

Frequency Mixer

Level 7 (LO Power +7 dBm) 800 to 1000 MHz

ADE-901+



Generic photo used for illustration purposes only

CASE STYLE: CD542

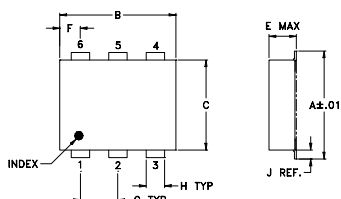
Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power	50mW
IF Current	40mA
Permanent damage may occur if any of these limits are exceeded.	

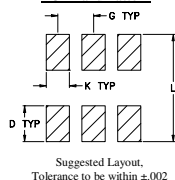
Pin Connections

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

Outline Drawing



PCB Land Pattern

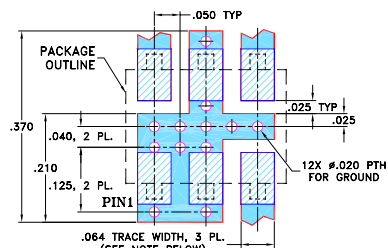


Outline Dimensions (inch)

A	B	C	D	E	F	G
.272	.310	.220	.100	.112	.055	.100
6.91	7.87	5.59	2.54	2.84	1.40	2.54

H	J	K	L	wt
.030	.026	.065	.300	grams
0.76	0.66	1.65	7.62	0.20

Demo Board MCL P/N: TB-02 Suggested PCB Layout (PL-051)



- NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .030" ± .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

Features

- low conversion loss, 5.9 dB typ.
- good isolation, 32 dB typ.
- low profile package
- aqueous washable
- protected by U.S. Patent 6,133,525

Applications

- cellular
- ISM/GSM

Electrical Specifications

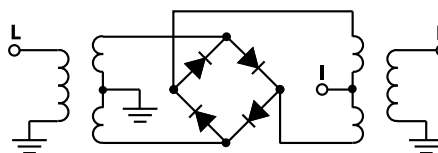
FREQUENCY (MHz)	CONVERSION LOSS (dB)	LO-RF ISOLATION (dB)	LO-IF ISOLATION (dB)	IP3 at center band (dBm)
LO/RF $f_L - f_U$	$\bar{X}$ σ Max.	Typ. Min.	Typ. Min.	Typ.
800-1000 DC-200	5.9 0.10 7.3	32 22	26 18	13

1 dB COMP.: +1 dBm typ.

Typical Performance Data

Frequency (MHz)		Conversion Loss (dB)	Isolation L-R (dB)	Isolation L-I (dB)	VSWR RF Port (:1)	VSWR LO Port (:1)
RF	LO	LO +7dBm	LO +7dBm	LO +7dBm	LO +7dBm	LO +7dBm
800.00	830.00	5.99	33.00	25.00	1.21	2.68
810.53	840.53	5.85	33.16	25.16	1.20	2.76
821.05	851.05	5.89	33.17	25.17	1.20	2.84
831.58	861.58	5.80	33.17	25.00	1.19	2.92
842.11	872.11	5.85	33.17	25.34	1.19	2.96
852.63	882.63	5.88	33.33	25.17	1.19	2.96
863.16	893.16	5.89	33.33	25.33	1.18	2.92
873.68	903.68	5.86	33.50	25.33	1.17	2.88
884.21	914.21	5.86	33.67	25.50	1.16	2.88
894.74	924.74	5.89	33.50	25.50	1.15	3.01
905.26	935.26	5.91	33.50	25.34	1.13	3.11
915.79	945.79	5.84	33.50	25.33	1.12	3.16
926.32	956.32	5.92	33.33	25.33	1.10	3.21
936.84	966.84	5.86	33.50	25.00	1.08	3.21
947.37	977.37	5.92	33.34	24.84	1.06	3.21
957.90	987.90	5.91	33.33	24.67	1.04	3.16
968.42	998.42	5.87	33.50	24.50	1.02	3.21
978.95	1008.95	5.80	33.50	24.50	1.01	3.32
989.47	1019.47	5.86	33.50	24.34	1.01	3.38
1000.00	1030.00	5.82	33.50	24.34	1.03	3.44

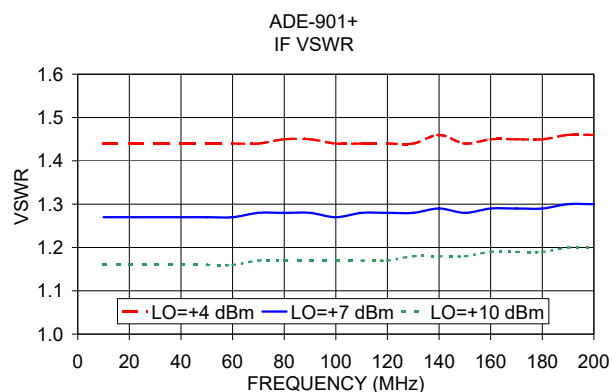
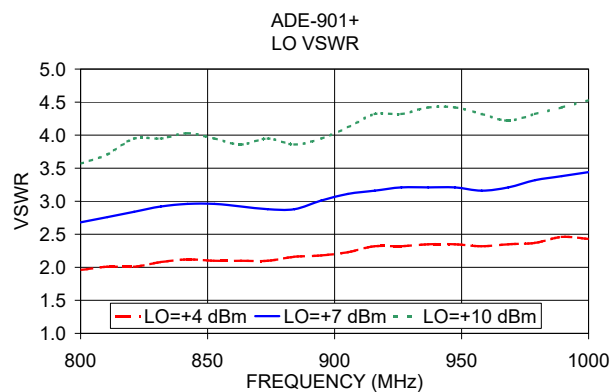
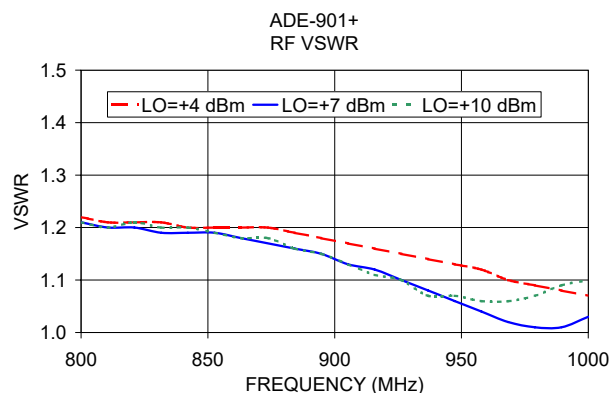
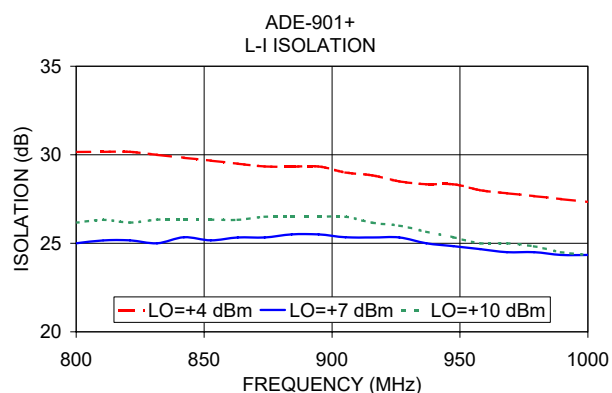
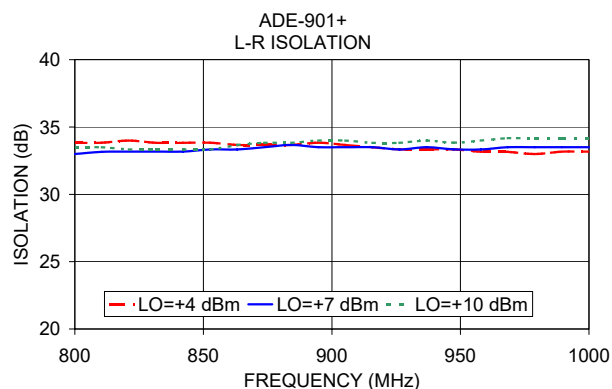
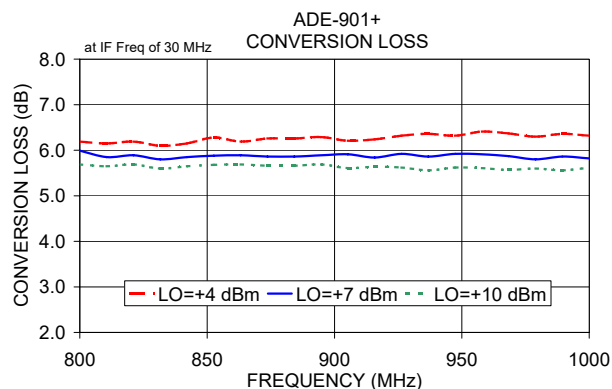
Electrical Schematic



Notes

- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
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Frequency Mixer

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Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB)		
		@LO (dBm)		
		+4	+7	+10
80.1	110.1	11.54	10.22	9.70
120.1	150.1	9.16	8.44	8.07
160.1	190.1	8.18	7.65	7.41
200.1	230.1	7.51	7.09	6.91
240.1	270.1	7.18	6.86	6.67
280.1	310.1	6.99	6.61	6.48
320.1	350.1	6.82	6.54	6.52
360.1	390.1	6.69	6.36	6.22
400.1	430.1	6.56	6.28	6.17
440.1	470.1	6.41	6.12	6.00
480.1	510.1	6.48	6.17	6.01
520.1	550.1	6.43	6.13	6.00
560.1	590.1	6.39	6.10	5.95
600.1	630.1	6.39	6.08	5.88
640.1	670.1	6.39	6.06	5.87
700.1	730.1	6.40	6.10	5.90
740.1	770.1	6.41	6.09	5.88
800.1	830.1	6.37	6.09	5.87
840.1	870.1	6.39	6.10	5.88
900.1	930.1	6.39	6.08	5.88
940.1	970.1	6.46	6.13	5.92
1000.1	1030.1	6.57	6.21	5.96
1040.1	1070.1	6.68	6.27	6.01
1100.1	1130.1	6.89	6.39	6.09
1140.1	1170.1	7.06	6.54	6.20
1200.1	1230.1	7.28	6.72	6.32
1240.1	1270.1	7.50	6.91	6.50
1300.1	1330.1	7.69	7.12	6.69
1340.1	1370.1	7.86	7.33	6.86
1400.1	1430.1	8.01	7.45	6.99
1440.1	1470.1	8.05	7.54	7.13
1500.1	1530.1	8.26	7.81	7.52
1540.1	1570.1	8.36	7.94	7.69
1600.1	1630.1	8.66	8.27	8.02
1640.1	1670.1	8.78	8.42	8.20
1700.1	1730.1	9.03	8.69	8.50
1740.1	1770.1	9.29	8.93	8.78
1800.1	1830.1	9.55	9.22	9.02
1840.1	1870.1	9.82	9.52	9.30
1900.1	1930.1	10.18	9.85	9.68

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm)		
		@LO (dBm)		
		+4	+7	+10
80.1	110.1	13.63	16.53	19.41
120.1	150.1	16.26	16.78	18.80
160.1	190.1	15.36	16.90	17.40
200.1	230.1	14.80	15.13	16.12
240.1	270.1	16.12	15.86	18.01
280.1	310.1	16.04	14.78	17.23
320.1	350.1	15.76	15.55	16.18
360.1	390.1	15.97	14.45	15.23
400.1	430.1	14.65	15.79	16.47
440.1	470.1	15.52	15.52	17.17
480.1	510.1	19.98	16.89	15.89
520.1	550.1	16.20	16.75	16.16
560.1	590.1	14.43	15.08	16.15
600.1	630.1	13.98	14.28	15.15
640.1	670.1	14.73	14.50	14.24
700.1	730.1	15.53	14.24	14.29
740.1	770.1	15.93	15.50	15.32
800.1	830.1	14.52	15.12	14.79
840.1	870.1	15.32	15.15	13.70
900.1	930.1	14.65	14.62	14.45
940.1	970.1	15.13	14.64	15.22
1000.1	1030.1	20.26	14.10	14.57
1040.1	1070.1	18.16	14.86	13.94
1100.1	1130.1	12.14	17.87	13.59
1140.1	1170.1	11.15	18.47	14.63
1200.1	1230.1	10.15	14.03	14.94
1240.1	1270.1	10.38	13.53	15.62
1300.1	1330.1	10.26	12.07	13.80
1340.1	1370.1	9.38	10.28	11.78
1400.1	1430.1	9.02	9.87	10.87
1440.1	1470.1	9.27	10.44	10.97
1500.1	1530.1	10.97	11.02	11.40
1540.1	1570.1	11.15	12.39	12.14
1600.1	1630.1	13.49	13.17	13.04
1640.1	1670.1	12.76	14.35	13.73
1700.1	1730.1	14.02	15.05	14.43
1740.1	1770.1	13.66	15.54	16.14
1800.1	1830.1	16.78	16.21	17.47
1840.1	1870.1	16.89	19.25	18.08
1900.1	1930.1	17.67	20.44	18.78

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+1dBm (dB)		
		@LO (dBm)		
		+4	+7	+10
80.1	110.1	-0.11	0.15	0.01
120.1	150.1	0.22	0.09	0.17
160.1	190.1	0.33	0.17	0.17
200.1	230.1	0.54	0.27	0.25
240.1	270.1	0.73	0.38	0.29
280.1	310.1	0.74	0.44	0.31
320.1	350.1	0.73	0.63	0.55
360.1	390.1	0.91	0.60	0.45
400.1	430.1	1.02	0.61	0.47
440.1	470.1	0.90	0.69	0.49
480.1	510.1	1.00	0.76	0.53
520.1	550.1	0.97	0.69	0.51
560.1	590.1	0.95	0.76	0.56
600.1	630.1	1.01	0.79	0.59
640.1	670.1	1.19	1.05	0.87
700.1	730.1	1.10	0.93	0.77
740.1	770.1	1.31	1.03	0.84
800.1	830.1	1.25	1.09	0.87
840.1	870.1	1.47	1.17	1.06
900.1	930.1	1.51	1.14	0.98
940.1	970.1	1.76	1.32	1.20
1000.1	1030.1	1.81	1.48	1.22
1040.1	1070.1	1.64	1.35	1.14
1100.1	1130.1	1.73	1.47	1.24
1140.1	1170.1	1.64	1.44	1.20
1200.1	1230.1	1.73	1.45	1.19
1240.1	1270.1	1.63	1.48	1.30
1300.1	1330.1	1.66	1.42	1.18
1340.1	1370.1	1.54	1.28	1.21
1400.1	1430.1	1.28	1.21	1.05
1440.1	1470.1	1.25	1.15	1.04
1500.1	1530.1	1.16	0.90	0.80
1540.1	1570.1	0.99	0.74	0.74
1600.1	1630.1	0.71	0.66	0.49
1640.1	1670.1	0.78	0.51	0.36
1700.1	1730.1	0.54	0.42	0.37
1740.1	1770.1	0.61	0.29	0.26
1800.1	1830.1	0.46	0.23	0.19
1840.1	1870.1	0.47	0.17	0.16
1900.1	1930.1	0.20	0.12	0.14

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IF/RF MICROWAVE COMPONENTS • ISO 9001 ISO 14001 AS 9100 CERTIFIED • RoHS compliant

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Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=900.1MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=800.1MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1000.1MHz (dB)
		@LO (dBm)			@LO (dBm)			@LO (dBm)
		+7			+7			+7
100.0	800.1	5.86	10.0	810.1	6.11	200.0	800.1	6.17
95.3	804.8	5.89	14.9	815.0	6.12	195.1	805.0	6.17
90.5	809.6	5.89	19.7	819.8	6.12	190.3	809.8	6.17
85.8	814.3	5.89	24.6	824.7	6.10	185.4	814.7	6.16
81.1	819.0	5.89	29.5	829.6	6.07	180.5	819.6	6.16
76.3	823.8	5.89	34.4	834.5	6.03	175.6	824.5	6.16
71.6	828.5	5.88	39.2	839.3	6.06	170.8	829.3	6.15
66.8	833.3	5.86	44.1	844.2	6.04	165.9	834.2	6.17
62.1	838.0	5.84	49.0	849.1	6.06	161.0	839.1	6.19
57.4	842.7	5.85	53.8	853.9	6.05	156.2	843.9	6.18
52.6	847.5	5.83	58.7	858.8	6.06	151.3	848.8	6.19
47.9	852.2	5.84	63.6	863.7	6.07	146.4	853.7	6.20
43.2	856.9	5.84	68.5	868.6	6.07	141.5	858.6	6.17
38.4	861.7	5.84	73.3	873.4	6.07	136.7	863.4	6.16
33.7	866.4	5.86	78.2	878.3	6.03	131.8	868.3	6.15
28.9	871.2	5.84	83.1	883.2	6.04	126.9	873.2	6.14
24.2	875.9	5.83	87.9	888.0	6.04	122.1	878.0	6.13
19.5	880.6	5.83	92.8	892.9	6.03	117.2	882.9	6.14
14.7	885.4	5.81	97.7	897.8	6.02	112.3	887.8	6.13
10.0	890.1	5.86	102.6	902.7	6.01	107.4	892.7	6.15
10.0	910.1	5.91	107.4	907.5	6.00	102.6	897.5	6.15
14.7	914.8	5.77	112.3	912.4	6.00	97.7	902.4	6.15
19.5	919.6	5.82	117.2	917.3	5.99	92.8	907.3	6.16
24.2	924.3	5.79	122.1	922.2	5.98	87.9	912.2	6.15
28.9	929.0	5.79	126.9	927.0	5.98	83.1	917.0	6.14
33.7	933.8	5.78	131.8	931.9	5.99	78.2	921.9	6.13
38.4	938.5	5.77	136.7	936.8	6.00	73.3	926.8	6.16
43.2	943.3	5.79	141.5	941.6	6.01	68.5	931.6	6.17
47.9	948.0	5.81	146.4	946.5	6.03	63.6	936.5	6.16
52.6	952.7	5.82	151.3	951.4	6.02	58.7	941.4	6.16
57.4	957.5	5.84	156.2	956.3	6.01	53.8	946.3	6.14
62.1	962.2	5.84	161.0	961.1	6.00	49.0	951.1	6.19
66.8	966.9	5.83	165.9	966.0	6.01	44.1	956.0	6.16
71.6	971.7	5.82	170.8	970.9	6.00	39.2	960.9	6.19
76.3	976.4	5.81	175.6	975.7	6.01	34.4	965.7	6.16
81.1	981.2	5.81	180.5	980.6	6.01	29.5	970.6	6.16
85.8	985.9	5.82	185.4	985.5	6.02	24.6	975.5	6.20
90.5	990.6	5.83	190.3	990.4	6.02	19.7	980.4	6.23
95.3	995.4	5.85	195.1	995.2	6.02	14.9	985.2	6.23
100.0	1000.1	5.86	200.0	1000.1	6.02	10.0	990.1	6.34

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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
80.1	54.13	53.66	53.31	59.70	52.96	49.73
120.1	50.56	49.83	49.40	52.26	48.46	46.63
160.1	47.25	46.84	46.72	48.52	46.42	44.98
200.1	44.97	45.03	45.06	46.90	44.92	43.63
240.1	43.21	43.45	43.62	45.67	43.86	42.49
280.1	41.67	42.00	42.23	44.78	42.93	41.54
320.1	40.46	40.88	41.14	43.78	41.92	40.54
360.1	39.61	40.09	40.40	42.69	40.99	39.65
400.1	38.76	39.30	39.67	41.78	40.35	39.12
440.1	38.02	38.53	38.88	40.45	39.13	38.06
480.1	37.39	37.94	38.25	39.50	38.45	37.46
520.1	36.83	37.41	37.76	38.03	37.38	36.71
560.1	36.23	36.75	37.10	36.74	36.19	35.69
600.1	35.73	36.19	36.48	35.88	35.35	34.83
640.1	35.32	35.82	36.07	34.78	34.41	33.94
700.1	34.70	35.18	35.45	33.57	33.49	33.28
740.1	34.42	34.84	35.09	32.66	32.60	32.51
800.1	33.94	34.22	34.43	31.77	31.67	31.52
840.1	33.89	34.02	34.09	31.12	30.99	30.75
900.1	33.93	33.90	33.80	30.53	30.46	30.16
940.1	33.89	33.82	33.67	30.15	30.24	29.97
1000.1	33.83	33.78	33.60	29.42	29.94	29.88
1040.1	33.84	33.84	33.65	28.73	29.52	29.71
1100.1	33.74	33.80	33.61	28.04	28.98	29.49
1140.1	33.62	33.73	33.61	27.58	28.50	29.19
1200.1	33.71	33.89	33.87	27.20	28.00	28.70
1240.1	33.72	33.90	33.92	26.97	27.75	28.40
1300.1	33.85	33.99	34.05	26.78	27.57	28.17
1340.1	33.97	34.04	34.08	26.50	27.33	27.91
1400.1	34.20	34.15	34.11	26.33	27.26	27.83
1440.1	34.61	34.49	34.37	26.30	27.23	27.77
1500.1	35.64	35.43	35.21	26.14	27.11	27.68
1540.1	36.52	36.39	36.12	26.26	27.32	27.97
1600.1	38.07	38.22	37.91	26.37	27.71	28.57
1640.1	38.69	39.46	39.39	26.16	27.74	28.84
1700.1	39.14	41.03	41.47	26.18	28.08	29.56
1740.1	38.89	41.42	42.50	26.07	28.16	29.87
1800.1	38.30	41.46	43.52	26.15	28.41	30.44
1840.1	38.08	41.49	44.00	26.18	28.54	30.76
1900.1	37.14	40.49	43.32	26.52	28.88	31.22

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
		@LO (dBm)		
		+4	+7	+10
80.1	110.1	41.08	41.09	43.67
120.1	150.1	38.09	39.12	40.16
160.1	190.1	36.22	37.73	37.58
200.1	230.1	34.10	35.27	35.31
240.1	270.1	32.78	33.69	34.33
280.1	310.1	31.92	32.56	33.00
320.1	350.1	31.21	31.96	32.62
360.1	390.1	30.68	31.35	32.17
400.1	430.1	30.48	31.37	32.02
440.1	470.1	30.40	31.61	32.42
480.1	510.1	30.19	31.58	32.71
520.1	550.1	30.42	31.82	33.04
560.1	590.1	31.02	32.49	33.75
600.1	630.1	32.26	34.15	35.91
640.1	670.1	33.68	36.02	38.60
700.1	730.1	39.92	46.07	56.81
740.1	770.1	44.69	45.46	41.52
800.1	830.1	34.82	33.30	32.14
840.1	870.1	30.52	29.36	28.53
900.1	930.1	26.59	25.57	24.96
940.1	970.1	25.15	24.17	23.54
1000.1	1030.1	23.53	22.56	21.94
1040.1	1070.1	22.82	21.85	21.20
1100.1	1130.1	22.08	21.18	20.49
1140.1	1170.1	21.72	20.96	20.28
1200.1	1230.1	21.43	20.81	20.20
1240.1	1270.1	21.35	20.82	20.27
1300.1	1330.1	21.20	20.78	20.29
1340.1	1370.1	21.03	20.65	20.20
1400.1	1430.1	20.34	19.86	19.39
1440.1	1470.1	19.66	19.13	18.63
1500.1	1530.1	18.60	18.06	17.58
1540.1	1570.1	17.77	17.21	16.77
1600.1	1630.1	16.55	15.97	15.54
1640.1	1670.1	15.66	15.06	14.63
1700.1	1730.1	14.41	13.78	13.35
1740.1	1770.1	13.61	12.98	12.56
1800.1	1830.1	12.50	11.86	11.43
1840.1	1870.1	11.89	11.23	10.82
1900.1	1930.1	10.95	10.31	9.89

Frequency Mixer

ADE-901+

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)		
		+4	+7	+10		+4	+7	+10		+4	+7	+10
80.1	110.1	5.91	5.56	5.34	80.1	7.70	5.93	5.70	10.1	2.09	2.06	1.86
120.1	150.1	4.14	3.90	3.87	120.1	3.99	3.82	4.33	14.9	2.20	1.97	1.90
160.1	190.1	2.81	2.73	2.69	160.1	3.18	3.43	4.18	19.6	2.25	2.03	1.73
200.1	230.1	2.55	2.49	2.46	200.1	2.62	3.06	3.88	24.4	2.09	1.84	1.69
240.1	270.1	2.14	2.14	2.13	240.1	2.44	3.02	3.95	29.1	2.12	1.73	1.57
280.1	310.1	1.98	1.96	1.96	280.1	2.27	2.93	3.89	33.9	1.91	1.67	1.50
320.1	350.1	1.82	1.83	1.85	320.1	2.18	2.88	3.84	38.6	1.88	1.61	1.47
360.1	390.1	1.68	1.69	1.70	360.1	2.17	2.93	3.95	43.4	1.77	1.52	1.46
400.1	430.1	1.57	1.59	1.61	400.1	2.05	2.78	3.74	48.1	1.66	1.53	1.36
440.1	470.1	1.47	1.49	1.51	440.1	2.07	2.85	3.85	52.9	1.62	1.45	1.34
480.1	510.1	1.42	1.45	1.48	480.1	2.04	2.83	3.82	57.6	1.64	1.44	1.31
520.1	550.1	1.36	1.39	1.41	520.1	2.04	2.84	3.83	62.4	1.62	1.44	1.31
560.1	590.1	1.32	1.36	1.40	560.1	2.09	2.94	3.98	67.1	1.59	1.43	1.30
600.1	630.1	1.28	1.33	1.36	600.1	2.07	2.90	3.91	71.9	1.63	1.44	1.32
640.1	670.1	1.27	1.34	1.39	640.1	2.15	3.00	4.04	76.6	1.64	1.46	1.31
700.1	730.1	1.22	1.29	1.36	700.1	2.14	2.97	3.97	81.4	1.66	1.47	1.38
740.1	770.1	1.23	1.30	1.37	740.1	2.23	3.10	4.15	86.1	1.68	1.49	1.39
800.1	830.1	1.23	1.30	1.37	800.1	2.20	3.01	3.99	90.9	1.74	1.52	1.42
840.1	870.1	1.25	1.32	1.38	840.1	2.30	3.15	4.17	95.6	1.76	1.58	1.44
900.1	930.1	1.30	1.38	1.44	900.1	2.25	3.03	3.97	100.4	1.78	1.56	1.43
940.1	970.1	1.27	1.33	1.38	940.1	2.39	3.20	4.19	105.1	1.80	1.58	1.47
1000.1	1030.1	1.37	1.44	1.51	1000.1	2.41	3.19	4.13	109.9	1.83	1.60	1.48
1040.1	1070.1	1.36	1.41	1.46	1040.1	2.53	3.33	4.30	114.6	1.85	1.60	1.49
1100.1	1130.1	1.58	1.62	1.67	1100.1	2.56	3.34	4.28	119.4	1.86	1.62	1.49
1140.1	1170.1	1.60	1.63	1.68	1140.1	2.66	3.47	4.43	124.1	1.83	1.64	1.47
1200.1	1230.1	1.92	1.91	1.93	1200.1	2.69	3.48	4.40	128.9	1.81	1.60	1.47
1240.1	1270.1	2.03	2.01	2.01	1240.1	2.80	3.62	4.60	133.6	1.79	1.57	1.46
1300.1	1330.1	2.28	2.23	2.20	1300.1	2.74	3.50	4.42	138.4	1.80	1.58	1.43
1340.1	1370.1	2.50	2.44	2.40	1340.1	2.84	3.64	4.60	143.1	1.77	1.55	1.42
1400.1	1430.1	2.63	2.58	2.53	1400.1	2.72	3.45	4.33	147.9	1.74	1.55	1.39
1440.1	1470.1	2.99	2.92	2.85	1440.1	2.80	3.54	4.45	152.6	1.71	1.51	1.39
1500.1	1530.1	3.37	3.31	3.25	1500.1	2.73	3.44	4.33	157.4	1.73	1.52	1.40
1540.1	1570.1	3.65	3.58	3.52	1540.1	2.83	3.54	4.44	162.1	1.71	1.50	1.38
1600.1	1630.1	4.36	4.28	4.20	1600.1	2.90	3.57	4.44	166.9	1.71	1.53	1.40
1640.1	1670.1	4.05	4.00	3.93	1640.1	3.02	3.68	4.55	171.6	1.73	1.53	1.42
1700.1	1730.1	4.62	4.52	4.44	1700.1	3.13	3.76	4.60	176.4	1.75	1.55	1.41
1740.1	1770.1	4.09	4.04	3.98	1740.1	3.29	3.90	4.74	181.1	1.75	1.56	1.44
1800.1	1830.1	4.39	4.32	4.24	1800.1	3.36	3.90	4.68	185.9	1.78	1.57	1.46
1840.1	1870.1	4.67	4.59	4.52	1840.1	3.58	4.10	4.89	195.4	1.80	1.59	1.49
1900.1	1930.1	4.63	4.54	4.45	1900.1	3.64	4.05	4.75	200.1	1.81	1.60	1.47

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Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	12	29	40	41	24	44	47	63	64	75
1	-	20	+0	26	11	35	34	40	48	53	69	60
2	90	50	37	55	36	54	45	61	44	65	61	85
3	129	43	59	51	48	45	41	54	62	51	75	64
4	112	89	86	69	58	69	57	67	58	73	63	73
5	113	65	70	69	63	64	58	62	58	67	69	71
6	115	86	88	96	83	85	73	71	74	74	75	85
7	109	91	86	88	87	77	77	79	78	83	76	82
8	95	93	100	101	97	102	94	102	88	88	86	82
9	122	122	114	112	107	96	99	94	93	88	88	88
10	109	110	119	111	105	105	108	110	105	97	105	92
RF CAL	0	1	2	3	4	5	6	7	8	9	10	

LO HARMONICS ORDER

Test conditions:

RF IN: 900.1 MHz; -4.00 dBm.
LO IN: 930.01 MHz; +7.00 dBm
IF OUT: 29.91 MHz; -10.08 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	3	18	28	31	12	33	33	53	50	54
1	-	20	+0	25	10	32	34	34	46	47	71	53
2	110	60	45	66	44	67	50	78	51	65	67	75
3	119	64	79	66	79	63	68	74	74	70	90	81
4	112	98	89	88	87	92	94	95	89	97	95	101
5	115	124	111	115	100	106	88	106	92	96	99	105
6	117	111	100	111	97	110	96	96	103	115	103	109
7	133	99	102	105	109	102	104	101	94	102	105	107
8	103	96	95	98	99	102	102	112	105	84	103	110
9	121	114	101	109	113	111	101	103	97	96	92	105
10	107	103	109	118	106	112	105	101	109	96	104	97
RF CAL	0	1	2	3	4	5	6	7	8	9	10	

LO HARMONICS ORDER

Test conditions:

RF IN: 900.1 MHz; -14.00 dBm.
LO IN: 930.01 MHz; +7.00 dBm
IF OUT: 29.91 MHz; -19.92 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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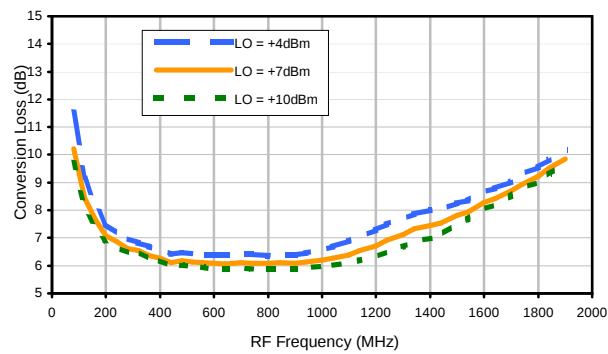


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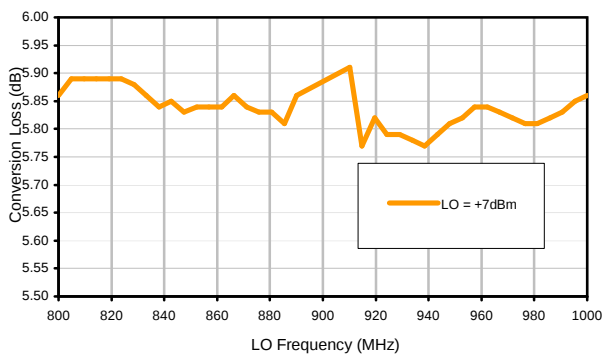


Typical Performance Curves

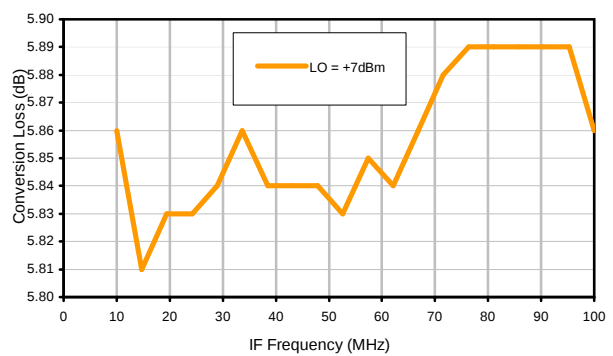
Conversion Loss @ IF=30MHz



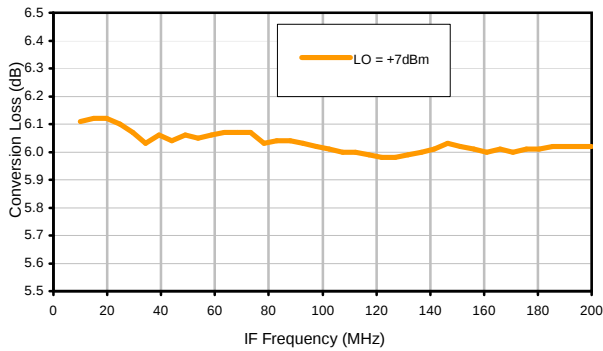
Conversion Loss vs. LO @ RF=900.1MHz



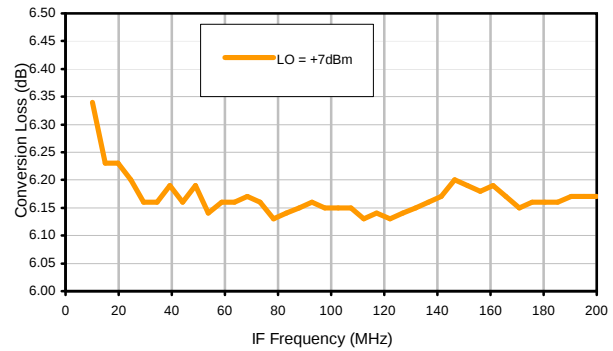
Conversion Loss vs. IF @ RF=900.1MHz



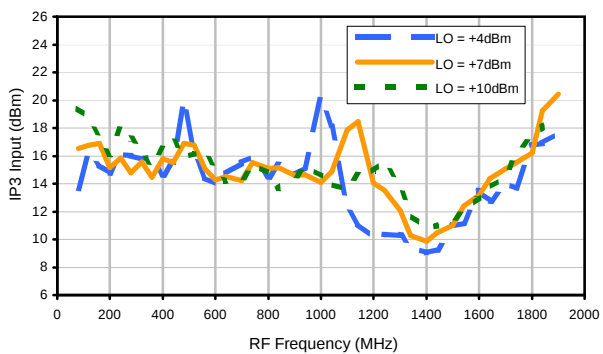
Conversion Loss vs. IF @ RF=800.1MHz



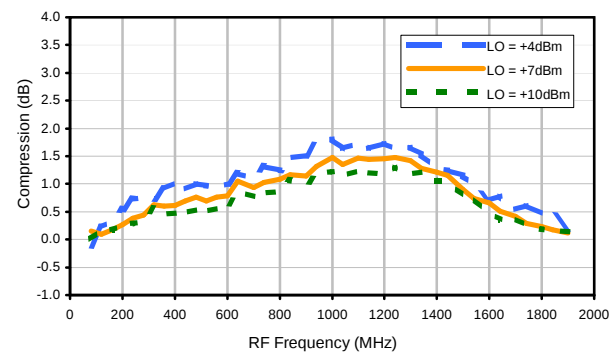
Conversion Loss vs. IF @ RF=1000.1MHz



IP3 Input



Compression @ RF IN=+1dBm



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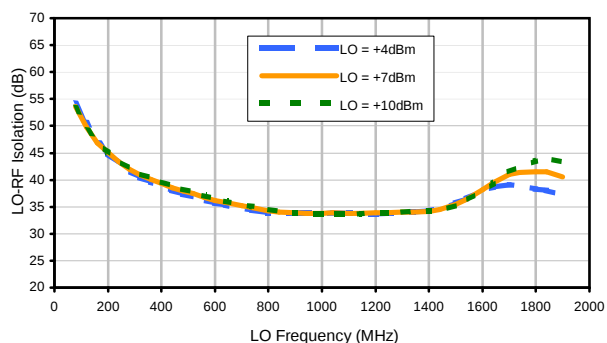


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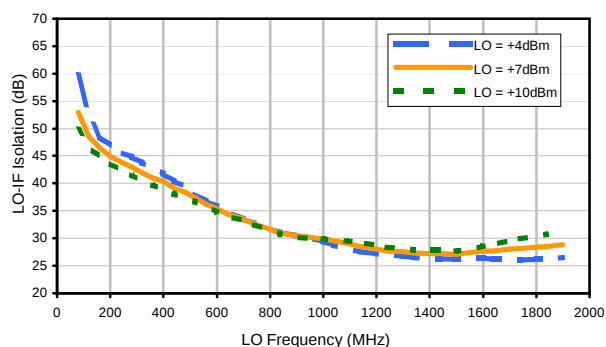


Typical Performance Curves

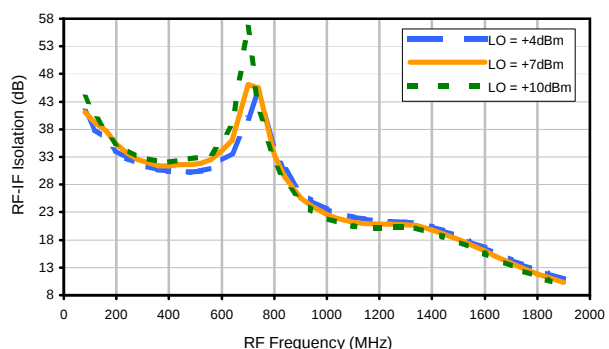
LO-RF Isolation



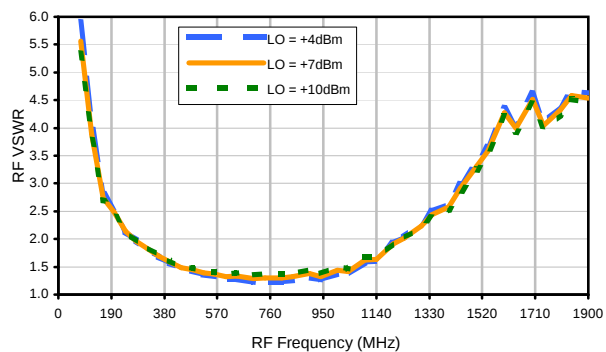
LO-IF Isolation



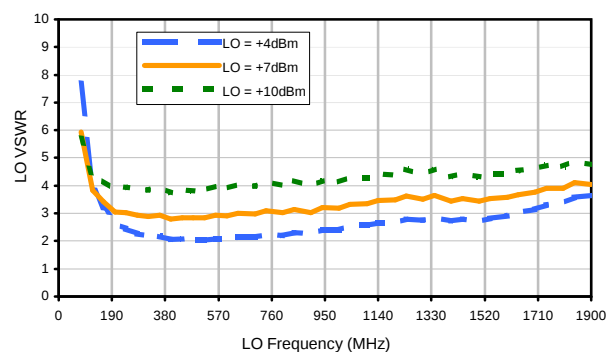
RF-IF Isolation



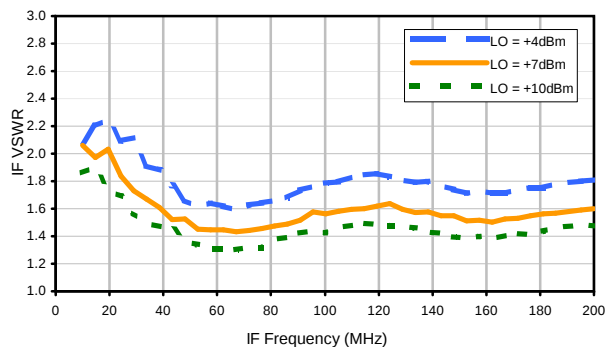
RF VSWR



LO VSWR



IF VSWR



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Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	12	29	40	41	24	44	47	63	64	75
1	-	20	+0	26	11	35	34	40	48	53	69	60
2	90	50	37	55	36	54	45	61	44	65	61	85
3	129	43	59	51	48	45	41	54	62	51	75	64
4	112	89	86	69	58	69	57	67	58	73	63	73
5	113	65	70	69	63	64	58	62	58	67	69	71
6	115	86	88	96	83	85	73	71	74	74	75	85
7	109	91	86	88	87	77	77	79	78	83	76	82
8	95	93	100	101	97	102	94	102	88	88	86	82
9	122	122	114	112	107	96	99	94	93	88	88	88
10	109	110	119	111	105	105	108	110	105	97	105	92
RF CAL	0	1	2	3	4	5	6	7	8	9	10	

LO HARMONICS ORDER

Test conditions: RF IN: 900.1 MHz; -4.00 dBm.
LO IN: 930.01 MHz; +7.00 dBm
IF OUT: 29.91 MHz; -10.08 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	3	18	28	31	12	33	33	53	50	54
1	-	20	+0	25	10	32	34	34	46	47	71	53
2	110	60	45	66	44	67	50	78	51	65	67	75
3	119	64	79	66	79	63	68	74	74	70	90	81
4	112	98	89	88	87	92	94	95	89	97	95	101
5	115	124	111	115	100	106	88	106	92	96	99	105
6	117	111	100	111	97	110	96	96	103	115	103	109
7	133	99	102	105	109	102	104	101	94	102	105	107
8	103	96	95	98	99	102	102	112	105	84	103	110
9	121	114	101	109	113	111	101	103	97	96	92	105
10	107	103	109	118	106	112	105	101	109	96	104	97
RF CAL	0	1	2	3	4	5	6	7	8	9	10	

LO HARMONICS ORDER

Test conditions: RF IN: 900.1 MHz; -14.00 dBm.
LO IN: 930.01 MHz; +7.00 dBm
IF OUT: 29.91 MHz; -19.92 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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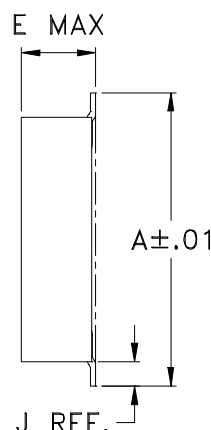
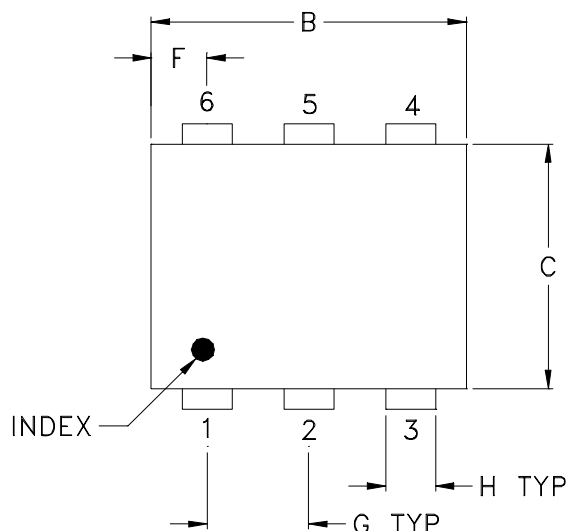
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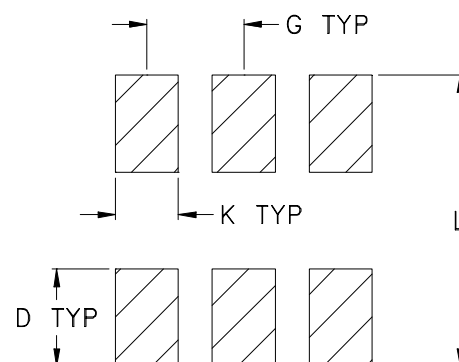


CD541
CD542
CD636
CD637

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	WT, GRAM
CD541					.082 (2.08)							.15
CD542	.272 (6.91)	.310 (7.87)	.220 (5.58)	.100 (2.54)	.112 (2.84)	.055 (1.40)	.100 (2.54)	.030 (0.76)	.026 (0.66)	.065 (1.65)	.300 (7.62)	.20
CD636					.162 (4.11)							.25
CD637					.206 (5.23)							.40

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

Notes:

- Case material: Plastic.
- 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.



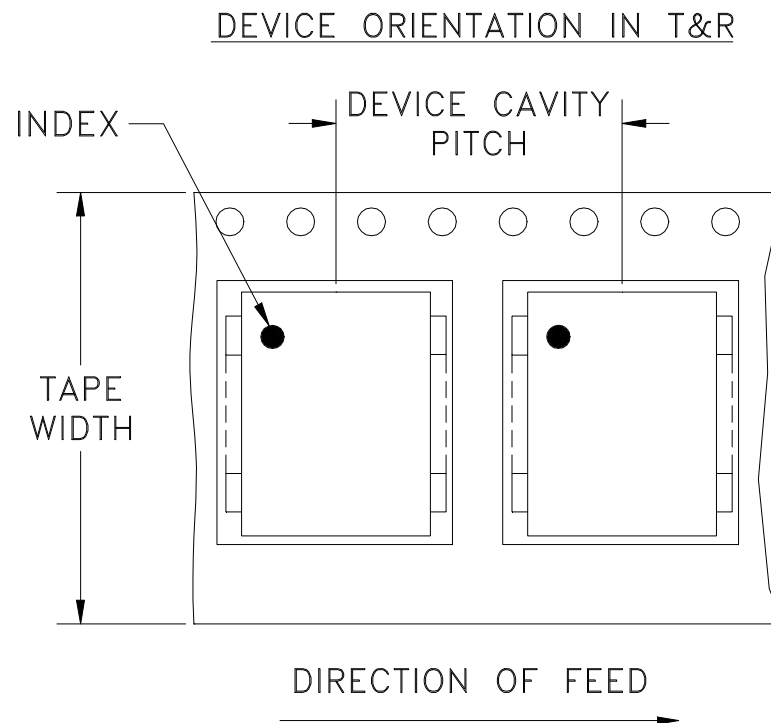
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Tape & Reel Packaging TR-F34



Tape Width, mm	Device Cavity Pitch, mm	Reel Size, inches	Devices per Reel see note	
16	12	7	Small quantity standard (see note)	20
				50
				100
				200
		13	Standard	500
				1000

Note: Availability of small reel quantity varies by model.
Refer to pricing and availability on individual model dashboard.

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



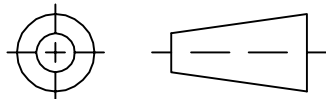
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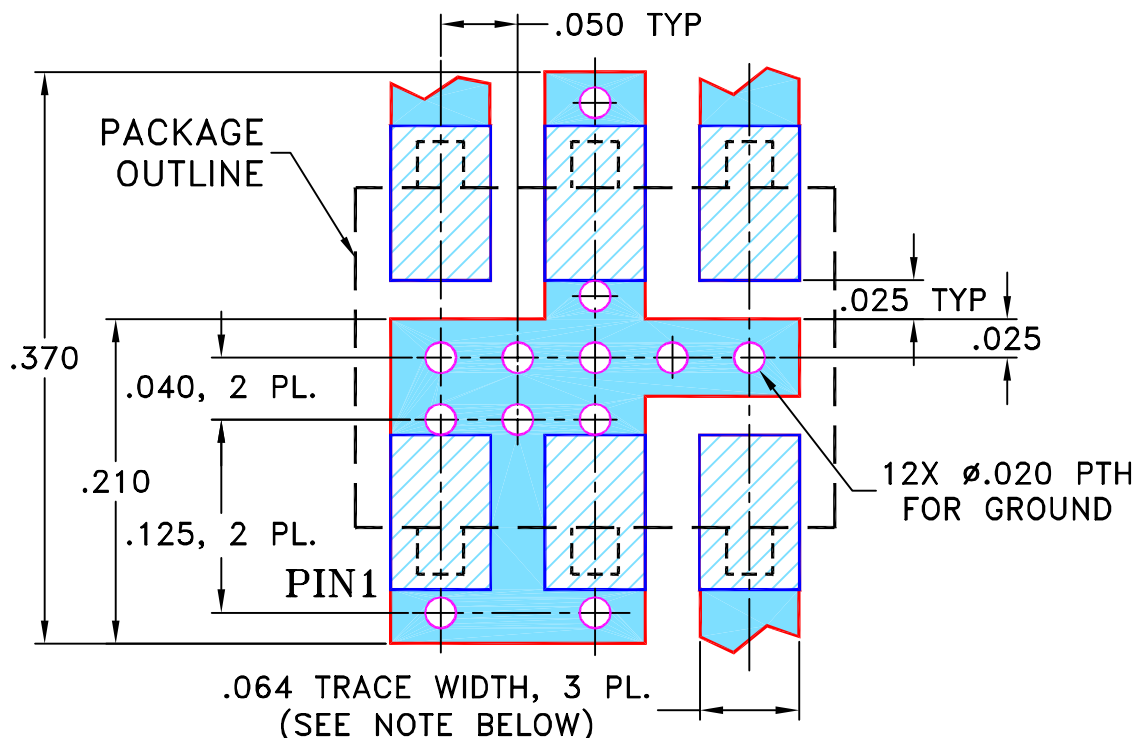
THIRD ANGLE PROJECTION



REVISIONS

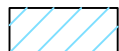
REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	M82272	NEW RELEASE	08/05/02	MMG	DJ
A	M102713	ADDED NOTE 2 & "...WITH SMOBC"	01/17/06	MMG	IL

SUGGESTED MOUNTING CONFIGURATION
FOR CD541/542/636/637 CASE STYLES,
"jv", "ju", "jw" PIN CONNECTIONS



- NOTES:** 1. TRACE WIDTH IS SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS .030" $\pm$.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

DIMENSIONS ARE IN INCHES

TOLERANCES ON:
 2 PL DECIMALS $\pm$
 3 PL DECIMALS $\pm$.005
 ANGLES $\pm$
 FRACTIONS $\pm$

INITIALS

DATE

DRAWN

MMG

07/17/02

CHECKED

WL

08/02/02

APPROVED

DJ

08/05/02



Mini-Circuits®

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Brooklyn NY 11235

PL, jv/ju/jw, CD541/542/636/637, ADE, TB-02

SIZE
ACODE IDENT
15542DRAWING NO:
98-PL-051REV:
A

FILE: 98PL051

SCALE: 8:1

SHEET: 1 OF 1

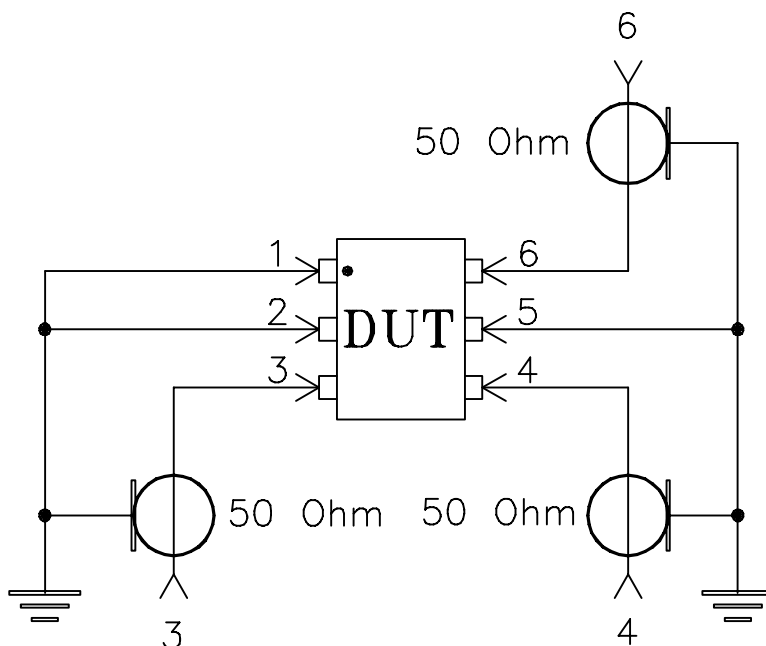
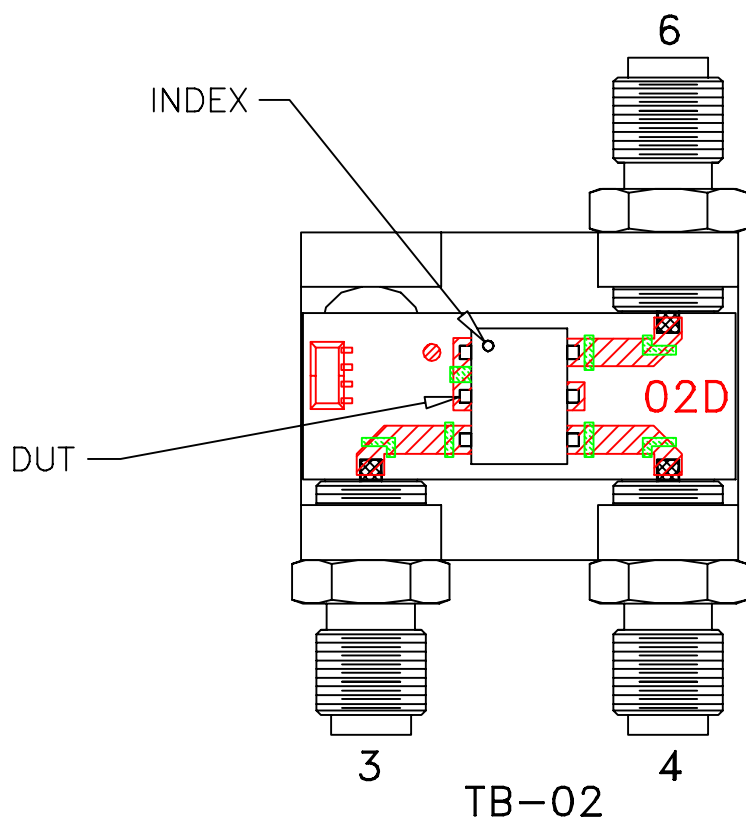
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ASHEETA1.DWG REV:A DATE:01/12/95

Evaluation Board and Circuit

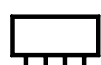
For Pin Connections refer to Data Sheet of the DUT



Schematic Diagram

Notes:

1. SMA Female connectors.
2. PCB Material: Rogers R04350 or equivalent,
Dielectric Constant=3.5, Thickness=.030 inch.

 Mini-Circuits®



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