Engineering Development Model

Active Mixer MACY-ED12006/1

Level 1 (LO Power + 1 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 : BJ293

ELECTRICAL SPECIFICATIONS 50Ω @ +25°C					
Parameter		**Min.**	**Typ.**	**Max.**	**Units**
Frequency	**LO** (f_L to f_U)	1630		2350	MHz
	RF (f_L to f_U)	1630		2350	MHz
	IF	130		490	MHz
Conversion Loss	**Total Range**		8.6		dB
LO-RF Isolation			11		dB
LO-IF Isolation			17		dB
Input IP3			+28		dBm
1 dB Compression			+15		dBm
DC Voltage			5		V
DC Current				100	mA

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

PIN CONNECTIONS	
LO	1
RF	5
IF	3
DC	7
GROUND	2,4,6,8

Frequency Mixer MACY-ED12006/1

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=250MHz (dB) @LO (dBm)		
		-2	+1	+4
950.1	1200.1	11.09	11.47	12.36
990.1	1240.1	11.33	11.14	11.19
1030.1	1280.1	11.16	10.82	10.69
1070.1	1320.1	11.03	10.57	10.51
1110.1	1360.1	10.92	10.46	10.44
1150.1	1400.1	10.68	10.27	10.34
1190.1	1440.1	10.51	10.14	10.25
1230.1	1480.1	10.08	9.60	9.72
1270.1	1520.1	10.18	9.59	9.62
1320.1	1570.1	10.64	9.96	9.82
1360.1	1610.1	11.33	10.61	10.36
1410.1	1660.1	11.02	10.39	10.37
1450.1	1700.1	10.44	9.79	9.74
1500.1	1750.1	10.08	9.58	9.55
1540.1	1790.1	10.35	10.01	10.12
1590.1	1840.1	9.43	9.29	9.53
1630.1	1880.1	8.82	8.79	9.01
1680.1	1930.1	8.53	8.51	8.61
1720.1	1970.1	8.38	8.33	8.34
1770.1	2020.1	8.58	8.43	8.39
1810.1	2060.1	8.45	8.26	8.21
1860.1	2110.1	8.56	8.38	8.33
1900.1	2150.1	8.68	8.51	8.46
1950.1	2200.1	9.04	8.89	8.84
1990.1	2240.1	8.84	8.70	8.67
2040.1	2290.1	8.93	8.75	8.75
2080.1	2330.1	8.79	8.56	8.53
2130.1	2380.1	8.96	8.67	8.53
2170.1	2420.1	8.83	8.54	8.32
2220.1	2470.1	8.88	8.58	8.28
2260.1	2510.1	8.84	8.51	8.21
2310.1	2560.1	8.90	8.56	8.21
2350.1	2600.1	9.09	8.80	8.52
2400.1	2650.1	9.58	9.45	9.23
2440.1	2690.1	10.06	9.93	9.74
2490.1	2740.1	10.26	9.98	9.76
2530.1	2780.1	10.74	10.46	10.26
2580.1	2830.1	11.13	10.78	10.63
2620.1	2870.1	11.55	11.17	11.03
2670.1	2920.1	11.94	11.41	11.24

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm) @LO (dBm)		
		-2	+1	+4
950.1	1200.1	19.75	19.18	22.57
990.1	1240.1	20.57	18.77	18.22
1030.1	1280.1	24.00	20.71	19.67
1070.1	1320.1	32.24	22.68	22.04
1110.1	1360.1	23.68	21.68	21.30
1150.1	1400.1	22.05	20.35	20.35
1190.1	1440.1	24.26	20.84	19.92
1230.1	1480.1	26.29	22.82	21.43
1270.1	1520.1	24.19	22.42	21.51
1320.1	1570.1	22.20	22.75	23.34
1360.1	1610.1	24.06	26.15	26.81
1410.1	1660.1	25.15	27.32	27.62
1450.1	1700.1	26.98	28.28	28.10
1500.1	1750.1	21.93	23.50	23.70
1540.1	1790.1	25.58	28.43	27.14
1590.1	1840.1	32.17	35.45	34.95
1630.1	1880.1	33.53	33.42	33.65
1680.1	1930.1	31.27	37.51	33.69
1720.1	1970.1	30.29	31.94	33.75
1770.1	2020.1	28.54	29.94	30.28
1810.1	2060.1	27.18	29.03	29.67
1860.1	2110.1	25.59	27.05	27.75
1900.1	2150.1	24.06	25.34	26.15
1950.1	2200.1	24.50	26.06	27.28
1990.1	2240.1	25.15	28.92	31.47
2040.1	2290.1	27.04	30.40	30.25
2080.1	2330.1	27.44	27.53	29.16
2130.1	2380.1	30.06	27.95	27.65
2170.1	2420.1	29.86	29.15	27.93
2220.1	2470.1	27.33	28.95	29.00
2260.1	2510.1	25.39	27.41	28.87
2310.1	2560.1	23.50	25.51	27.24
2350.1	2600.1	21.77	23.43	24.97
2400.1	2650.1	22.53	24.22	26.94
2440.1	2690.1	22.48	24.35	27.27
2490.1	2740.1	22.84	24.41	26.01
2530.1	2780.1	22.39	23.93	25.20
2580.1	2830.1	21.64	23.54	25.22
2620.1	2870.1	21.53	23.86	26.23
2670.1	2920.1	20.71	23.54	26.37

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+15dBm (dB) @LO (dBm)		
		-2	+1	+4
950.1	1200.1	1.27	1.57	1.21
990.1	1240.1	1.69	1.99	2.06
1030.1	1280.1	1.57	1.87	2.04
1070.1	1320.1	1.15	1.27	1.22
1110.1	1360.1	1.15	1.26	1.16
1150.1	1400.1	0.87	0.98	0.93
1190.1	1440.1	0.67	0.79	0.82
1230.1	1480.1	0.56	0.70	0.69
1270.1	1520.1	0.34	0.53	0.54
1320.1	1570.1	-0.03	0.16	0.15
1360.1	1610.1	-0.37	-0.11	-0.06
1410.1	1660.1	-0.24	-0.02	0.00
1450.1	1700.1	0.14	0.26	0.27
1500.1	1750.1	0.63	0.68	0.70
1540.1	1790.1	0.49	0.45	0.42
1590.1	1840.1	0.34	0.22	0.15
1630.1	1880.1	0.18	0.12	0.06
1680.1	1930.1	0.08	0.05	0.03
1720.1	1970.1	0.04	0.02	0.01
1770.1	2020.1	0.01	0.00	0.01
1810.1	2060.1	0.03	0.04	0.04
1860.1	2110.1	0.08	0.08	0.07
1900.1	2150.1	0.01	0.03	0.03
1950.1	2200.1	-0.04	-0.01	0.02
1990.1	2240.1	0.03	0.09	0.14
2040.1	2290.1	0.05	0.12	0.14
2080.1	2330.1	0.15	0.17	0.18
2130.1	2380.1	0.23	0.23	0.23
2170.1	2420.1	0.37	0.30	0.29
2220.1	2470.1	0.52	0.36	0.31
2260.1	2510.1	0.68	0.39	0.30
2310.1	2560.1	0.78	0.37	0.20
2350.1	2600.1	0.82	0.35	0.20
2400.1	2650.1	0.98	0.33	0.10
2440.1	2690.1	0.99	0.36	0.18
2490.1	2740.1	1.25	0.44	0.15
2530.1	2780.1	1.17	0.38	0.07
2580.1	2830.1	1.38	0.42	-0.05
2620.1	2870.1	1.26	0.40	-0.08
2670.1	2920.1	1.32	0.59	0.07

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Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1795.1MHz (dB) @LO (dBm) +1
515.0	1280.1	11.65
488.4	1306.7	10.83
461.8	1333.3	10.21
435.3	1359.8	9.93
408.7	1386.4	9.52
382.1	1413.0	9.19
355.5	1439.6	8.82
328.9	1466.2	8.46
302.4	1492.7	8.27
275.8	1519.3	8.21
249.2	1545.9	8.28
222.6	1572.5	8.53
196.1	1599.0	9.00
169.5	1625.6	9.42
142.9	1652.2	9.62
116.3	1678.8	9.80
89.7	1705.4	9.57
63.2	1731.9	9.27
36.6	1758.5	9.75
10.0	1785.1	10.09
32.3	1827.4	9.73
65.7	1860.8	9.13
99.1	1894.2	8.75
132.5	1927.6	8.42
166.0	1961.1	8.24
199.4	1994.5	8.26
232.8	2027.9	8.23
266.2	2061.3	8.29
299.6	2094.7	8.49
333.1	2128.2	8.74
366.5	2161.6	9.00
399.9	2195.0	9.31
433.3	2228.4	9.59
466.8	2261.9	9.76
500.2	2295.3	9.88
533.6	2328.7	9.99
555.9	2351.0	10.14
589.3	2384.4	10.35
611.6	2406.7	10.62
645.0	2440.1	11.16

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1710.1MHz (dB) @LO (dBm) +1
10.0	1720.1	9.55
30.0	1740.1	9.32
50.0	1760.1	9.47
70.0	1780.1	9.88
90.0	1800.1	9.93
110.0	1820.1	9.72
130.0	1840.1	9.36
150.0	1860.1	9.12
170.0	1880.1	8.85
190.0	1900.1	8.68
210.0	1920.1	8.45
230.0	1940.1	8.33
250.0	1960.1	8.33
270.0	1980.1	8.34
290.0	2000.1	8.44
310.0	2020.1	8.47
330.0	2040.1	8.59
340.0	2050.1	8.63
360.0	2070.1	8.73
370.0	2080.1	8.82
390.0	2100.1	8.97
400.0	2110.1	9.03
420.0	2130.1	9.19
430.0	2140.1	9.26
450.0	2160.1	9.36
460.0	2170.1	9.43
480.0	2190.1	9.57
490.0	2200.1	9.60
510.0	2220.1	9.75
520.0	2230.1	9.83
540.0	2250.1	9.99
550.0	2260.1	9.97
570.0	2280.1	10.16
580.0	2290.1	10.21
600.0	2310.1	10.33
610.0	2320.1	10.40
630.0	2340.1	10.60
640.0	2350.1	10.74
660.0	2370.1	11.05
670.0	2380.1	11.19

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1880.1MHz (dB) @LO (dBm) +1
610.0	1270.1	12.16
590.0	1290.1	11.75
570.0	1310.1	11.20
550.0	1330.1	10.75
530.0	1350.1	10.43
520.0	1360.1	10.23
500.0	1380.1	9.78
490.0	1390.1	9.62
470.0	1410.1	9.21
460.0	1420.1	9.02
440.0	1440.1	8.81
430.0	1450.1	8.68
410.0	1470.1	8.37
400.0	1480.1	8.23
380.0	1500.1	8.12
370.0	1510.1	8.05
350.0	1530.1	7.99
340.0	1540.1	8.01
320.0	1560.1	8.08
310.0	1570.1	8.24
290.0	1590.1	8.55
280.0	1600.1	8.70
260.0	1620.1	8.90
250.0	1630.1	8.98
230.0	1650.1	9.21
220.0	1660.1	9.30
200.0	1680.1	9.55
190.0	1690.1	9.56
170.0	1710.1	9.43
160.0	1720.1	9.38
140.0	1740.1	9.38
130.0	1750.1	9.58
110.0	1770.1	9.94
100.0	1780.1	10.01
80.0	1800.1	9.93
70.0	1810.1	9.82
50.0	1830.1	9.61
40.0	1840.1	9.43
20.0	1860.1	9.22
10.0	1870.1	9.13

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Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB) @LO (dBm)			LO-IF ISOLATION (dB) @LO (dBm)		
	-2	+1	+4	-2	+1	+4
1200.1	20.15	20.66	22.27	17.03	18.27	21.45
1240.1	20.26	21.79	23.75	14.92	16.84	19.22
1280.1	18.18	18.99	20.48	13.27	15.42	17.71
1320.1	16.05	16.68	18.40	11.27	13.48	15.99
1360.1	13.42	14.05	15.81	9.71	11.85	14.33
1400.1	11.60	11.97	13.75	8.65	10.98	13.74
1440.1	10.71	10.69	12.22	7.53	9.73	12.45
1480.1	10.07	9.83	11.40	6.57	8.67	11.43
1520.1	8.90	8.45	10.38	5.52	7.44	10.16
1570.1	8.03	7.35	9.37	3.92	5.49	8.24
1610.1	8.31	7.56	9.19	2.66	4.08	6.71
1660.1	9.96	9.13	10.10	1.69	3.25	5.68
1700.1	12.39	11.68	13.32	0.99	2.98	5.92
1750.1	16.84	15.41	16.98	1.12	3.86	7.67
1790.1	12.62	13.54	16.18	4.39	8.05	12.49
1840.1	10.88	13.26	16.66	7.50	10.17	13.88
1880.1	9.87	12.16	15.28	7.47	9.32	12.28
1930.1	8.86	10.96	13.59	7.21	8.92	11.44
1970.1	8.64	10.73	13.42	7.70	9.33	11.76
2020.1	7.67	9.99	13.11	10.56	12.45	14.83
2060.1	8.18	10.75	13.98	12.26	14.08	16.58
2110.1	7.57	10.37	13.60	14.87	16.72	19.04
2150.1	7.19	9.93	13.11	17.13	18.95	21.20
2200.1	6.59	9.41	12.60	20.02	22.08	24.59
2240.1	6.51	9.34	12.56	21.94	24.71	27.57
2290.1	6.38	9.38	12.60	21.40	26.78	32.66
2330.1	6.72	9.57	12.61	18.98	23.69	29.76
2380.1	6.75	9.63	12.84	16.71	19.80	23.53
2420.1	7.72	10.54	13.84	15.79	18.05	20.77
2470.1	8.53	11.22	14.38	15.34	16.95	18.80
2510.1	9.85	12.32	15.29	15.37	16.58	18.08
2560.1	12.09	14.54	17.52	15.23	16.11	17.24
2600.1	15.94	17.83	19.68	15.46	16.10	17.02
2650.1	13.10	13.92	15.04	15.24	15.61	16.20
2690.1	12.94	13.68	14.96	15.51	15.58	16.06
2740.1	13.16	13.77	15.09	15.69	15.54	15.83
2780.1	13.73	14.28	15.49	15.80	15.71	15.94
2830.1	14.70	14.86	15.75	16.10	15.89	16.09
2870.1	15.56	15.46	16.05	16.31	16.11	16.32
2920.1	16.71	16.39	16.48	16.71	16.48	16.64

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB) @LO (dBm)		
		-2	+1	+4
950.1	1200.1	28.08	28.56	31.44
990.1	1240.1	26.98	24.41	22.80
1030.1	1280.1	25.22	23.52	22.23
1070.1	1320.1	23.72	22.61	22.18
1110.1	1360.1	23.65	22.64	22.70
1150.1	1400.1	25.40	24.06	23.79
1190.1	1440.1	26.63	25.93	25.38
1230.1	1480.1	27.46	27.77	27.84
1270.1	1520.1	28.41	29.01	29.30
1320.1	1570.1	29.33	34.67	36.74
1360.1	1610.1	26.26	31.32	35.66
1410.1	1660.1	23.70	26.31	30.48
1450.1	1700.1	22.55	23.82	25.14
1500.1	1750.1	24.04	24.42	24.10
1540.1	1790.1	23.79	23.19	21.99
1590.1	1840.1	23.88	22.76	21.23
1630.1	1880.1	24.19	22.80	21.29
1680.1	1930.1	24.84	23.55	22.58
1720.1	1970.1	25.42	24.42	23.92
1770.1	2020.1	25.38	25.36	25.52
1810.1	2060.1	25.72	25.81	26.39
1860.1	2110.1	25.94	26.25	27.34
1900.1	2150.1	24.88	25.49	26.77
1950.1	2200.1	24.92	26.20	27.67
1990.1	2240.1	25.55	28.16	30.68
2040.1	2290.1	25.40	29.75	35.98
2080.1	2330.1	24.74	28.40	32.85
2130.1	2380.1	23.86	26.64	29.47
2170.1	2420.1	23.64	25.77	27.94
2220.1	2470.1	23.60	25.01	26.60
2260.1	2510.1	23.91	25.07	26.17
2310.1	2560.1	24.28	25.10	25.87
2350.1	2600.1	24.58	25.24	25.86
2400.1	2650.1	25.03	25.57	26.27
2440.1	2690.1	25.68	26.17	26.75
2490.1	2740.1	26.65	26.92	27.25
2530.1	2780.1	27.56	27.62	27.67
2580.1	2830.1	29.02	28.85	28.58
2620.1	2870.1	30.53	30.14	29.57
2670.1	2920.1	32.63	32.03	31.06

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Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1) @LO (dBm)		
		-2	+1	+4
950.1	1200.1	4.12	4.02	3.84
990.1	1240.1	4.36	4.29	4.25
1030.1	1280.1	4.47	4.39	4.32
1070.1	1320.1	4.51	4.36	4.27
1110.1	1360.1	4.72	4.51	4.38
1150.1	1400.1	4.69	4.46	4.33
1190.1	1440.1	4.61	4.32	4.18
1230.1	1480.1	4.46	4.10	3.96
1270.1	1520.1	4.25	3.84	3.67
1320.1	1570.1	4.01	3.57	3.41
1360.1	1610.1	3.76	3.32	3.15
1410.1	1660.1	3.50	3.09	2.92
1450.1	1700.1	3.29	2.92	2.79
1500.1	1750.1	2.99	2.66	2.55
1540.1	1790.1	2.61	2.29	2.22
1590.1	1840.1	2.33	2.11	2.07
1630.1	1880.1	2.15	2.01	1.98
1680.1	1930.1	2.15	2.08	2.06
1720.1	1970.1	2.18	2.13	2.11
1770.1	2020.1	2.26	2.22	2.21
1810.1	2060.1	2.26	2.24	2.23
1860.1	2110.1	2.17	2.14	2.15
1900.1	2150.1	2.13	2.13	2.15
1950.1	2200.1	2.06	2.08	2.10
1990.1	2240.1	2.03	2.06	2.08
2040.1	2290.1	1.84	1.88	1.92
2080.1	2330.1	1.71	1.76	1.82
2130.1	2380.1	1.49	1.55	1.62
2170.1	2420.1	1.36	1.41	1.48
2220.1	2470.1	1.14	1.20	1.28
2260.1	2510.1	1.01	1.09	1.15
2310.1	2560.1	1.17	1.17	1.18
2350.1	2600.1	1.37	1.37	1.38
2400.1	2650.1	1.61	1.61	1.62
2440.1	2690.1	1.79	1.79	1.80
2490.1	2740.1	2.09	2.06	2.04
2530.1	2780.1	2.44	2.38	2.34
2580.1	2830.1	2.88	2.81	2.76
2620.1	2870.1	3.22	3.13	3.07
2670.1	2920.1	3.62	3.50	3.43

LO (MHz)	LO VSWR (:1) @LO (dBm)		
	-2	+1	+4
1200.1	1.50	1.41	1.39
1240.1	1.49	1.41	1.37
1280.1	1.49	1.40	1.35
1320.1	1.47	1.40	1.34
1360.1	1.48	1.41	1.35
1400.1	1.49	1.41	1.35
1440.1	1.48	1.41	1.35
1480.1	1.46	1.40	1.33
1520.1	1.44	1.40	1.32
1570.1	1.40	1.38	1.31
1610.1	1.37	1.36	1.28
1660.1	1.34	1.32	1.26
1700.1	1.35	1.31	1.25
1750.1	1.41	1.34	1.26
1790.1	1.49	1.42	1.33
1840.1	1.55	1.47	1.40
1880.1	1.55	1.48	1.45
1930.1	1.45	1.40	1.40
1970.1	1.34	1.31	1.32
2020.1	1.22	1.21	1.21
2060.1	1.14	1.15	1.14
2110.1	1.05	1.06	1.06
2150.1	1.02	1.01	1.04
2200.1	1.10	1.06	1.06
2240.1	1.21	1.15	1.12
2290.1	1.37	1.31	1.23
2330.1	1.50	1.47	1.38
2380.1	1.63	1.62	1.56
2420.1	1.73	1.71	1.64
2470.1	1.82	1.78	1.72
2510.1	1.89	1.83	1.74
2560.1	1.99	1.89	1.76
2600.1	2.07	1.95	1.78
2650.1	2.24	2.09	1.90
2690.1	2.33	2.17	1.93
2740.1	2.46	2.27	2.01
2780.1	2.54	2.33	2.05
2830.1	2.64	2.42	2.13
2870.1	2.71	2.48	2.18
2920.1	2.74	2.53	2.24

IF (OUT) (MHz)	IF VSWR @LO=2130MHz (:1) @LO (dBm)		
	-2	+1	+4
10.1	1.07	1.11	1.13
70.1	1.20	1.22	1.22
130.1	1.36	1.37	1.38
190.1	1.55	1.55	1.56
250.1	1.77	1.78	1.79
310.1	1.94	1.96	1.97
370.1	2.07	2.09	2.11
430.1	2.17	2.20	2.22
490.1	2.20	2.23	2.25
550.1	2.20	2.23	2.25
610.1	2.25	2.27	2.28
670.1	2.22	2.22	2.23
730.1	2.18	2.18	2.18
790.1	2.19	2.20	2.20
850.1	2.18	2.18	2.18
910.1	2.17	2.19	2.20
950.1	2.00	2.00	2.01
1010.1	1.80	1.79	1.79
1050.1	1.89	1.88	1.87
1110.1	2.10	2.08	2.07
1150.1	2.15	2.14	2.14
1210.1	2.21	2.18	2.17
1250.1	2.25	2.22	2.22
1310.1	2.42	2.39	2.38
1350.1	2.46	2.43	2.43
1410.1	2.58	2.55	2.54
1450.1	2.66	2.62	2.61
1510.1	2.73	2.70	2.69
1550.1	2.75	2.73	2.72
1610.1	2.67	2.65	2.65
1650.1	2.55	2.54	2.54
1710.1	2.24	2.22	2.22
1750.1	2.00	1.97	1.96
1810.1	1.65	1.65	1.65
1850.1	1.54	1.55	1.56
1910.1	1.48	1.50	1.51
1950.1	1.52	1.55	1.56
2010.1	1.69	1.72	1.73
2050.1	1.83	1.85	1.87
2110.1	2.08	2.11	2.12

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Harmonics Tables

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	4	6	20	18	20	30	32	48	50	58
1	-	17	+0	25	32	42	55	47	46	51	69	69
2	58	53	56	46	68	53	67	76	62	71	75	80
3	>90	>82	82	75	61	>82	78	>82	>82	>82	>82	>82
4	>90	>82	>82	>82	81	>82	>82	>82	>82	>82	>82	>82
5	>90	>82	>82	>82	>82	>82	>82	>82	>82	>82	>82	>82
6	>90	>82	>82	>82	>82	>82	>82	>82	>82	>82	>82	>82
7	>90	>82	>82	>82	>82	>82	>82	>82	>82	>82	>82	>82
8	>90	>82	>82	>82	>82	>82	>82	>82	>82	>82	>82	>82
9	>90	>82	>82	>82	>82	>82	>82	>82	>82	>82	>82	>82
10	>90	>82	>82	>82	>82	>82	>82	>82	>82	>82	>82	>82
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: **RF IN: 1795 MHz; 0.00 dBm.**
LO IN: 2045 MHz; +1.00 dBm
IF OUT: 250 MHz; -8.4 dBm

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	14	16	30	28	30	42	44	61	60	81
1	-	17	+0	25	33	42	54	49	46	51	70	69
2	38	44	46	36	76	45	61	68	54	65	69	75
3	66	65	69	63	45	69	59	73	84	74	77	>92
4	89	75	75	76	64	59	74	69	86	>92	82	74
5	>90	>92	87	>92	81	69	66	90	82	84	89	80
6	>90	79	>92	87	82	83	72	>92	84	87	88	>92
7	>90	>92	>92	>92	>92	>92	84	84	83	>92	>92	>92
8	>90	>92	>92	>92	>92	>92	>92	87	81	88	>92	>92
9	>90	>92	>92	>92	>92	>92	>92	>92	88	87	>92	>92
10	>90	>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: 1795 MHz; 10.00 dBm.**
LO IN: 2045 MHz; +1.00 dBm
IF OUT: 250 MHz; 1.61 dBm

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

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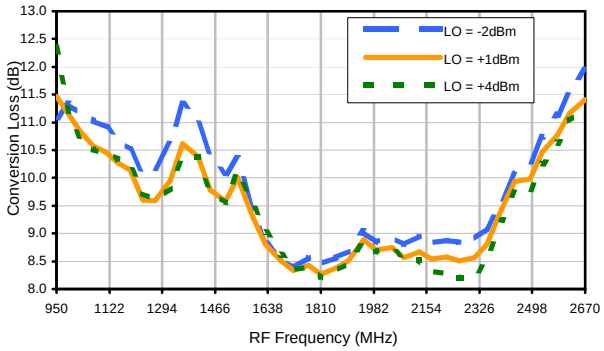
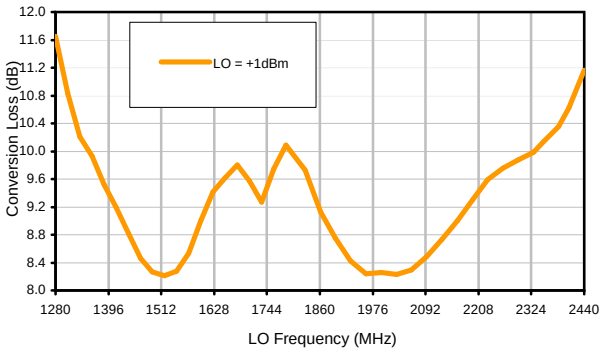
Typical Performance Curves

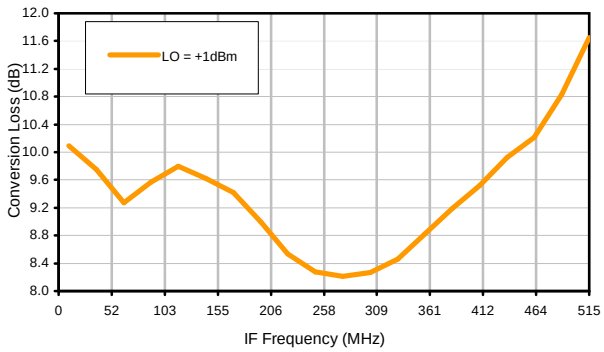
Conversion Loss @ IF=250MHz



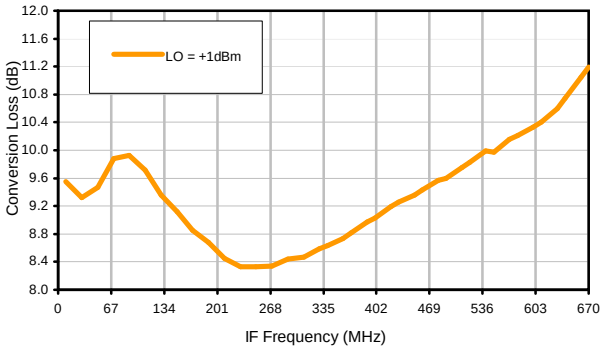
Conversion Loss vs. LO @ RF=1795.1MHz



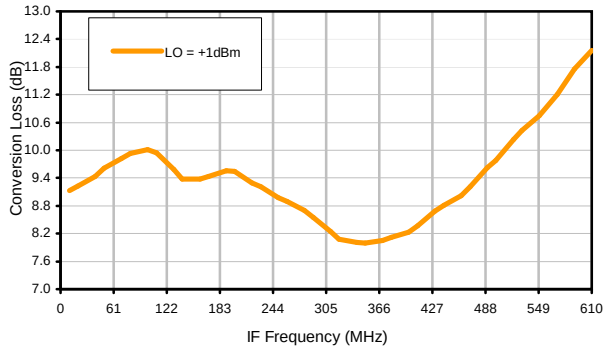
Conversion Loss vs. IF @ RF=1795.1MHz



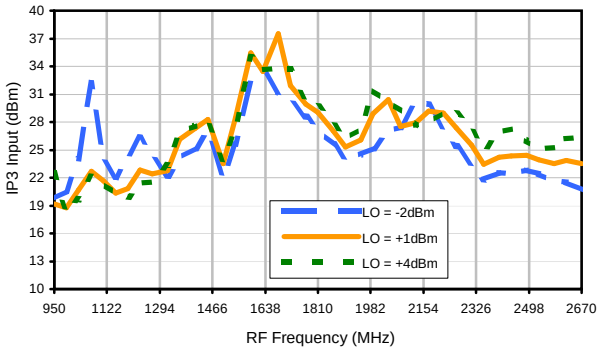
Conversion Loss vs. IF @ RF=1710.1MHz



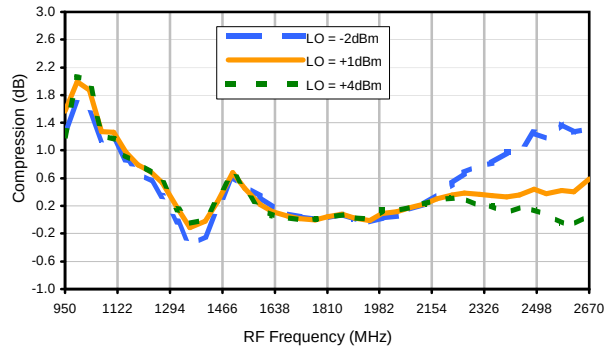
Conversion Loss vs. IF @ RF=1880.1MHz



IP3 Input



Compression @ RF IN=+15dBm



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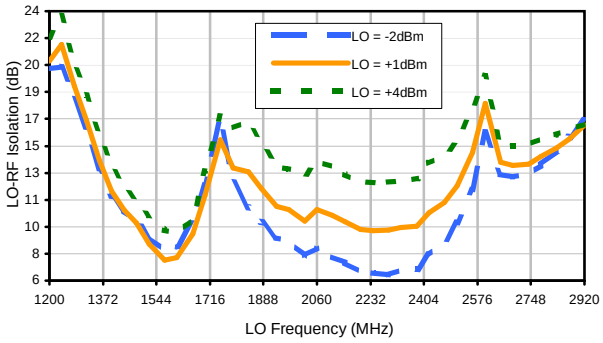
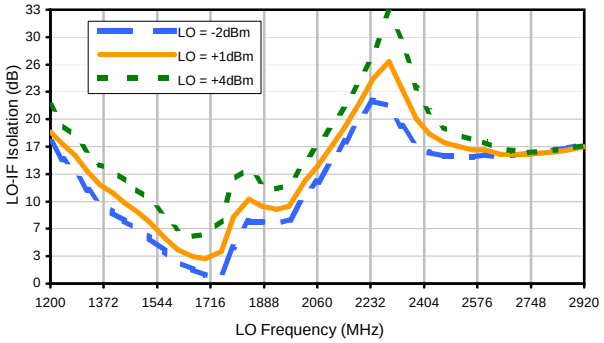
Typical Performance Curves

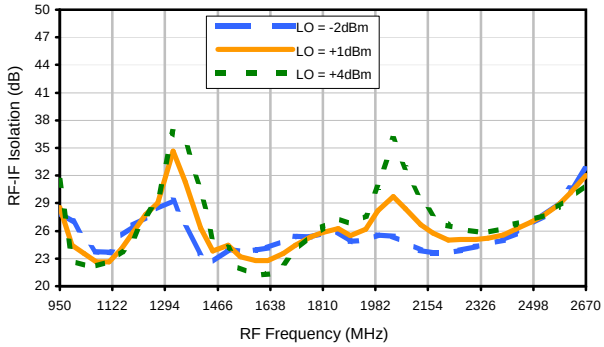
LO-RF Isolation



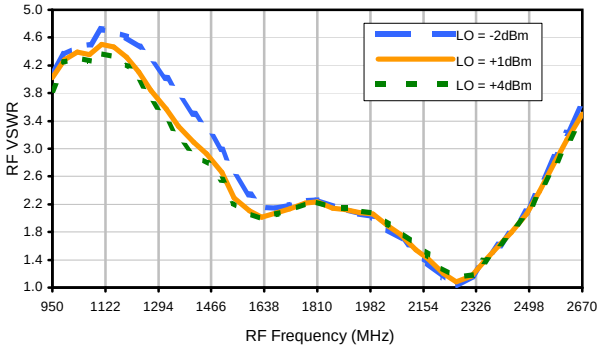
LO-IF Isolation



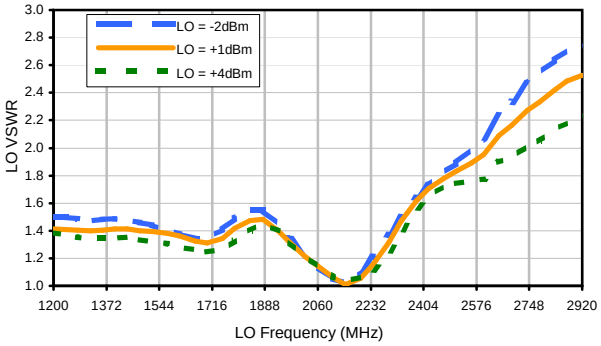
RF-IF Isolation



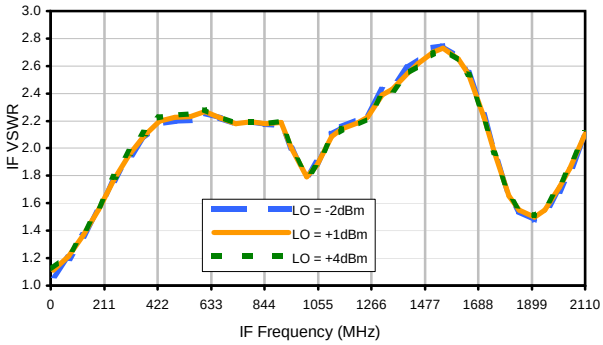
RF VSWR



LO VSWR



IF VSWR



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Harmonics Tables

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	4	6	20	18	20	30	32	48	50	58
1	-	17	+0	25	32	42	55	47	46	51	69	69
2	58	53	56	46	68	53	67	76	62	71	75	80
3	>90	>82	82	75	61	>82	78	>82	>82	>82	>82	>82
4	>90	>82	>82	>82	81	>82	>82	>82	>82	>82	>82	>82
5	>90	>82	>82	>82	>82	>82	>82	>82	>82	>82	>82	>82
6	>90	>82	>82	>82	>82	>82	>82	>82	>82	>82	>82	>82
7	>90	>82	>82	>82	>82	>82	>82	>82	>82	>82	>82	>82
8	>90	>82	>82	>82	>82	>82	>82	>82	>82	>82	>82	>82
9	>90	>82	>82	>82	>82	>82	>82	>82	>82	>82	>82	>82
10	>90	>82	>82	>82	>82	>82	>82	>82	>82	>82	>82	>82
RF CAL		0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:
RF IN: 1795 MHz; 0.00 dBm.
LO IN: 2045 MHz; +1.00 dBm
IF OUT: 250 MHz; -8.4 dBm

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	14	16	30	28	30	42	44	61	60	81
1	-	17	+0	25	33	42	54	49	46	51	70	69
2	38	44	46	36	76	45	61	68	54	65	69	75
3	66	65	69	63	45	69	59	73	84	74	77	>92
4	89	75	75	76	64	59	74	69	86	>92	82	74
5	>90	>92	87	>92	81	69	66	90	82	84	89	80
6	>90	79	>92	87	82	83	72	>92	84	87	88	>92
7	>90	>92	>92	>92	>92	>92	84	84	83	>92	>92	>92
8	>90	>92	>92	>92	>92	>92	>92	87	81	88	>92	>92
9	>90	>92	>92	>92	>92	>92	>92	>92	88	87	>92	>92
10	>90	>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: 1795 MHz; 10.00 dBm.
LO IN: 2045 MHz; +1.00 dBm
IF OUT: 250 MHz; 1.61 dBm

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

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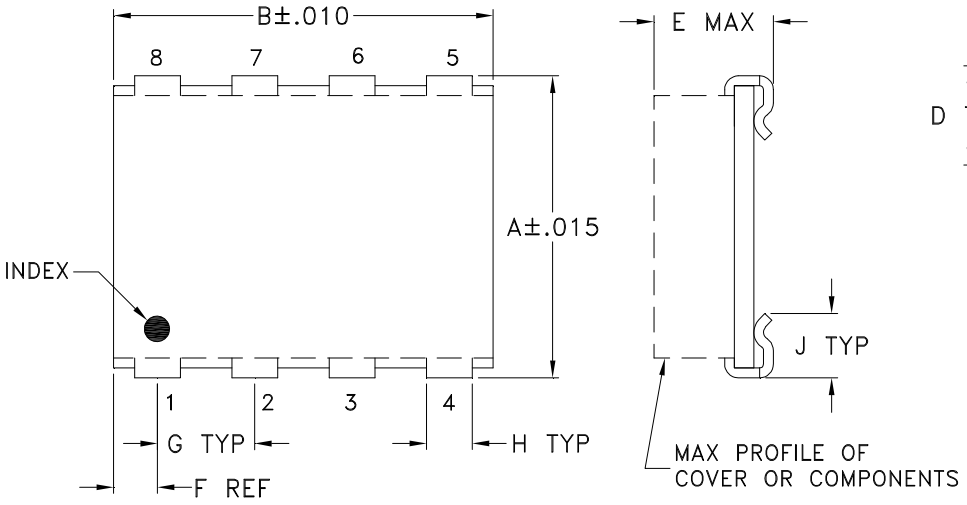
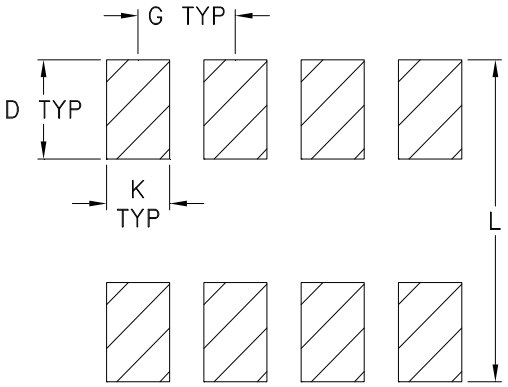
Case Style BJ

BJ293
BJ398

Outline Dimensions



PCB Land Pattern



Suggested Layout,
Tolerance to be within ±.002

CASE#	A	B	C	D	E	F	G	H	J	K	L	WT. GRAMS
BJ293	.395 (10.03)	.500 (12.70)	-- --	.100 (2.54)	.230 (5.84)	.100 (2.54)	.100 (2.54)	.047 (1.19)	.065 (1.65)	.065 (1.65)	.425 (10.80)	.80
BJ398	.305 (7.75)	.390 (9.91)	-- --	.100 (2.54)	.105 (2.67)	.045 (1.14)	.100 (2.54)	.047 (1.19)	.065 (1.65)	.065 (1.65)	.325 (8.26)	.20

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

Notes:
1. Case material: Plastic.
2. Base material: Printed wiring laminate.
3. Termination finish:
   For RoHS Case Styles: Tin plate over Nickel plate. All models, (+) suffix.
   For RoHS-5 Case Styles: Tin-Lead plate. All models, no (+) suffix.

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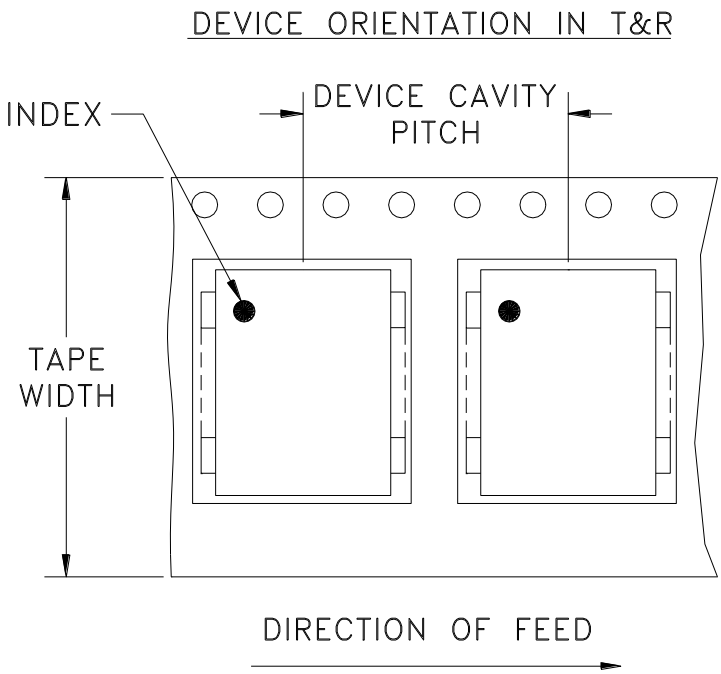
Tape & Reel Packaging TR-F10



Tape Width, mm	Device Cavity Pitch, mm	Reel Size, inches	Devices per Reel
24	16	7	10,20,50,100
		13	200,500

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

Note: Please consult individual model data sheet to determine device per reel availability.

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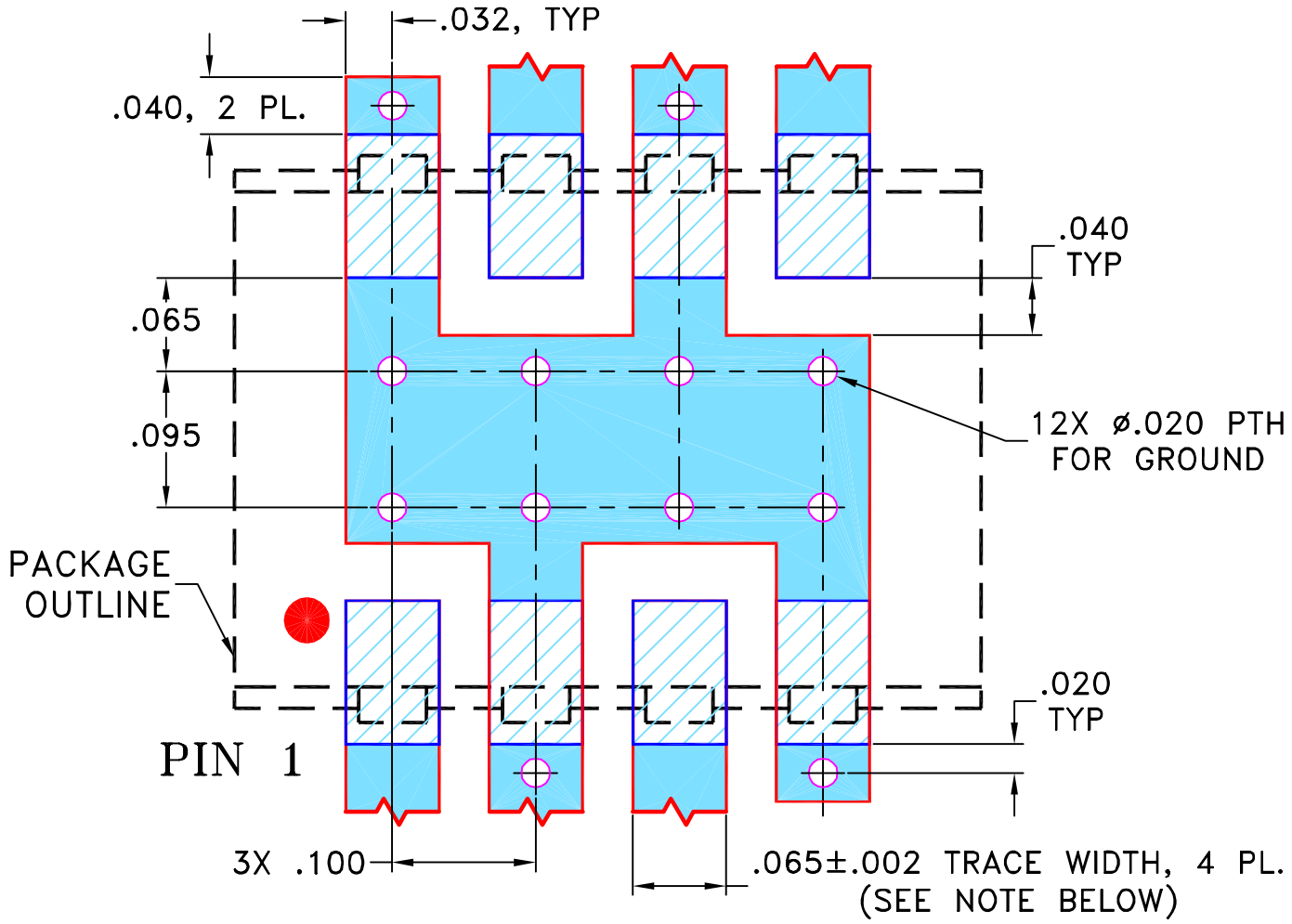
THIRD ANGLE PROJECTION

REVISIONS					
REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	M109132	NEW RELEASE	01/29/07	AV	DJ

SUGGESTED MOUNTING CONFIGURATION FOR BJ937-1 CASE STYLE, "nv" PIN CONNECTION.



NOTE: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS 0.030" ± 0.002"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

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

DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

UNLESS OTHERWISE SPECIFIED		INITIALS	DATE
DIMENSIONS ARE IN INCHES	DRAWN	AV	01/03/07
TOLERANCES ON:	CHECKED	IL	01/29/07
2 PL DECIMALS ±	APPROVED	DJ	01/29/07
3 PL DECIMALS ± .005			
ANGLES ±			
FRACTIONS ±			

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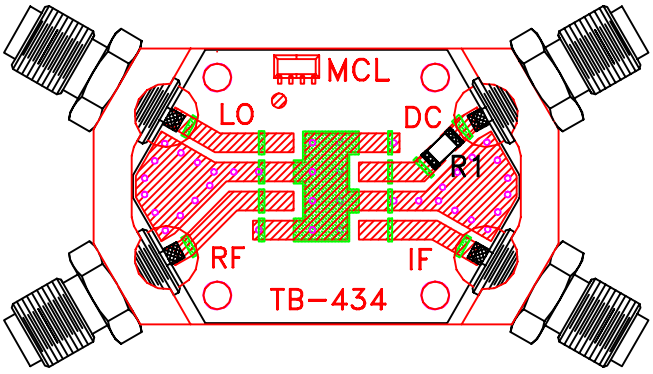
ASHEETA1.DWG REV:A DATE:01/12/95

Mini-Circuits® 13 Neptune Avenue Brooklyn NY 11235

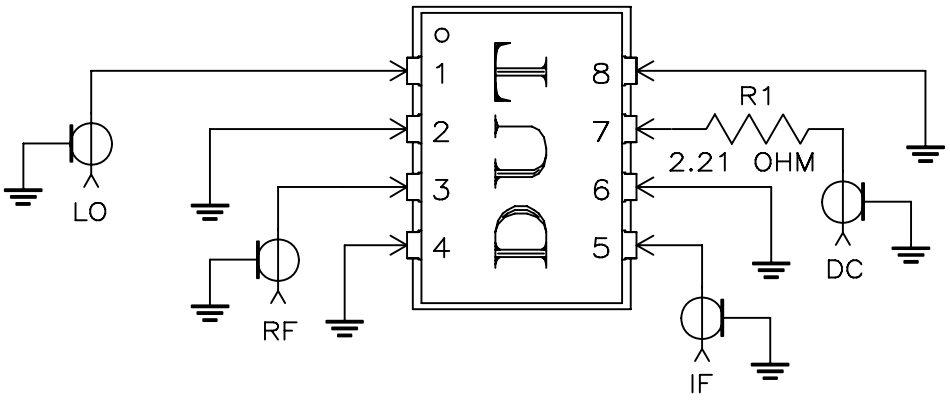
PL, nv, BJ937-1, MAX, TB-434+

SIZE	CODE IDENT	DRAWING NO:	REV:
A	15542	98-PL-263	OR
FILE: 98PL263		SCALE: 8:1	SHEET: 1 OF 1

Evaluation Board and Circuit



TB-434+



Schematic Diagram

Notes:

1. 50 Ohm SMA Female connectors.
2. PCB Material: Rogers RO4350 or equivalent, Dielectric Constant=3.5, Thickness=.030 inch.

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Environmental Specifications ENV04

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
Thermal Shock	-55° to 100°C, 100 cycles	MIL-STD-202, Method 107, Condition A-3, except +100°C
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
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
Solderability	10X Magnification	J-STD-002, Para 4.2.5, Test S, 95% Coverage
Solder Reflow Heat	Sn-Pb Eutectic Process: 225°C peak Pb-Free Process: 250°C peak	J-STD-020, Table 4-1, 4-2 and 5-2; Figure 5-1
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

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