	6.90
496.7	253.4	6.86
477.9	272.2	6.84
459.2	290.9	6.86
440.5	309.6	6.96
421.8	328.3	6.94
403.1	347.0	6.91
384.4	365.7	6.91
365.6	384.5	6.98
346.9	403.2	6.99
328.2	421.9	6.99
309.5	440.6	6.99
290.8	459.3	6.95
272.1	478.0	6.94
253.3	496.8	6.93
234.6	515.5	6.90
215.9	534.2	6.88
197.2	552.9	6.88
178.5	571.6	6.90
159.7	590.4	6.93
141.0	609.1	6.94
122.3	627.8	6.92
103.6	646.5	6.90
84.9	665.2	6.91
66.2	683.9	6.91
47.4	702.7	6.86
28.7	721.4	6.88
10.0	740.1	6.78

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LO (MHz)	LO-RF ISOLATION (dB) @LO (dBm)			LO-IF ISOLATION (dB) @LO (dBm)		
	+4	+7	+10	+4	+7	+10
2.0	76.36	77.45	78.57	61.46	62.05	62.37
4.0	76.01	77.30	78.72	61.31	61.60	61.92
5.0	75.18	76.89	78.20	61.28	61.49	61.60
10.0	71.36	74.36	77.17	60.46	60.26	59.90
30.1	61.83	62.72	62.90	56.35	52.56	52.15
50.1	57.32	58.63	58.28	52.53	49.13	47.92
70.1	54.12	54.62	54.97	49.58	46.69	45.41
110.1	49.78	50.12	50.71	45.90	43.60	42.25
170.1	45.44	45.97	46.55	42.64	40.71	39.21
190.1	44.34	44.95	45.35	41.99	40.01	38.56
230.1	42.59	43.13	43.53	40.23	38.45	36.94
250.1	41.72	42.10	42.35	39.41	37.82	36.44
290.1	40.51	41.02	41.27	37.64	36.35	35.13
310.1	39.79	40.31	40.60	36.78	35.67	34.54
350.1	38.21	38.52	38.76	35.13	34.39	33.44
370.1	37.69	37.92	38.19	34.14	33.63	32.76
410.1	37.07	37.25	37.46	32.32	32.29	31.89
430.1	37.05	37.27	37.37	31.18	31.20	30.98
470.1	36.77	36.98	36.94	29.84	29.85	29.71
490.1	36.50	36.66	36.56	29.28	29.30	29.19
550.1	35.15	35.11	34.93	28.08	28.12	28.01
590.1	34.07	34.26	34.29	27.60	27.83	27.55
610.1	33.41	33.69	33.81	27.18	27.58	27.25
650.1	32.57	33.04	33.36	26.26	27.10	26.87
670.1	32.19	32.73	33.12	25.67	26.84	26.91
710.1	31.67	32.31	32.84	24.57	25.97	26.53
730.1	31.65	32.37	32.97	23.99	25.47	26.18
770.1	31.60	32.41	33.07	23.09	24.52	25.41
790.1	31.59	32.42	33.04	22.57	23.91	24.78
830.1	31.40	32.12	32.51	21.64	22.83	23.64
850.1	31.12	31.69	31.96	21.17	22.25	23.05
890.1	30.02	30.33	30.44	20.56	21.49	22.26
910.1	29.51	29.73	29.79	20.11	20.98	21.75
950.1	28.43	28.40	28.35	19.86	20.63	21.38
970.1	27.88	27.75	27.65	19.71	20.45	21.18
1010.1	26.94	26.64	26.50	19.72	20.45	21.17
1070.1	26.04	25.57	25.34	19.86	20.80	21.59
1090.1	25.70	25.25	25.03	19.56	20.64	21.49
1130.1	25.05	24.66	24.43	19.24	20.60	21.64
1150.1	24.64	24.32	24.12	19.11	20.64	21.83

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB) @LO (dBm)		
		+4	+7	+10
10.1	40.1	34.96	34.93	33.54
30.1	60.1	35.76	40.36	36.20
50.1	80.1	34.37	33.30	33.89
70.1	100.1	31.98	31.62	31.60
110.1	140.1	28.28	28.34	28.40
130.1	160.1	27.18	27.18	27.41
170.1	200.1	25.73	25.79	25.86
190.1	220.1	25.36	25.48	25.50
230.1	260.1	24.61	24.69	24.81
250.1	280.1	24.61	24.59	24.69
290.1	320.1	24.92	25.03	25.16
310.1	340.1	24.77	25.21	25.58
350.1	380.1	24.77	25.29	25.64
370.1	400.1	24.81	25.14	25.29
410.1	440.1	25.07	25.10	25.09
430.1	460.1	25.32	25.41	25.44
470.1	500.1	24.09	24.59	25.05
490.1	520.1	22.84	23.45	24.03
530.1	560.1	20.10	20.59	20.98
550.1	580.1	18.81	19.18	19.55
590.1	620.1	16.89	17.09	17.30
610.1	640.1	16.14	16.28	16.42
650.1	680.1	15.05	15.08	15.16
670.1	700.1	14.60	14.61	14.69
710.1	740.1	13.84	13.83	13.89
730.1	760.1	13.54	13.49	13.54
770.1	800.1	13.05	13.00	13.03
790.1	820.1	12.85	12.81	12.86
830.1	860.1	12.53	12.54	12.68
850.1	880.1	12.44	12.51	12.67
890.1	920.1	12.27	12.45	12.74
910.1	940.1	12.20	12.44	12.77
950.1	980.1	11.93	12.25	12.64
970.1	1000.1	11.73	12.04	12.41
1010.1	1040.1	11.42	11.63	11.84
1030.1	1060.1	11.28	11.47	11.65
1070.1	1100.1	11.07	11.31	11.49
1090.1	1120.1	10.94	11.20	11.38
1130.1	1160.1	10.54	10.83	11.00
1150.1	1180.1	10.30	10.58	10.74

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Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1) @LO (dBm)		
		+4	+7	+10
2.0	32.0	1.68	2.41	3.33
4.0	34.0	1.64	2.36	3.28
5.0	35.0	1.70	2.47	3.42
10.0	40.0	1.64	2.39	3.32
30.1	60.1	1.02	1.06	1.09
50.1	80.1	1.07	1.04	1.10
70.1	100.1	1.06	1.03	1.10
110.1	140.1	1.04	1.11	1.15
130.1	160.1	1.07	1.11	1.16
170.1	200.1	1.01	1.08	1.13
190.1	220.1	1.06	1.12	1.17
230.1	260.1	1.08	1.13	1.19
250.1	280.1	1.09	1.15	1.21
290.1	320.1	1.14	1.21	1.26
310.1	340.1	1.14	1.21	1.28
350.1	380.1	1.16	1.24	1.30
370.1	400.1	1.17	1.25	1.30
410.1	440.1	1.19	1.26	1.31
430.1	460.1	1.23	1.29	1.34
470.1	500.1	1.29	1.37	1.42
490.1	520.1	1.33	1.41	1.47
550.1	580.1	1.43	1.53	1.61
590.1	620.1	1.46	1.56	1.63
610.1	640.1	1.47	1.57	1.63
650.1	680.1	1.47	1.56	1.62
670.1	700.1	1.46	1.54	1.59
710.1	740.1	1.44	1.51	1.56
730.1	760.1	1.43	1.48	1.53
770.1	800.1	1.43	1.47	1.50
790.1	820.1	1.44	1.47	1.52
830.1	860.1	1.51	1.54	1.58
850.1	880.1	1.58	1.61	1.64
890.1	920.1	1.76	1.78	1.81
910.1	940.1	1.85	1.87	1.90
950.1	980.1	2.10	2.09	2.10
970.1	1000.1	2.22	2.21	2.21
1010.1	1040.1	2.44	2.42	2.42
1070.1	1100.1	2.79	2.75	2.73
1090.1	1120.1	2.86	2.82	2.80
1130.1	1160.1	3.07	3.03	2.99
1150.1	1180.1	3.08	3.05	3.02

LO (MHz)	LO VSWR (:1) @LO (dBm)		
	+4	+7	+10
2.0	1.14	1.16	1.20
4.0	1.06	1.10	1.15
5.0	1.01	1.08	1.14
10.0	1.03	1.09	1.14
30.1	1.86	2.71	3.73
50.1	1.86	2.70	3.76
70.1	1.81	2.59	3.60
110.1	1.82	2.59	3.54
130.1	1.84	2.64	3.62
170.1	1.81	2.59	3.56
190.1	1.83	2.61	3.57
230.1	1.87	2.65	3.61
250.1	1.84	2.60	3.53
290.1	1.87	2.61	3.53
310.1	1.89	2.63	3.55
350.1	1.90	2.66	3.57
370.1	1.94	2.71	3.63
410.1	1.96	2.71	3.60
430.1	1.97	2.70	3.58
470.1	2.01	2.73	3.61
490.1	1.98	2.68	3.52
550.1	2.04	2.74	3.60
590.1	2.04	2.72	3.53
610.1	2.07	2.75	3.55
650.1	2.12	2.80	3.60
670.1	2.09	2.73	3.50
710.1	2.11	2.74	3.50
730.1	2.13	2.78	3.56
770.1	2.12	2.73	3.47
790.1	2.12	2.73	3.47
830.1	2.14	2.75	3.48
850.1	2.12	2.69	3.40
890.1	2.16	2.72	3.40
910.1	2.18	2.74	3.43
950.1	2.22	2.76	3.42
970.1	2.26	2.80	3.45
1010.1	2.31	2.82	3.47
1070.1	2.35	2.82	3.43
1090.1	2.35	2.81	3.41
1130.1	2.39	2.83	3.42
1150.1	2.41	2.86	3.46

IF (OUT) (MHz)	IF VSWR @LO=750.1MHz (:1) @LO (dBm)		
	+4	+7	+10
5.0	1.39	1.24	1.14
10.0	1.40	1.25	1.15
28.8	1.92	1.69	1.48
47.5	1.92	1.65	1.43
66.3	1.98	1.72	1.51
85.0	1.97	1.71	1.49
103.7	1.92	1.70	1.51
122.4	1.92	1.72	1.53
141.1	1.95	1.71	1.54
159.8	2.03	1.79	1.58
178.6	2.01	1.77	1.60
197.3	1.99	1.78	1.61
216.0	1.96	1.77	1.62
234.7	1.95	1.77	1.60
253.4	1.96	1.77	1.62
272.2	1.96	1.78	1.64
290.9	1.92	1.77	1.65
309.6	1.91	1.78	1.67
328.3	1.95	1.81	1.70
347.0	1.95	1.83	1.72
365.7	1.93	1.83	1.72
384.5	1.93	1.84	1.76
403.2	1.93	1.85	1.78
421.9	1.93	1.86	1.78
440.6	1.93	1.87	1.81
459.3	1.93	1.88	1.83
478.0	1.93	1.88	1.84
496.8	1.93	1.89	1.87
515.5	1.93	1.90	1.88
534.2	1.93	1.92	1.90
552.9	1.95	1.93	1.93
571.6	1.95	1.95	1.95
590.4	1.97	1.96	1.97
609.1	1.97	1.97	1.98
627.8	1.98	1.97	1.99
646.5	2.00	1.99	2.00
665.2	2.01	2.00	2.02
683.9	2.01	2.00	2.02
702.7	2.02	2.00	2.00
721.4	2.01	1.99	2.01
740.1	2.01	1.98	2.01

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Harmonics Tables

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	6	23	7	26	13	27	26	39	41	42
1	-	19	0	26	11	32	18	37	40	41	48	37
2	112	61	47	56	46	64	45	54	50	70	60	63
3	110	69	61	69	63	68	58	72	66	73	82	74
4	126	90	89	88	92	84	94	92	83	88	93	94
5	114	105	93	95	96	94	83	101	94	101	97	113
6	120	110	100	106	101	97	87	96	105	96	104	105
7	115	113	116	126	104	96	105	89	105	97	93	98
8	112	119	113	106	110	110	102	89	84	87	98	95
9	112	104	105	118	110	106	104	109	96	91	99	98
10	114	119	107	125	116	99	112	101	103	96	83	89
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:
RF IN: 370.1 MHz; -14.00 dBm.
LO IN: 400.01 MHz; +7.00 dBm
IF OUT: 29.91 MHz; -20.05 dBm

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	15	32	19	43	25	40	39	52	60	63
1	-	19	0	28	12	32	19	41	41	47	52	45
2	112	53	39	52	39	56	40	50	45	55	52	66
3	121	56	44	54	46	51	40	67	44	54	61	57
4	114	62	69	63	58	63	56	77	50	62	60	77
5	113	83	64	66	59	71	56	79	56	67	62	76
6	123	95	73	81	77	81	77	83	72	85	90	81
7	119	81	90	85	72	76	73	79	75	78	70	85
8	113	98	109	97	91	90	93	93	98	89	82	94
9	109	99	101	96	100	93	84	86	84	86	84	90
10	113	99	103	108	112	116	96	94	94	98	97	102
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:
RF IN: 370.1 MHz; -4.00 dBm.
LO IN: 400.01 MHz; +7.00 dBm
IF OUT: 29.91 MHz; -10.06 dBm

Notes: 1. All Harmonics are in (dBc) relative to IF OUTPUT.
2. + entry denotes harmonics are in (dBc) above IF OUTPUT.
3. RF Cal represent the Harmonics level of the RF input signal to the mixer.

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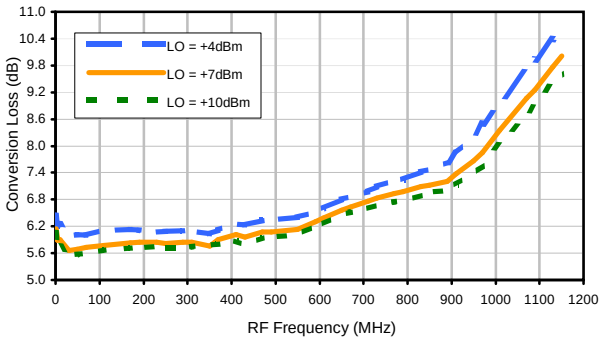
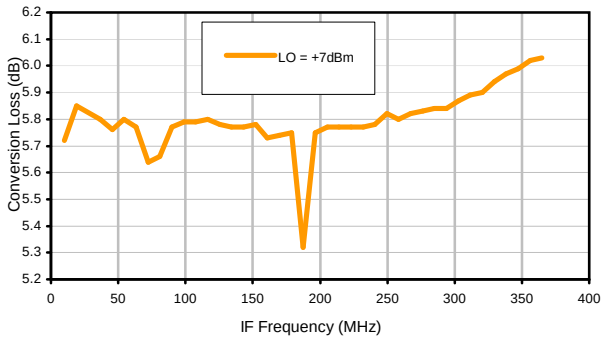
Typical Performance Curves

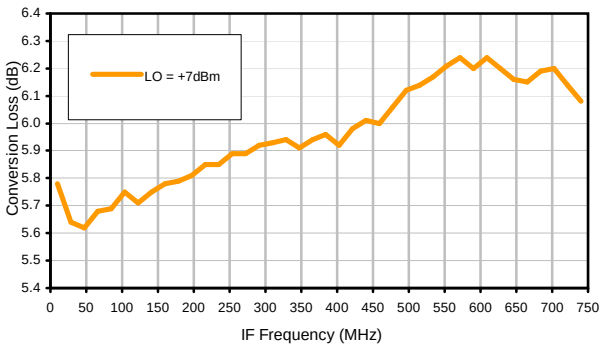
Conversion Loss @ IF=30MHz



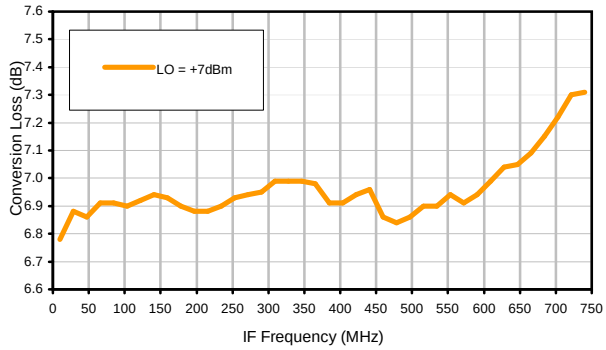
Conversion Loss vs. IF @ RF=375.1MHz



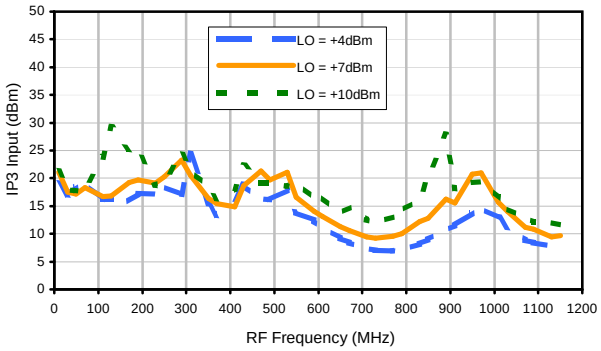
Conversion Loss vs. IF @ RF=10.1MHz



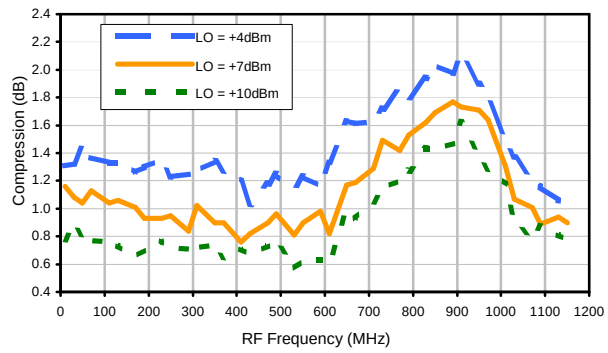
Conversion Loss vs. IF @ RF=750.1MHz



IP3 Input



Compression @ RF IN=+1dBm



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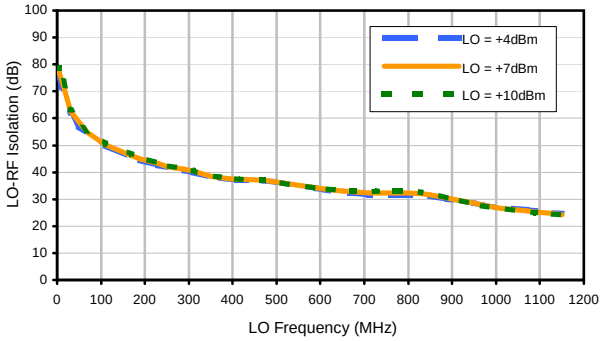
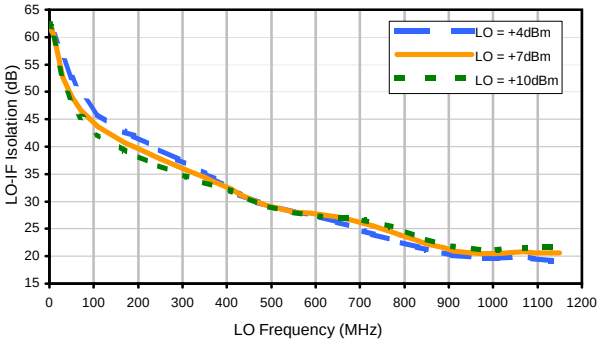
Typical Performance Curves

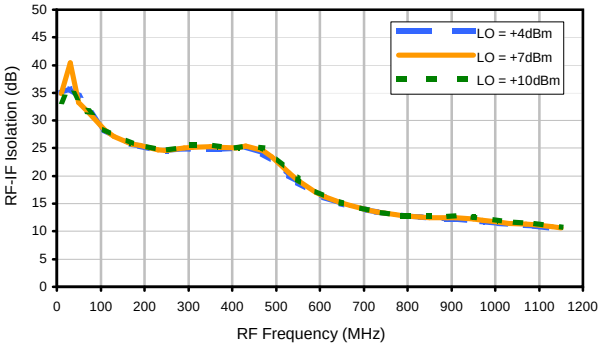
LO-RF Isolation



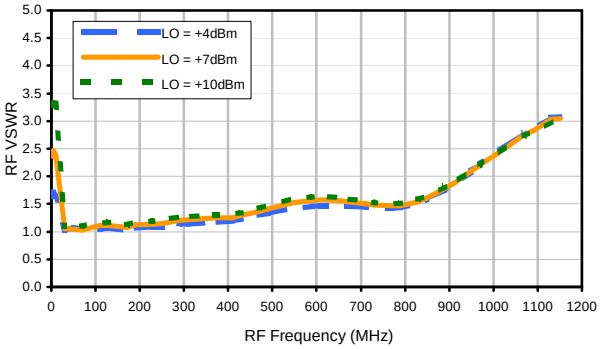
LO-IF Isolation



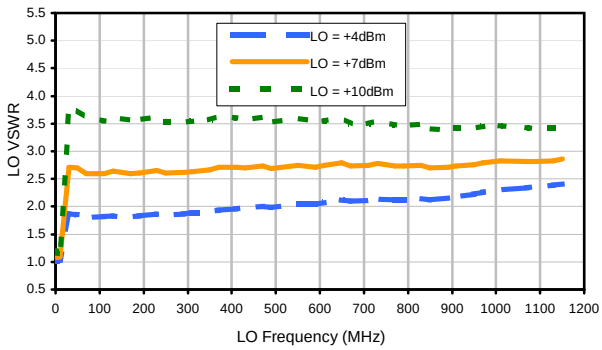
RF-IF Isolation



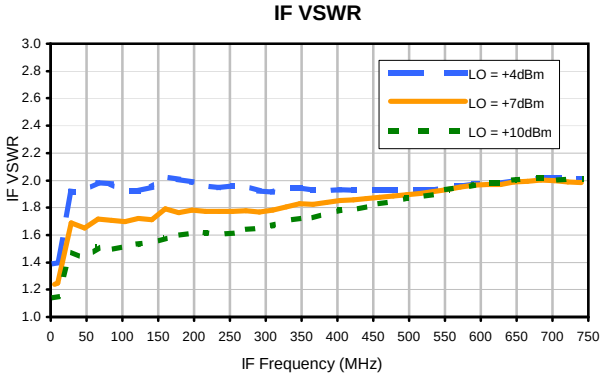
RF VSWR



LO VSWR



IF VSWR



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Harmonics Tables

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0	-	-	6	23	7	26	13	27	26	39	41	42
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5	114	105	93	95	96	94	83	101	94	101	97	113
6	120	110	100	106	101	97	87	96	105	96	104	105
7	115	113	116	126	104	96	105	89	105	97	93	98
8	112	119	113	106	110	110	102	89	84	87	98	95
9	112	104	105	118	110	106	104	109	96	91	99	98
10	114	119	107	125	116	99	112	101	103	96	83	89
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:
RF IN: 370.1 MHz; -14.00 dBm.
LO IN: 400.01 MHz; +7.00 dBm
IF OUT: 29.91 MHz; -20.05 dBm

RF HARMONICS ORDER	(-dBm)	(-dBc)										
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2	112	53	39	52	39	56	40	50	45	55	52	66
3	121	56	44	54	46	51	40	67	44	54	61	57
4	114	62	69	63	58	63	56	77	50	62	60	77
5	113	83	64	66	59	71	56	79	56	67	62	76
6	123	95	73	81	77	81	77	83	72	85	90	81
7	119	81	90	85	72	76	73	79	75	78	70	85
8	113	98	109	97	91	90	93	93	98	89	82	94
9	109	99	101	96	100	93	84	86	84	86	84	90
10	113	99	103	108	112	116	96	94	94	98	97	102
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:
RF IN: 370.1 MHz; -4.00 dBm.
LO IN: 400.01 MHz; +7.00 dBm
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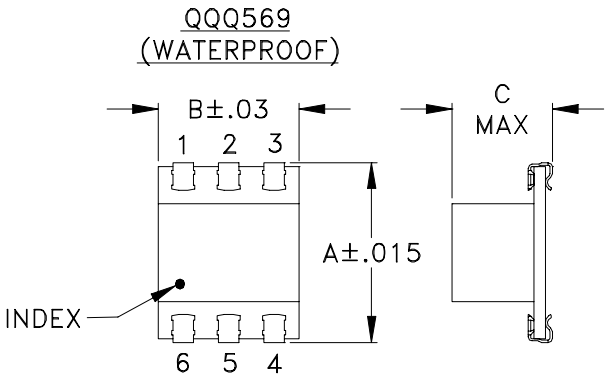
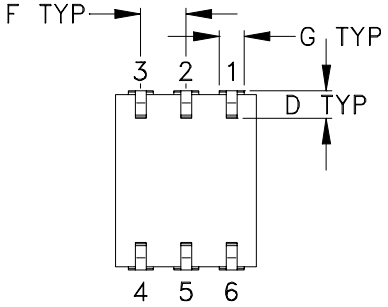
Case Style QQQ

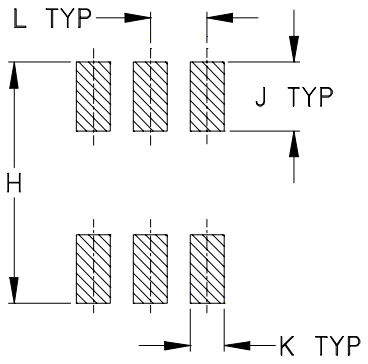
QQQ569 (waterproof)

Outline Dimensions





PCB Land Pattern



Suggested Layout,
Tolerance to be within ±.002

CASE#	A	B	C	D	E	F	G	H	J	K	L	M	WT, GRAM
QQQ569	.390 (9.90)	.31 (7.87)	.225 (5.72)	.060 (1.52)	-	.100 (2.54)	.045 (1.14)	.420 (10.67)	.120 (3.05)	.060 (1.52)	.100 (2.54)	-	.50

Dimensions are in inches (mm). Tolerances: 2 Pl. ± .01; 3 Pl. ± .005

Notes:

1. Case material: Ceramic.
2. Termination finish:
   For RoHS Case Styles: Tin plate over Nickel plate.
   For RoHS-5 Case Styles: Tin-Lead plate.

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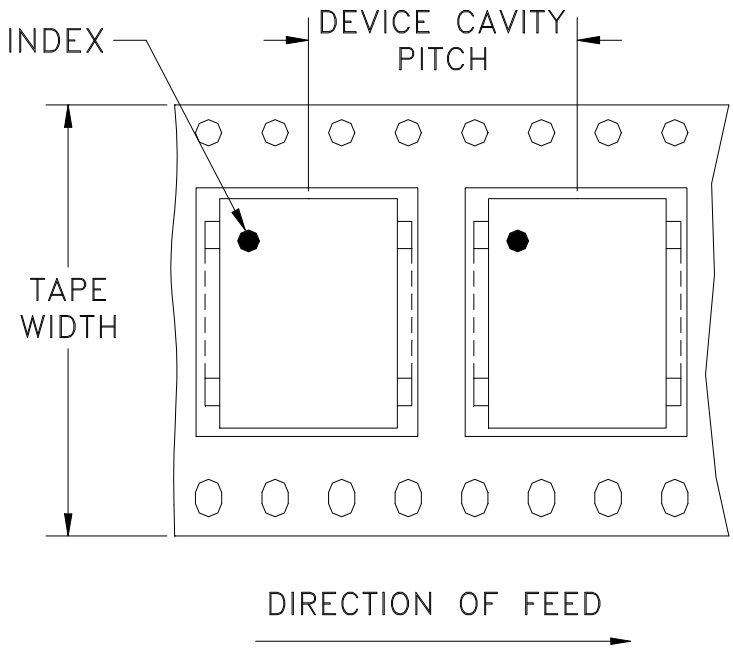
Tape & Reel Packaging TR-F5

DEVICE ORIENTATION IN T&R



Tape Width, mm	Device Cavity Pitch, mm	Reel Size, inches	Devices per Reel
32	16	13	500

Mini-Circuits carrier tape materials provide protection from ESD (Electro-Static Discharge) during handling and transportation. Tapes are static dissipative and comply with industry standards EIA-481/EIA-541.

Go to: www.minicircuits.com/pages/pdfs/tape.pdf

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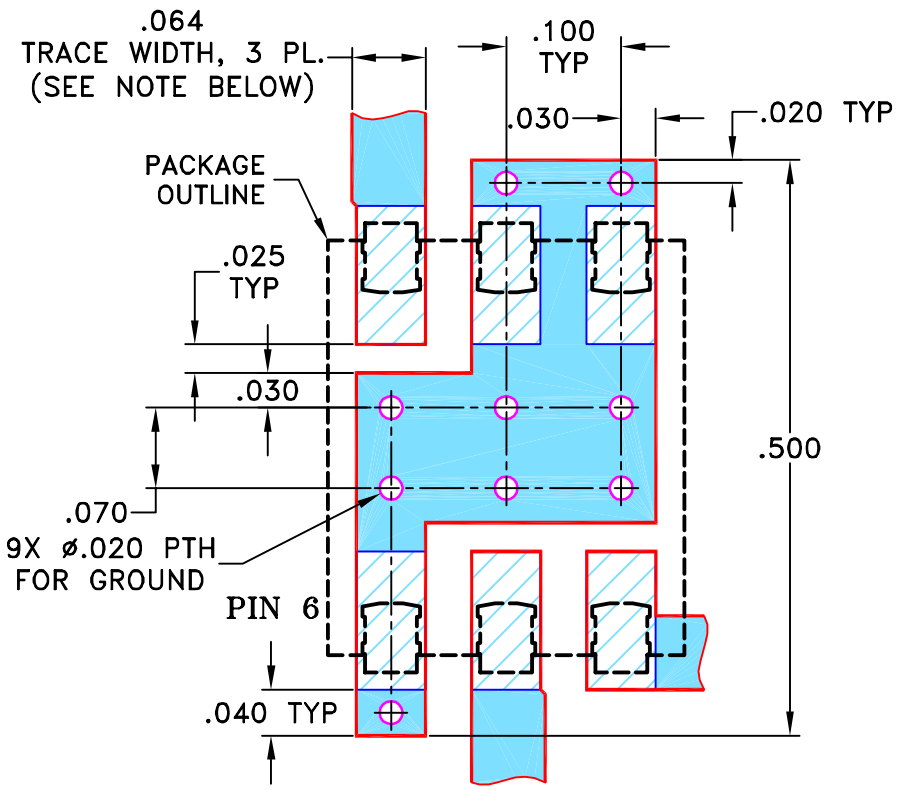
THIRD ANGLE PROJECTION

REVISIONS					
REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	M82272	NEW RELEASE	08/02/02	AV	DJ
A	M102713	UPDATED NOTES	01/14/06	GF	IL

SUGGESTED MOUNTING CONFIGURATION FOR QQQ569 CASE STYLE, "w" PIN CONNECTION



NOTES: 1.TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS 0.030" ± 0.002"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.

2.BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)

DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

UNLESS OTHERWISE SPECIFIED		INITIALS	DATE
DIMENSIONS ARE IN INCHES	DRAWN	AV	07/19/02
TOLERANCES ON:	CHECKED	WL	08/02/02
2 PL DECIMALS ±	APPROVED	DJ	08/02/02
3 PL DECIMALS ± .005			
ANGLES ±			
FRACTIONS ±			

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ASHEETA1.DWG REV:A DATE:01/12/95

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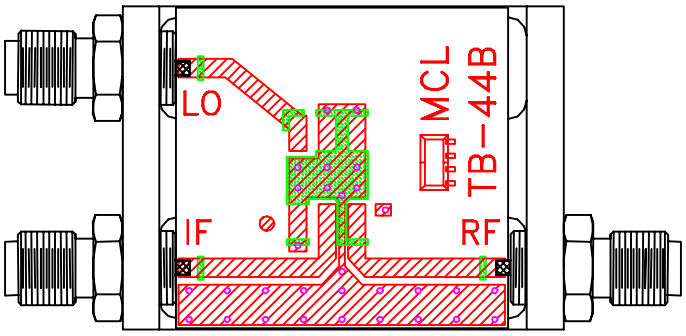
PL, w, QQQ569, LRMS-J, TB-44

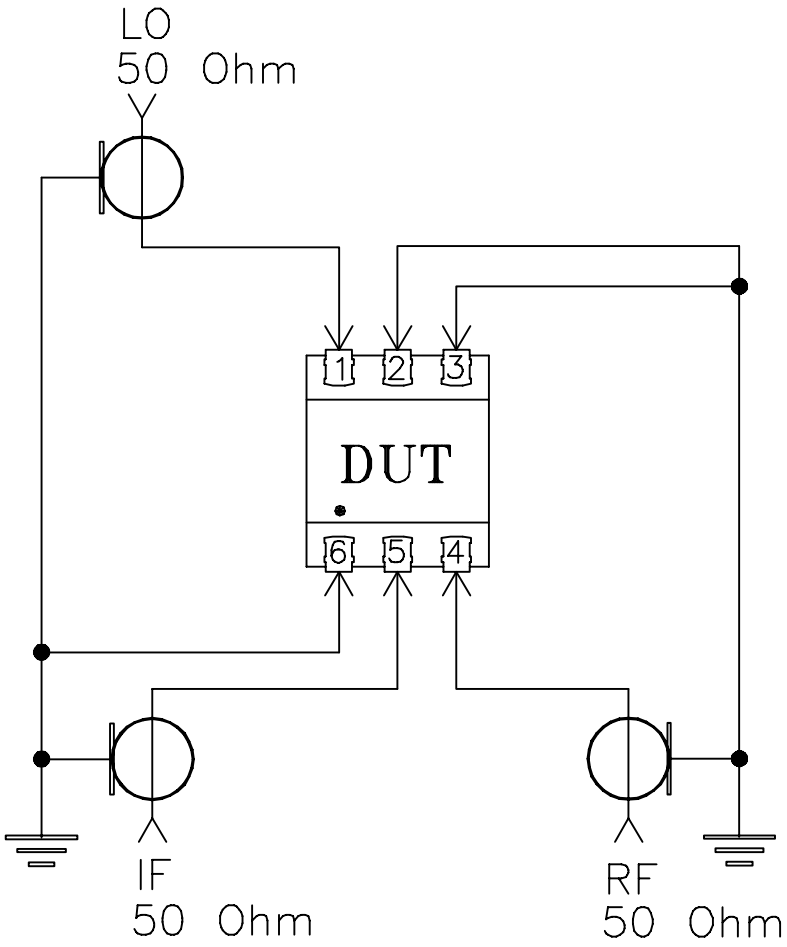
SIZE	CODE IDENT	DRAWING NO:	REV:
A	15542	98-PL-083	A

FILE:	SCALE:	SHEET:
98PL083	6:1	1 OF 1

Evaluation Board and Circuit



TB-44+



Schematic Diagram

Notes:

1. SMA Female connectors.
2. PCB Material: Rogers RO4350 or equivalent, Dielectric Constant=3.5, Thickness=.030 inch.

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