Engineering Development Model

Active Mixer   AMCY-ED12565

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.

Please click "Back", and then click "Contact Us" for Applications support.

CASE STYLE : BJ293

ELECTRICAL SPECIFICATIONS 50Ω @ +25°C					
Parameter		**Min.**	**Typ.**	**Max.**	**Units**
Frequency	**LO** (fL to fU)	620		1300	MHz
	RF (fL to fU)	620		1300	MHz
	IF	115		299	MHz
Conversion Loss	**Total Range**		7.3		dB
LO-RF Isolation			20		dB
LO-IF Isolation			13		dB
Input IP3			+28		dBm
1 dB Compression			+15		dBm
DC Voltage			5		V
DC Current			90		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

AMCY-ED12565

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=161MHz (dB) @LO (dBm)			RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm) @LO (dBm)			RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+15dBm (dB) @LO (dBm)		
		-2	+1	+4			-2	+1	+4			-2	+1	+4
200.1	361.1	10.89	10.49	13.65	200.1	361.1	14.53	16.26	23.49	200.1	361.1	0.94	0.80	-0.25
240.1	401.1	9.27	8.83	9.43	240.1	401.1	17.89	19.72	23.07	240.1	401.1	1.16	0.61	0.29
280.1	441.1	8.05	8.18	9.08	280.1	441.1	20.15	24.34	24.36	280.1	441.1	1.63	0.83	0.05
320.1	481.1	7.69	8.33	8.95	320.1	481.1	23.96	23.41	21.19	320.1	481.1	1.07	0.59	-0.14
360.1	521.1	7.48	8.75	7.66	360.1	521.1	21.35	21.10	19.13	360.1	521.1	1.32	0.79	1.23
400.1	561.1	7.19	7.24	7.17	400.1	561.1	28.29	30.45	25.02	400.1	561.1	0.66	0.49	0.66
440.1	601.1	7.12	7.30	7.82	440.1	601.1	27.33	25.15	19.59	440.1	601.1	0.43	0.40	0.69
480.1	641.1	7.41	8.13	9.12	480.1	641.1	25.10	24.99	21.64	480.1	641.1	0.27	0.11	0.38
520.1	681.1	7.49	8.73	9.58	520.1	681.1	24.74	20.84	19.01	520.1	681.1	0.24	-0.26	1.67
560.1	721.1	8.29	10.29	10.70	560.1	721.1	21.90	29.92	25.02	560.1	721.1	0.52	0.06	0.20
600.1	761.1	7.23	7.40	7.97	600.1	761.1	26.24	23.73	24.93	600.1	761.1	0.55	0.71	0.65
640.1	801.1	6.84	6.95	7.13	640.1	801.1	26.32	27.12	28.05	640.1	801.1	0.48	0.43	0.46
680.1	841.1	6.90	7.07	7.22	680.1	841.1	26.12	28.97	25.77	680.1	841.1	0.48	0.39	0.42
720.1	881.1	6.99	7.06	7.14	720.1	881.1	27.06	28.06	29.02	720.1	881.1	0.20	0.16	0.18
760.1	921.1	6.89	6.89	6.93	760.1	921.1	27.77	28.60	27.76	760.1	921.1	-0.03	-0.03	-0.03
800.1	961.1	6.82	6.80	6.85	800.1	961.1	28.78	31.60	30.20	800.1	961.1	-0.02	0.01	0.00
840.1	1001.1	6.94	6.99	7.23	840.1	1001.1	26.69	27.51	24.90	840.1	1001.1	0.17	0.21	0.22
880.1	1041.1	7.80	7.82	7.89	880.1	1041.1	33.93	35.66	35.91	880.1	1041.1	0.12	0.09	0.09
920.1	1081.1	7.46	7.43	7.45	920.1	1081.1	35.73	37.18	36.63	920.1	1081.1	0.08	0.07	0.07
960.1	1121.1	7.25	7.12	7.10	960.1	1121.1	31.47	33.01	33.36	960.1	1121.1	0.24	0.17	0.15
1000.1	1161.1	7.43	7.22	7.15	1000.1	1161.1	31.70	32.03	32.26	1000.1	1161.1	0.18	0.16	0.16
1040.1	1201.1	7.24	7.13	7.13	1040.1	1201.1	29.37	29.28	28.99	1040.1	1201.1	0.26	0.26	0.29
1080.1	1241.1	7.16	7.07	7.07	1080.1	1241.1	26.44	26.95	27.18	1080.1	1241.1	0.46	0.44	0.45
1120.1	1281.1	7.03	6.95	6.91	1120.1	1281.1	26.11	26.23	26.35	1120.1	1281.1	0.57	0.56	0.56
1160.1	1321.1	7.08	6.95	6.89	1160.1	1321.1	26.90	27.31	27.82	1160.1	1321.1	0.48	0.46	0.42
1210.1	1371.1	7.25	7.10	7.02	1210.1	1371.1	25.02	25.89	26.87	1210.1	1371.1	0.55	0.47	0.42
1250.1	1411.1	7.40	7.25	7.19	1250.1	1411.1	25.11	25.82	26.49	1250.1	1411.1	0.55	0.43	0.39
1300.1	1461.1	7.60	7.47	7.45	1300.1	1461.1	24.54	25.81	27.50	1300.1	1461.1	0.65	0.48	0.38
1340.1	1501.1	7.90	7.73	7.67	1340.1	1501.1	23.80	24.12	26.21	1340.1	1501.1	0.69	0.60	0.54
1390.1	1551.1	8.24	8.12	8.02	1390.1	1551.1	24.07	22.72	22.12	1390.1	1551.1	0.69	0.67	0.75
1430.1	1591.1	8.46	8.49	8.70	1430.1	1591.1	25.65	24.91	23.02	1430.1	1591.1	0.61	0.49	0.41
1480.1	1641.1	9.00	9.05	9.48	1480.1	1641.1	28.65	30.56	30.40	1480.1	1641.1	0.45	0.33	0.17
1520.1	1681.1	9.25	9.03	9.08	1520.1	1681.1	27.87	28.78	26.01	1520.1	1681.1	0.37	0.39	0.49
1570.1	1731.1	9.41	9.11	9.01	1570.1	1731.1	23.93	24.69	26.46	1570.1	1731.1	0.38	0.31	0.38
1610.1	1771.1	9.43	9.10	8.98	1610.1	1771.1	24.34	23.70	23.59	1610.1	1771.1	0.40	0.26	0.26
1660.1	1821.1	9.41	9.02	8.90	1660.1	1821.1	25.18	25.91	25.94	1660.1	1821.1	0.63	0.51	0.45
1700.1	1861.1	9.54	9.09	8.91	1700.1	1861.1	22.61	23.86	24.18	1700.1	1861.1	0.77	0.67	0.62
1750.1	1911.1	9.65	9.21	9.01	1750.1	1911.1	21.91	23.81	24.69	1750.1	1911.1	0.82	0.68	0.59
1790.1	1951.1	10.04	9.57	9.36	1790.1	1951.1	21.75	23.61	24.24	1790.1	1951.1	0.61	0.55	0.50
1840.1	2001.1	10.95	10.57	10.46	1840.1	2001.1	22.66	23.71	23.81	1840.1	2001.1	0.40	0.50	0.51

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=942MHz (dB) @LO (dBm) +1	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=902MHz (dB) @LO (dBm) +1	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=982MHz (dB) @LO (dBm) +1
552.0	390.0	10.73	10.0	912.0	17.74	610.0	372.0	11.99
520.6	421.4	9.62	30.0	932.0	10.27	590.0	392.0	10.89
489.2	452.8	9.61	50.0	952.0	8.35	570.0	412.0	9.95
457.7	484.3	9.53	70.0	972.0	7.63	550.0	432.0	9.57
426.3	515.7	10.50	90.0	992.0	7.26	530.0	452.0	9.64
394.9	547.1	8.56	110.0	1012.0	8.04	520.0	462.0	9.89
363.5	578.5	7.92	130.0	1032.0	8.11	500.0	482.0	9.72
332.1	609.9	7.70	150.0	1052.0	7.71	490.0	492.0	9.40
300.6	641.4	7.81	170.0	1072.0	7.45	470.0	512.0	9.66
277.1	664.9	8.35	200.0	1102.0	7.15	460.0	522.0	10.28
245.7	696.3	9.03	220.0	1122.0	7.03	440.0	542.0	8.96
222.1	719.9	10.35	250.0	1152.0	7.18	430.0	552.0	8.54
190.7	751.3	7.65	270.0	1172.0	7.08	410.0	572.0	8.10
167.1	774.9	7.30	300.0	1202.0	7.11	400.0	582.0	8.04
135.7	806.3	7.41	320.0	1222.0	7.14	380.0	602.0	7.79
112.1	829.9	7.51	350.0	1252.0	7.32	370.0	612.0	7.75
80.7	861.3	7.70	370.0	1272.0	7.39	350.0	632.0	7.74
57.1	884.9	8.15	400.0	1302.0	7.61	340.0	642.0	7.83
25.7	916.3	11.10	420.0	1322.0	7.72	320.0	662.0	8.17
10.0	952.0	17.53	450.0	1352.0	7.88	310.0	672.0	8.33
57.9	999.9	8.18	470.0	1372.0	8.01	290.0	692.0	8.20
93.8	1035.8	8.31	500.0	1402.0	8.05	280.0	702.0	10.39
141.7	1083.7	7.39	520.0	1422.0	8.09	260.0	722.0	10.33
177.6	1119.6	7.15	550.0	1452.0	8.17	250.0	732.0	9.47
225.5	1167.5	7.21	570.0	1472.0	8.26	230.0	752.0	7.47
261.4	1203.4	7.16	600.0	1502.0	8.45	220.0	762.0	7.23
309.3	1251.3	7.26	620.0	1522.0	8.59	200.0	782.0	7.04
345.2	1287.2	7.50	650.0	1552.0	8.98	190.0	792.0	7.11
393.1	1335.1	7.76	670.0	1572.0	9.30	170.0	812.0	7.20
429.0	1371.0	7.91	700.0	1602.0	9.48	160.0	822.0	7.23
476.9	1418.9	8.06	720.0	1622.0	9.88	140.0	842.0	7.23
512.8	1454.8	8.20	750.0	1652.0	10.33	130.0	852.0	7.19
560.7	1502.7	8.46	770.0	1672.0	10.62	110.0	872.0	7.23
596.6	1538.6	8.64	800.0	1702.0	10.83	100.0	882.0	7.21
644.5	1586.5	9.36	820.0	1722.0	10.86	80.0	902.0	7.44
680.4	1622.4	9.57	850.0	1752.0	10.75	70.0	912.0	7.60
728.3	1670.3	10.31	870.0	1772.0	10.56	50.0	932.0	8.28
764.2	1706.2	10.75	900.0	1802.0	10.44	40.0	942.0	8.99
812.1	1754.1	10.69	920.0	1822.0	10.73	20.0	962.0	12.35
848.0	1790.0	10.44	950.0	1852.0	10.94	10.0	972.0	17.44

Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB) @LO (dBm)			LO-IF ISOLATION (dB) @LO (dBm)			RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB) @LO (dBm)		
	-2	+1	+4	-2	+1	+4			-2	+1	+4
361.1	26.30	24.94	26.50	31.61	31.13	29.29	200.1	361.1	29.01	21.89	17.78
401.1	29.96	30.42	34.41	28.20	27.16	26.36	240.1	401.1	28.54	19.54	14.62
441.1	30.69	34.16	37.83	25.99	25.45	27.03	280.1	441.1	26.34	17.13	14.69
481.1	28.43	31.96	31.62	22.99	24.11	30.26	320.1	481.1	25.77	16.34	15.56
521.1	23.84	26.00	28.74	20.90	23.04	27.87	360.1	521.1	31.86	30.31	21.11
561.1	21.13	21.92	26.08	18.30	19.48	24.35	400.1	561.1	20.92	18.22	20.43
601.1	19.11	20.84	22.93	17.43	19.71	23.41	440.1	601.1	19.64	17.24	15.60
641.1	18.89	20.50	23.33	15.54	17.31	26.63	480.1	641.1	19.16	17.49	15.92
681.1	15.46	19.29	23.00	15.79	17.80	24.98	520.1	681.1	19.32	16.00	20.22
721.1	14.53	16.46	20.02	18.05	20.36	21.61	560.1	721.1	34.00	36.90	38.88
761.1	20.29	23.52	27.78	15.74	19.74	25.00	600.1	761.1	31.20	29.08	35.31
801.1	18.04	19.22	21.32	13.97	16.61	19.72	640.1	801.1	30.41	30.02	29.95
841.1	19.38	20.59	22.82	12.58	14.51	17.06	680.1	841.1	28.31	28.11	28.29
881.1	19.78	19.92	21.92	12.11	13.94	16.66	720.1	881.1	29.48	30.77	32.50
921.1	19.81	18.91	20.53	11.86	13.76	16.60	760.1	921.1	30.18	32.97	32.78
961.1	15.31	15.67	17.34	9.03	10.59	13.61	800.1	961.1	32.90	38.02	38.85
1001.1	10.46	11.42	12.85	7.09	8.99	12.27	840.1	1001.1	28.52	30.83	36.42
1041.1	27.36	28.64	30.08	7.67	9.98	13.54	880.1	1041.1	27.91	27.87	30.53
1081.1	26.72	29.50	32.64	5.94	8.50	12.08	920.1	1081.1	26.39	28.02	31.68
1121.1	27.77	25.53	26.40	4.49	6.91	10.36	960.1	1121.1	21.15	24.34	27.18
1161.1	15.68	19.40	24.25	7.33	9.96	13.53	1000.1	1161.1	19.34	22.46	25.51
1201.1	18.91	20.52	22.58	10.08	14.47	19.08	1040.1	1201.1	20.90	23.25	24.02
1241.1	17.38	19.17	21.19	12.82	16.14	19.66	1080.1	1241.1	26.31	29.23	30.42
1281.1	17.61	19.61	21.97	12.67	15.62	18.53	1120.1	1281.1	28.38	29.53	29.71
1321.1	16.18	18.05	20.41	12.59	15.40	18.16	1160.1	1321.1	23.83	24.16	24.26
1371.1	14.68	16.26	18.62	12.95	15.53	18.07	1210.1	1371.1	20.11	20.26	20.28
1411.1	14.06	15.53	17.95	13.14	15.65	18.17	1250.1	1411.1	19.05	19.24	19.31
1461.1	13.30	14.30	16.39	13.46	15.91	18.47	1300.1	1461.1	18.18	18.52	18.68
1501.1	13.20	14.25	16.01	13.35	15.66	18.23	1340.1	1501.1	17.75	18.14	18.28
1551.1	13.11	14.52	16.57	13.45	15.82	18.65	1390.1	1551.1	17.28	17.74	17.95
1591.1	13.51	15.15	17.62	13.82	15.51	18.04	1430.1	1591.1	16.88	17.30	17.49
1641.1	14.47	15.79	17.79	13.27	14.54	16.66	1480.1	1641.1	16.75	17.21	17.40
1681.1	14.22	15.21	16.90	13.01	14.28	16.37	1520.1	1681.1	16.70	17.05	17.26
1731.1	13.81	14.63	16.11	13.54	14.92	16.91	1570.1	1731.1	16.70	16.90	17.05
1771.1	13.51	14.13	15.35	13.78	15.41	17.86	1610.1	1771.1	17.05	17.16	17.20
1821.1	14.62	15.10	16.15	13.76	15.46	18.16	1660.1	1821.1	17.83	18.02	18.03
1861.1	15.02	15.04	15.73	13.41	15.02	17.77	1700.1	1861.1	18.62	18.79	18.71
1911.1	16.34	15.72	15.49	13.76	15.68	18.77	1750.1	1911.1	19.51	19.54	19.34
1951.1	17.74	16.79	16.17	12.65	14.40	17.35	1790.1	1951.1	20.04	19.86	19.50
2001.1	19.95	19.03	18.14	8.96	10.40	13.03	1840.1	2001.1	19.94	19.47	18.98

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1) @LO (dBm)			LO (MHz)	LO VSWR (:1) @LO (dBm)			IF (OUT) (MHz)	IF VSWR @LO=1098MHz (:1) @LO (dBm)		
		-2	+1	+4		-2	+1	+4		-2	+1	+4
200.1	361.1	2.38	2.16	2.13	361.1	5.04	5.07	5.19	10.0	11.69	11.53	11.53
240.1	401.1	1.68	1.53	1.53	401.1	4.13	4.17	4.27	30.0	4.74	4.70	4.70
280.1	441.1	1.24	1.18	1.23	441.1	3.47	3.55	3.65	50.0	2.95	2.94	2.94
320.1	481.1	1.09	1.08	1.12	481.1	3.04	3.13	3.31	70.0	2.35	2.36	2.35
360.1	521.1	1.31	1.26	1.25	521.1	2.65	2.70	2.91	90.0	1.96	1.97	1.97
400.1	561.1	1.49	1.54	1.45	561.1	2.43	2.51	2.69	110.0	1.81	1.83	1.82
440.1	601.1	1.67	1.67	1.66	601.1	2.35	2.44	2.53	130.0	1.71	1.73	1.72
480.1	641.1	1.77	1.71	1.80	641.1	2.31	2.33	2.29	150.0	1.61	1.63	1.62
520.1	681.1	1.81	1.82	1.68	681.1	2.24	2.15	2.09	170.0	1.58	1.60	1.60
560.1	721.1	1.67	1.51	1.51	721.1	2.11	1.98	1.97	190.0	1.46	1.49	1.48
600.1	761.1	1.70	1.67	1.65	761.1	2.04	1.94	1.92	210.0	1.47	1.50	1.49
640.1	801.1	1.64	1.60	1.58	801.1	1.93	1.84	1.80	230.0	1.51	1.54	1.53
680.1	841.1	1.62	1.55	1.52	841.1	1.83	1.75	1.71	250.0	1.44	1.47	1.47
720.1	881.1	1.62	1.56	1.54	881.1	1.72	1.67	1.63	270.0	1.47	1.50	1.51
760.1	921.1	1.50	1.46	1.46	921.1	1.60	1.56	1.53	290.0	1.52	1.56	1.56
800.1	961.1	1.39	1.31	1.31	961.1	1.40	1.39	1.40	310.0	1.51	1.54	1.54
840.1	1001.1	1.40	1.29	1.24	1001.1	1.25	1.25	1.28	330.0	1.60	1.63	1.64
880.1	1041.1	1.14	1.15	1.15	1041.1	1.12	1.15	1.20	350.0	1.58	1.61	1.61
920.1	1081.1	1.31	1.30	1.29	1081.1	1.21	1.21	1.21	370.0	1.64	1.67	1.68
960.1	1121.1	1.39	1.37	1.36	1121.1	1.37	1.35	1.30	390.0	1.74	1.77	1.77
1000.1	1161.1	1.47	1.47	1.46	1161.1	1.51	1.46	1.41	410.0	1.75	1.77	1.77
1040.1	1201.1	1.50	1.48	1.48	1201.1	1.61	1.54	1.48	440.0	1.80	1.83	1.83
1080.1	1241.1	1.61	1.56	1.55	1241.1	1.66	1.57	1.50	460.0	1.92	1.95	1.95
1120.1	1281.1	1.55	1.52	1.51	1281.1	1.73	1.61	1.53	490.0	2.01	2.04	2.04
1160.1	1321.1	1.40	1.37	1.36	1321.1	1.77	1.64	1.54	510.0	1.98	2.00	2.00
1210.1	1371.1	1.25	1.23	1.23	1371.1	1.80	1.66	1.55	540.0	2.03	2.05	2.05
1250.1	1411.1	1.21	1.23	1.23	1411.1	1.78	1.65	1.53	560.0	2.19	2.20	2.20
1300.1	1461.1	1.25	1.30	1.33	1461.1	1.71	1.61	1.49	590.0	2.29	2.30	2.30
1340.1	1501.1	1.29	1.36	1.39	1501.1	1.68	1.58	1.46	610.0	2.28	2.29	2.28
1390.1	1551.1	1.28	1.35	1.39	1551.1	1.62	1.53	1.42	640.0	2.42	2.43	2.42
1430.1	1591.1	1.32	1.35	1.38	1591.1	1.57	1.51	1.41	660.0	2.57	2.57	2.57
1480.1	1641.1	1.43	1.47	1.52	1641.1	1.51	1.46	1.36	690.0	2.71	2.72	2.72
1520.1	1681.1	1.57	1.57	1.58	1681.1	1.48	1.42	1.33	710.0	2.75	2.75	2.76
1570.1	1731.1	1.72	1.69	1.68	1731.1	1.47	1.41	1.32	740.0	2.86	2.86	2.88
1610.1	1771.1	1.90	1.86	1.85	1771.1	1.48	1.41	1.32	760.0	2.99	2.99	3.00
1660.1	1821.1	2.08	2.01	1.99	1821.1	1.50	1.44	1.35	790.0	3.18	3.18	3.20
1700.1	1861.1	2.32	2.24	2.22	1861.1	1.51	1.45	1.35	810.0	3.26	3.27	3.29
1750.1	1911.1	2.52	2.42	2.40	1911.1	1.54	1.48	1.38	840.0	3.45	3.47	3.49
1790.1	1951.1	2.78	2.66	2.62	1951.1	1.57	1.49	1.40	860.0	3.62	3.63	3.66
1840.1	2001.1	2.89	2.77	2.73	2001.1	1.62	1.54	1.45	890.0	3.86	3.88	3.91

Frequency Mixer AMCY-ED12565

Harmonics Tables

(-dBm)	(-dBc)										
0	-	-	+1	10	20	13	27	25	38	40	31	48
1	-	18	+0	27	17	40	39	37	51	41	54	47
2	61	52	54	47	54	49	65	64	71	65	66	88
3	95	85	79	81	>93	86	81	>93	91	>93	87	>93
4	>100	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93
5	>100	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93
6	>100	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93
7	>100	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93
8	>100	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93
9	>100	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93
10	>100	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93
RF CAL	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**

(RF HARMONICS ORDER vertical axis)

LO HARMONICS ORDER

Test conditions:
RF IN: 942 MHz; 0.00 dBm.
LO IN: 1103 MHz; +1.00 dBm
IF OUT: 161 MHz; -7.37 dBm

(-dBm)	(-dBc)										
0	-	-	9	21	31	22	37	35	52	50	43	64
1	-	18	+0	27	17	40	40	38	51	42	55	47
2	41	42	44	37	44	39	55	54	61	56	58	77
3	65	63	57	58	64	64	60	73	70	76	69	100
4	91	79	70	70	66	65	70	72	79	77	80	85
5	>100	92	89	79	79	84	82	83	88	87	91	88
6	>100	100	>103	102	92	>103	88	95	95	100	>103	>103
7	>100	>103	>103	>103	>103	101	95	100	101	99	>103	>103
8	>100	>103	>103	>103	>103	>103	>103	>103	>103	>103	>103	>103
9	>100	>103	>103	>103	>103	>103	>103	>103	>103	>103	>103	>103
10	>100	>103	>103	>103	>103	>103	>103	>103	>103	>103	>103	>103
RF CAL	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**

(RF HARMONICS ORDER vertical axis)

LO HARMONICS ORDER

Test conditions:
RF IN: 942 MHz; 10.00 dBm.
LO IN: 1103 MHz; +1.00 dBm
IF OUT: 161 MHz; 2.62 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.
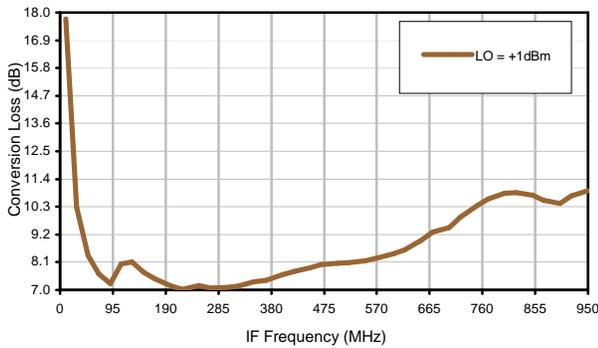
Typical Performance Curves

Conversion Loss @ IF=161MHz
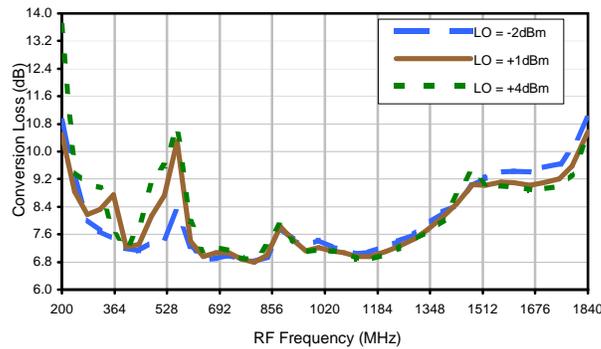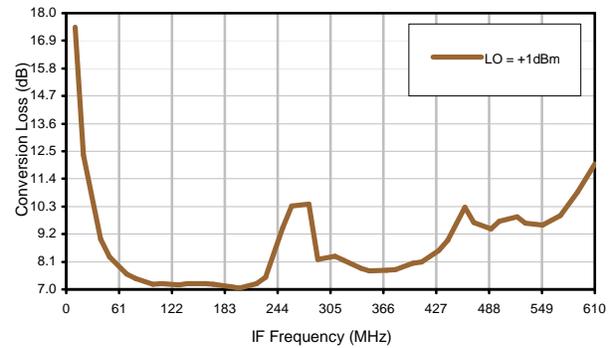

Conversion Loss vs. LO @ RF=942MHz
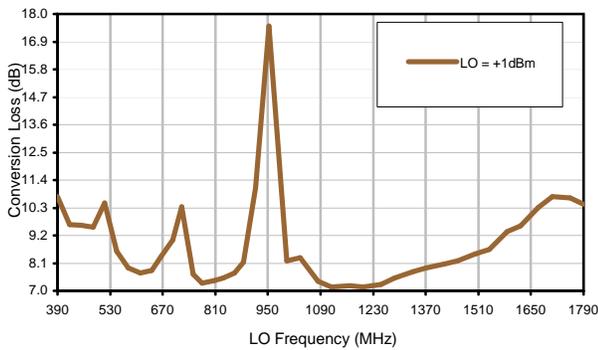
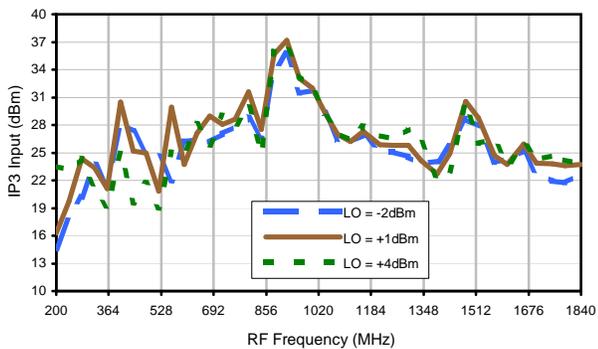### Conversion Loss vs. IF @ RF=942MHz
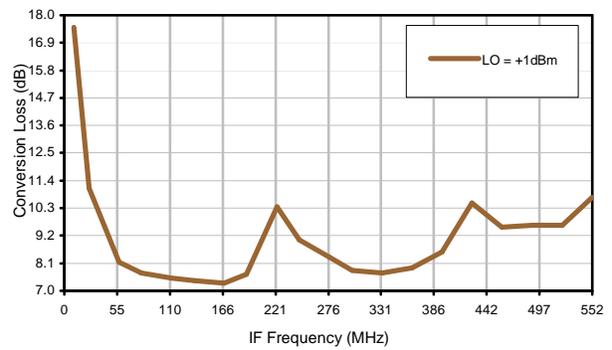
Conversion Loss vs. IF @ RF=902MHz

Conversion Loss vs. IF @ RF=982MHz

IP3 Input

Compression @ RF IN=+15dBm

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The Design Engineers Search Engine finds the model you need, Instantly • For detailed performance specs & shopping online see minicircuits.com
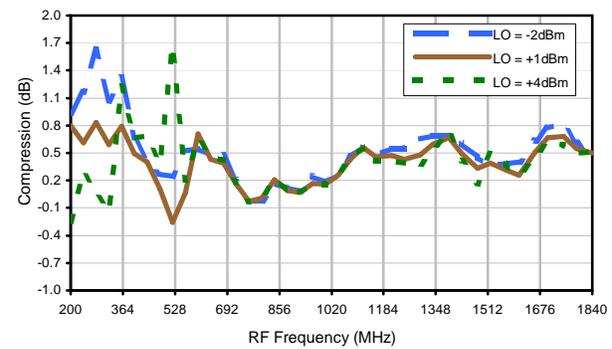
Typical Performance Curves

LO-RF Isolation
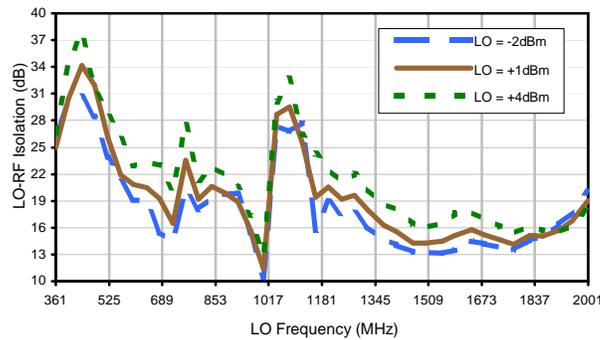
LO-IF Isolation
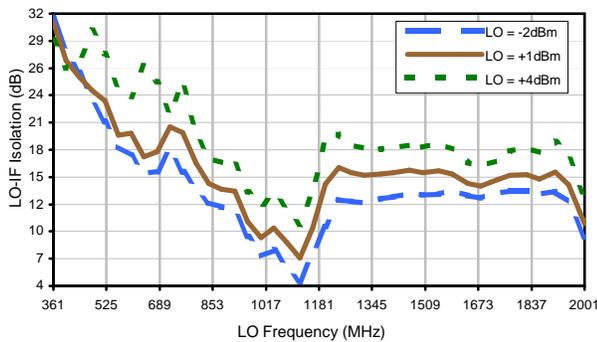
RF-IF Isolation

RF VSWR

LO VSWR

IF VSWR

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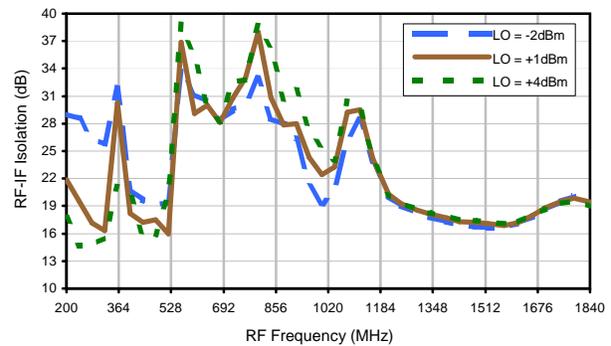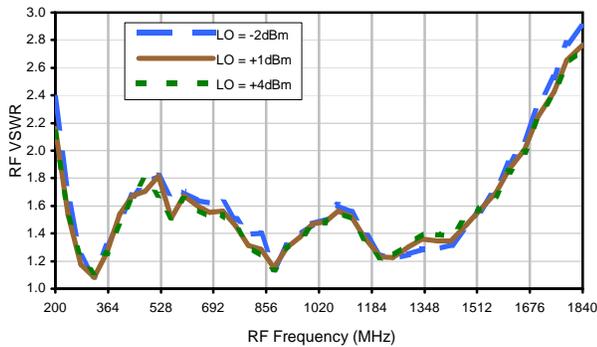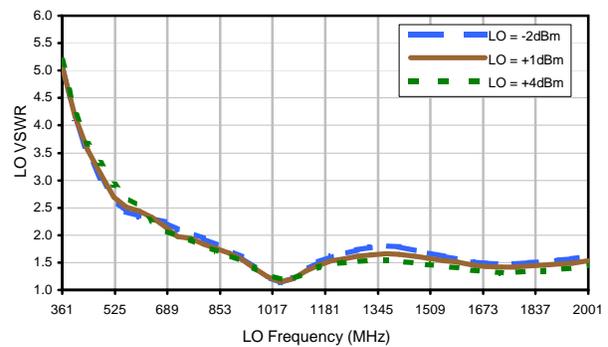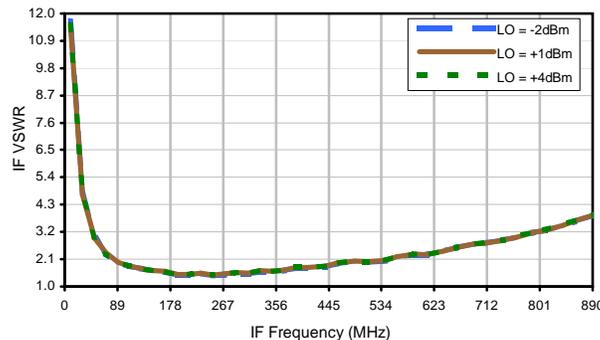
Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	+1	10	20	13	27	25	38	40	31	48
1	-	18	+0	27	17	40	39	37	51	41	54	47
2	61	52	54	47	54	49	65	64	71	65	66	88
3	95	85	79	81	>93	86	81	>93	91	>93	87	>93
4	>100	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93
5	>100	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93
6	>100	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93
7	>100	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93
8	>100	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93
9	>100	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93
10	>100	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93
RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:
RF IN: 942 MHz; 0.00 dBm.
LO IN: 1103 MHz; +1.00 dBm
IF OUT: 161 MHz; -7.37 dBm

RF HARMONICS ORDER

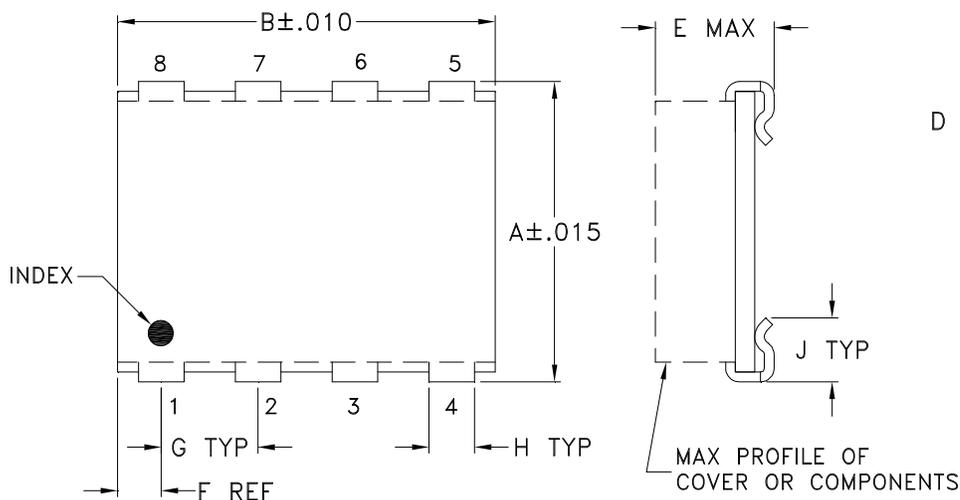|	(-dBm)	(-dBc)										
0	-	-	9	21	31	22	37	35	52	50	43	64
1	-	18	+0	27	17	40	40	38	51	42	55	47
2	41	42	44	37	44	39	55	54	61	56	58	77
3	65	63	57	58	64	64	60	73	70	76	69	100
4	91	79	70	70	66	65	70	72	79	77	80	85
5	>100	92	89	79	79	84	82	83	88	87	91	88
6	>100	100	>103	102	92	>103	88	95	95	100	>103	>103
7	>100	>103	>103	>103	>103	101	95	100	101	99	>103	>103
8	>100	>103	>103	>103	>103	>103	>103	>103	>103	>103	>103	>103
9	>100	>103	>103	>103	>103	>103	>103	>103	>103	>103	>103	>103
10	>100	>103	>103	>103	>103	>103	>103	>103	>103	>103	>103	>103
RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:
RF IN: 942 MHz; 10.00 dBm.
LO IN: 1103 MHz; +1.00 dBm
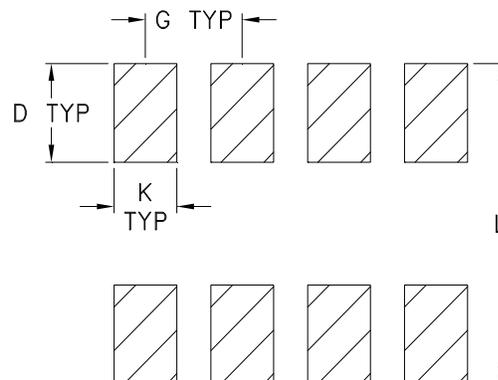IF OUT: 161 MHz; 2.62 dBm

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*

Outline Dimensions

PCB Land Pattern

INDEX

B±.010

8   7   6   5

A±.015

1   2   3   4

G TYP

F REF

H TYP

E MAX

J TYP

MAX PROFILE OF
COVER OR COMPONENTS

G TYP

D TYP

K TYP

L

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.

98-BJ   Rev.: L (05/26/17) M162087 File: 98-BJ
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Sheet 1 of 7

Tape & Reel Packaging   TR-F10

DEVICE ORIENTATION IN T&R

INDEX

DEVICE CAVITY PITCH

TAPE WIDTH

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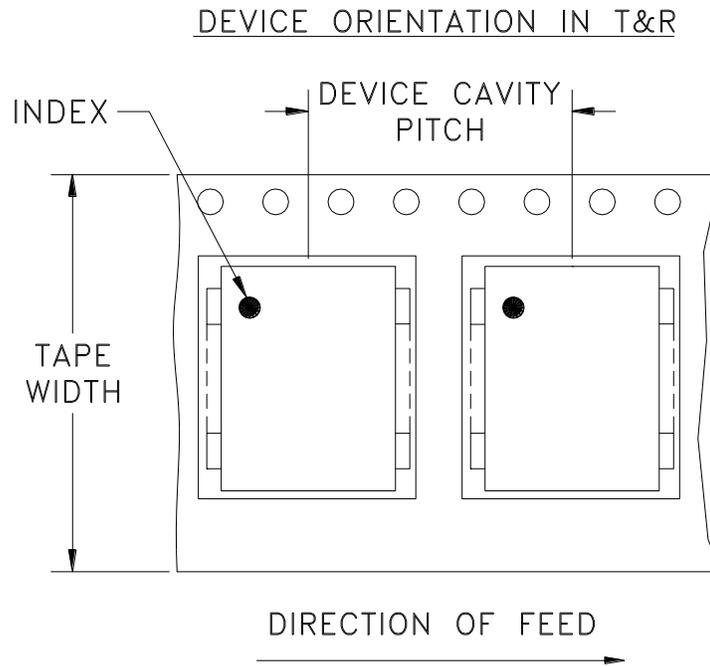
Tape Width, mm	Device Cavity Pitch, mm	Reel Size, inches	Devices per Reel
24	16	7	10,20,50,100
		13	200,500

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.

98-TR-F10 Rev.: C (02/17/26) ECO-028549 File: 98-TR-F10.doc
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Sheet 1 of 1
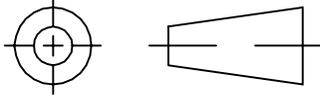
		REVISIONS				
REV	ECN No.	DESCRIPTION		DATE	DR	AUTH
OR	M109132	NEW RELEASE		01/29/07	AV	DJ

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

.032, TYP

.040, 2 PL.

.040 TYP

.065

.095

12X ø.020 PTH FOR GROUND

PACKAGE OUTLINE

.020 TYP

PIN 1

3X .100

.065±.002 TRACE WIDTH, 4 PL. (SEE NOTE BELOW)
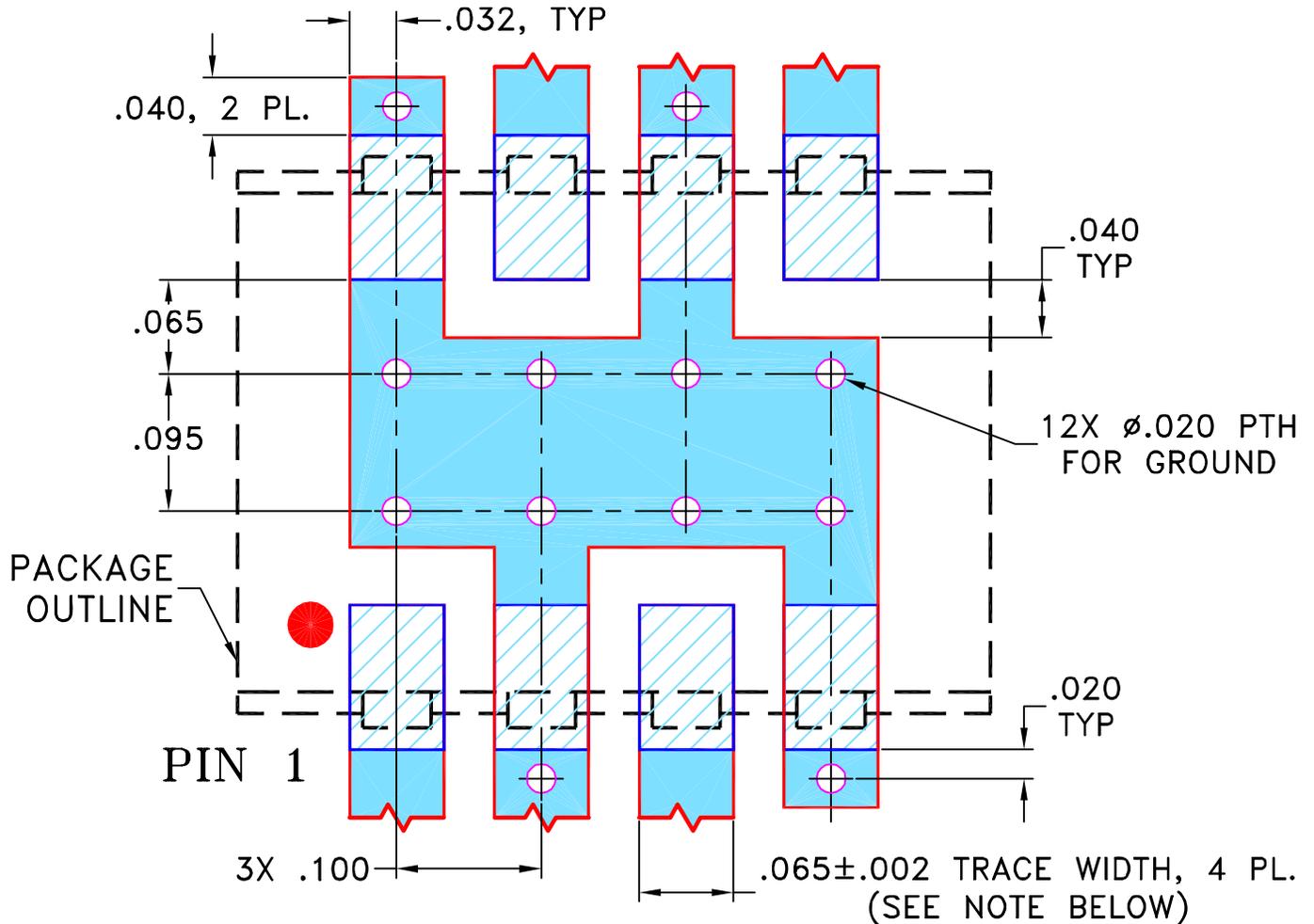
NOTE: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC
       THICKNESS 0.030" ± 0.002"; COPPER: 1/2 OZ. EACH SIDE.
       FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
    2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

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 ± 3 PL DECIMALS ± .005	APPROVED	DJ	01/29/07
ANGLES ± FRACTIONS ±			

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13 Neptune Avenue
Brooklyn NY 11235

Mini-Circuits®

PL, nv, BJ937-1, MAX, TB-434+
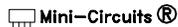
SIZE	CODE IDENT	DRAWING NO:	REV:
A	15542	98-PL-263	OR
FILE: 98PL263	SCALE: 8:1	SHEET: 1 OF 1	

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

Evaluation Board and Circuit
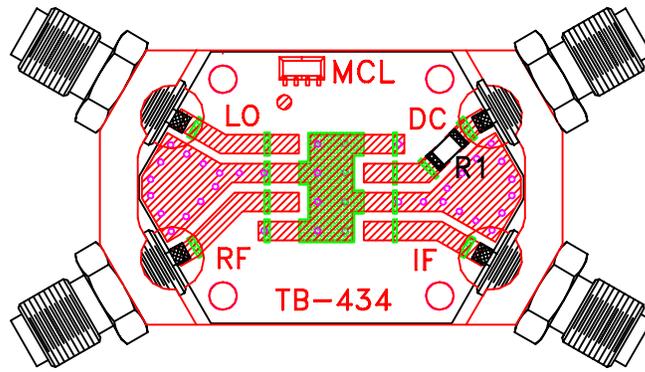
TB-434+
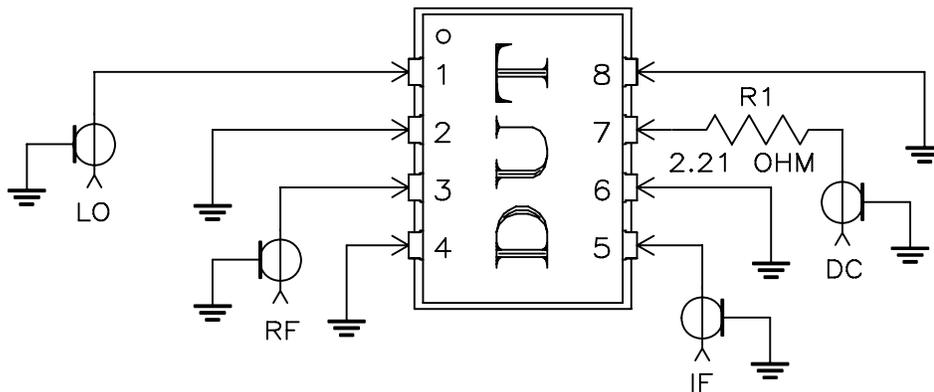
Schematic Diagram

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

ENV04   Rev: A   02/25/11   M130240   File: ENV04.pdf

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Page: 1