

Non-Catalog Model

Frequency Mixer

LRMS-1LHJ

Level 10 (LO Power +10 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		500	MHz
	RF (fL to fU)	2		500	MHz
	IF	0		500	MHz
Conversion Loss	mid band		5.4	7.0	dB
	Total Range			8.0	dB
LO-RF Isolation	Low Range	45	58		dB
	Mid Range	25	44		dB
	Upper Range	20	30		dB
LO-IF Isolation	Low Range	40	55		dB
	Mid Range	25	40		dB
	Upper Range	17	28		dB
1 dB Comp. Input Power			+5		dBm

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

Mid Range = [10fL to fU/2]

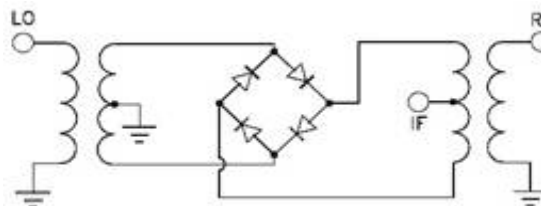
Upper Range = [fU/2 to fU]

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-1LHJ

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB)		
		@LO (dBm)		
		+7	+10	+13
2.0	32.0	7.08	6.73	6.55
5.0	35.0	6.14	5.87	5.71
10.0	40.0	6.47	6.17	5.99
51.1	81.1	6.13	5.86	5.71
92.0	122.0	6.19	5.88	5.75
133.0	163.0	6.19	5.92	5.80
173.9	203.9	6.19	5.96	5.85
214.9	244.9	6.23	5.99	5.86
255.8	285.8	6.29	6.06	5.92
296.8	326.8	6.30	6.07	5.92
337.7	367.7	6.40	6.16	5.99
378.7	408.7	6.43	6.18	6.00
419.6	449.6	6.51	6.20	6.00
440.1	470.1	6.51	6.20	5.98
481.1	511.1	6.60	6.30	6.07
501.5	531.5	6.59	6.30	6.09
542.5	572.5	6.69	6.37	6.14
563.0	593.0	6.71	6.35	6.11
624.4	654.4	6.90	6.40	6.11
665.3	695.3	7.06	6.46	6.14
685.8	715.8	7.14	6.49	6.15
726.8	756.8	7.40	6.71	6.27
747.2	777.2	7.47	6.81	6.33
788.2	818.2	7.63	7.01	6.54
808.7	838.7	7.73	7.15	6.69
849.6	879.6	7.79	7.29	6.90
870.1	900.1	7.82	7.36	7.00
911.1	941.1	7.76	7.39	7.14
931.5	961.5	7.73	7.41	7.18
972.5	1002.5	7.69	7.43	7.27
1033.9	1063.9	7.75	7.56	7.49
1054.4	1084.4	7.81	7.60	7.54
1095.3	1125.3	7.97	7.82	7.78
1115.8	1145.8	8.09	7.94	7.92
1156.8	1186.8	8.42	8.28	8.27
1177.2	1207.2	8.68	8.55	8.56
1218.2	1248.2	9.16	9.02	9.00
1238.7	1268.7	9.46	9.24	9.22
1279.6	1309.6	10.18	9.87	9.86
1300.1	1330.1	10.51	10.15	10.11

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm)		
		@LO (dBm)		
		+7	+10	+13
10.1	40.1	24.50	24.45	29.97
51.1	81.1	22.61	22.90	20.56
92.0	122.0	22.23	22.42	26.35
133.0	163.0	20.42	22.49	22.53
173.9	203.9	20.32	21.37	21.03
214.9	244.9	19.78	19.49	19.35
255.8	285.8	19.86	19.58	18.08
296.8	326.8	18.83	18.25	17.40
337.7	367.7	17.42	16.31	17.02
378.7	408.7	19.07	17.20	17.67
419.6	449.6	17.89	17.13	17.80
440.1	470.1	16.27	16.25	18.39
481.1	511.1	14.60	14.14	16.65
501.5	531.5	14.23	13.80	15.48
542.5	572.5	13.39	13.79	15.59
563.0	593.0	13.00	13.58	15.83
603.9	633.9	13.37	14.84	18.80
624.4	654.4	13.34	15.35	20.02
665.3	695.3	13.01	16.88	31.10
685.8	715.8	13.02	17.03	22.89
726.8	756.8	12.06	14.87	26.80
747.2	777.2	11.68	14.30	23.52
788.2	818.2	12.79	15.03	22.82
808.7	838.7	13.32	15.82	28.54
849.6	879.6	13.95	17.25	21.09
870.1	900.1	14.83	18.30	24.28
911.1	941.1	16.07	19.97	21.01
931.5	961.5	15.60	20.34	19.47
972.5	1002.5	15.74	18.01	18.14
993.0	1023.0	15.59	17.60	17.39
1033.9	1063.9	15.21	15.98	17.67
1054.4	1084.4	14.79	15.89	16.86
1095.3	1125.3	13.77	15.39	15.93
1115.8	1145.8	13.22	14.97	15.71
1156.8	1186.8	11.72	13.60	15.32
1177.2	1207.2	11.18	13.08	15.00
1218.2	1248.2	10.92	13.27	14.58
1238.7	1268.7	10.45	12.67	13.73
1279.6	1309.6	10.47	12.77	14.06
1300.1	1330.1	9.96	12.35	13.23

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+5dBm (dB)		
		@LO (dBm)		
		+7	+10	+13
10.1	40.1	1.20	0.89	0.64
51.1	81.1	1.05	0.81	0.56
92.0	122.0	0.99	0.75	0.51
133.0	163.0	1.04	0.72	0.51
173.9	203.9	1.00	0.71	0.49
214.9	244.9	0.95	0.68	0.50
255.8	285.8	0.99	0.71	0.52
296.8	326.8	0.97	0.71	0.52
337.7	367.7	0.98	0.73	0.57
378.7	408.7	1.00	0.73	0.57
419.6	449.6	1.07	0.84	0.66
440.1	470.1	1.10	0.87	0.71
481.1	511.1	1.12	0.91	0.74
501.5	531.5	1.19	0.94	0.78
542.5	572.5	1.29	1.04	0.89
563.0	593.0	1.35	1.10	0.93
603.9	633.9	1.50	1.24	1.07
624.4	654.4	1.55	1.33	1.14
665.3	695.3	1.54	1.38	1.19
685.8	715.8	1.54	1.41	1.22
726.8	756.8	1.46	1.37	1.24
747.2	777.2	1.46	1.37	1.26
788.2	818.2	1.39	1.30	1.24
808.7	838.7	1.34	1.24	1.20
849.6	879.6	1.35	1.21	1.19
870.1	900.1	1.36	1.19	1.17
911.1	941.1	1.43	1.20	1.15
931.5	961.5	1.45	1.20	1.14
972.5	1002.5	1.55	1.21	1.13
993.0	1023.0	1.52	1.19	1.11
1033.9	1063.9	1.56	1.17	1.07
1054.4	1084.4	1.61	1.21	1.13
1095.3	1125.3	1.62	1.19	1.13
1115.8	1145.8	1.61	1.16	1.10
1156.8	1186.8	1.58	1.10	1.12
1177.2	1207.2	1.50	1.03	1.07
1218.2	1248.2	1.49	1.02	1.12
1238.7	1268.7	1.58	1.08	1.16
1279.6	1309.6	1.64	1.15	1.14
1300.1	1330.1	1.74	1.25	1.23

Frequency Mixer

LRMS-1LHJ

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=250.1MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=10.1MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=500.1MHz (dB)
		@LO (dBm)			@LO (dBm)			@LO (dBm)
		+10			+10			+10
240.0	10.1	6.08	10.0	20.1	5.72	490.0	10.1	6.31
234.1	16.0	6.07	22.3	32.4	5.54	477.7	22.4	6.25
228.2	21.9	6.02	34.6	44.7	5.55	465.4	34.7	6.21
222.3	27.8	6.04	46.9	57.0	5.56	453.1	47.0	6.22
216.4	33.7	6.02	59.2	69.3	5.55	440.8	59.3	6.22
210.5	39.6	6.00	71.5	81.6	5.59	428.5	71.6	6.18
204.6	45.5	6.03	83.8	93.9	5.63	416.2	83.9	6.16
198.7	51.4	5.98	96.2	106.3	5.60	403.8	96.3	6.12
192.8	57.3	6.00	108.5	118.6	5.60	391.5	108.6	6.09
186.9	63.2	5.99	120.8	130.9	5.59	379.2	120.9	6.09
181.0	69.1	5.97	133.1	143.2	5.59	366.9	133.2	6.07
175.1	75.0	6.05	145.4	155.5	5.64	354.6	145.5	6.06
169.2	80.9	5.98	157.7	167.8	5.68	342.3	157.8	6.08
163.3	86.8	5.96	170.0	180.1	5.68	330.0	170.1	6.08
157.4	92.7	6.00	182.3	192.4	5.70	317.7	182.4	6.10
151.5	98.6	5.95	194.6	204.7	5.69	305.4	194.7	6.09
145.6	104.5	5.96	206.9	217.0	5.70	293.1	207.0	6.07
139.7	110.4	5.94	219.2	229.3	5.72	280.8	219.3	6.07
133.8	116.3	5.92	231.5	241.6	5.71	268.5	231.6	6.10
127.9	122.2	5.92	243.8	253.9	5.74	256.2	243.9	6.12
122.1	128.0	5.89	256.2	266.3	5.78	243.8	256.3	6.12
116.2	133.9	5.90	268.5	278.6	5.82	231.5	268.6	6.13
110.3	139.8	5.93	280.8	290.9	5.83	219.2	280.9	6.11
104.4	145.7	5.94	293.1	303.2	5.84	206.9	293.2	6.13
98.5	151.6	5.95	305.4	315.5	5.83	194.6	305.5	6.14
92.6	157.5	5.94	317.7	327.8	5.86	182.3	317.8	6.13
86.7	163.4	5.94	330.0	340.1	5.88	170.0	330.1	6.13
80.8	169.3	5.95	342.3	352.4	5.89	157.7	342.4	6.15
74.9	175.2	5.94	354.6	364.7	5.93	145.4	354.7	6.17
69.0	181.1	5.94	366.9	377.0	5.98	133.1	367.0	6.22
63.1	187.0	5.93	379.2	389.3	5.98	120.8	379.3	6.20
57.2	192.9	5.92	391.5	401.6	5.97	108.5	391.6	6.16
51.3	198.8	5.93	403.8	413.9	5.93	96.2	403.9	6.17
45.4	204.7	5.95	416.2	426.3	5.94	83.8	416.3	6.16
39.5	210.6	5.96	428.5	438.6	6.00	71.5	428.6	6.17
33.6	216.5	5.96	440.8	450.9	6.06	59.2	440.9	6.20
27.7	222.4	5.96	453.1	463.2	6.08	46.9	453.2	6.19
21.8	228.3	5.98	465.4	475.5	6.11	34.6	465.5	6.23
15.9	234.2	6.01	477.7	487.8	6.09	22.3	477.8	6.27
10.0	240.1	6.12	490.0	500.1	6.12	10.0	490.1	6.41

Frequency Mixer

LRMS-1LHJ

Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)		
	@LO (dBm)			@LO (dBm)		
	+7	+10	+13	+7	+10	+13
2.0	65.89	68.96	71.56	55.04	58.87	62.73
5.0	65.11	67.37	69.67	54.46	56.74	57.76
10.0	63.38	65.16	66.06	52.78	52.79	52.34
51.1	55.99	55.81	55.99	50.88	49.71	49.08
92.0	51.31	51.03	51.20	45.84	44.96	44.60
133.0	48.13	48.29	48.36	42.91	42.84	42.29
173.9	46.22	46.44	46.35	41.36	41.03	40.70
214.9	44.57	44.90	44.77	40.45	39.81	39.04
255.8	43.22	43.49	43.55	39.70	38.53	37.72
296.8	42.06	42.36	42.36	39.68	37.99	36.67
337.7	42.03	42.19	42.21	37.54	36.30	35.11
378.7	40.07	40.34	40.60	36.65	35.28	34.11
419.6	38.11	38.70	39.02	34.82	33.34	32.26
440.1	37.59	38.04	38.30	33.77	32.39	31.37
481.1	36.35	36.88	37.19	32.92	31.41	30.27
501.5	35.85	36.19	36.48	32.12	30.85	29.64
542.5	35.09	35.17	35.26	30.86	29.66	28.62
563.0	35.17	35.07	35.03	30.10	29.02	27.99
624.4	34.15	33.49	32.88	27.49	26.46	25.41
665.3	33.35	32.59	31.86	25.99	25.20	24.31
685.8	33.38	32.86	32.30	25.13	24.31	23.49
726.8	32.47	31.90	31.46	23.51	22.66	21.99
747.2	32.03	31.54	31.03	22.93	22.18	21.48
788.2	31.44	31.09	30.74	21.63	20.94	20.17
808.7	30.89	30.53	30.25	21.13	20.38	19.61
849.6	30.57	30.29	30.07	20.01	19.51	18.62
870.1	30.92	30.95	31.18	19.66	19.13	18.29
911.1	31.08	31.24	31.52	18.53	17.96	17.07
931.5	30.73	30.77	30.87	18.12	17.62	16.64
972.5	31.55	31.66	31.55	17.09	16.51	15.01
1033.9	33.61	33.16	32.21	15.42	14.90	13.96
1054.4	35.09	33.48	31.71	15.04	14.54	13.68
1095.3	37.65	32.60	29.76	13.95	13.52	12.68
1115.8	37.89	31.96	29.05	13.49	13.12	12.30
1156.8	35.04	29.37	26.75	12.62	12.28	11.56
1177.2	32.48	27.94	25.73	12.21	11.88	11.26
1218.2	28.55	25.32	23.71	11.52	11.17	10.61
1238.7	26.62	24.03	22.57	11.34	10.99	10.45
1279.6	24.54	22.29	20.94	11.06	10.56	9.90
1300.1	23.55	21.53	20.33	10.95	10.44	9.86

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
		@LO (dBm)		
		+7	+10	+13
10.1	40.1	50.02	45.04	45.36
51.1	81.1	33.32	33.48	33.19
92.0	122.0	28.99	28.75	29.12
133.0	163.0	26.34	26.48	26.70
173.9	203.9	24.66	24.96	25.00
214.9	244.9	23.60	23.87	23.94
255.8	285.8	23.00	23.25	23.43
296.8	326.8	22.70	23.05	23.30
337.7	367.7	22.35	22.72	23.02
378.7	408.7	22.26	22.75	23.17
419.6	449.6	22.47	23.13	23.62
440.1	470.1	22.72	23.52	24.23
481.1	511.1	22.98	23.84	24.76
501.5	531.5	22.76	23.54	24.24
542.5	572.5	21.47	21.88	22.08
563.0	593.0	20.51	20.67	20.70
603.9	633.9	18.63	18.49	18.46
624.4	654.4	17.67	17.53	17.31
665.3	695.3	16.37	16.15	15.99
685.8	715.8	15.94	15.71	15.60
726.8	756.8	15.07	14.99	14.97
747.2	777.2	14.72	14.73	14.78
788.2	818.2	14.09	14.15	14.35
808.7	838.7	13.74	13.83	14.00
849.6	879.6	13.13	13.18	13.36
870.1	900.1	12.89	12.96	13.14
911.1	941.1	12.39	12.45	12.64
931.5	961.5	12.29	12.31	12.46
972.5	1002.5	11.99	12.06	12.14
993.0	1023.0	11.78	11.84	11.92
1033.9	1063.9	11.49	11.50	11.53
1054.4	1084.4	11.36	11.33	11.24
1095.3	1125.3	10.72	10.58	10.39
1115.8	1145.8	10.44	10.29	10.07
1156.8	1186.8	9.60	9.47	9.18
1177.2	1207.2	9.06	8.87	8.68
1218.2	1248.2	8.27	8.11	7.90
1238.7	1268.7	7.95	7.79	7.62
1279.6	1309.6	7.40	7.21	7.03
1300.1	1330.1	7.28	7.10	6.92

Frequency Mixer

LRMS-1LHJ

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1)			LO (MHz)	LO VSWR (:1)			IF (OUT) (MHz)	IF VSWR @LO=500.1MHz (:1)		
		@LO (dBm)				@LO (dBm)				@LO (dBm)		
		+7	+10	+13		+7	+10	+13		+7	+10	+13
5.0	35.0	1.15	1.16	1.18	5.0	1.61	2.42	3.53	5.0	1.31	1.18	1.08
10.0	40.0	1.09	1.08	1.11	10.0	1.58	2.33	3.49	10.0	1.31	1.18	1.08
51.1	81.1	1.04	1.05	1.10	51.1	1.69	2.50	3.52	22.6	1.80	1.60	1.39
92.0	122.0	1.02	1.06	1.12	92.0	1.60	2.30	3.19	35.1	1.69	1.49	1.32
133.0	163.0	1.01	1.07	1.12	133.0	1.67	2.47	3.45	47.7	1.65	1.44	1.28
173.9	203.9	1.02	1.08	1.13	173.9	1.62	2.34	3.23	60.3	1.62	1.42	1.24
214.9	244.9	1.03	1.08	1.13	214.9	1.68	2.44	3.38	72.8	1.62	1.42	1.25
255.8	285.8	1.03	1.09	1.13	255.8	1.69	2.44	3.35	85.4	1.66	1.45	1.29
296.8	326.8	1.04	1.10	1.15	296.8	1.70	2.44	3.34	97.9	1.69	1.49	1.31
337.7	367.7	1.03	1.10	1.14	337.7	1.77	2.54	3.47	110.5	1.71	1.50	1.33
378.7	408.7	1.05	1.11	1.16	378.7	1.77	2.50	3.38	123.1	1.71	1.49	1.33
419.6	449.6	1.05	1.12	1.18	419.6	1.86	2.62	3.54	135.6	1.70	1.49	1.31
440.1	470.1	1.05	1.13	1.19	440.1	1.89	2.63	3.54	148.2	1.68	1.46	1.29
481.1	511.1	1.06	1.13	1.19	481.1	1.90	2.64	3.52	160.8	1.65	1.45	1.28
501.5	531.5	1.08	1.14	1.20	501.5	1.95	2.71	3.60	173.3	1.65	1.44	1.28
542.5	572.5	1.09	1.16	1.21	542.5	1.99	2.74	3.62	185.9	1.65	1.45	1.28
563.0	593.0	1.10	1.17	1.22	563.0	2.00	2.73	3.61	198.5	1.65	1.45	1.28
603.9	633.9	1.12	1.18	1.23	603.9	2.08	2.82	3.71	211.0	1.66	1.46	1.29
624.4	654.4	1.13	1.18	1.23	624.4	2.12	2.85	3.73	223.6	1.67	1.47	1.30
665.3	695.3	1.18	1.22	1.27	665.3	2.17	2.88	3.73	236.2	1.69	1.48	1.31
685.8	715.8	1.21	1.25	1.30	685.8	2.23	2.94	3.79	248.7	1.69	1.48	1.31
726.8	756.8	1.31	1.33	1.38	726.8	2.31	3.03	3.86	261.3	1.70	1.49	1.32
747.2	777.2	1.37	1.39	1.43	747.2	2.33	3.05	3.87	273.8	1.69	1.49	1.31
788.2	818.2	1.51	1.52	1.55	788.2	2.39	3.12	3.94	286.4	1.69	1.48	1.31
808.7	838.7	1.56	1.57	1.60	808.7	2.42	3.15	3.96	299.0	1.67	1.47	1.30
849.6	879.6	1.66	1.68	1.70	849.6	2.43	3.14	3.93	311.5	1.65	1.45	1.29
870.1	900.1	1.70	1.73	1.76	870.1	2.45	3.15	3.93	324.1	1.64	1.43	1.27
911.1	941.1	1.81	1.85	1.89	911.1	2.49	3.17	3.91	336.7	1.62	1.42	1.26
931.5	961.5	1.88	1.93	1.98	931.5	2.49	3.16	3.87	349.2	1.63	1.44	1.27
972.5	1002.5	2.05	2.10	2.15	972.5	2.51	3.13	3.79	361.8	1.65	1.45	1.28
993.0	1023.0	2.11	2.17	2.22	993.0	2.51	3.12	3.76	374.4	1.67	1.47	1.30
1033.9	1063.9	2.26	2.32	2.37	1033.9	2.52	3.09	3.68	386.9	1.66	1.47	1.30
1054.4	1084.4	2.31	2.36	2.41	1054.4	2.53	3.07	3.64	399.5	1.65	1.45	1.29
1095.3	1125.3	2.41	2.46	2.50	1095.3	2.51	3.00	3.50	412.1	1.64	1.44	1.28
1115.8	1145.8	2.48	2.53	2.57	1115.8	2.53	2.98	3.47	424.6	1.61	1.42	1.27
1156.8	1186.8	2.56	2.61	2.65	1156.8	2.53	2.94	3.37	437.2	1.61	1.42	1.26
1177.2	1207.2	2.60	2.65	2.69	1177.2	2.52	2.89	3.31	449.7	1.62	1.43	1.28
1218.2	1248.2	2.67	2.71	2.74	1218.2	2.51	2.86	3.22	462.3	1.65	1.46	1.31
1238.7	1268.7	2.67	2.70	2.73	1238.7	2.51	2.83	3.17	474.9	1.69	1.49	1.33
1279.6	1309.6	2.68	2.69	2.72	1279.6	2.46	2.75	3.07	487.4	1.71	1.52	1.35
1300.1	1330.1	2.67	2.67	2.69	1300.1	2.42	2.72	3.00	500.0	1.45	1.37	1.35

REV. X2
LRMS-1LHJ
100817
Page 4 of 5

Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	9	19	11	25	11	31	18	37	20	39
1	-	17	+0	27	12	35	19	42	31	45	42	46
2	>100	69	48	69	49	67	49	74	53	76	68	71
3	>100	74	79	76	68	77	62	>80	64	>80	68	>80
4	>100	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80
5	>100	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80
6	>100	>80	>80	>80	>80	>80	79	>80	>80	>80	>80	>80
7	>100	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80
8	>100	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80
9	>100	>80	>80	>80	>80	>80	>80	>80	>80	68	>80	>80
10	>100	>80	>80	>80	>80	>80	>80	>80	>80	>80	64	>80
RF CAL	0	1	2	3	4	5	6	7	8	9	10	

LO HARMONICS ORDER

Test conditions:

RF IN: 250.1 MHz; -14.00 dBm.
LO IN: 280.01 MHz; +10.00 dBm
IF OUT: 29.91 MHz; -20.13 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	18	29	22	36	22	42	28	47	31	48
1	-	17	+0	27	12	35	19	42	30	46	39	47
2	>100	60	41	61	42	57	42	68	45	65	62	70
3	>100	57	56	62	54	68	46	61	49	74	56	67
4	>100	76	61	85	61	83	64	77	63	87	69	89
5	>100	80	71	79	70	75	66	72	63	78	64	82
6	>100	>90	84	>90	84	>90	>90	>90	89	86	80	>90
7	>100	>90	>90	88	88	87	82	>90	79	85	80	>90
8	>100	>90	>90	>90	>90	>90	>90	>90	81	>90	87	>90
9	>100	>90	>90	>90	>90	>90	>90	>90	>90	69	>90	>90
10	>100	>90	>90	>90	>90	>90	>90	>90	>90	>90	77	>90
RF CAL	0	1	2	3	4	5	6	7	8	9	10	

LO HARMONICS ORDER

Test conditions:

RF IN: 250.1 MHz; -4.00 dBm.
LO IN: 280.01 MHz; +10.00 dBm
IF OUT: 29.91 MHz; -10.25 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. X2
LRMS-1LHJ
100817
Page 5 of 5



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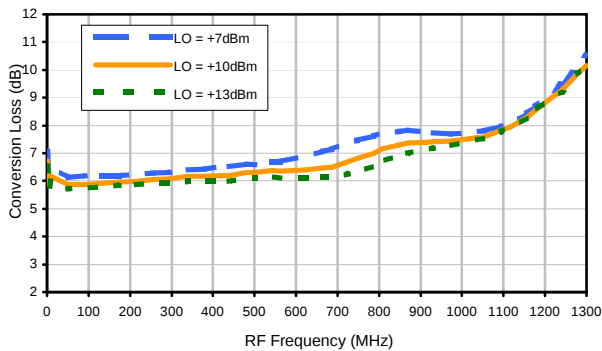


Frequency Mixer

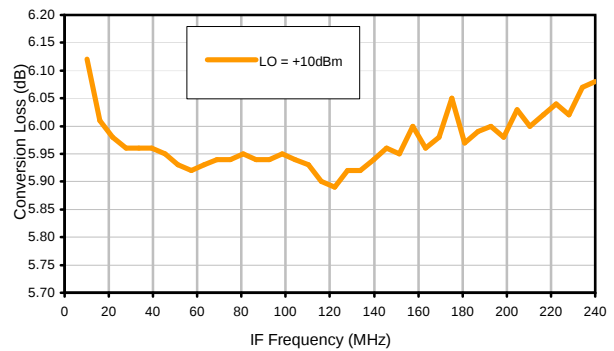
LRMS-1LHJ

Typical Performance Curves

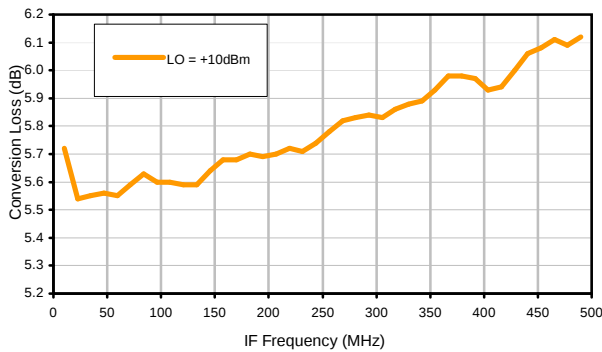
Conversion Loss @ IF=30MHz



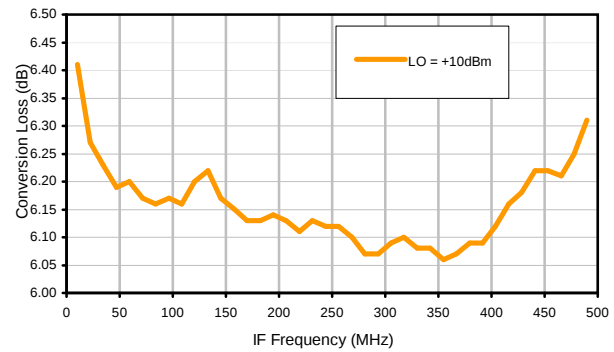
Conversion Loss vs. IF @ RF=250.1MHz



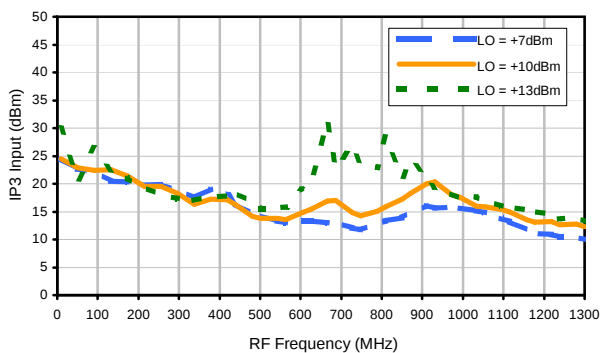
Conversion Loss vs. IF @ RF=10.1MHz



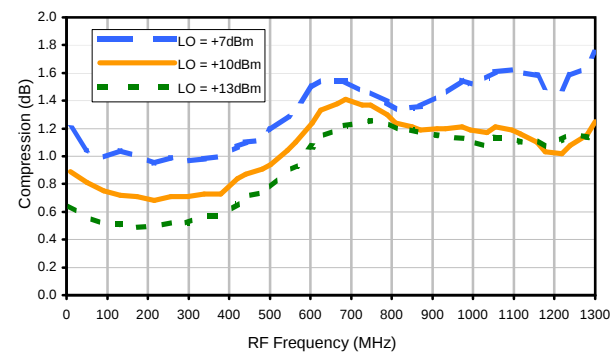
Conversion Loss vs. IF @ RF=500.1MHz



IP3 Input



Compression @ RF IN=+5dBm

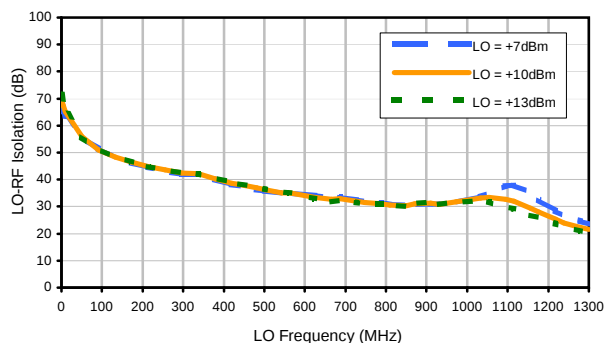


Frequency Mixer

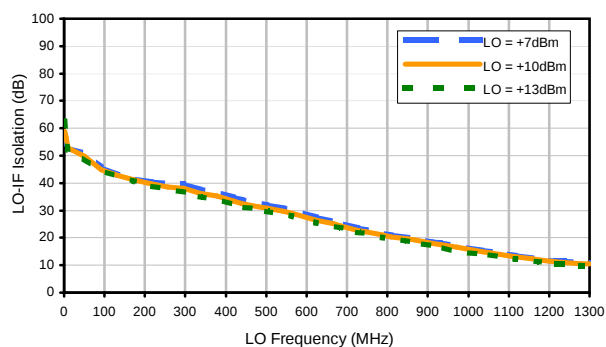
LRMS-1LHJ

Typical Performance Curves

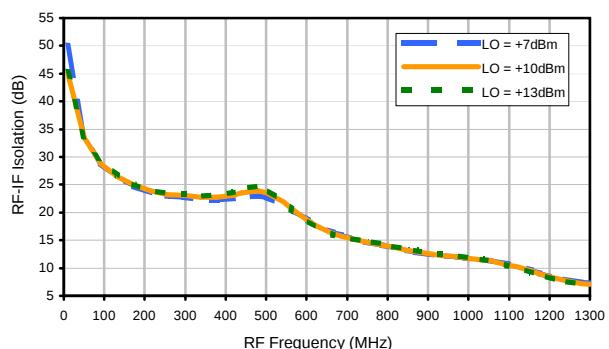
LO-RF Isolation



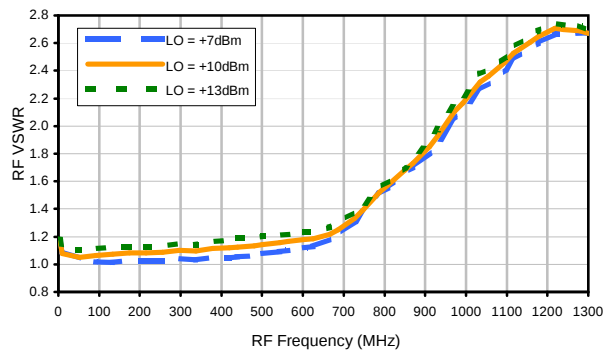
LO-IF Isolation



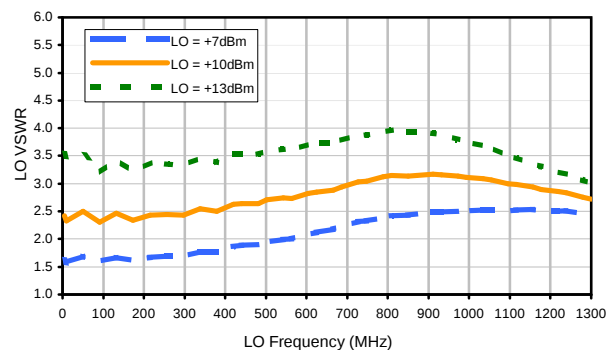
RF-IF Isolation



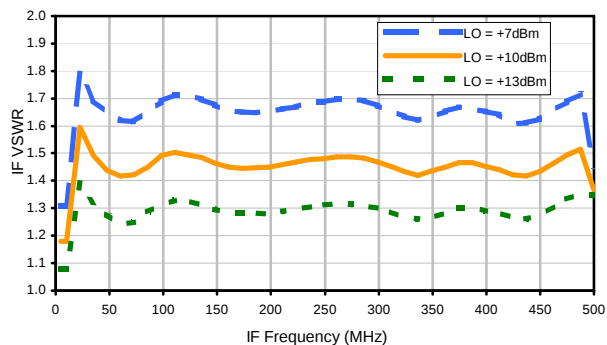
RF VSWR



LO VSWR



IF VSWR



REV. X2
LRMS-1LHJ
100817
Page 2 of 3



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Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	9	19	11	25	11	31	18	37	20	39
1	-	17	+0	27	12	35	19	42	31	45	42	46
2	>100	69	48	69	49	67	49	74	53	76	68	71
3	>100	74	79	76	68	77	62	>80	64	>80	68	>80
4	>100	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80
5	>100	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80
6	>100	>80	>80	>80	>80	>80	79	>80	>80	>80	>80	>80
7	>100	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80
8	>100	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80
9	>100	>80	>80	>80	>80	>80	>80	>80	>80	68	>80	>80
10	>100	>80	>80	>80	>80	>80	>80	>80	>80	>80	64	>80
RF CAL	0	1	2	3	4	5	6	7	8	9	10	

LO HARMONICS ORDER

Test conditions:

RF IN: 250.1 MHz; -14.00 dBm.
LO IN: 280.01 MHz; +10.00 dBm
IF OUT: 29.91 MHz; -20.13 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	18	29	22	36	22	42	28	47	31	48
1	-	17	+0	27	12	35	19	42	30	46	39	47
2	>100	60	41	61	42	57	42	68	45	65	62	70
3	>100	57	56	62	54	68	46	61	49	74	56	67
4	>100	76	61	85	61	83	64	77	63	87	69	89
5	>100	80	71	79	70	75	66	72	63	78	64	82
6	>100	>90	84	>90	84	>90	>90	>90	89	86	80	>90
7	>100	>90	>90	88	88	87	82	>90	79	85	80	>90
8	>100	>90	>90	>90	>90	>90	>90	>90	81	>90	87	>90
9	>100	>90	>90	>90	>90	>90	>90	>90	>90	69	>90	>90
10	>100	>90	>90	>90	>90	>90	>90	>90	>90	>90	77	>90
RF CAL	0	1	2	3	4	5	6	7	8	9	10	

LO HARMONICS ORDER

Test conditions:

RF IN: 250.1 MHz; -4.00 dBm.
LO IN: 280.01 MHz; +10.00 dBm
IF OUT: 29.91 MHz; -10.25 dBm

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REV. X2
LRMS-1LHJ
100817
Page 3 of 3



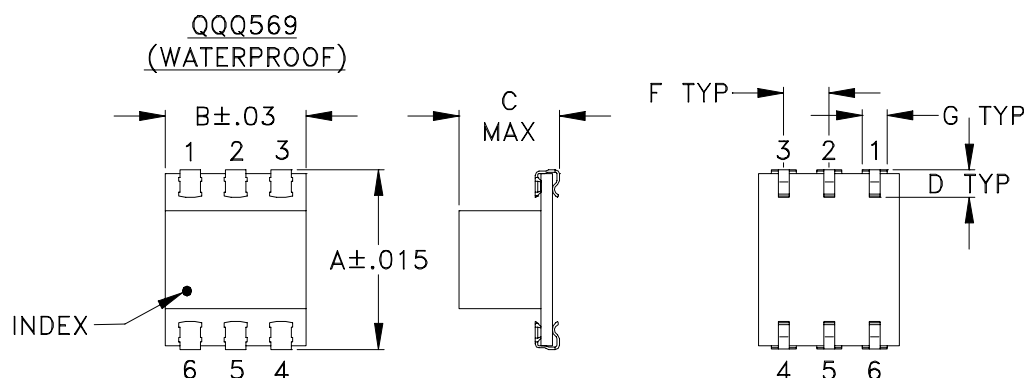
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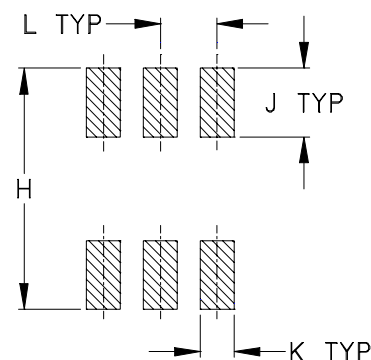
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Outline Dimensions



PCB Land Pattern



Suggested Layout,
Tolerance to be within $\pm .002$

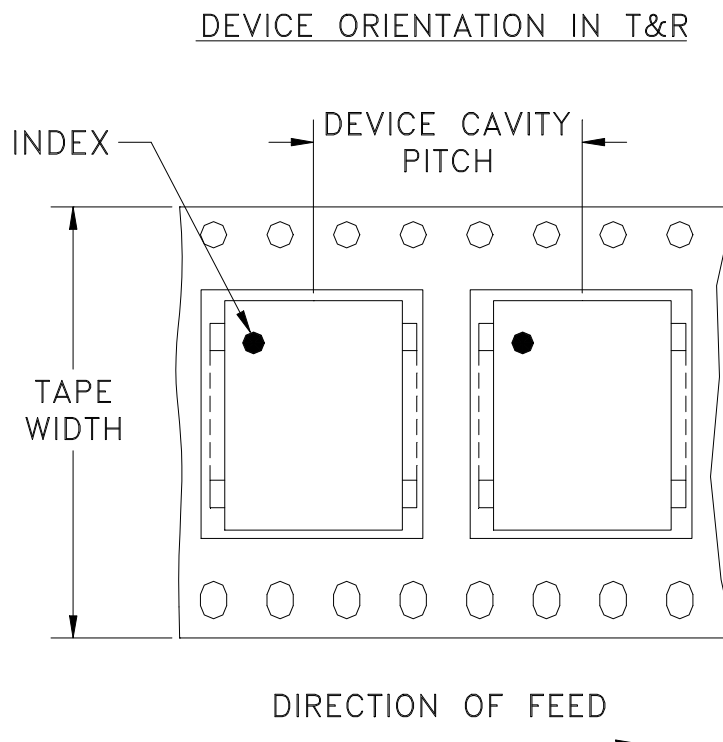
CASE#	A	B	C	D	E	F	G	H	J	K	L	M	WT, GRAM
QQQ569	.390 (9.90)	.31 (7.87)	.225 (5.72)	.060 (1.52)	-	.100 (2.54)	.045 (1.14)	.420 (10.67)	.120 (3.05)	.060 (1.52)	.100 (2.54)	-	.50

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

Notes:

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

Tape & Reel Packaging TR-F5



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.

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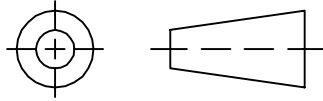
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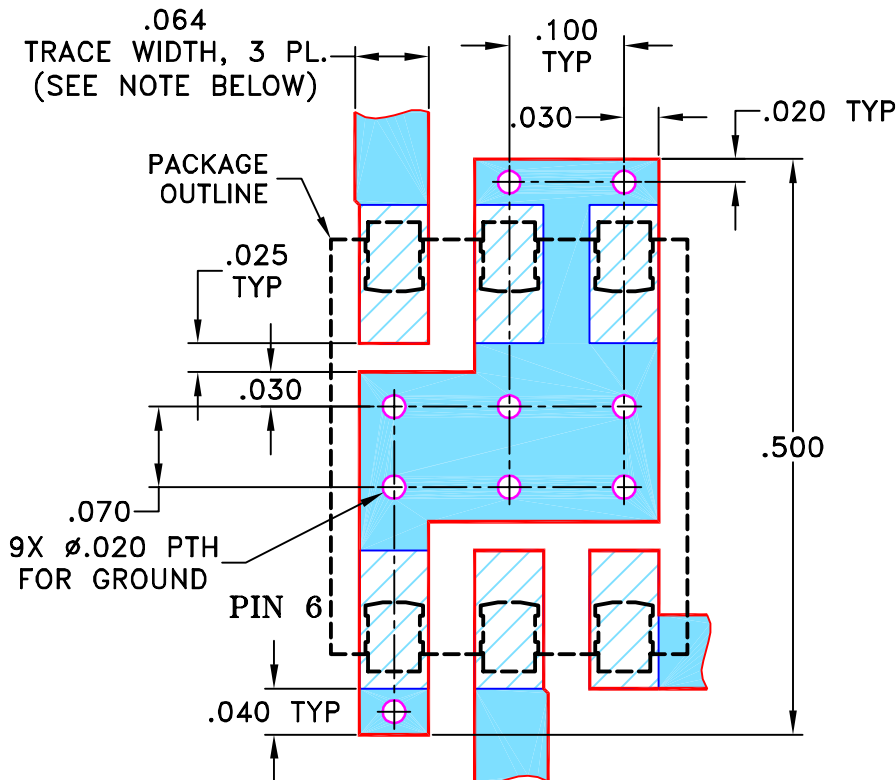
THIRD ANGLE PROJECTION



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" $\pm$ 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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Brooklyn NY 11235

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

SIZE

A

CODE IDENT

15542

DRAWING NO:

98-PL-083

REV:

A

FILE:

98PL083

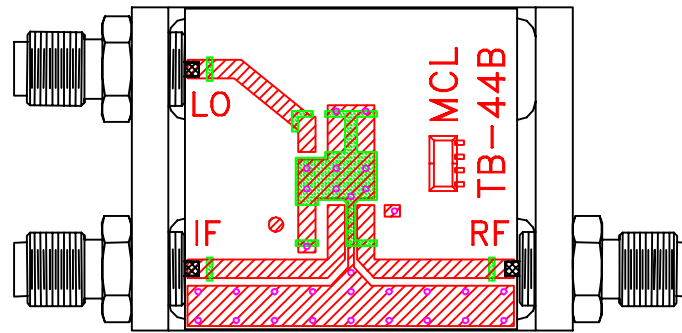
SCALE:

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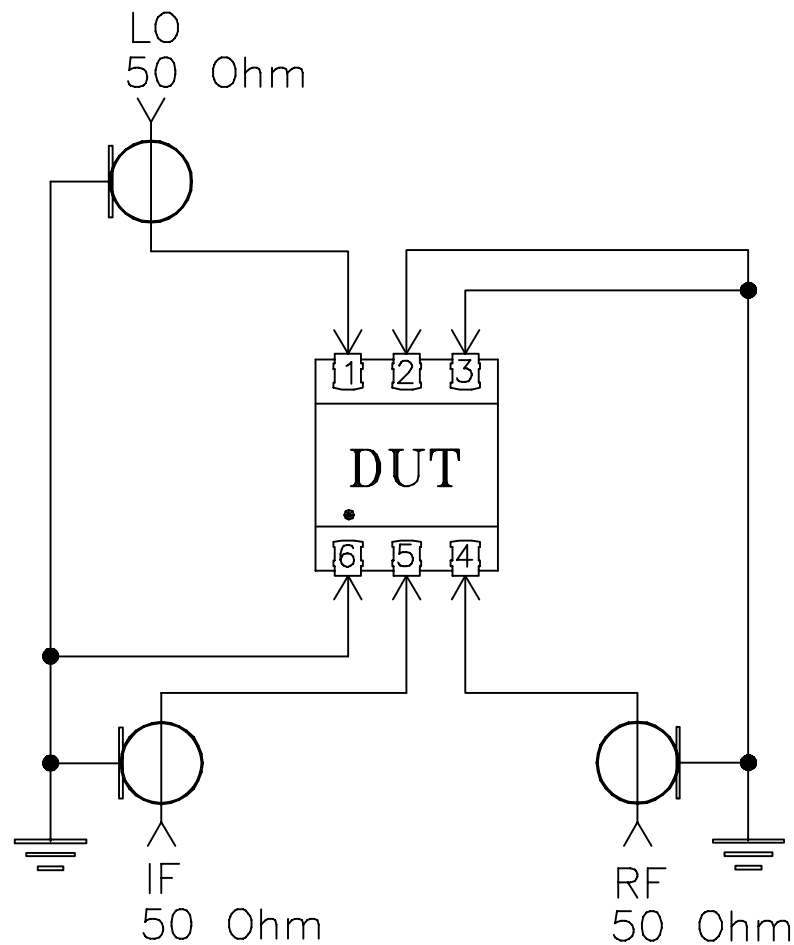
SHEET:

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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