

Frequency Mixer

LRMS-25J+

Level 10 (LO Power +10dBm) 750 to 2500 MHz

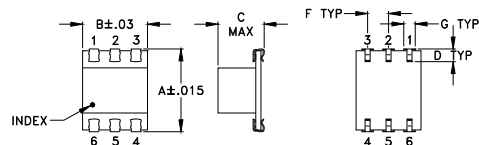
Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power	50mW
IF Current	40mA
Permanent damage may occur if any of these limits are exceeded.	

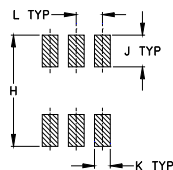
Pin Connections

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

Outline Drawing



PCB Land Pattern

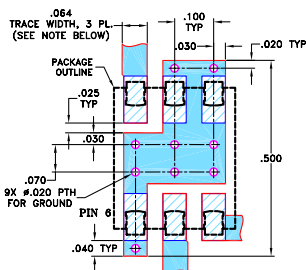


Suggested Layout,
Tolerance to be within ±.002

Outline Dimensions (inch)

A	B	C	D	E	F	G
.390	.31	.225	.060	--	.100	.045
9.91	7.87	5.72	1.52	--	2.54	1.14
H	J	K	L	M	wt	
.420	.120	.060	.100	--	grams	
10.67	3.05	1.52	2.54	--	0.50	

Demo Board MCL P/N: TB-44+ Suggested PCB Layout (PL-083)



- 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.
3. DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
4. DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

Notes

- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp

Features

- low conversion loss, 5.2 dB typ.
- aqueous washable
- J-leads for strain relief

Applications

- PCS
- GPS
- satellite distribution



Generic photo used for illustration purposes only

CASE STYLE: QQQ569

+RoHS Compliant

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

Electrical Specifications

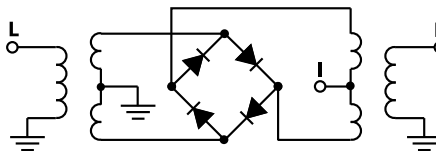
FREQUENCY (MHz)	CONVERSION LOSS (dB)	LO-RF ISOLATION (dB)	LO-IF ISOLATION (dB)	IP3 at center band (dBm)
LO/RF $f_L - f_U$	IF			
750-2500	DC-600	5.2 σ Max.	Typ. Min.	Typ. Min.
		35 17	20 7	18

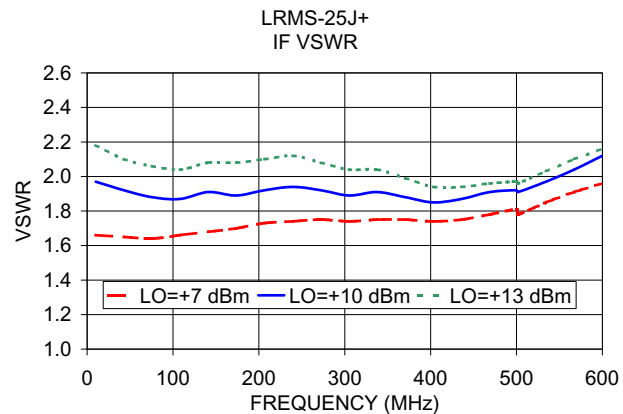
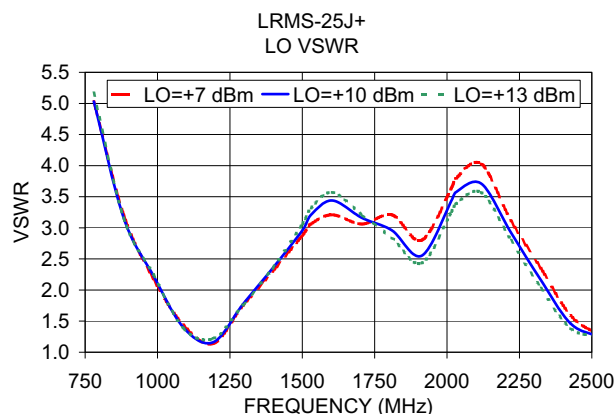
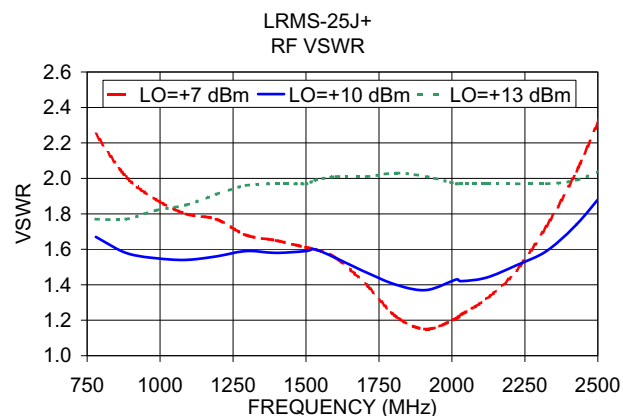
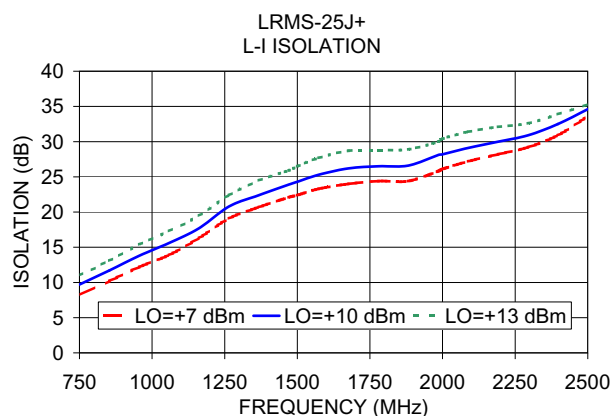
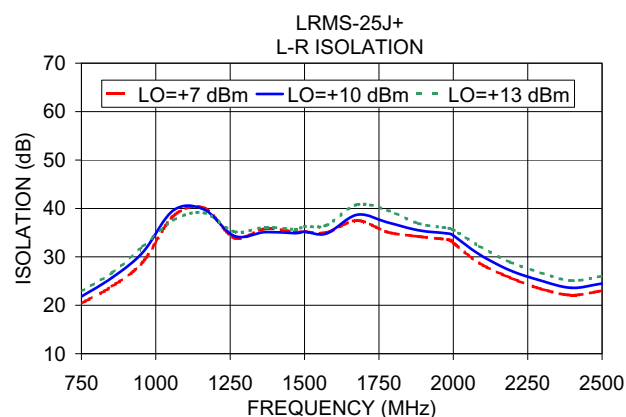
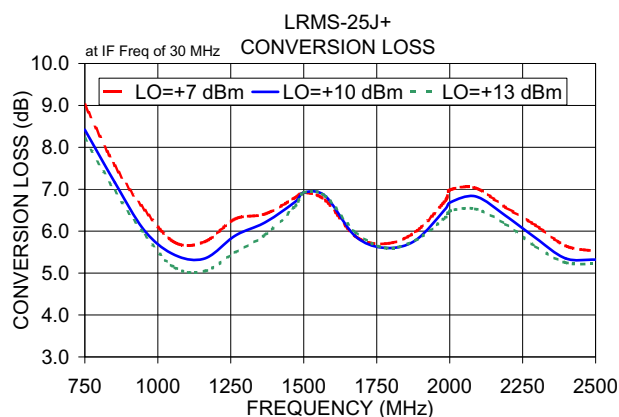
1 dB COMP.: +5 dBm typ.

Typical Performance Data

Frequency (MHz)	Conversion Loss (dB)	Isolation L-R (dB)	Isolation L-I (dB)	VSWR RF Port (:1)	VSWR LO Port (:1)
RF	LO	LO +10dBm	LO +10dBm	LO +10dBm	LO +10dBm
750.00	780.00	8.42	21.80	9.70	1.67
852.94	882.94	7.16	25.70	11.70	1.58
955.88	985.88	6.00	30.90	13.80	1.55
1058.82	1088.82	5.43	39.60	15.60	1.54
1161.77	1191.77	5.35	39.80	17.70	1.56
1264.71	1294.71	5.89	34.30	20.80	1.59
1367.65	1397.65	6.21	35.10	22.40	1.58
1470.59	1500.59	6.70	34.90	23.90	1.59
1500.00	1530.00	6.92	35.20	24.30	1.60
1573.53	1603.53	6.84	34.80	25.30	1.55
1676.47	1706.47	5.88	38.70	26.20	1.47
1779.41	1809.41	5.60	37.10	26.50	1.40
1882.35	1912.35	5.78	35.50	26.60	1.37
1985.29	2015.29	6.53	34.80	28.10	1.43
2000.00	2030.00	6.68	34.40	28.20	1.42
2088.24	2118.24	6.83	30.50	29.10	1.44
2191.18	2221.18	6.37	27.20	30.00	1.51
2294.12	2324.12	5.84	25.10	30.90	1.59
2397.06	2427.06	5.35	23.60	32.50	1.74
2500.00	2530.00	5.32	24.50	34.60	1.94

Electrical Schematic





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Frequency Mixer

LRMS-25J+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB)		
		@LO (dBm)		
		+7	+10	+13
600.0	630.0	11.48	10.54	10.17
660.0	690.0	10.46	9.67	9.40
720.0	750.0	9.79	8.97	8.64
780.0	810.0	9.15	8.35	7.96
860.0	890.0	8.33	7.67	7.33
920.0	950.0	7.67	7.07	6.75
1000.0	1030.0	6.95	6.49	6.18
1060.0	1090.0	6.49	6.07	5.73
1140.0	1170.0	6.19	5.69	5.22
1200.0	1230.0	5.99	5.48	5.02
1280.0	1310.0	5.94	5.41	5.01
1340.0	1370.0	6.19	5.56	5.17
1420.0	1450.0	6.09	5.68	5.45
1480.0	1510.0	6.25	5.97	5.81
1560.0	1590.0	6.18	6.23	6.27
1620.0	1650.0	5.63	5.63	5.69
1700.0	1730.0	5.57	5.54	5.59
1760.0	1790.0	5.56	5.47	5.50
1840.0	1870.0	5.54	5.40	5.40
1900.0	1930.0	5.64	5.45	5.40
1980.0	2010.0	5.53	5.40	5.42
2040.0	2070.0	5.93	5.76	5.72
2120.0	2150.0	7.36	6.55	6.12
2180.0	2210.0	7.27	6.54	6.19
2260.0	2290.0	6.83	6.21	5.97
2320.0	2350.0	6.48	5.97	5.75
2400.0	2430.0	6.00	5.60	5.47
2460.0	2490.0	6.07	5.57	5.40
2540.0	2570.0	6.01	5.56	5.37
2600.0	2630.0	5.79	5.49	5.39
2680.0	2710.0	5.74	5.38	5.26
2740.0	2770.0	6.04	5.61	5.45
2820.0	2850.0	6.54	6.14	6.00
2880.0	2910.0	6.93	6.75	6.71
2960.0	2990.0	7.32	7.20	7.28
3020.0	3050.0	7.76	7.45	7.48
3100.0	3130.0	8.49	8.07	8.09
3160.0	3190.0	9.41	8.79	8.76
3240.0	3270.0	10.51	9.65	9.60
3300.0	3330.0	11.40	10.43	10.30

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm)		
		@LO (dBm)		
		+7	+10	+13
600.0	630.0	7.48	10.49	14.75
660.0	690.0	5.36	6.98	9.71
720.0	750.0	6.81	9.03	9.62
780.0	810.0	10.23	12.36	10.50
860.0	890.0	10.62	13.14	13.88
920.0	950.0	9.05	10.06	11.07
1000.0	1030.0	9.32	8.91	8.26
1060.0	1090.0	9.04	7.64	6.15
1140.0	1170.0	8.79	6.94	7.18
1200.0	1230.0	7.17	6.81	8.83
1280.0	1310.0	6.41	7.26	9.48
1340.0	1370.0	9.52	10.64	12.99
1420.0	1450.0	10.62	15.10	17.82
1480.0	1510.0	12.35	16.09	18.75
1560.0	1590.0	16.28	19.47	20.61
1620.0	1650.0	15.70	16.93	17.29
1700.0	1730.0	19.81	16.71	17.34
1760.0	1790.0	15.01	18.16	17.21
1840.0	1870.0	10.83	14.50	19.29
1900.0	1930.0	12.97	13.28	14.97
1980.0	2010.0	11.89	13.56	15.39
2040.0	2070.0	9.55	12.28	15.43
2120.0	2150.0	15.24	20.58	22.00
2180.0	2210.0	15.26	15.72	16.82
2260.0	2290.0	14.74	15.78	17.08
2320.0	2350.0	11.92	13.85	15.22
2400.0	2430.0	10.49	12.04	13.72
2460.0	2490.0	12.22	13.39	14.40
2540.0	2570.0	10.83	12.91	14.21
2600.0	2630.0	10.70	12.06	13.24
2680.0	2710.0	10.08	11.85	13.05
2740.0	2770.0	9.91	11.90	13.55
2820.0	2850.0	11.93	13.72	15.40
2880.0	2910.0	13.15	14.15	16.03
2960.0	2990.0	15.54	14.22	15.89
3020.0	3050.0	11.04	17.48	15.71
3100.0	3130.0	10.40	13.34	14.82
3160.0	3190.0	13.75	17.10	20.61
3240.0	3270.0	17.29	21.42	22.27
3300.0	3330.0	15.94	24.51	23.66

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+5dBm (dB)		
		@LO (dBm)		
		+7	+10	+13
600.0	630.0	0.87	0.60	0.36
660.0	690.0	1.26	0.95	0.61
720.0	750.0	1.55	1.29	1.05
780.0	810.0	1.79	1.52	1.27
860.0	890.0	2.07	1.87	1.65
920.0	950.0	2.34	2.17	1.95
1000.0	1030.0	2.47	2.17	1.95
1060.0	1090.0	2.62	2.26	1.96
1140.0	1170.0	2.64	2.31	2.03
1200.0	1230.0	2.84	2.38	2.00
1280.0	1310.0	2.73	2.31	1.90
1340.0	1370.0	2.38	2.02	1.58
1420.0	1450.0	2.45	1.87	1.45
1480.0	1510.0	2.08	1.62	1.31
1560.0	1590.0	1.49	1.09	0.83
1620.0	1650.0	1.43	1.02	0.82
1700.0	1730.0	1.12	0.68	0.57
1760.0	1790.0	0.99	0.61	0.49
1840.0	1870.0	0.87	0.51	0.36
1900.0	1930.0	0.76	0.44	0.31
1980.0	2010.0	1.27	0.81	0.54
2040.0	2070.0	1.81	1.37	1.00
2120.0	2150.0	1.28	1.13	0.92
2180.0	2210.0	1.33	1.05	0.75
2260.0	2290.0	1.50	1.10	0.78
2320.0	2350.0	1.67	1.29	1.00
2400.0	2430.0	1.76	1.33	1.01
2460.0	2490.0	1.70	1.31	0.97
2540.0	2570.0	1.85	1.40	1.04
2600.0	2630.0	1.99	1.48	1.09
2680.0	2710.0	2.01	1.56	1.17
2740.0	2770.0	1.97	1.52	1.09
2820.0	2850.0	1.74	1.33	0.97
2880.0	2910.0	1.42	1.03	0.76
2960.0	2990.0	1.14	0.74	0.57
3020.0	3050.0	1.02	0.61	0.49
3100.0	3130.0	0.76	0.49	0.36
3160.0	3190.0	0.39	0.33	0.24
3240.0	3270.0	0.16	0.20	0.17
3300.0	3330.0	0.13	0.13	0.12

Frequency Mixer

LRMS-25J+

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1625MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=739.9MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=2510.1MHz (dB)
		@LO (dBm)			@LO (dBm)			@LO (dBm)
		+10			+10			+10
830.0	795.0	10.34	10.1	750.0	8.83	810.1	1700.0	10.44
791.9	833.1	9.78	20.1	760.0	8.65	789.6	1720.5	9.94
753.7	871.3	9.48	30.1	770.0	8.76	769.1	1741.0	9.44
715.6	909.4	8.78	40.1	780.0	8.85	748.6	1761.5	9.00
677.4	947.6	8.10	50.1	790.0	8.94	728.0	1782.1	8.58
639.3	985.7	7.60	60.1	800.0	9.07	707.5	1802.6	8.26
601.2	1023.8	7.26	70.1	810.0	9.15	687.0	1823.1	7.98
563.0	1062.0	6.89	80.1	820.0	9.20	666.5	1843.6	7.69
524.9	1100.1	6.83	90.1	830.0	9.27	646.0	1864.1	7.49
486.7	1138.3	6.58	100.1	840.0	9.39	625.5	1884.6	7.47
448.6	1176.4	6.47	110.1	850.0	9.38	605.0	1905.1	7.49
410.5	1214.5	6.51	120.1	860.0	9.33	584.5	1925.6	7.54
372.3	1252.7	6.41	130.1	870.0	9.38	563.9	1946.2	7.66
334.2	1290.8	6.47	140.1	880.0	9.47	543.4	1966.7	7.93
296.0	1329.0	6.50	150.1	890.0	9.41	522.9	1987.2	7.91
257.9	1367.1	6.50	160.1	900.0	9.43	502.4	2007.7	7.73
219.8	1405.2	6.41	170.1	910.0	9.56	481.9	2028.2	7.47
181.6	1443.4	6.37	180.1	920.0	9.61	461.4	2048.7	7.31
143.5	1481.5	6.46	190.1	930.0	9.61	440.9	2069.2	6.96
105.3	1519.7	6.39	200.1	940.0	9.62	420.4	2089.7	6.94
67.2	1557.8	6.03	210.1	950.0	9.68	399.8	2110.3	6.78
29.1	1595.9	5.62	220.1	960.0	9.75	379.3	2130.8	6.75
10.0	1635.0	5.88	230.1	970.0	9.75	358.8	2151.3	6.60
74.2	1699.2	5.83	240.1	980.0	9.69	338.3	2171.8	6.57
117.0	1742.0	5.97	250.1	990.0	9.82	317.8	2192.3	6.31
181.2	1806.2	5.96	260.1	1000.0	9.94	297.3	2212.8	6.16
224.0	1849.0	5.93	270.1	1010.0	9.93	276.8	2233.3	6.05
288.1	1913.1	5.30	280.1	1020.0	9.85	256.3	2253.8	6.00
330.9	1955.9	5.33	290.1	1030.0	9.89	235.7	2274.4	6.00
395.1	2020.1	5.67	300.1	1040.0	9.95	215.2	2294.9	5.98
437.9	2062.9	6.05	310.1	1050.0	9.87	194.7	2315.4	5.96
502.1	2127.1	6.70	320.1	1060.0	9.84	174.2	2335.9	5.80
544.9	2169.9	6.72	330.1	1070.0	9.92	153.7	2356.4	5.71
609.1	2234.1	6.95	340.1	1080.0	9.90	133.2	2376.9	5.59
651.9	2276.9	7.20	360.1	1100.0	9.89	112.7	2397.4	5.56
716.0	2341.0	7.48	370.1	1110.0	10.09	92.2	2417.9	5.46
758.8	2383.8	7.63	390.1	1130.0	10.04	71.6	2438.5	5.42
823.0	2448.0	8.34	400.1	1140.0	10.36	51.1	2459.0	5.33
865.8	2490.8	9.04	420.1	1160.0	10.16	30.6	2479.5	5.29
930.0	2555.0	10.31	430.1	1170.0	10.15	10.1	2500.0	5.66

REV. X3
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101012
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Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)		
	@LO (dBm)			@LO (dBm)		
	+7	+10	+13	+7	+10	+13
630.0	21.41	22.51	23.92	9.15	10.12	11.44
690.0	20.66	21.73	23.07	8.68	9.72	11.02
750.0	20.39	21.60	22.87	8.53	9.71	11.09
810.0	21.01	22.30	23.47	8.99	10.32	11.72
890.0	22.99	24.57	25.77	9.99	11.43	12.86
950.0	24.73	26.42	27.54	10.84	12.36	13.75
1030.0	27.85	29.43	30.50	12.22	13.74	15.20
1090.0	31.85	34.12	35.43	13.46	14.97	16.35
1170.0	39.70	40.87	39.52	15.10	16.66	18.05
1230.0	42.07	39.70	38.13	16.57	17.97	19.38
1310.0	37.82	35.97	36.14	18.44	19.81	21.27
1370.0	35.63	34.19	35.17	19.72	21.12	22.63
1450.0	37.09	34.03	34.50	21.11	22.74	24.44
1510.0	36.75	33.91	34.03	21.92	23.61	25.45
1590.0	36.54	34.73	34.73	22.89	24.69	26.50
1650.0	40.01	36.84	36.19	23.33	25.20	27.12
1730.0	38.91	39.03	39.20	24.27	26.28	28.30
1790.0	36.32	37.70	38.85	24.88	26.97	28.91
1870.0	35.02	37.12	38.98	25.90	28.01	29.93
1930.0	32.35	34.23	35.98	26.41	28.55	30.45
2010.0	30.58	32.42	34.19	27.20	29.34	31.24
2070.0	32.12	33.63	34.99	28.18	30.28	32.09
2150.0	32.92	34.07	35.15	29.17	31.03	32.62
2210.0	30.19	31.73	33.10	29.77	31.49	32.94
2290.0	27.24	29.02	30.57	30.34	32.08	33.46
2350.0	25.63	27.10	28.44	31.32	33.14	34.40
2430.0	24.65	26.40	27.79	33.54	36.14	37.50
2490.0	23.00	24.84	26.50	37.18	39.71	40.47
2570.0	21.48	23.23	24.93	41.77	43.18	41.81
2630.0	20.94	22.30	23.73	41.96	42.15	40.63
2710.0	20.87	22.28	23.49	41.10	40.82	39.49
2770.0	20.57	22.09	23.18	39.29	38.51	37.48
2850.0	21.01	22.39	23.30	40.38	39.35	37.68
2910.0	21.64	22.88	23.56	40.07	39.62	37.96
2990.0	22.04	23.54	24.09	40.04	39.49	37.97
3050.0	22.49	24.19	24.64	40.17	39.80	37.71
3130.0	23.87	26.14	26.09	42.09	43.33	40.02
3190.0	24.48	26.40	26.35	43.36	44.02	40.80
3270.0	24.93	26.61	26.61	44.33	44.88	42.06
3330.0	25.69	27.20	27.42	43.80	44.79	42.17

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
		@LO (dBm)		
		+7	+10	+13
600.0	630.0	11.57	12.34	12.91
660.0	690.0	10.20	10.77	11.00
720.0	750.0	8.66	8.84	9.06
780.0	810.0	7.87	8.04	8.29
860.0	890.0	7.48	7.58	7.61
920.0	950.0	7.62	7.69	7.74
1000.0	1030.0	8.54	8.29	8.20
1060.0	1090.0	9.67	9.60	9.54
1140.0	1170.0	10.99	10.78	10.35
1200.0	1230.0	11.21	10.99	10.58
1280.0	1310.0	10.86	10.64	10.49
1340.0	1370.0	10.45	10.26	10.23
1420.0	1450.0	10.39	10.23	10.21
1480.0	1510.0	10.44	10.36	10.37
1560.0	1590.0	11.35	11.26	11.25
1620.0	1650.0	12.25	12.25	12.29
1700.0	1730.0	13.23	13.51	13.63
1760.0	1790.0	14.11	14.49	14.72
1840.0	1870.0	15.22	15.69	16.07
1900.0	1930.0	16.51	16.88	17.23
1980.0	2010.0	18.15	18.49	18.65
2040.0	2070.0	17.80	17.92	17.97
2120.0	2150.0	18.89	19.01	19.10
2180.0	2210.0	20.71	20.82	20.96
2260.0	2290.0	22.99	23.21	23.39
2320.0	2350.0	24.39	24.52	24.63
2400.0	2430.0	24.89	25.00	25.01
2460.0	2490.0	24.70	24.75	24.83
2540.0	2570.0	23.24	23.01	22.90
2600.0	2630.0	21.86	21.62	21.41
2680.0	2710.0	19.50	19.53	19.53
2740.0	2770.0	17.78	17.84	17.85
2820.0	2850.0	15.95	16.11	16.11
2880.0	2910.0	14.93	15.08	15.15
2960.0	2990.0	13.86	14.13	14.22
3020.0	3050.0	13.00	13.45	13.68
3100.0	3130.0	12.09	12.56	12.87
3160.0	3190.0	11.63	11.96	12.27
3240.0	3270.0	11.18	11.44	11.68
3300.0	3330.0	10.89	11.17	11.37

Frequency Mixer

LRMS-25J+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1)			LO (MHz)	LO VSWR (:1)			IF (OUT) (MHz)	IF VSWR @LO=2500MHz (:1)		
		@LO (dBm)				@LO (dBm)				@LO (dBm)		
		+7	+10	+13		+7	+10	+13		+7	+10	+13
600.0	630.0	10.13	9.48	8.95	630.0	2.92	1.92	1.65	10.0	1.04	1.22	1.34
660.0	690.0	7.83	7.47	7.11	690.0	2.66	1.81	1.64	30.0	1.06	1.29	1.42
720.0	750.0	5.74	5.58	5.63	750.0	2.47	1.73	1.63	50.0	1.11	1.28	1.40
780.0	810.0	4.59	4.56	4.63	810.0	2.41	1.67	1.62	70.0	1.21	1.30	1.39
860.0	890.0	3.48	3.43	3.45	890.0	2.20	1.56	1.58	90.0	1.23	1.31	1.38
920.0	950.0	2.80	2.74	2.68	950.0	2.09	1.51	1.57	110.0	1.23	1.29	1.36
1000.0	1030.0	2.30	2.32	2.32	1030.0	1.99	1.49	1.59	130.0	1.28	1.35	1.42
1060.0	1090.0	1.96	1.89	1.86	1090.0	1.93	1.49	1.63	150.0	1.34	1.39	1.46
1140.0	1170.0	1.49	1.43	1.36	1170.0	1.92	1.50	1.64	170.0	1.40	1.44	1.49
1200.0	1230.0	1.17	1.15	1.15	1230.0	1.89	1.51	1.66	190.0	1.39	1.39	1.44
1280.0	1310.0	1.13	1.17	1.19	1310.0	1.86	1.53	1.67	210.0	1.42	1.44	1.49
1340.0	1370.0	1.38	1.45	1.44	1370.0	1.87	1.51	1.63	230.0	1.44	1.47	1.53
1420.0	1450.0	1.70	1.79	1.80	1450.0	1.80	1.40	1.58	250.0	1.49	1.54	1.59
1480.0	1510.0	1.97	2.09	2.11	1510.0	1.77	1.37	1.59	270.0	1.51	1.52	1.56
1560.0	1590.0	2.23	2.43	2.52	1590.0	1.72	1.31	1.55	290.0	1.53	1.55	1.59
1620.0	1650.0	2.13	2.36	2.48	1650.0	1.73	1.26	1.52	310.0	1.47	1.52	1.58
1700.0	1730.0	2.19	2.34	2.44	1730.0	1.67	1.16	1.51	330.0	1.52	1.57	1.64
1760.0	1790.0	2.25	2.25	2.30	1790.0	1.63	1.09	1.50	350.0	1.58	1.63	1.69
1840.0	1870.0	2.39	2.24	2.18	1870.0	1.59	1.03	1.49	370.0	1.56	1.62	1.68
1900.0	1930.0	2.37	2.23	2.14	1930.0	1.60	1.03	1.49	390.0	1.50	1.56	1.63
1980.0	2010.0	1.95	1.76	1.67	2010.0	1.65	1.09	1.50	410.0	1.54	1.62	1.70
2040.0	2070.0	2.50	2.36	2.29	2070.0	1.69	1.15	1.50	430.0	1.55	1.65	1.75
2120.0	2150.0	4.55	4.17	3.92	2150.0	1.73	1.20	1.48	450.0	1.56	1.66	1.75
2180.0	2210.0	4.62	4.18	3.91	2210.0	1.79	1.23	1.49	470.0	1.52	1.62	1.72
2260.0	2290.0	3.96	3.60	3.37	2290.0	1.97	1.32	1.50	510.0	1.53	1.68	1.81
2320.0	2350.0	3.50	3.24	3.09	2350.0	2.09	1.43	1.50	530.0	1.59	1.74	1.87
2400.0	2430.0	2.86	2.60	2.47	2430.0	2.23	1.55	1.54	570.0	1.61	1.78	1.93
2460.0	2490.0	2.50	2.26	2.12	2490.0	2.43	1.65	1.58	590.0	1.60	1.78	1.93
2540.0	2570.0	1.98	1.81	1.72	2570.0	2.70	1.78	1.60	630.0	1.73	1.93	2.09
2600.0	2630.0	1.67	1.54	1.49	2630.0	2.79	1.86	1.61	650.0	1.76	1.97	2.13
2680.0	2710.0	1.55	1.49	1.46	2710.0	3.06	1.96	1.63	690.0	1.89	2.12	2.28
2740.0	2770.0	1.64	1.66	1.66	2770.0	3.58	2.14	1.67	710.0	1.93	2.17	2.32
2820.0	2850.0	2.00	2.16	2.19	2850.0	4.05	2.34	1.71	750.0	2.10	2.32	2.46
2880.0	2910.0	2.48	2.75	2.81	2910.0	4.09	2.41	1.74	770.0	2.18	2.40	2.53
2960.0	2990.0	2.94	3.30	3.50	2990.0	4.56	2.61	1.80	810.0	2.36	2.55	2.66
3020.0	3050.0	3.45	3.70	3.91	3050.0	5.39	2.89	1.88	830.0	2.44	2.62	2.72
3100.0	3130.0	4.45	4.51	4.64	3130.0	5.83	3.06	1.94	870.0	2.63	2.78	2.87
3160.0	3190.0	5.27	5.17	5.17	3190.0	5.81	3.07	1.95	890.0	2.76	2.90	2.98
3240.0	3270.0	6.35	6.17	6.09	3270.0	6.86	3.44	2.06	930.0	3.07	3.21	3.30
3300.0	3330.0	7.47	7.22	7.08	3330.0	7.47	3.73	2.17	950.0	3.19	3.32	3.40

Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	+0	16	19	28	27	26	20	54	42	59
1	-	7	+0	31	33	32	25	27	25	46	64	68
2	77	60	56	47	61	59	50	58	53	46	49	73
3	>90	67	>74	>74	62	73	>74	71	60	64	57	>74
4	>90	>74	>74	>74	>74	>74	>74	>74	>74	>74	>74	71
5	>90	>74	>74	>74	>74	>74	>74	>74	>74	>74	>74	>74
6	>90	>74	>74	>74	>74	>74	>74	>74	>74	>74	>74	>74
7	>90	>74	>74	>74	>74	>74	>74	>74	>74	>74	>74	>74
8	>90	>74	>74	>74	>74	>74	>74	>74	>74	>74	>74	>74
9	>90	>74	>74	>74	>74	>74	>74	>74	>74	>74	>74	>74
10	>90	>74	>74	>74	>74	>74	>74	>74	>74	>74	>74	>74
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 1625 MHz; -10.00 dBm.
LO IN: 1655 MHz; +10.00 dBm
IF OUT: 30 MHz; -15.67 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	10	27	32	36	38	31	35	67	55	56
1	-	7	+0	31	33	35	27	29	29	51	75	70
2	57	51	45	39	55	50	44	55	46	59	45	77
3	>90	43	54	59	36	57	58	51	45	47	45	62
4	>90	60	65	67	72	52	71	65	55	64	69	56
5	>90	67	64	>84	79	>84	57	70	74	67	58	59
6	>90	68	81	76	>84	83	>84	66	81	81	68	70
7	>90	>84	73	>84	78	78	>84	>84	71	79	>84	>84
8	>90	>84	78	75	83	83	>84	>84	>84	78	>84	>84
9	>90	>84	>84	>84	83	>84	>84	82	>84	>84	77	>84
10	>90	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

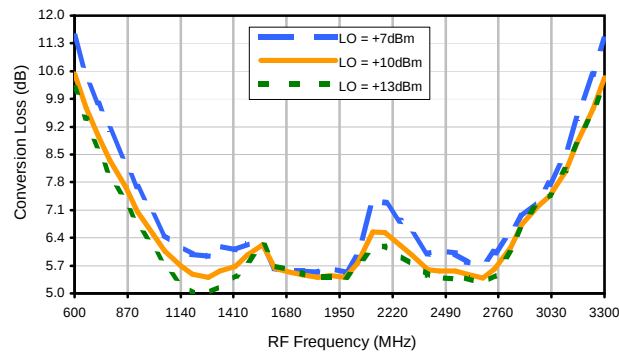
Test conditions: RF IN: 1625 MHz; 0.00 dBm.
LO IN: 1655 MHz; +10.00 dBm
IF OUT: 30 MHz; -5.86 dBm

- 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.

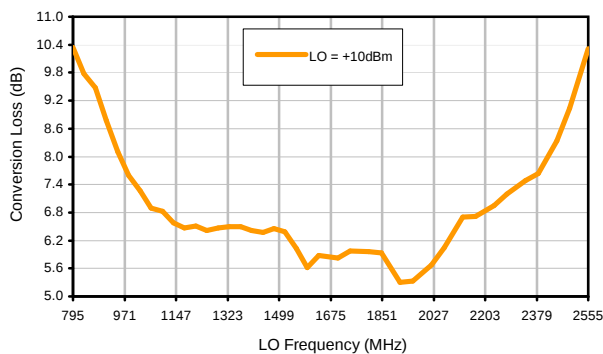
REV. X3
LRMS-25J+
101012
Page 5 of 5

Typical Performance Curves

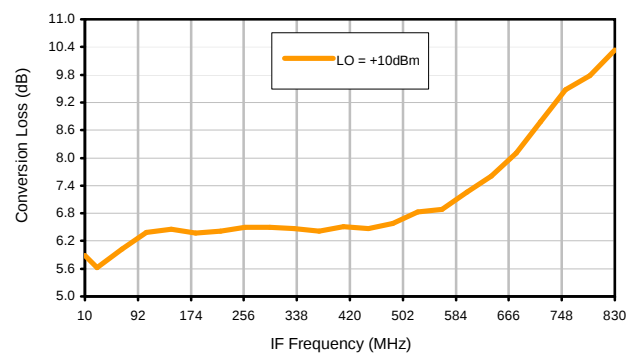
Conversion Loss @ IF=30MHz



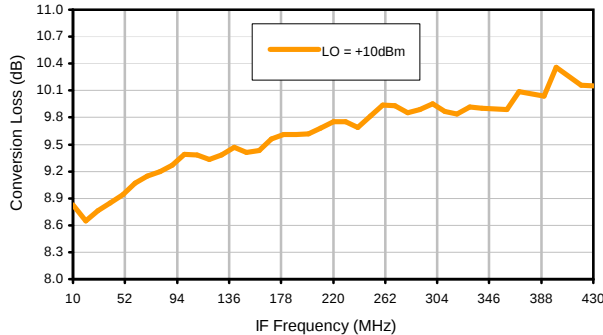
Conversion Loss vs. LO @ RF=1625MHz



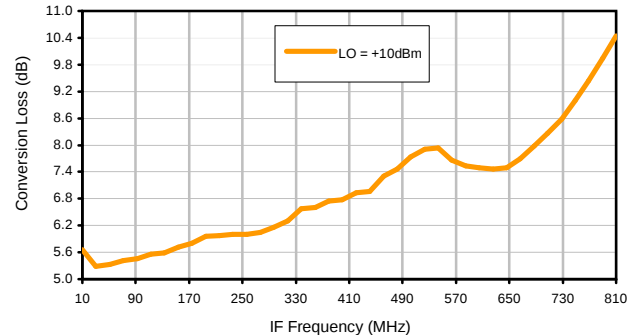
Conversion Loss vs. IF @ RF=1625MHz



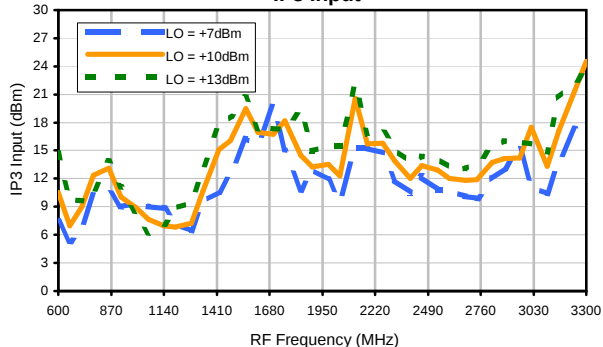
Conversion Loss vs. IF @ RF=739.9MHz



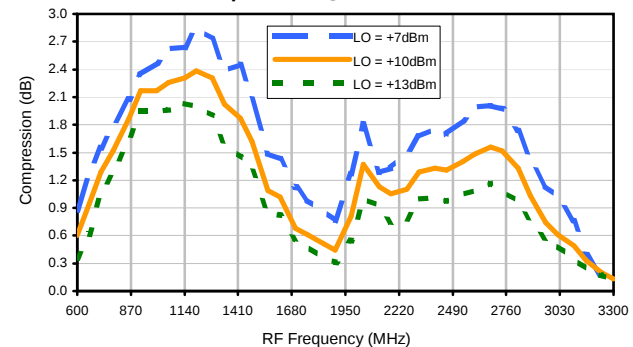
Conversion Loss vs. IF @ RF=2510.1MHz



IP3 Input

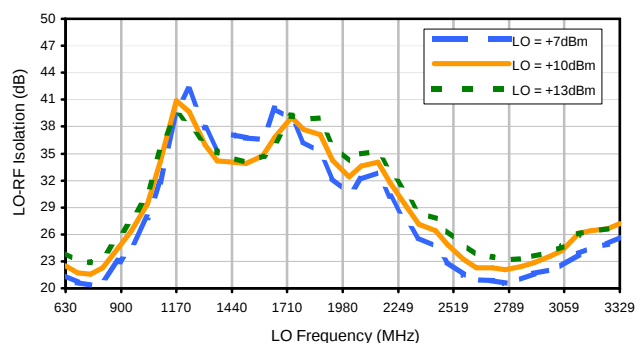


Compression @ RF IN=+5dBm

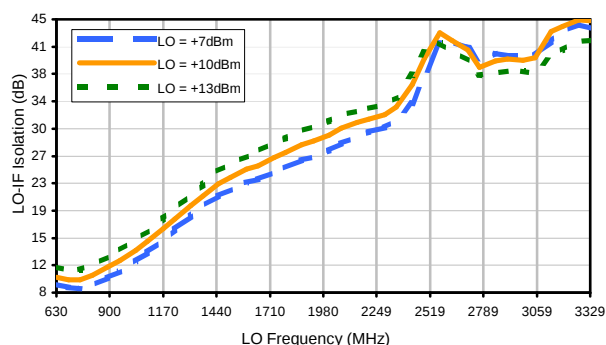


Typical Performance Curves

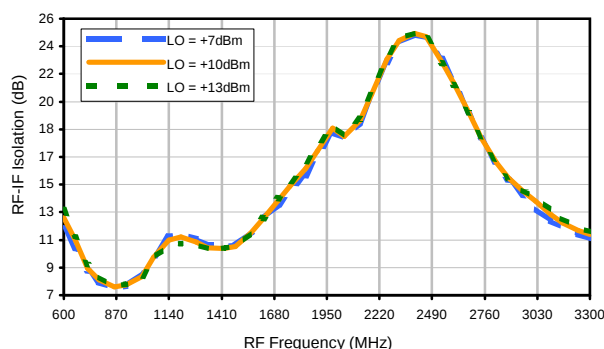
LO-RF Isolation



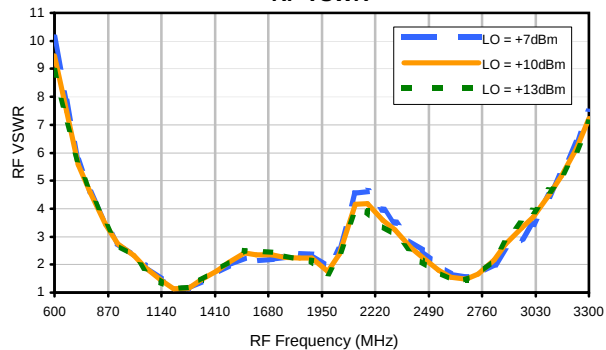
LO-IF Isolation



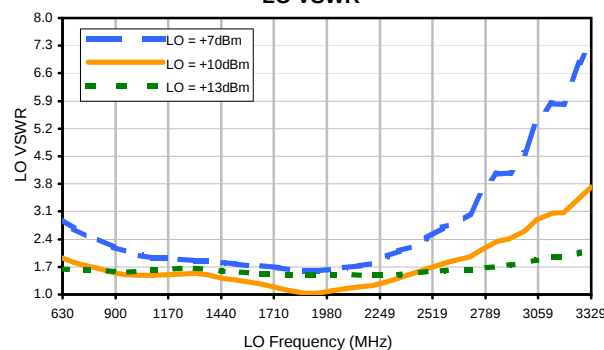
RF-IF Isolation



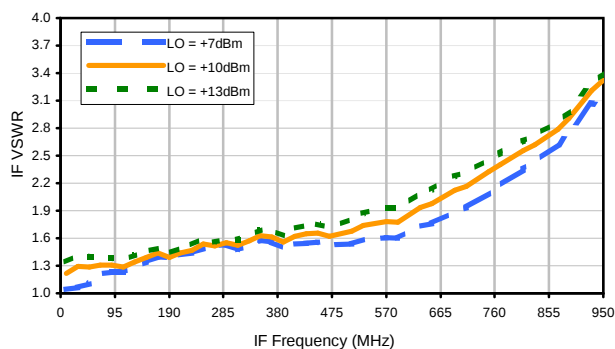
RF VSWR



LO VSWR



IF VSWR



Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	+0	16	19	28	27	26	20	54	42	59
1	-	7	+0	31	33	32	25	27	25	46	64	68
2	77	60	56	47	61	59	50	58	53	46	49	73
3	>90	67	>74	>74	62	73	>74	71	60	64	57	>74
4	>90	>74	>74	>74	>74	>74	>74	>74	>74	>74	>74	71
5	>90	>74	>74	>74	>74	>74	>74	>74	>74	>74	>74	>74
6	>90	>74	>74	>74	>74	>74	>74	>74	>74	>74	>74	>74
7	>90	>74	>74	>74	>74	>74	>74	>74	>74	>74	>74	>74
8	>90	>74	>74	>74	>74	>74	>74	>74	>74	>74	>74	>74
9	>90	>74	>74	>74	>74	>74	>74	>74	>74	>74	>74	>74
10	>90	>74	>74	>74	>74	>74	>74	>74	>74	>74	>74	>74
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 1625 MHz; -10.00 dBm.
LO IN: 1655 MHz; +10.00 dBm
IF OUT: 30 MHz; -15.67 dBm

RF HARMONICS ORDER

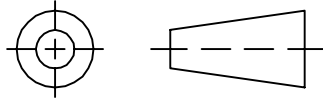
	(-dBm)	(-dBc)										
0	-	-	10	27	32	36	38	31	35	67	55	56
1	-	7	+0	31	33	35	27	29	29	51	75	70
2	57	51	45	39	55	50	44	55	46	59	45	77
3	>90	43	54	59	36	57	58	51	45	47	45	62
4	>90	60	65	67	72	52	71	65	55	64	69	56
5	>90	67	64	>84	79	>84	57	70	74	67	58	59
6	>90	68	81	76	>84	83	>84	66	81	81	68	70
7	>90	>84	73	>84	78	78	>84	>84	71	79	>84	>84
8	>90	>84	78	75	83	83	>84	>84	>84	78	>84	>84
9	>90	>84	>84	>84	83	>84	>84	82	>84	>84	77	>84
10	>90	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 1625 MHz; 0.00 dBm.
LO IN: 1655 MHz; +10.00 dBm
IF OUT: 30 MHz; -5.86 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.

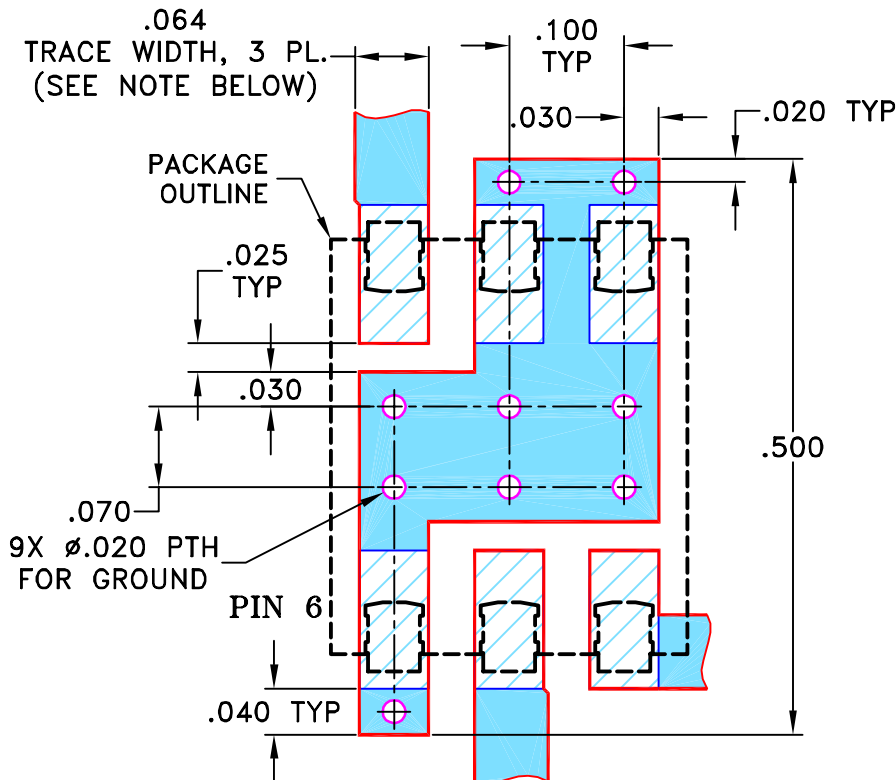
THIRD ANGLE PROJECTION



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" $\pm$ 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 $\pm$

APPROVED

DJ

08/02/02

3 PL DECIMALS $\pm$.005

ANGLES $\pm$

FRACTIONS $\pm$

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



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13 Neptune Avenue
Brooklyn NY 11235

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

SIZE

A

CODE IDENT

15542

DRAWING NO:

98-PL-083

REV:

A

FILE: 98PL083

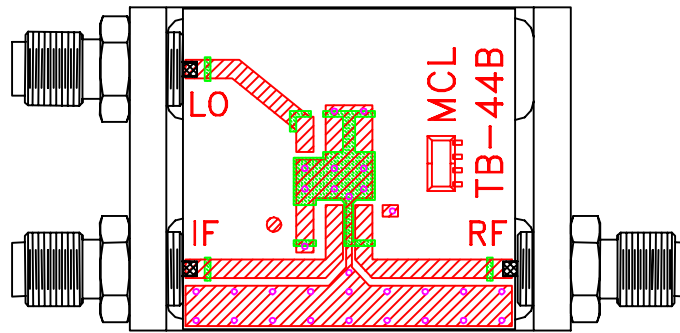
SCALE:

6:1

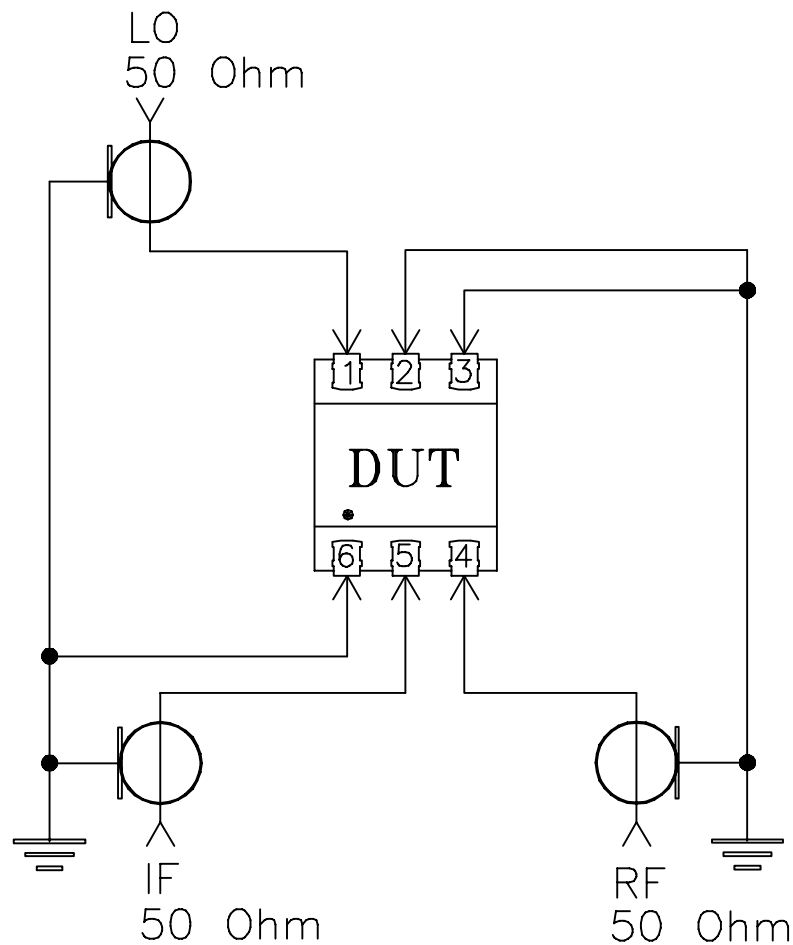
SHEET:

1 OF 1

Evaluation Board and Circuit



TB-44+



Schematic Diagram

Notes:

1. SMA Female connectors.
2. PCB Material: Rogers R04350 or equivalent,
Dielectric Constant=3.5, Thickness=.030 inch.

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