

Non-Catalog Model

Frequency Mixer

LRMS-2HJ

Level 17 (LO Power +17 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)	5		1000	MHz
	RF (fL to fU)	5		1000	MHz
	IF	0		900	MHz
Conversion Loss	mid band		7.0	8.5	dB
	Total Range			9.3	dB
LO-RF Isolation	Low Range	40	55		dB
	Mid Range	22	39		dB
	Upper Range	20	33		dB
LO-IF Isolation	Low Range	30	52		dB
	Mid Range	22	45		dB
	Upper Range	17	30		dB
1 dB Comp. Input Power			+14		dBm

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

Mid Range = [10fL to fU/2]

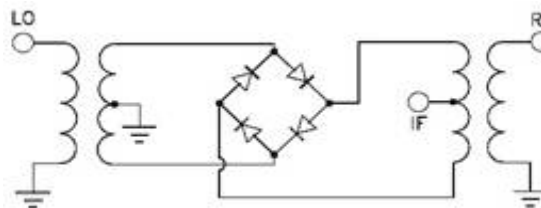
Upper Range = [fU/2 to fU]

Phase detection, positive polarity.
Aqueous washable.

MAXIMUM RATINGS	
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power	200mW
IF Current	40mA

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

Electrical Schematics



Frequency Mixer

LRMS-2HJ

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB)		
		@LO (dBm)		
		+14	+17	+20
5.0	35.0	9.06	7.85	7.26
10.0	40.0	8.86	7.64	7.07
49.8	79.8	8.24	7.17	6.71
89.6	119.6	8.21	7.14	6.69
129.3	159.3	8.17	7.11	6.65
169.0	199.0	8.11	7.09	6.64
208.8	238.8	7.97	6.92	6.60
248.5	278.5	8.16	7.07	6.68
288.2	318.2	7.75	6.90	6.61
328.0	358.0	7.82	6.98	6.69
367.7	397.7	7.68	6.96	6.67
407.4	437.4	7.57	6.90	6.63
447.2	477.2	7.68	6.98	6.66
486.9	516.9	7.65	6.98	6.65
526.6	556.6	7.79	7.16	6.77
566.4	596.4	7.75	7.15	6.78
606.1	636.1	7.79	7.10	6.76
645.8	675.8	7.79	7.07	6.70
685.6	715.6	7.76	7.07	6.69
725.3	755.3	7.87	7.18	6.80
765.0	795.0	7.91	7.26	6.87
804.8	834.8	8.11	7.46	7.04
844.5	874.5	8.30	7.63	7.17
884.2	914.2	8.50	7.77	7.29
924.0	954.0	8.70	7.89	7.37
1003.4	1033.4	9.11	8.07	7.41
1043.2	1073.2	9.09	7.95	7.32
1082.9	1112.9	9.37	8.14	7.43
1122.6	1152.6	9.40	8.13	7.38
1162.4	1192.4	9.57	8.31	7.53
1202.1	1232.1	9.72	8.47	7.67
1241.8	1271.8	9.86	8.63	7.82
1281.6	1311.6	10.15	8.93	8.12
1321.3	1351.3	10.25	9.05	8.25
1361.0	1391.0	10.49	9.33	8.57
1380.9	1410.9	10.55	9.44	8.66
1420.6	1450.6	10.71	9.60	8.87
1440.5	1470.5	10.73	9.64	8.93
1480.2	1510.2	10.89	9.91	9.23
1500.1	1530.1	10.98	10.04	9.40

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm)		
		@LO (dBm)		
		+14	+17	+20
10.1	40.1	22.84	26.80	30.39
49.8	79.8	21.92	25.30	28.79
89.6	119.6	22.36	25.71	28.52
129.3	159.3	23.01	26.45	29.20
169.0	199.0	22.30	26.01	30.20
208.8	238.8	23.45	27.03	29.60
248.5	278.5	21.25	25.25	29.52
288.2	318.2	24.07	29.61	26.31
328.0	358.0	23.85	27.12	26.04
367.7	397.7	24.88	27.20	26.09
407.4	437.4	28.61	24.99	25.00
447.2	477.2	25.62	22.87	24.16
486.9	516.9	23.05	22.12	23.62
526.6	556.6	23.16	22.27	23.47
566.4	596.4	23.94	23.60	25.13
606.1	636.1	25.57	25.04	27.42
645.8	675.8	25.93	24.77	26.79
685.6	715.6	24.57	24.29	26.17
725.3	755.3	20.87	22.91	24.99
765.0	795.0	19.17	21.53	25.10
804.8	834.8	17.87	19.95	23.59
844.5	874.5	17.12	19.07	21.85
884.2	914.2	16.62	18.83	22.08
924.0	954.0	16.54	18.88	22.15
963.7	993.7	16.34	18.21	21.66
1003.4	1033.4	16.81	19.21	23.82
1043.2	1073.2	17.40	20.92	26.28
1082.9	1112.9	17.12	20.98	26.79
1122.6	1152.6	17.92	22.26	28.84
1162.4	1192.4	18.68	23.24	27.34
1202.1	1232.1	19.16	23.23	24.94
1241.8	1271.8	18.72	21.75	23.84
1281.6	1311.6	17.96	20.46	22.00
1321.3	1351.3	17.55	19.50	21.71
1361.0	1391.0	17.14	19.30	22.02
1380.9	1410.9	17.05	19.22	22.35
1420.6	1450.6	17.30	20.43	23.91
1440.5	1470.5	17.67	21.45	26.72
1480.2	1510.2	18.42	22.63	27.75
1500.1	1530.1	19.22	25.03	27.28

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+14dBm (dB)		
		@LO (dBm)		
		+14	+17	+20
10.1	40.1	0.31	0.12	0.07
49.8	79.8	0.37	0.12	0.07
89.6	119.6	0.18	0.05	0.04
129.3	159.3	0.29	0.08	0.07
169.0	199.0	0.20	0.10	0.08
208.8	238.8	0.34	0.16	0.09
248.5	278.5	0.21	0.14	0.08
288.2	318.2	0.47	0.21	0.10
328.0	358.0	0.50	0.15	0.08
367.7	397.7	0.56	0.15	0.09
407.4	437.4	0.61	0.20	0.12
447.2	477.2	0.52	0.20	0.14
486.9	516.9	0.56	0.19	0.17
526.6	556.6	0.57	0.15	0.14
566.4	596.4	0.58	0.18	0.18
606.1	636.1	0.67	0.26	0.23
645.8	675.8	0.68	0.35	0.29
685.6	715.6	0.72	0.39	0.32
725.3	755.3	0.79	0.45	0.37
765.0	795.0	0.79	0.51	0.41
804.8	834.8	0.84	0.48	0.40
844.5	874.5	0.85	0.56	0.44
884.2	914.2	0.78	0.55	0.46
924.0	954.0	0.72	0.55	0.50
963.7	993.7	0.53	0.54	0.54
1003.4	1033.4	0.57	0.61	0.64
1043.2	1073.2	0.64	0.71	0.71
1082.9	1112.9	0.56	0.69	0.73
1122.6	1152.6	0.55	0.75	0.79
1162.4	1192.4	0.49	0.69	0.75
1202.1	1232.1	0.45	0.65	0.73
1241.8	1271.8	0.44	0.63	0.72
1281.6	1311.6	0.39	0.57	0.68
1321.3	1351.3	0.47	0.62	0.72
1361.0	1391.0	0.53	0.66	0.73
1380.9	1410.9	0.56	0.67	0.73
1420.6	1450.6	0.65	0.71	0.74
1440.5	1470.5	0.72	0.79	0.81
1480.2	1510.2	0.83	0.84	0.86
1500.1	1530.1	0.84	0.85	0.88

REV. X2
LRMS-2HJ
100817
Page 1 of 5



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Frequency Mixer

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Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=500.1MHz (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)=1000.1MHz (dB)
		@LO (dBm)			@LO (dBm)			@LO (dBm)
		+17			+17			+17
490.0	10.1	7.14	10.0	20.1	6.99	900.0	100.1	7.49
477.7	22.4	7.08	29.8	39.9	6.87	880.2	119.9	7.42
465.4	34.7	7.05	49.6	59.7	7.02	860.4	139.7	7.39
453.1	47.0	7.13	69.3	79.4	7.08	840.7	159.4	7.31
440.8	59.3	7.18	89.1	99.2	7.01	820.9	179.2	7.27
428.5	71.6	7.01	108.9	119.0	7.02	801.1	199.0	7.22
416.2	83.9	7.07	128.7	138.8	7.04	781.3	218.8	7.13
403.8	96.3	7.04	148.4	158.5	7.08	761.6	238.5	7.12
391.5	108.6	7.02	168.2	178.3	7.08	741.8	258.3	7.11
379.2	120.9	6.99	188.0	198.1	7.15	722.0	278.1	7.13
366.9	133.2	6.82	207.8	217.9	7.11	702.2	297.9	7.03
354.6	145.5	6.78	227.6	237.7	7.07	682.4	317.7	7.05
342.3	157.8	6.85	247.3	257.4	7.16	662.7	337.4	7.09
330.0	170.1	6.89	267.1	277.2	7.31	642.9	357.2	7.12
317.7	182.4	6.83	286.9	297.0	7.21	623.1	377.0	7.18
305.4	194.7	6.74	306.7	316.8	7.14	603.3	396.8	7.15
293.1	207.0	6.65	326.4	336.5	7.26	583.6	416.5	7.19
280.8	219.3	6.61	346.2	356.3	7.23	563.8	436.3	7.20
268.5	231.6	6.69	366.0	376.1	7.27	544.0	456.1	7.24
256.2	243.9	6.63	385.8	395.9	7.29	524.2	475.9	7.26
243.8	256.3	6.59	405.6	415.7	7.27	504.4	495.7	7.22
231.5	268.6	6.64	425.3	435.4	7.30	484.7	515.4	7.29
219.2	280.9	6.62	445.1	455.2	7.28	464.9	535.2	7.28
206.9	293.2	6.65	464.9	475.0	7.38	445.1	555.0	7.35
194.6	305.5	6.67	484.7	494.8	7.32	425.3	574.8	7.31
182.3	317.8	6.62	504.4	514.5	7.29	405.6	594.5	7.31
170.0	330.1	6.65	524.2	534.3	7.31	385.8	614.3	7.36
157.7	342.4	6.70	544.0	554.1	7.35	366.0	634.1	7.35
145.4	354.7	6.70	563.6	573.7	7.29	346.4	653.7	7.39
133.1	367.0	6.76	583.6	593.7	7.29	326.4	673.7	7.39
120.8	379.3	6.75	603.3	613.4	7.36	306.7	693.4	7.42
108.5	391.6	6.72	622.7	632.8	7.36	286.9	713.0	7.54
96.2	403.9	6.77	642.9	653.0	7.44	267.1	732.8	7.64
83.8	416.3	6.77	662.7	672.8	7.48	247.3	752.8	7.79
71.5	428.6	6.78	682.4	692.7	7.51	227.6	772.3	7.86
59.2	440.9	6.84	702.2	712.3	7.60	207.8	792.3	8.00
46.9	453.2	6.83	722.0	732.1	7.56	188.0	812.1	8.08
34.6	465.5	6.90	741.6	751.7	7.56	168.2	831.9	8.10
22.3	477.8	6.95	761.6	771.7	7.58	148.4	851.7	8.12
10.0	490.1	6.97	781.3	791.4	7.50	128.7	871.4	8.02
			800.9	810.9	7.50	108.9	891.1	8.02
			820.7	830.7	7.50	89.1	910.9	8.10
			840.7	850.7	7.50	69.3	930.8	8.12
			880.2	890.3	7.49	29.8	970.3	8.02
			900.0	910.1	7.49	10.0	990.1	8.02

REV. X2
LRMS-2HJ
100817
Page 2 of 5



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Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)		
	@LO (dBm)			@LO (dBm)		
	+14	+17	+20	+14	+17	+20
5.0	64.63	66.33	68.05	72.73	72.89	71.08
10.0	62.11	63.63	65.24	71.84	68.70	65.74
49.8	49.30	50.68	51.94	61.86	53.37	49.96
89.6	44.13	45.37	46.65	60.65	51.25	46.58
129.3	40.91	42.33	43.56	58.08	47.67	43.25
169.0	38.83	40.06	41.21	58.54	46.33	41.40
208.8	37.11	38.44	39.68	57.83	44.39	41.02
248.5	35.83	37.11	38.28	55.21	43.73	40.36
288.2	34.72	36.10	37.15	54.32	46.57	41.33
328.0	33.95	35.35	36.34	51.61	48.50	40.86
367.7	33.26	34.61	35.66	49.75	49.98	40.97
407.4	32.71	33.97	34.94	45.04	49.89	40.93
447.2	32.29	33.28	34.10	42.01	46.73	40.41
486.9	31.97	32.79	33.48	38.67	43.23	39.92
526.6	31.77	32.77	33.52	36.78	40.45	38.65
566.4	31.63	32.76	33.47	34.28	36.84	37.44
606.1	31.65	32.88	33.50	32.84	35.21	36.16
645.8	31.57	32.55	32.99	31.35	33.89	34.77
685.6	31.37	32.05	32.37	29.98	33.45	34.05
725.3	30.90	31.54	31.89	28.81	32.95	33.56
765.0	30.27	30.90	31.49	27.64	31.91	34.17
804.8	29.60	30.43	31.18	26.94	31.01	34.22
844.5	29.07	29.98	30.97	26.13	29.77	33.73
884.2	28.88	29.88	31.03	25.59	29.06	32.72
924.0	28.84	30.06	31.49	24.99	28.27	31.41
1003.4	29.59	31.23	32.85	24.23	27.04	29.42
1043.2	30.28	32.06	33.43	23.66	26.15	28.13
1082.9	30.92	32.32	33.09	23.33	25.48	27.24
1122.6	31.56	32.48	32.73	22.82	24.71	26.31
1162.4	31.69	31.91	31.73	22.52	24.32	25.81
1202.1	31.06	30.89	30.62	22.16	24.12	25.63
1241.8	30.36	29.90	29.49	21.96	24.41	26.05
1281.6	29.71	29.08	28.68	21.48	24.36	26.44
1321.3	29.00	28.19	27.81	20.92	24.15	26.71
1361.0	28.25	27.41	26.85	20.51	24.03	27.11
1380.9	27.86	27.08	26.80	20.23	23.75	27.18
1420.6	26.95	26.51	26.32	19.53	23.14	27.06
1440.5	26.43	26.02	25.82	19.32	23.06	27.32
1480.2	25.68	25.59	25.63	19.09	22.96	27.43
1500.1	25.08	25.19	25.31	18.74	22.62	27.23

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
		@LO (dBm)		
		+14	+17	+20
10.1	40.1	56.55	47.57	49.50
49.8	79.8	38.58	38.61	38.91
89.6	119.6	34.36	34.54	34.57
129.3	159.3	31.81	32.12	32.55
169.0	199.0	30.08	30.67	30.98
208.8	238.8	29.08	29.73	30.07
248.5	278.5	28.39	28.99	29.51
288.2	318.2	28.34	28.89	29.37
328.0	358.0	28.13	29.28	29.81
367.7	397.7	27.83	29.41	30.46
407.4	437.4	27.58	29.45	31.21
447.2	477.2	27.42	29.24	30.84
486.9	516.9	27.77	29.10	29.45
526.6	556.6	27.12	27.94	28.28
566.4	596.4	25.54	26.01	26.64
606.1	636.1	23.51	23.90	24.52
645.8	675.8	21.45	21.57	21.90
685.6	715.6	19.68	19.51	19.53
725.3	755.3	18.19	17.74	17.52
765.0	795.0	16.93	16.39	16.06
804.8	834.8	15.90	15.35	15.03
844.5	874.5	15.07	14.44	14.10
884.2	914.2	14.34	13.65	13.30
924.0	954.0	13.60	13.02	12.68
963.7	993.7	13.04	12.52	12.30
1003.4	1033.4	12.46	12.03	11.79
1043.2	1073.2	11.98	11.72	11.51
1082.9	1112.9	11.71	11.53	11.45
1122.6	1152.6	11.35	11.30	11.33
1162.4	1192.4	11.11	11.13	11.20
1202.1	1232.1	10.91	10.97	11.05
1241.8	1271.8	10.78	10.87	10.88
1281.6	1311.6	10.66	10.78	10.76
1321.3	1351.3	10.48	10.62	10.59
1361.0	1391.0	10.25	10.45	10.42
1380.9	1410.9	10.11	10.34	10.32
1420.6	1450.6	9.87	10.03	9.92
1440.5	1470.5	9.76	9.85	9.77
1480.2	1510.2	9.44	9.43	9.29
1500.1	1530.1	9.26	9.19	9.02

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Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1)			LO (MHz)	LO VSWR (:1)			IF (OUT) (MHz)	IF VSWR @LO=1000.1MHz (:1)		
		@LO (dBm)				@LO (dBm)				@LO (dBm)		
		+14	+17	+20		+14	+17	+20		+14	+17	+20
5.0	35.0	1.40	1.54	1.67	5.0	1.52	1.95	2.77	5.0	1.31	1.07	1.07
10.0	40.0	1.32	1.49	1.62	10.0	1.31	1.85	2.65	10.0	1.32	1.08	1.06
49.8	79.8	1.03	1.12	1.22	49.7	1.09	1.74	2.66	29.9	3.09	2.25	1.87
89.6	119.6	1.04	1.14	1.24	89.5	1.08	1.62	2.39	49.7	3.00	2.25	1.80
129.3	159.3	1.06	1.15	1.25	129.2	1.10	1.70	2.57	69.4	3.16	2.39	1.90
169.0	199.0	1.07	1.16	1.26	168.9	1.09	1.64	2.43	89.2	3.12	2.33	1.88
208.8	238.8	1.09	1.20	1.30	208.7	1.10	1.65	2.47	109.0	2.95	2.20	1.79
248.5	278.5	1.09	1.17	1.29	248.4	1.12	1.68	2.51	128.8	3.06	2.30	1.88
288.2	318.2	1.10	1.22	1.33	288.2	1.10	1.64	2.43	148.5	3.08	2.32	1.87
328.0	358.0	1.10	1.23	1.33	327.9	1.12	1.70	2.54	168.3	2.94	2.23	1.81
367.7	397.7	1.11	1.24	1.34	367.6	1.10	1.67	2.47	188.1	2.97	2.25	1.84
407.4	437.4	1.13	1.28	1.38	407.4	1.11	1.71	2.53	207.9	3.03	2.32	1.90
447.2	477.2	1.12	1.27	1.38	447.1	1.12	1.73	2.54	227.7	2.95	2.25	1.86
486.9	516.9	1.15	1.28	1.38	486.8	1.12	1.72	2.53	247.4	2.86	2.20	1.82
526.6	556.6	1.14	1.27	1.36	526.6	1.14	1.77	2.60	267.2	2.91	2.25	1.86
566.4	596.4	1.16	1.28	1.37	566.3	1.16	1.77	2.57	287.0	2.91	2.26	1.88
606.1	636.1	1.18	1.32	1.41	606.0	1.18	1.81	2.63	306.8	2.84	2.21	1.85
645.8	675.8	1.19	1.35	1.45	645.8	1.21	1.83	2.63	326.5	2.82	2.21	1.86
685.6	715.6	1.24	1.40	1.50	685.5	1.24	1.85	2.65	346.3	2.85	2.25	1.90
725.3	755.3	1.25	1.41	1.51	725.2	1.27	1.89	2.70	366.1	2.80	2.22	1.88
765.0	795.0	1.26	1.41	1.51	765.0	1.32	1.92	2.71	385.9	2.76	2.17	1.84
804.8	834.8	1.26	1.40	1.49	804.7	1.35	1.97	2.78	405.7	2.74	2.18	1.87
844.5	874.5	1.24	1.36	1.45	844.5	1.38	1.99	2.78	425.4	2.71	2.18	1.88
884.2	914.2	1.22	1.33	1.41	884.2	1.42	2.03	2.81	445.2	2.61	2.10	1.82
924.0	954.0	1.21	1.30	1.38	923.9	1.45	2.04	2.82	465.0	2.64	2.12	1.83
963.7	993.7	1.19	1.27	1.36	963.7	1.49	2.07	2.85	484.8	2.68	2.16	1.87
1003.4	1033.4	1.24	1.31	1.40	1003.4	1.51	2.08	2.85	504.5	2.62	2.12	1.85
1043.2	1073.2	1.31	1.38	1.47	1043.1	1.52	2.07	2.83	524.3	2.52	2.04	1.79
1082.9	1112.9	1.40	1.46	1.53	1082.9	1.57	2.11	2.86	544.1	2.55	2.07	1.82
1122.6	1152.6	1.54	1.58	1.64	1122.6	1.60	2.11	2.84	583.7	2.51	2.05	1.81
1162.4	1192.4	1.68	1.71	1.75	1162.3	1.65	2.15	2.88	603.4	2.49	2.03	1.79
1202.1	1232.1	1.84	1.86	1.89	1202.1	1.73	2.20	2.89	643.0	2.43	1.99	1.78
1241.8	1271.8	2.02	2.01	2.03	1241.8	1.80	2.25	2.93	662.8	2.40	1.96	1.75
1281.6	1311.6	2.21	2.19	2.18	1281.6	1.87	2.29	2.96	702.3	2.46	2.01	1.78
1321.3	1351.3	2.42	2.38	2.35	1321.3	1.92	2.31	2.95	722.1	2.37	1.94	1.72
1361.0	1391.0	2.62	2.58	2.53	1361.0	1.99	2.37	3.01	761.7	2.37	1.93	1.72
1380.9	1410.9	2.71	2.66	2.60	1380.9	2.02	2.37	3.00	781.4	2.34	1.91	1.70
1420.6	1450.6	2.88	2.82	2.73	1420.6	2.07	2.37	2.96	821.0	2.31	1.87	1.65
1440.5	1470.5	2.93	2.87	2.78	1440.5	2.09	2.39	2.99	840.8	2.26	1.84	1.64
1480.2	1510.2	3.04	2.97	2.87	1480.2	2.17	2.42	3.00	880.3	2.23	1.80	1.59
1500.1	1530.1	3.08	3.00	2.90	1500.1	2.20	2.42	2.97	900.1	2.25	1.82	1.61

REV. X2
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Page 4 of 5



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Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	15	40	6	20	17	34	32	39	33	39
1	-	22	+0	28	14	30	27	36	40	42	35	48
2	96	47	43	47	43	49	41	48	54	60	63	60
3	>100	69	54	70	54	70	51	65	55	78	64	72
4	>100	78	80	81	>92	79	77	73	72	74	83	82
5	>100	>92	88	86	88	87	83	83	80	83	82	>92
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7	>100	>92	>92	>92	>92	>92	>92	>92	>92	>92	>92	>92
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10	>100	>92	>92	>92	>92	>92	>92	>92	>92	>92	>92	>92
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 500.1 MHz; -1.00 dBm.
LO IN: 530.01 MHz; +17.00 dBm
IF OUT: 29.91 MHz; -8.25 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	25	40	19	38	32	46	48	56	44	57
1	-	22	+0	28	14	32	26	39	47	49	41	51
2	78	44	36	44	35	48	34	44	45	65	55	59
3	>100	54	40	56	41	55	36	50	45	56	52	59
4	>100	54	55	55	54	58	54	57	51	61	74	63
5	>100	76	57	67	52	74	52	64	50	69	54	73
6	>100	81	73	71	77	67	66	66	62	65	57	65
7	>100	82	93	87	74	76	73	78	68	73	64	84
8	>100	94	94	100	86	78	78	74	73	72	70	73
9	>100	>102	101	97	>102	89	80	77	77	79	76	76
10	>100	98	101	>102	98	99	90	82	82	81	79	81
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 500.1 MHz; 9.00 dBm.
LO IN: 530.01 MHz; +17.00 dBm
IF OUT: 29.91 MHz; 1.7 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-2HJ
100817
Page 5 of 5

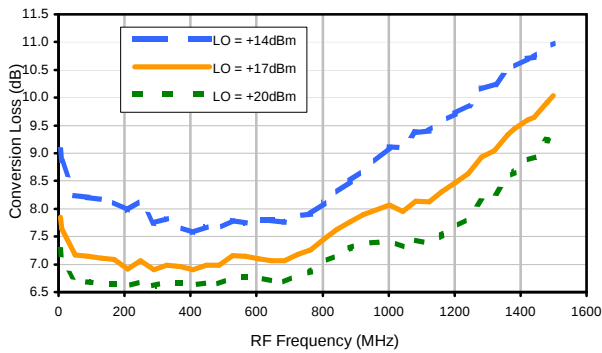


Frequency Mixer

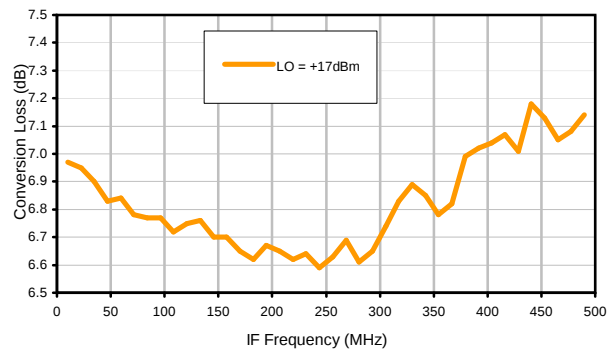
LRMS-2HJ

Typical Performance Curves

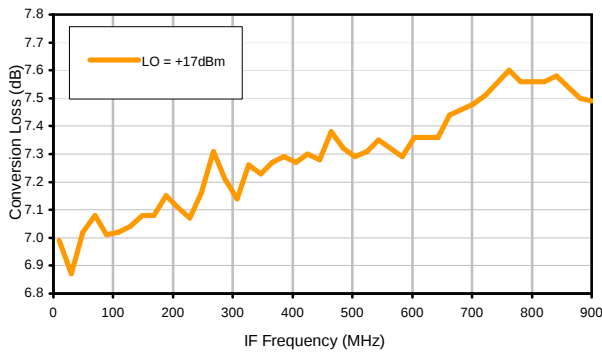
Conversion Loss @ IF=30MHz



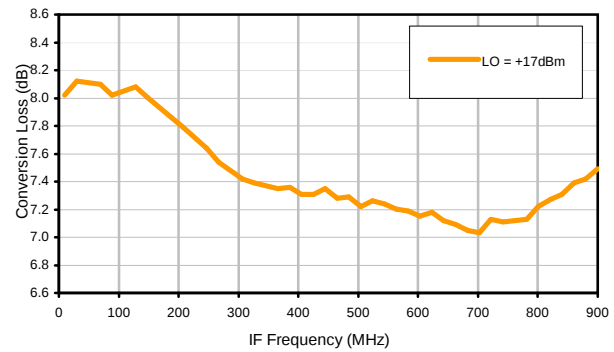
Conversion Loss vs. IF @ RF=500.1MHz



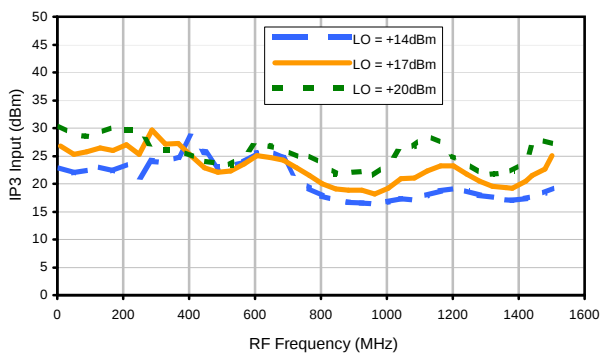
Conversion Loss vs. IF @ RF=10.1MHz



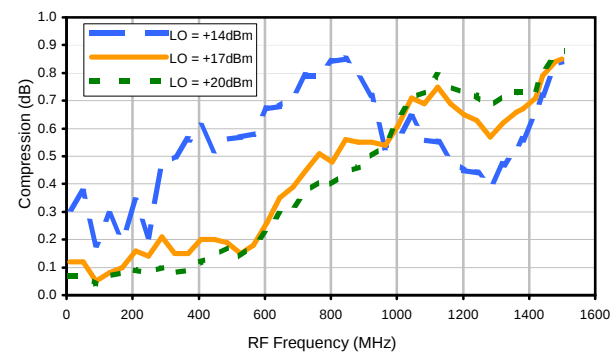
Conversion Loss vs. IF @ RF=1000.1MHz



IP3 Input



Compression @ RF IN=+14dBm

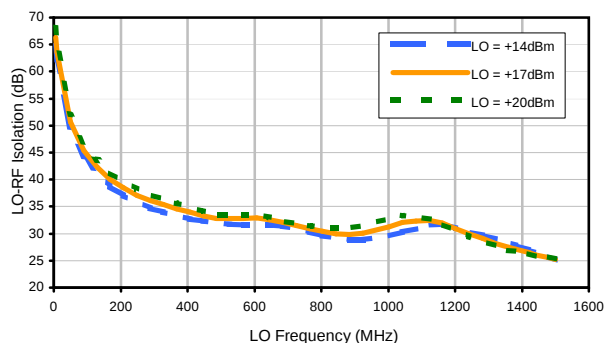


Frequency Mixer

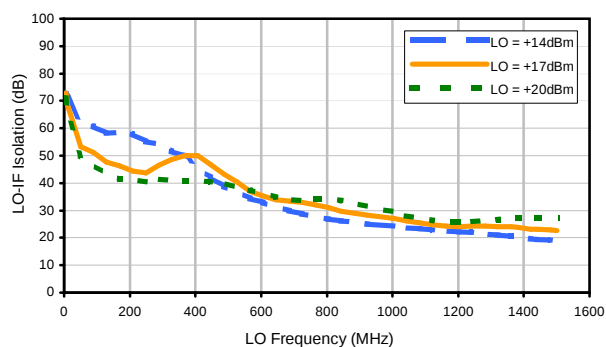
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Typical Performance Curves

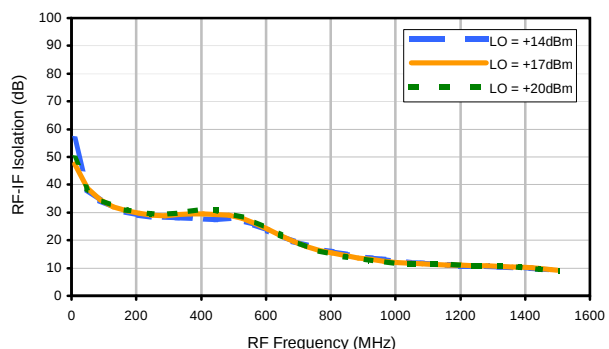
LO-RF Isolation



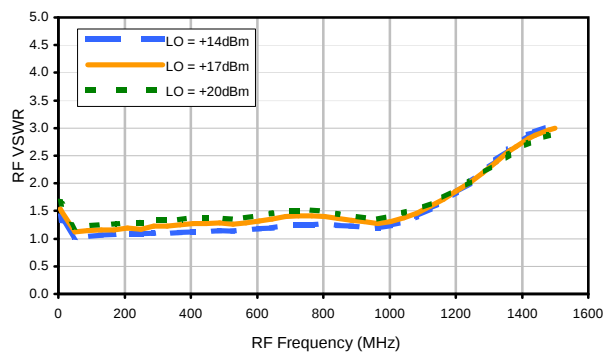
LO-IF Isolation



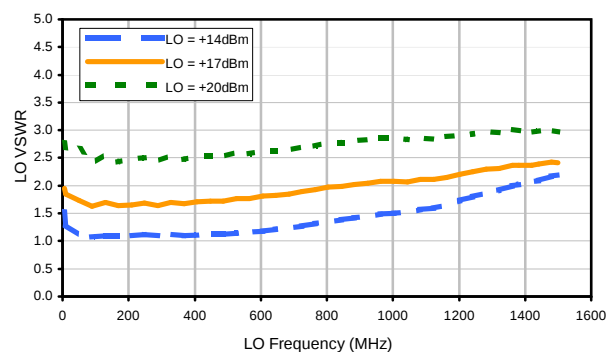
RF-IF Isolation



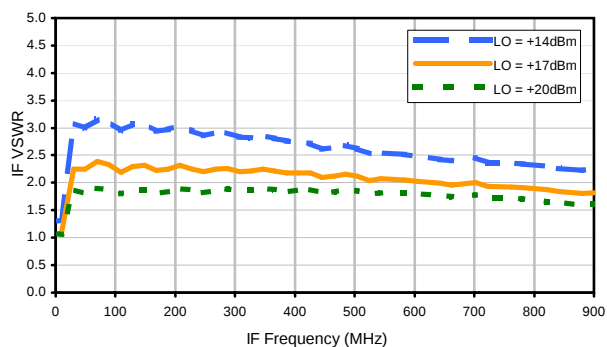
RF VSWR



LO VSWR



IF VSWR



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Page 2 of 3



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2	96	47	43	47	43	49	41	48	54	60	63	60
3	>100	69	54	70	54	70	51	65	55	78	64	72
4	>100	78	80	81	>92	79	77	73	72	74	83	82
5	>100	>92	88	86	88	87	83	83	80	83	82	>92
6	>100	>92	>92	>92	>92	>92	>92	89	>92	91	90	>92
7	>100	>92	>92	>92	>92	>92	>92	>92	>92	>92	>92	>92
8	>100	>92	>92	>92	>92	>92	>92	>92	>92	>92	>92	>92
9	>100	>92	>92	>92	>92	>92	>92	>92	>92	>92	>92	>92
10	>100	>92	>92	>92	>92	>92	>92	>92	>92	>92	>92	>92
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

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4	>100	54	55	55	54	58	54	57	51	61	74	63
5	>100	76	57	67	52	74	52	64	50	69	54	73
6	>100	81	73	71	77	67	66	66	62	65	57	65
7	>100	82	93	87	74	76	73	78	68	73	64	84
8	>100	94	94	100	86	78	78	74	73	72	70	73
9	>100	>102	101	97	>102	89	80	77	77	79	76	76
10	>100	98	101	>102	98	99	90	82	82	81	79	81
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 500.1 MHz; 9.00 dBm.
LO IN: 530.01 MHz; +17.00 dBm
IF OUT: 29.91 MHz; 1.7 dBm

- Notes: 1. All Harmonics are in (dBc) relative to IF OUTPUT.
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REV. X2
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Page 3 of 3



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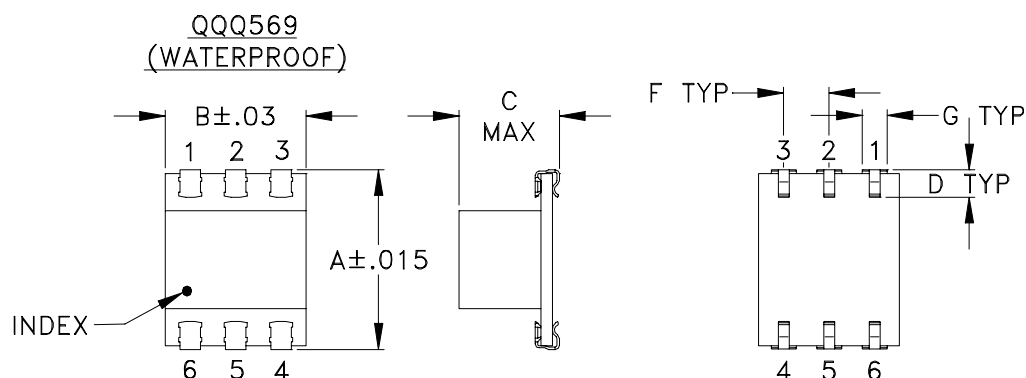


Case Style

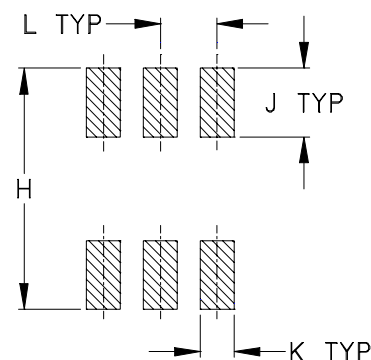
QQQ

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:

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



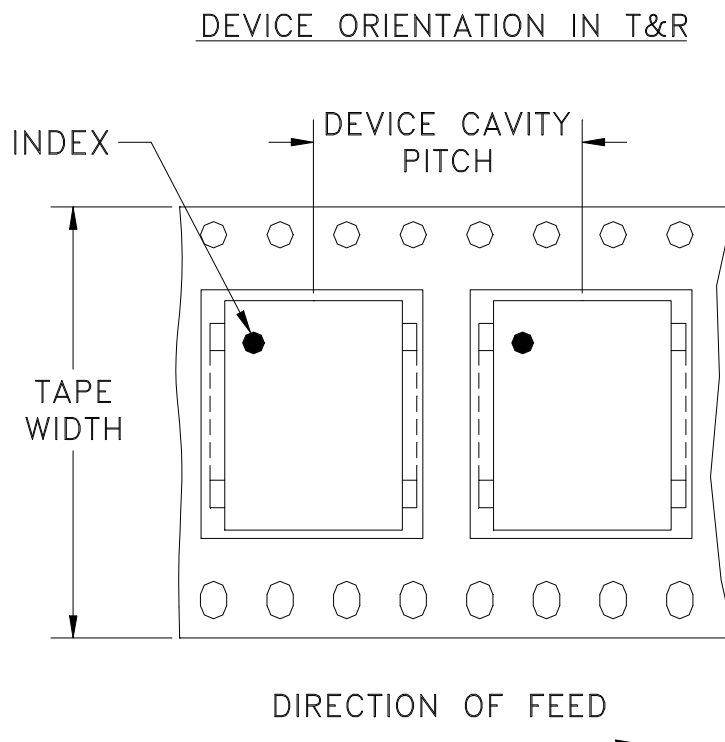
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Tape & Reel Packaging TR-F5



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



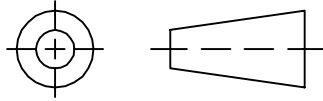
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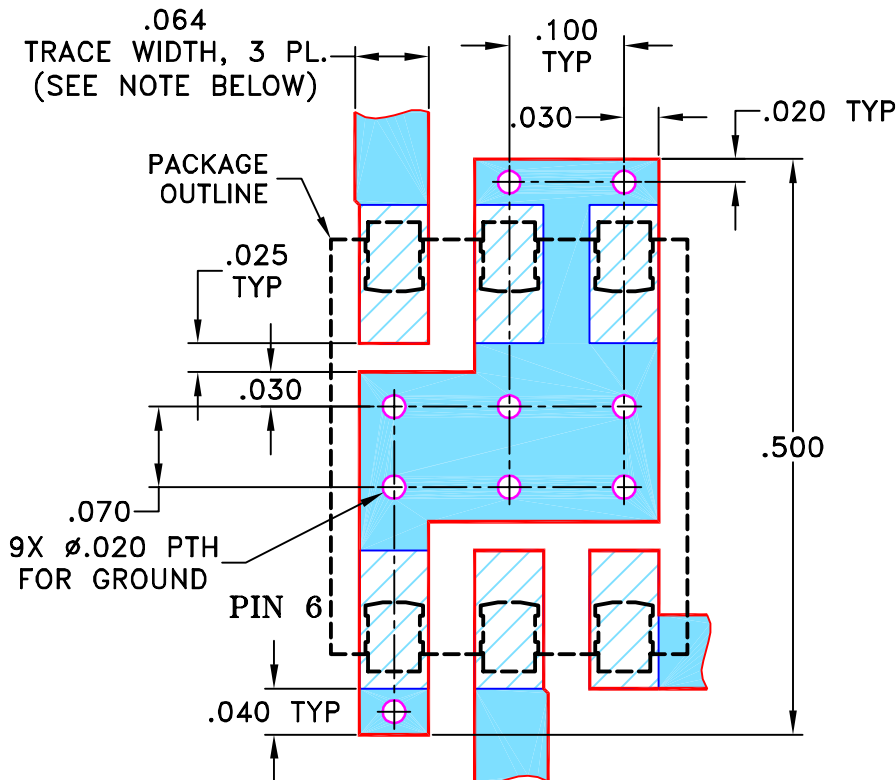
THIRD ANGLE PROJECTION



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" $\pm$ 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 $\pm$.005

APPROVED

DJ

08/02/02

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

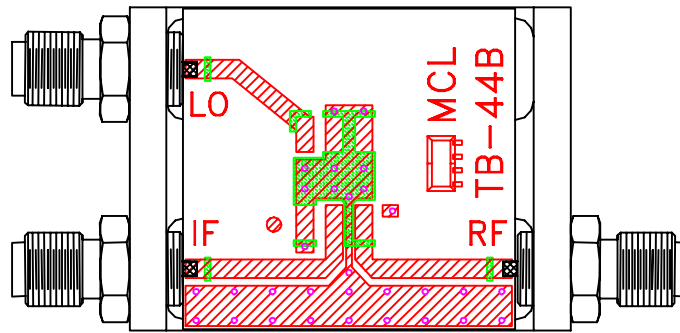
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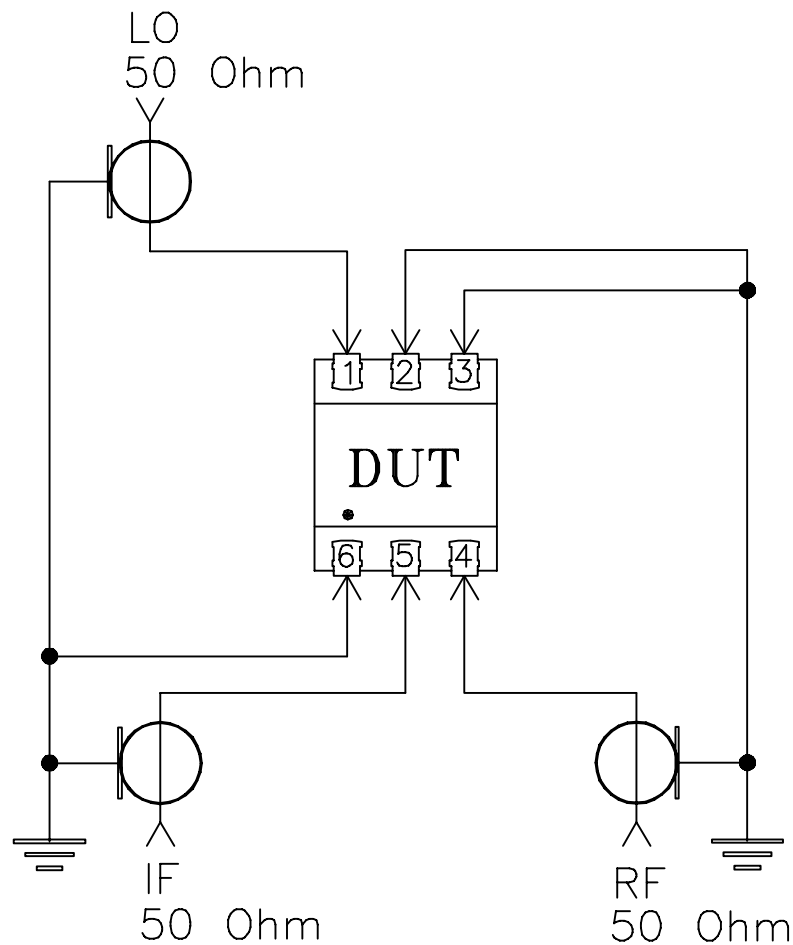
SHEET:

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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