

Frequency Mixer

LRMS-ED6552/1

Level 7 (LO Power + 7 dBm)

Important Note

This model has been designed, built and tested in our engineering department. Performance data represents model capability. At present it is a non-catalog model. On request, we can supply a final specification sheet, part number and price/delivery information.



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CASE STYLE : QQQ569

ELECTRICAL SPECIFICATIONS 50Ω @ +25°C					
Parameter		Min.	Typ.	Max.	Units
Frequency	LO (fL to fu)	10		1000	MHz
	RF (fL to fu)	10		1000	MHz
	IF	10		490	MHz
Conversion Loss	mid band		6.3		dB
	Total Range		6.8		dB
LO-RF Isolation	Low Range		49		dB
	Mid Range		38		dB
	Upper Range		33		dB
LO-IF Isolation	Low Range		44		dB
	Mid Range		33		dB
	Upper Range		25		dB
Input IP3			+16		dBm
1 dB Compression			+1		dBm

Note: Low Range = [fL to 10fL]
mid band = [2fL to fu/2]

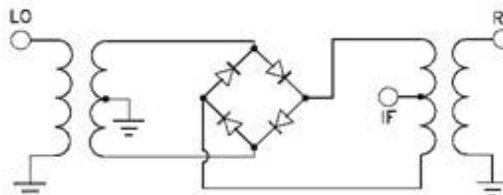
Mid Range = [10fL to fu/2]

Upper Range = [fu/2 to fu]

MAXIMUM RATINGS	
Operating Temperature	-40°C to +85°C
Storage Temperature	-55°C to +100°C

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

Electrical Schematics



Frequency Mixer

LRMS-ED6552/1

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB)			RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm)			RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+1dBm (dB)		
		@LO (dBm)					@LO (dBm)					@LO (dBm)		
+4	+7	+10	+4	+7	+10	+4	+7	+10						
10.1	40.1	5.68	5.52	5.37	10.1	40.1	20.90	21.24	21.31	10.1	40.1	1.42	1.18	0.81
40.1	70.1	6.39	6.02	5.87	40.1	70.1	19.14	20.43	19.96	40.1	70.1	0.96	0.73	0.57
70.1	100.1	6.42	6.07	5.91	70.1	100.1	17.75	19.06	20.67	70.1	100.1	1.12	0.85	0.61
100.1	130.1	6.36	6.12	5.95	100.1	130.1	17.69	20.94	21.02	100.1	130.1	1.04	0.75	0.55
130.1	160.1	6.40	6.13	5.95	130.1	160.1	17.77	20.93	21.03	130.1	160.1	1.02	0.75	0.52
160.1	190.1	6.44	6.17	6.02	160.1	190.1	18.24	20.91	20.99	160.1	190.1	1.06	0.78	0.61
190.1	220.1	6.47	6.21	6.06	190.1	220.1	17.80	19.73	19.84	190.1	220.1	1.02	0.72	0.55
220.1	250.1	6.58	6.27	6.09	220.1	250.1	17.76	18.80	18.82	220.1	250.1	0.93	0.70	0.53
250.1	280.1	6.61	6.34	6.15	250.1	280.1	17.11	17.85	18.04	250.1	280.1	0.98	0.71	0.56
280.1	310.1	6.58	6.31	6.14	280.1	310.1	17.60	17.24	18.25	280.1	310.1	1.02	0.79	0.61
310.1	340.1	6.61	6.31	6.13	310.1	340.1	18.61	18.10	19.54	310.1	340.1	1.00	0.76	0.61
340.1	370.1	6.75	6.44	6.23	340.1	370.1	15.92	16.25	19.03	340.1	370.1	1.01	0.79	0.64
370.1	400.1	6.76	6.47	6.26	370.1	400.1	16.42	16.40	17.97	370.1	400.1	1.09	0.84	0.68
400.1	430.1	6.80	6.46	6.26	400.1	430.1	17.67	17.44	19.43	400.1	430.1	1.10	0.85	0.69
430.1	460.1	6.86	6.50	6.27	430.1	460.1	16.94	18.03	20.86	430.1	460.1	1.22	0.99	0.82
460.1	490.1	6.84	6.50	6.28	460.1	490.1	13.53	15.58	20.86	460.1	490.1	1.32	1.06	0.89
490.1	520.1	6.95	6.58	6.32	490.1	520.1	12.02	13.89	19.24	490.1	520.1	1.32	1.09	0.93
520.1	550.1	7.05	6.67	6.41	520.1	550.1	10.66	12.06	15.62	520.1	550.1	1.38	1.15	0.99
550.1	580.1	7.09	6.72	6.46	550.1	580.1	10.87	12.47	16.34	550.1	580.1	1.46	1.20	1.04
580.1	610.1	7.12	6.68	6.39	580.1	610.1	11.97	14.20	20.80	580.1	610.1	1.53	1.31	1.16
610.1	640.1	7.15	6.69	6.40	610.1	640.1	13.41	17.40	20.48	610.1	640.1	1.59	1.35	1.20
640.1	670.1	7.26	6.74	6.44	640.1	670.1	15.18	20.63	15.94	640.1	670.1	1.69	1.46	1.30
670.1	700.1	7.36	6.79	6.45	670.1	700.1	17.12	18.09	14.43	670.1	700.1	1.67	1.46	1.32
700.1	730.1	7.51	6.93	6.56	700.1	730.1	15.99	16.42	13.61	700.1	730.1	1.64	1.45	1.31
730.1	760.1	7.63	7.02	6.63	730.1	760.1	16.35	14.86	11.96	730.1	760.1	1.68	1.52	1.39
760.1	790.1	7.69	7.13	6.77	760.1	790.1	17.39	14.10	11.53	760.1	790.1	1.61	1.43	1.30
790.1	820.1	7.85	7.33	6.96	790.1	820.1	18.74	16.64	12.49	790.1	820.1	1.54	1.37	1.25
820.1	850.1	8.07	7.60	7.24	820.1	850.1	19.97	16.62	13.96	820.1	850.1	1.49	1.29	1.18
850.1	880.1	8.21	7.85	7.57	850.1	880.1	16.66	16.90	15.58	850.1	880.1	1.33	1.10	0.97
880.1	910.1	8.39	8.06	7.83	880.1	910.1	15.36	16.35	16.06	880.1	910.1	1.30	1.04	0.89
910.1	940.1	8.55	8.29	8.13	910.1	940.1	14.40	15.64	15.84	910.1	940.1	1.26	0.95	0.80
940.1	970.1	8.65	8.46	8.35	940.1	970.1	12.89	14.49	15.59	940.1	970.1	1.20	0.88	0.73
970.1	1000.1	8.83	8.63	8.53	970.1	1000.1	12.06	13.59	15.30	970.1	1000.1	1.21	0.88	0.73
1000.1	1030.1	9.01	8.84	8.77	1000.1	1030.1	11.71	13.42	14.66	1000.1	1030.1	1.17	0.83	0.69
1030.1	1060.1	9.16	8.98	8.92	1030.1	1060.1	11.23	12.73	13.89	1030.1	1060.1	1.19	0.86	0.73
1060.1	1090.1	9.44	9.25	9.17	1060.1	1090.1	10.85	12.20	13.34	1060.1	1090.1	1.21	0.86	0.76
1090.1	1120.1	9.71	9.52	9.45	1090.1	1120.1	9.81	11.03	12.34	1090.1	1120.1	1.19	0.86	0.78
1120.1	1150.1	10.08	9.88	9.78	1120.1	1150.1	8.22	9.47	11.20	1120.1	1150.1	1.20	0.88	0.82
1140.1	1170.1	10.38	10.15	10.03	1140.1	1170.1	7.33	8.66	10.37	1140.1	1170.1	1.18	0.86	0.83
1170.1	1200.1	10.97	10.69	10.55	1170.1	1200.1	6.46	7.84	9.80	1170.1	1200.1	1.12	0.83	0.81

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Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=250.1MHz (dB)
		@LO (dBm) +7
240.0	10.1	6.24
234.1	16.0	6.19
228.2	21.9	6.17
222.3	27.8	6.17
216.4	33.7	6.10
210.5	39.6	6.12
204.6	45.5	6.12
198.7	51.4	6.08
192.8	57.3	6.13
186.9	63.2	6.11
181.0	69.1	6.12
175.1	75.0	6.14
169.2	80.9	6.12
163.3	86.8	6.10
157.4	92.7	6.11
151.5	98.6	6.10
145.6	104.5	6.05
139.7	110.4	6.07
133.8	116.3	6.15
127.9	122.2	6.07
122.1	128.0	6.05
116.2	133.9	6.11
110.3	139.8	6.08
104.4	145.7	6.06
98.5	151.6	6.11
92.6	157.5	6.12
86.7	163.4	6.11
80.8	169.3	6.13
74.9	175.2	6.16
69.0	181.1	6.13
63.1	187.0	6.18
57.2	192.9	6.16
51.3	198.8	6.17
45.4	204.7	6.20
39.5	210.6	6.20
33.6	216.5	6.19
27.7	222.4	6.25
21.8	228.3	6.30
15.9	234.2	6.33
10.0	240.1	6.82

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=10.1MHz (dB)
		@LO (dBm) +7
10.0	20.1	6.19
49.7	59.8	5.41
89.3	99.4	5.23
129.0	139.1	5.70
168.7	178.8	5.66
188.5	198.6	5.64
228.2	238.3	5.75
248.0	258.1	5.68
287.7	297.8	5.87
307.5	317.6	5.60
347.2	357.3	5.80
367.0	377.1	6.06
406.7	416.8	5.60
426.5	436.6	5.92
466.2	476.3	5.84
486.0	496.1	6.02
525.7	535.8	5.80
545.5	555.6	5.88
585.2	595.3	5.84
605.0	615.1	5.85
644.7	654.8	5.85
664.5	674.6	6.03
704.2	714.3	6.22
724.0	734.1	6.22
763.7	773.8	6.22
783.5	793.6	6.37
823.2	833.3	6.52
843.0	853.1	6.78
882.7	892.8	6.92
902.5	912.6	6.84
942.2	952.3	6.83
962.0	972.1	7.28
1001.7	1011.8	7.40
1021.5	1031.6	7.71
1061.2	1071.3	8.16
1081.0	1091.1	8.54
1120.7	1130.8	9.01
1140.5	1150.6	9.46
1180.2	1190.3	10.16
1200.0	1210.1	11.07

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=500.1MHz (dB)
		@LO (dBm) +7
490.0	10.1	6.43
477.7	22.4	6.33
465.4	34.7	6.28
453.1	47.0	6.31
440.8	59.3	6.30
428.5	71.6	6.27
416.2	83.9	6.22
403.8	96.3	6.28
391.5	108.6	6.26
379.2	120.9	6.22
366.9	133.2	6.21
354.6	145.5	6.25
342.3	157.8	6.24
330.0	170.1	6.25
317.7	182.4	6.27
305.4	194.7	6.27
293.1	207.0	6.27
280.8	219.3	6.26
268.5	231.6	6.22
256.2	243.9	6.30
243.8	256.3	6.27
231.5	268.6	6.20
219.2	280.9	6.26
206.9	293.2	6.33
194.6	305.5	6.29
182.3	317.8	6.32
170.0	330.1	6.28
157.7	342.4	6.29
145.4	354.7	6.36
133.1	367.0	6.39
120.8	379.3	6.38
108.5	391.6	6.44
96.2	403.9	6.38
83.8	416.3	6.37
71.5	428.6	6.36
59.2	440.9	6.43
46.9	453.2	6.43
34.6	465.5	6.51
22.3	477.8	6.60
10.0	490.1	7.16

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Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)		
	@LO (dBm)			@LO (dBm)		
	+4	+7	+10	+4	+7	+10
40.1	54.59	52.88	52.31	49.78	48.14	46.83
70.1	50.78	50.24	49.92	46.62	45.10	44.27
100.1	47.89	47.53	47.40	43.74	42.72	42.25
130.1	45.78	45.48	45.18	41.33	40.59	39.97
160.1	44.51	44.33	44.07	40.34	39.73	39.09
190.1	43.28	43.06	42.83	39.65	38.92	38.09
220.1	42.30	42.00	41.73	38.14	37.22	36.32
250.1	41.17	40.89	40.69	38.02	36.87	35.79
280.1	40.51	40.31	40.10	37.23	35.94	34.82
310.1	39.81	39.60	39.36	36.14	34.73	33.64
340.1	38.87	38.63	38.35	35.37	33.92	32.79
370.1	37.79	37.75	37.67	34.00	32.71	31.70
400.1	36.56	36.57	36.57	32.63	31.42	30.56
430.1	35.77	35.75	35.68	31.35	30.13	29.29
460.1	35.08	35.06	35.07	30.34	29.07	28.14
490.1	34.52	34.46	34.35	29.35	28.13	27.14
520.1	33.62	33.33	33.04	28.27	27.10	26.12
550.1	32.99	32.68	32.35	27.30	26.26	25.38
580.1	32.22	31.87	31.60	26.10	25.13	24.31
610.1	31.59	31.13	30.72	24.91	23.91	23.10
640.1	31.00	30.45	29.96	23.92	22.90	22.08
670.1	30.53	30.06	29.67	22.91	21.94	21.10
700.1	30.10	29.59	29.26	21.94	21.01	20.20
730.1	29.53	29.04	28.66	21.08	20.16	19.32
760.1	29.08	28.74	28.51	20.24	19.42	18.55
790.1	29.15	28.90	28.80	19.50	18.70	17.88
820.1	28.75	28.49	28.34	18.71	18.03	17.18
850.1	28.63	28.48	28.50	18.00	17.41	16.58
880.1	28.98	28.99	29.08	17.47	16.94	16.11
910.1	29.12	28.98	28.94	16.74	16.25	15.47
940.1	29.34	29.07	28.79	15.94	15.51	14.74
970.1	29.98	29.47	28.91	15.41	15.00	14.26
1000.1	30.61	29.66	28.72	14.77	14.38	13.67
1030.1	31.06	29.29	27.87	13.98	13.63	12.91
1060.1	31.15	28.73	27.08	13.47	13.15	12.49
1090.1	31.73	28.52	26.60	13.01	12.74	12.14
1120.1	30.68	27.09	25.11	12.33	12.11	11.56
1150.1	29.07	25.70	23.87	11.92	11.71	11.17
1170.1	28.76	25.39	23.62	11.74	11.53	11.07
1200.1	27.36	24.27	22.52	11.35	11.18	10.73

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
		@LO (dBm)		
		+4	+7	+10
10.1	40.1	47.02	46.62	45.63
40.1	70.1	36.52	36.68	36.66
70.1	100.1	32.22	32.39	32.36
100.1	130.1	29.81	30.02	30.05
130.1	160.1	27.91	28.05	28.25
160.1	190.1	26.63	26.88	27.04
190.1	220.1	25.83	26.07	26.23
220.1	250.1	24.88	25.16	25.37
250.1	280.1	24.88	25.22	25.53
280.1	310.1	24.47	24.88	25.18
310.1	340.1	23.91	24.30	24.63
340.1	370.1	24.10	24.59	24.97
370.1	400.1	23.89	24.45	24.88
400.1	430.1	24.48	25.24	25.83
430.1	460.1	24.59	25.42	25.92
460.1	490.1	23.58	24.15	24.40
490.1	520.1	22.54	22.78	22.83
520.1	550.1	20.90	20.88	20.76
550.1	580.1	19.32	19.17	18.98
580.1	610.1	18.27	18.10	17.91
610.1	640.1	17.26	17.07	16.90
640.1	670.1	16.49	16.33	16.19
670.1	700.1	15.99	15.92	15.88
700.1	730.1	15.39	15.36	15.36
730.1	760.1	15.07	15.09	15.15
760.1	790.1	14.69	14.78	14.94
790.1	820.1	14.18	14.32	14.56
820.1	850.1	13.97	14.17	14.45
850.1	880.1	13.48	13.68	13.92
880.1	910.1	13.08	13.26	13.44
910.1	940.1	12.70	12.84	12.93
940.1	970.1	12.25	12.30	12.32
970.1	1000.1	11.84	11.85	11.80
1000.1	1030.1	11.34	11.27	11.15
1030.1	1060.1	10.87	10.76	10.60
1060.1	1090.1	10.27	10.15	9.98
1090.1	1120.1	9.62	9.45	9.29
1120.1	1150.1	9.02	8.85	8.69
1140.1	1170.1	8.57	8.41	8.27
1170.1	1200.1	8.02	7.85	7.73

Frequency Mixer

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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=500MHz (:1)		
		@LO (dBm)				@LO (dBm)				@LO (dBm)		
		+4	+7	+10		+4	+7	+10		+4	+7	+10
10.1	40.1	1.23	1.14	1.08	40.1	2.61	6.07	34.75	10.0	1.56	1.38	1.24
40.1	70.1	1.09	1.09	1.13	70.1	1.93	3.01	4.74	20.0	1.53	1.34	1.21
70.1	100.1	1.02	1.08	1.14	100.1	1.80	2.70	4.02	30.0	1.58	1.39	1.25
100.1	130.1	1.05	1.05	1.10	130.1	1.87	2.84	4.21	40.0	1.60	1.41	1.27
130.1	160.1	1.05	1.09	1.13	160.1	1.80	2.62	3.72	50.0	1.55	1.37	1.23
160.1	190.1	1.03	1.08	1.13	190.1	1.76	2.52	3.54	60.0	1.54	1.36	1.22
190.1	220.1	1.05	1.08	1.12	220.1	1.82	2.65	3.72	70.0	1.60	1.41	1.27
220.1	250.1	1.06	1.10	1.14	250.1	1.81	2.59	3.58	80.0	1.60	1.41	1.27
250.1	280.1	1.04	1.10	1.14	280.1	1.79	2.53	3.47	90.0	1.53	1.35	1.21
280.1	310.1	1.05	1.09	1.13	310.1	1.85	2.63	3.61	100.0	1.57	1.39	1.25
310.1	340.1	1.07	1.12	1.16	340.1	1.88	2.65	3.60	110.0	1.64	1.45	1.30
340.1	370.1	1.06	1.12	1.16	370.1	1.88	2.62	3.55	120.0	1.60	1.41	1.27
370.1	400.1	1.06	1.12	1.17	400.1	1.94	2.71	3.65	130.0	1.53	1.35	1.21
400.1	430.1	1.09	1.15	1.21	430.1	1.99	2.76	3.70	140.0	1.57	1.38	1.24
430.1	460.1	1.09	1.16	1.22	460.1	2.00	2.73	3.64	150.0	1.62	1.43	1.28
460.1	490.1	1.10	1.17	1.23	490.1	2.05	2.81	3.73	160.0	1.58	1.39	1.25
490.1	520.1	1.10	1.17	1.23	520.1	2.12	2.90	3.83	170.0	1.54	1.36	1.22
520.1	550.1	1.12	1.18	1.24	550.1	2.14	2.89	3.81	180.0	1.61	1.42	1.28
550.1	580.1	1.13	1.18	1.23	580.1	2.19	2.95	3.88	190.0	1.63	1.44	1.30
580.1	610.1	1.16	1.21	1.26	610.1	2.28	3.05	3.97	200.0	1.57	1.39	1.24
610.1	640.1	1.22	1.27	1.32	640.1	2.30	3.04	3.93	210.0	1.58	1.39	1.25
640.1	670.1	1.28	1.32	1.37	670.1	2.35	3.08	3.94	220.0	1.64	1.45	1.30
670.1	700.1	1.37	1.41	1.46	700.1	2.45	3.19	4.06	240.0	1.55	1.37	1.23
700.1	730.1	1.48	1.52	1.57	730.1	2.50	3.24	4.09	250.0	1.56	1.43	1.27
730.1	760.1	1.59	1.62	1.66	760.1	2.55	3.29	4.13	270.0	1.59	1.41	1.28
760.1	790.1	1.71	1.75	1.80	790.1	2.63	3.40	4.26	280.0	1.55	1.37	1.24
790.1	820.1	1.81	1.85	1.90	820.1	2.70	3.45	4.31	300.0	1.64	1.46	1.32
820.1	850.1	1.98	2.01	2.05	850.1	2.72	3.45	4.28	310.0	1.59	1.41	1.27
850.1	880.1	2.06	2.11	2.15	880.1	2.77	3.49	4.31	330.0	1.63	1.45	1.31
880.1	910.1	2.18	2.23	2.28	910.1	2.82	3.53	4.32	340.0	1.63	1.45	1.31
910.1	940.1	2.36	2.40	2.44	940.1	2.83	3.52	4.26	360.0	1.55	1.38	1.25
940.1	970.1	2.36	2.42	2.46	970.1	2.84	3.49	4.19	370.0	1.61	1.44	1.30
970.1	1000.1	2.52	2.57	2.62	1000.1	2.89	3.51	4.18	390.0	1.54	1.37	1.25
1000.1	1030.1	2.67	2.72	2.77	1030.1	2.91	3.50	4.13	400.0	1.58	1.41	1.28
1030.1	1060.1	2.64	2.68	2.72	1060.1	2.92	3.43	4.03	420.0	1.60	1.43	1.30
1060.1	1090.1	2.80	2.84	2.86	1090.1	2.95	3.42	4.01	430.0	1.54	1.37	1.25
1090.1	1120.1	2.90	2.93	2.96	1120.1	2.95	3.43	3.95	450.0	1.59	1.43	1.31
1120.1	1150.1	2.92	2.94	2.95	1150.1	2.95	3.35	3.84	460.0	1.52	1.36	1.25
1140.1	1170.1	2.95	2.95	2.97	1170.1	2.92	3.35	3.78	480.0	1.58	1.42	1.30
1170.1	1200.1	3.11	3.12	3.13	1200.1	2.95	3.33	3.76	490.0	1.59	1.43	1.33

REV. X2

LRMS-ED6552/1

101012

Page 4 of 5



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Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	8	18	9	28	14	42	28	39	30	44
1	-	19	+0	31	12	34	19	40	34	48	44	48
2	>90	63	44	66	45	60	44	>70	49	>70	61	>70
3	>90	>70	63	>70	61	>70	57	>70	63	>70	68	>70
4	>90	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70
5	>90	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70
6	>90	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70
7	>90	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70
8	>90	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70
9	>90	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70
10	>90	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70
	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: 280.1 MHz; +7.00 dBm
IF OUT: 30 MHz; -20.1 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	17	28	21	41	26	52	39	51	43	59
1	-	19	+0	31	12	36	21	44	35	54	46	56
2	79	59	39	71	40	58	40	60	45	69	60	72
3	>90	47	44	53	50	59	44	58	46	60	57	67
4	>90	>80	59	67	58	66	59	63	53	78	60	>80
5	>90	72	62	63	54	68	53	68	53	78	59	80
6	>90	>80	70	>80	71	>80	73	>80	75	>80	75	>80
7	>90	>80	>80	>80	>80	76	78	78	76	78	68	>80
8	>90	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80
9	>90	>80	>80	>80	>80	>80	>80	>80	79	>80	>80	>80
10	>90	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80
	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: 280.1 MHz; +7.00 dBm
IF OUT: 30 MHz; -10.1 dBm

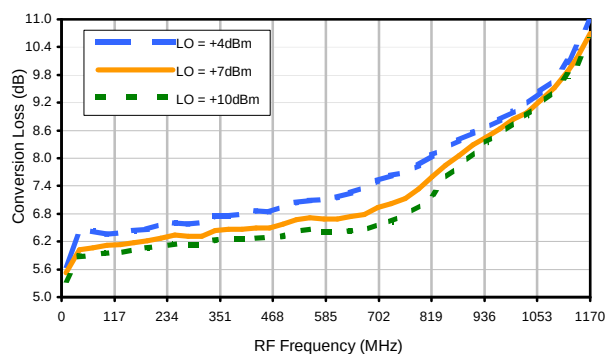
- Notes: 1. All Harmonics are in (dBc) relative to IF OUTPUT.
2. + entry denotes harmonics are in (dBc) above IF OUTPUT.
3. RF Cal represent the Harmonics level of the RF input signal to the mixer.

Frequency Mixer

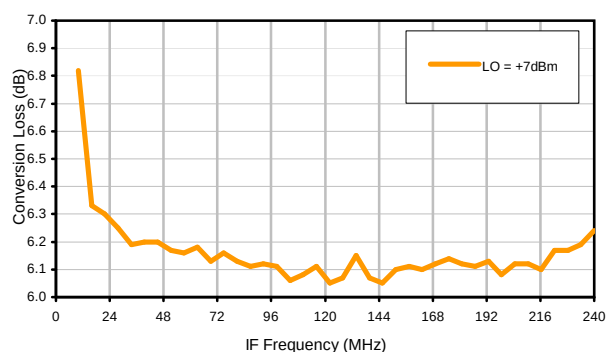
LRMS-ED6552/1

Typical Performance Curves

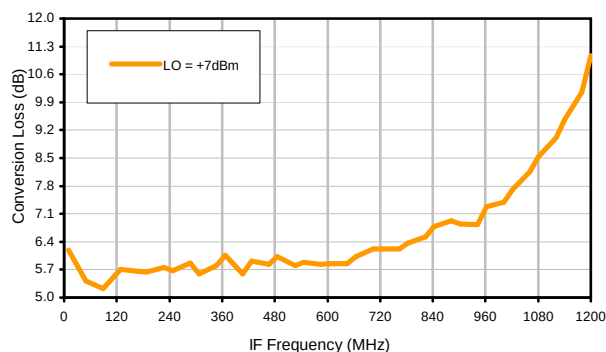
Conversion Loss @ IF=30MHz



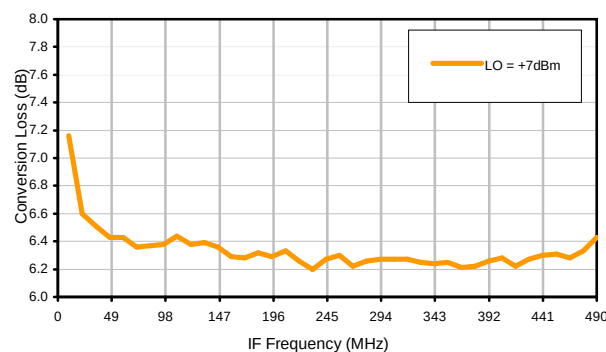
Conversion Loss vs. IF @ RF=250.1MHz



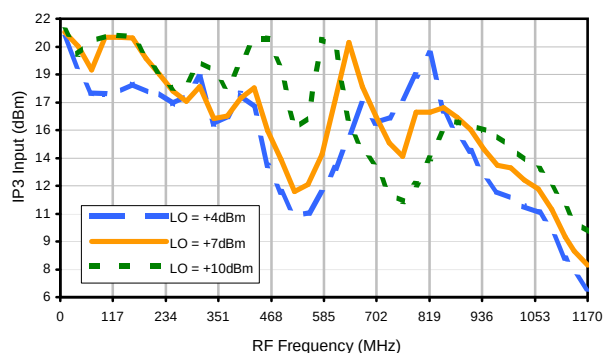
Conversion Loss vs. IF @ RF=10.1MHz



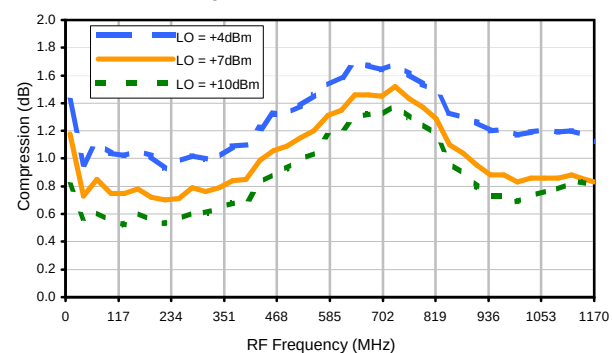
Conversion Loss vs. IF @ RF=500.1MHz



IP3 Input

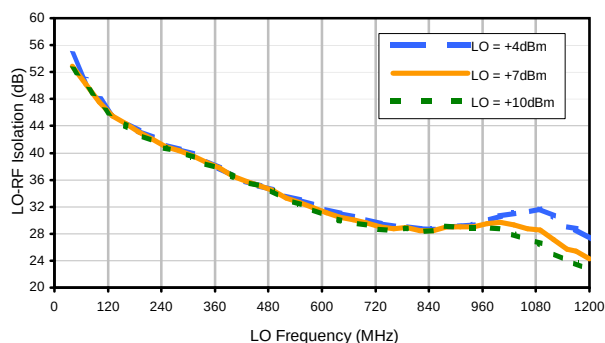


Compression @ RF IN=+1dBm

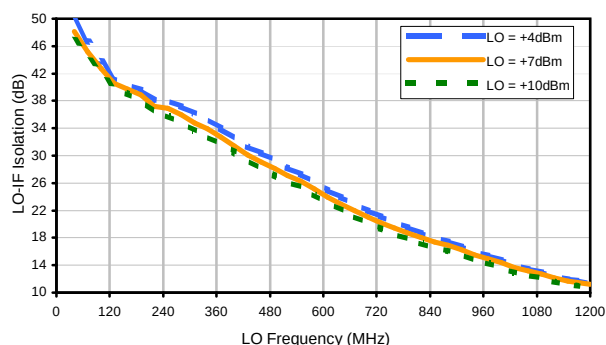


Typical Performance Curves

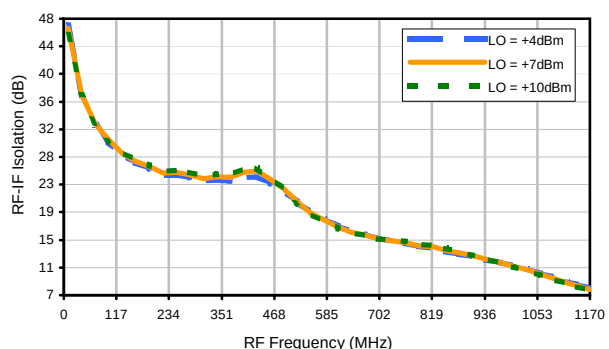
LO-RF Isolation



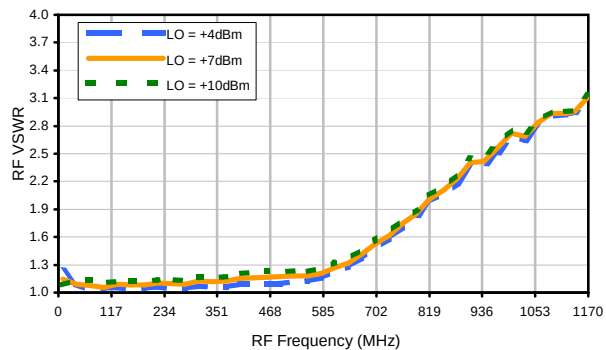
LO-IF Isolation



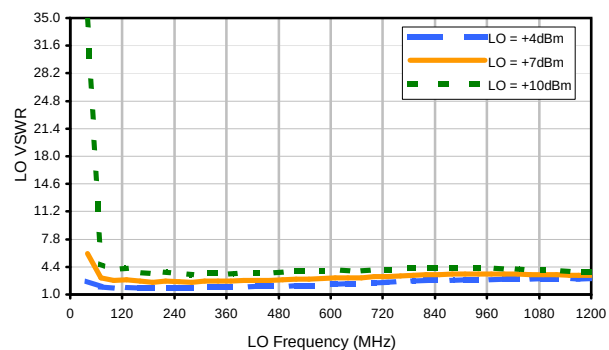
RF-IF Isolation



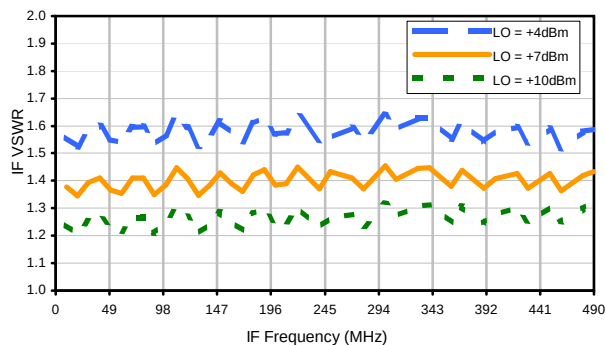
RF VSWR



LO VSWR



IF VSWR



Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(dBc)										
0	-	-	8	18	9	28	14	42	28	39	30	44
1	-	19	+0	31	12	34	19	40	34	48	44	48
2	>90	63	44	66	45	60	44	>70	49	>70	61	>70
3	>90	>70	63	>70	61	>70	57	>70	63	>70	68	>70
4	>90	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70
5	>90	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70
6	>90	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70
7	>90	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70
8	>90	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70
9	>90	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70
10	>90	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70
	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: 280.1 MHz; +7.00 dBm
IF OUT: 30 MHz; -20.1 dBm

RF HARMONICS ORDER

	(-dBm)	(dBc)										
0	-	-	17	28	21	41	26	52	39	51	43	59
1	-	19	+0	31	12	36	21	44	35	54	46	56
2	79	59	39	71	40	58	40	60	45	69	60	72
3	>90	47	44	53	50	59	44	58	46	60	57	67
4	>90	>80	59	67	58	66	59	63	53	78	60	>80
5	>90	72	62	63	54	68	53	68	53	78	59	80
6	>90	>80	70	>80	71	>80	73	>80	75	>80	75	>80
7	>90	>80	>80	>80	>80	76	78	78	76	78	68	>80
8	>90	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80
9	>90	>80	>80	>80	>80	>80	>80	>80	79	>80	>80	>80
10	>90	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80
	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: 280.1 MHz; +7.00 dBm
IF OUT: 30 MHz; -10.1 dBm

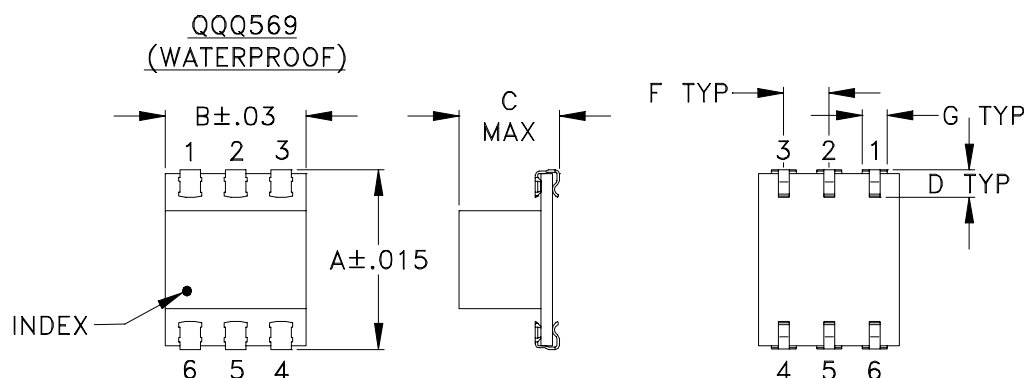
- Notes: 1. All Harmonics are in (dBc) relative to IF OUTPUT.
2. + entry denotes harmonics are in (dBc) above IF OUTPUT.
3. RF Cal represent the Harmonics level of the RF input signal to the mixer.

Case Style

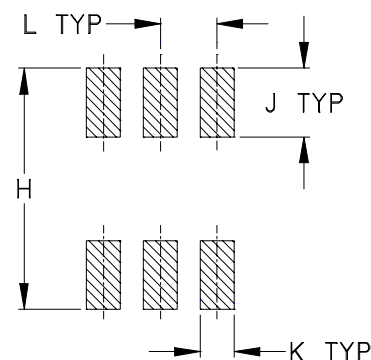
QQQ

QQQ569 (waterproof)

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.



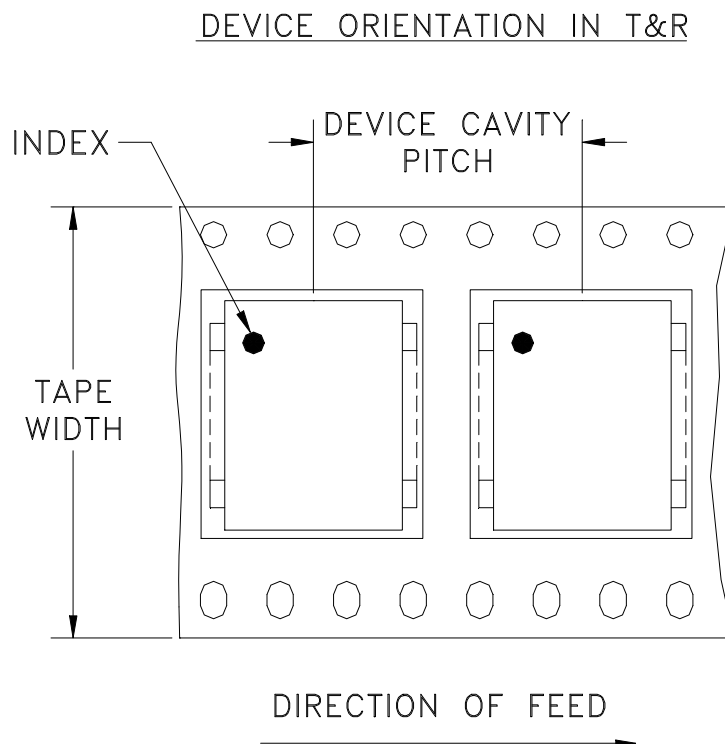
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Tape & Reel Packaging TR-F5



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.

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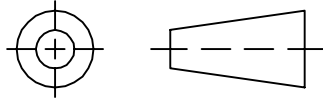
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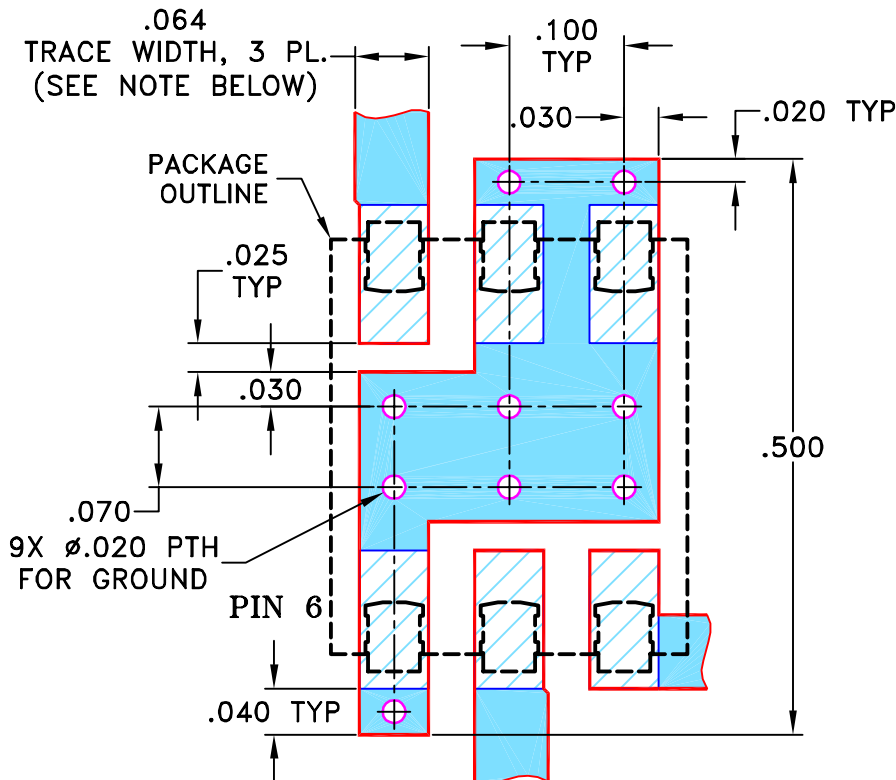
THIRD ANGLE PROJECTION



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 $\pm$.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

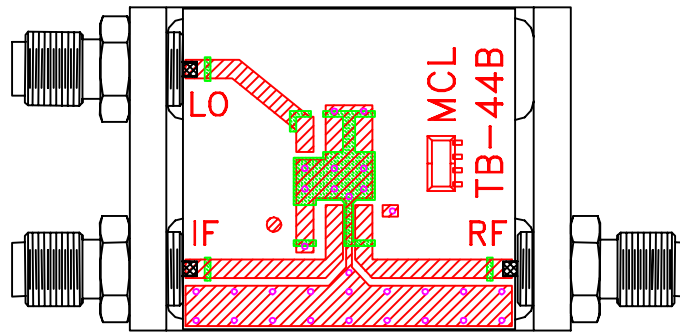
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6:1

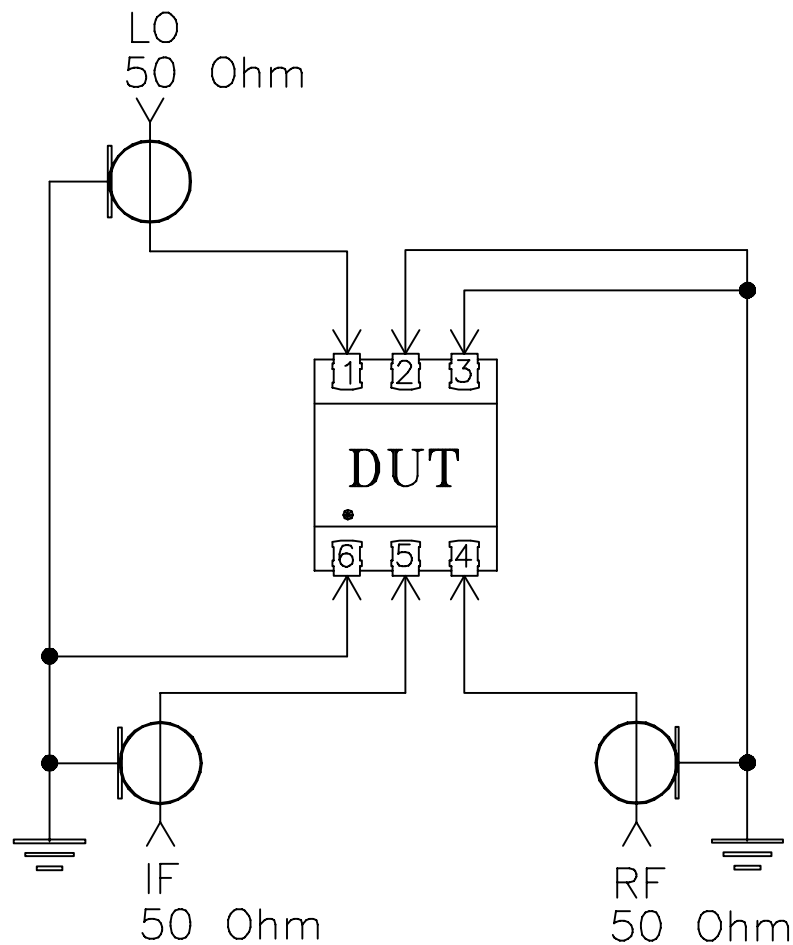
SHEET:

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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All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

Specification	Test/Inspection Condition	Reference/Spec
Operating Temperature	-40° to 85°C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Humidity	90 to 95% RH, 240 hours, 50°C	MIL-STD-202, Method 103, Condition A, Except 50°C and end-point electrical test done within 12 hours
Thermal Shock	-55° to 100°C, 100 cycles	MIL-STD-202, Method 107, Condition A-3, except +100°C
Solder Reflow Heat	Sn-Pb Eutetic Process: 225°C peak Pb-Free Process 245° - 250°C peak	J-STD-020, Table 4-1, 4-2 and 5-2, Figure 5-1
Solderability	10X Magnification	J-STD-002, 95% Coverage
Vibration (High Frequency)	20g peak, 10-2000 Hz, 12 times in each of three perpendicular directions (total 36)	MIL-STD-202, Method 204, Condition D
Mechanical Shock	50g, 11 ms, 1/2-sine, 18 shocks: 3 each direction, each of 3 axes	MIL-STD-202, Method 213, Condition A
Marking Resistance to Solvents	Isopropyl alcohol + mineral spirits at 25°C; terpene defluxer at 25°C; distilled water + proylene glycol monomethyl ether + monoethanolamine at 63°C to 70°C	MIL-STD-202, Method 215