

High Power

50Ω 20dB Coupling DC Pass 960 to 1400 MHz



CASE STYLE: JB1233

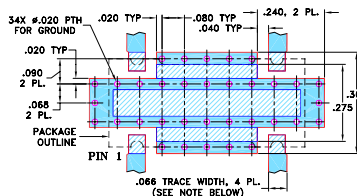
Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
DC Current	2A
Permanent damage may occur if any of these limits are exceeded.	

INPUT	1
OUTPUT	2
COUPLED (forward)	4
COUPLED (reverse)	3
GROUND	5

Suggested Layout,
Tolerance to be within $\pm .002$

A	B	C	D	E	F	G
.70	.32	.13	.060	.100	.500	.022
17.78	8.13	3.30	1.52	2.54	12.70	0.56
H	J	K	L	M		wt
.060	.040	.360	.670	.175		grams
1.52	1.02	9.14	17.02	4.45		0.68

Demo Board MCL P/N: TB-398
Suggested PCB Layout (PL-260)



- 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 |

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.

- C. The parts covered by this specification document are subject to Mini-Circuit's standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuit's website at www.minicircuits.com/MCStore/terms_iso

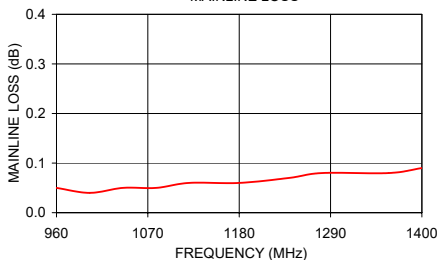
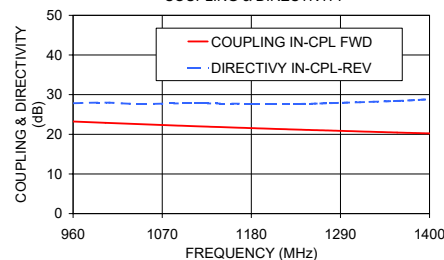
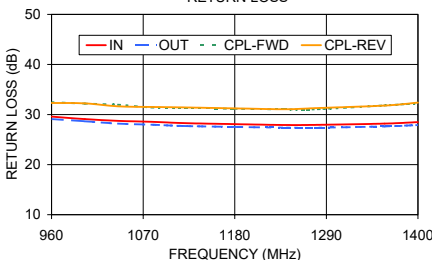
- high power handling, 50 watts max.
- low mainline loss, 0.09 dB typ.
- excellent VSWR, 1.15:1 typ.
- excellent directivity, 26 dB typ.
- wideband frequency, 960 to 1400 MHz

- GPS
- defense communications

FREQ. (MHz)	COUPLING (dB)		MAINLINE LOSS¹ (dB)		DIRECTIVITY (dB)		VSWR (:1)	POWER INPUT (W)
f _i -f _u	Nom.	Flatness	Typ.	Max.	Typ.	Min.	Typ.	Max.
960-1400			0.09	0.25	26	18	1.10	—
960-1240	21.8±0.8	±1.3	0.07	0.25	27	18	1.10	50
1240-1400	20.3±0.8	±0.7	0.09	0.25	26	18	1.10	50

1. Mainline loss includes theoretical power loss at coupled port.

Frequency (MHz)	Mainline Loss (dB)	Coupling (dB)		Directivity (dB)		Return Loss (dB)			
	In-Out	In-Cpl Fwd	Out-Cpl Rev	Out-Cpl Fwd	In-Cpl Rev	In	Out	Cpl Fwd	Cpl Rev
960.00	0.05	23.23	23.27	27.25	27.84	29.59	29.11	32.48	32.30
1000.00	0.04	22.89	22.93	27.22	27.98	29.09	28.66	32.18	32.23
1040.00	0.05	22.58	22.61	27.13	27.63	28.73	28.19	31.97	31.64
1080.00	0.05	22.27	22.31	26.90	27.78	28.55	27.97	31.41	31.51
1120.00	0.06	21.98	22.02	26.81	27.80	28.28	27.71	31.27	31.42
1180.00	0.06	21.56	21.59	26.95	27.69	28.08	27.53	31.15	31.23
1240.00	0.07	21.17	21.21	26.88	27.67	27.92	27.38	31.02	31.07
1280.00	0.08	20.93	20.97	26.98	27.88	27.94	27.37	31.07	31.30
1360.00	0.08	20.44	20.48	27.35	28.43	28.19	27.64	31.82	31.80
1400.00	0.09	20.22	20.26	27.67	28.84	28.48	27.90	32.21	32.39

SYBD-20-142HP+
MAINLINE LOSSSYBD-20-142HP+
COUPLING & DIRECTIVITYSYBD-20-142HP+
RETURN LOSS

* ELECTRICAL SCHEMATIC IS FOR BI-DIRECTIONAL COUPLER WITHOUT INTERNAL TRANSFORMERS AND RESISTORS

REV. B
M151107
ED-12713/4
SYBD-20-142HP+
WZ/CP/AM
200811

Bi-Directional Coupler

SYBD-20-142HP+

Typical Performance Data

TEST CONDITIONS: INPUT POWER =0 dBm @Temperature = +25°C

FREQ. (MHz)	INSERTION LOSS		COUPLING		DIRECTIVITY		RETURN LOSS			
	(dB) IN-OUT	(dB) FWD-REV	(dB) IN-FWD	(dB) OUT-REV	(dB) IN-REV	(dB) OUT-FWD	(dB) IN	(dB) OUT	(dB) FWD	(dB) REV
500	0.01	0.01	28.57	28.57	34.92	34.00	39.73	38.38	37.75	38.30
600	0.00	0.00	27.02	27.02	32.98	32.26	36.04	35.91	35.17	35.34
700	0.02	0.02	25.70	25.73	30.98	30.19	33.09	33.54	32.86	32.71
800	0.03	0.03	24.61	24.61	29.77	28.33	31.03	31.66	31.26	31.01
900	0.04	0.05	23.64	23.67	28.12	26.77	29.63	30.22	29.68	29.73
950	0.05	0.05	23.21	23.23	27.59	26.30	28.84	29.53	29.09	29.13
960	0.06	0.05	23.13	23.13	27.49	26.23	28.77	29.40	28.99	29.03
1000	0.04	0.04	22.75	22.77	27.47	26.08	28.46	28.89	28.58	28.70
1050	0.05	0.05	22.35	22.37	26.81	25.36	28.06	28.34	28.17	28.39
1100	0.06	0.06	21.99	21.99	26.03	24.64	27.76	28.07	27.89	28.24
1150	0.06	0.07	21.65	21.65	25.49	23.89	27.65	27.70	27.67	28.03
1200	0.08	0.07	21.36	21.34	24.59	23.19	27.59	27.63	27.67	28.02
1240	0.07	0.07	21.07	21.09	24.70	23.27	27.64	27.62	27.65	28.07
1250	0.07	0.07	21.00	21.01	24.68	23.16	27.63	27.66	27.63	28.03
1300	0.07	0.07	20.68	20.69	24.50	22.83	27.73	27.83	27.70	28.20
1350	0.08	0.08	20.44	20.44	23.35	22.06	28.13	28.20	27.96	28.47
1400	0.09	0.09	20.14	20.15	23.56	22.12	28.52	28.51	28.24	28.84
1450	0.09	0.10	19.89	19.89	23.37	21.92	29.18	29.13	28.82	29.42
1500	0.09	0.10	19.62	19.62	23.49	21.93	29.99	30.01	29.36	29.80
1600	0.11	0.12	19.13	19.14	23.27	21.58	31.96	32.17	31.03	31.40
1650	0.11	0.13	18.91	18.92	23.26	21.63	33.64	33.84	32.31	32.32
1700	0.12	0.13	18.70	18.71	23.29	21.61	35.66	35.95	33.76	33.01
1750	0.13	0.14	18.48	18.49	23.44	21.80	38.52	38.73	35.10	33.45
1800	0.14	0.16	18.26	18.23	24.00	22.24	41.73	42.38	35.99	34.33
1850	0.15	0.16	18.12	18.12	23.41	21.58	44.95	49.03	38.04	34.04
1900	0.16	0.17	17.93	17.93	23.96	21.99	43.39	45.51	38.76	33.72
1950	0.18	0.19	17.78	17.76	23.83	21.87	40.96	41.03	36.50	33.97
2000	0.19	0.19	17.69	17.68	22.99	21.15	37.04	37.11	35.78	32.72
2100	0.20	0.19	17.43	17.44	22.75	21.14	33.08	32.59	33.30	30.89
2150	0.21	0.20	17.29	17.29	23.26	21.35	32.06	31.49	32.65	30.53
2200	0.22	0.21	17.14	17.13	23.91	22.17	31.29	30.73	32.03	30.37
2300	0.25	0.22	16.94	16.96	23.71	22.02	29.91	29.52	31.16	30.27
2350	0.24	0.24	16.79	16.82	24.73	22.49	30.04	29.44	31.12	30.69
2400	0.23	0.25	16.65	16.66	25.46	23.41	30.10	29.35	31.39	31.20
2500	0.26	0.26	16.43	16.48	26.68	24.59	30.72	30.45	32.05	32.29
2750	0.28	0.29	15.90	15.91	29.83	28.56	36.95	41.55	34.38	39.72
3000	0.33	0.33	15.53	15.57	23.75	24.37	29.93	30.87	28.28	29.55
3250	0.37	0.37	15.18	15.23	20.79	20.33	23.92	23.80	23.72	24.09
3500	0.41	0.41	14.84	14.84	17.90	17.49	21.49	21.46	22.48	22.57
3750	0.44	0.45	14.51	14.54	15.74	15.28	21.78	22.02	23.74	23.81
4000	0.46	0.46	14.21	14.20	14.44	13.90	25.22	25.94	29.08	28.52
4250	0.49	0.50	13.96	13.94	13.69	13.06	33.61	46.53	42.70	35.11
4500	0.56	0.55	13.81	13.81	13.44	12.77	26.04	27.00	26.74	26.30
4750	0.62	0.60	13.83	13.79	13.18	12.52	20.76	21.30	22.59	22.53
5000	0.66	0.65	13.85	13.82	13.15	12.29	18.52	19.09	21.06	21.20
5250	0.72	0.69	13.81	13.80	12.83	12.04	17.58	18.00	20.46	20.52
5500	0.78	0.74	13.75	13.60	13.25	12.03	16.94	17.61	20.12	19.89
5750	0.80	0.78	13.70	13.54	12.32	11.33	16.50	17.09	18.87	18.60
6000	0.89	0.86	13.67	13.41	11.08	10.19	15.96	16.05	17.08	16.88
6250	1.00	0.98	13.46	13.21	10.26	9.73	14.60	14.68	15.11	14.98
6500	1.16	1.13	13.39	13.10	9.34	8.88	13.18	13.01	13.47	13.47
6750	1.41	1.35	13.53	13.11	8.46	8.20	11.23	11.43	12.17	12.08
7000	1.71	1.55	13.52	13.31	8.04	7.99	9.72	10.10	10.88	10.86

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SYBD-20-142HP+

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Bi-Directional Coupler

SYBD-20-142HP+

Typical Performance Data

TEST CONDITIONS: INPUT POWER =0 dBm @Temperature = -55°C

FREQ. (MHz)	INSERTION LOSS		COUPLING		DIRECTIVITY		RETURN LOSS			
	(dB) IN-OUT	(dB) FWD-REV	(dB) IN-FWD	(dB) OUT-REV	(dB) IN-REV	(dB) OUT-FWD	(dB) IN	(dB) OUT	(dB) FWD	(dB) REV
500	0.05	0.10	28.53	28.53	37.95	36.04	46.17	41.99	41.76	42.58
600	0.03	0.09	26.97	26.98	34.99	33.67	39.30	38.82	37.75	37.89
700	0.02	0.09	25.67	25.68	32.32	30.97	34.45	34.91	34.10	33.82
800	0.01	0.08	24.57	24.57	30.41	29.04	31.81	32.45	31.75	31.46
900	0.00	0.08	23.57	23.58	29.75	27.75	30.07	30.67	29.92	30.05
950	0.00	0.07	23.13	23.15	28.50	27.09	29.06	29.80	29.01	29.14
960	0.01	0.07	23.05	23.06	28.62	26.94	28.96	29.62	28.84	28.94
1000	0.01	0.09	22.68	22.70	28.42	26.44	28.43	28.87	28.22	28.44
1050	0.00	0.09	22.25	22.26	27.75	25.67	27.75	28.05	27.60	28.00
1100	0.01	0.08	21.92	21.93	25.67	24.44	27.24	27.58	27.15	27.71
1150	0.02	0.07	21.57	21.55	25.36	23.17	26.88	26.99	26.86	27.38
1200	0.02	0.08	21.28	21.27	25.27	23.50	26.76	26.83	26.61	27.04
1240	0.02	0.08	20.98	21.00	25.06	23.26	26.72	26.73	26.18	26.61
1250	0.02	0.08	20.90	20.91	24.85	23.03	26.71	26.78	26.08	26.52
1300	0.02	0.08	20.62	20.63	24.27	22.62	27.00	27.10	26.10	26.65
1350	0.02	0.08	20.30	20.31	23.91	22.39	27.42	27.50	26.34	26.79
1400	0.03	0.07	20.00	20.02	23.86	22.19	27.75	27.85	26.77	27.30
1450	0.03	0.06	19.76	19.75	23.25	21.88	28.41	28.37	27.51	28.15
1500	0.03	0.07	19.50	19.51	23.62	22.07	29.22	29.27	28.44	28.82
1600	0.05	0.06	19.07	19.09	22.73	21.11	30.65	30.93	30.26	30.59
1650	0.04	0.06	18.84	18.87	22.61	21.09	31.72	31.96	31.27	31.14
1700	0.05	0.05	18.60	18.60	22.83	21.50	32.79	32.98	32.48	32.35
1750	0.06	0.05	18.32	18.33	24.05	21.92	34.29	34.62	33.89	32.69
1800	0.06	0.05	18.13	18.15	24.08	21.76	36.01	37.36	35.61	32.87
1850	0.08	0.04	18.10	18.10	21.73	20.17	40.03	43.84	36.75	33.06
1900	0.08	0.02	17.92	17.92	22.03	20.12	39.72	53.11	36.84	33.49
1950	0.09	0.04	17.70	17.73	22.60	20.73	37.75	41.18	39.05	32.53
2000	0.10	0.03	17.53	17.56	23.00	21.17	35.66	36.62	36.75	32.91
2100	0.12	0.02	17.18	17.18	24.61	22.97	33.67	32.79	35.13	32.90
2150	0.15	0.00	17.22	17.20	22.17	21.04	32.04	31.48	32.11	31.39
2200	0.14	0.01	16.92	16.91	24.60	23.67	32.02	31.35	31.54	30.49
2300	0.14	0.01	16.75	16.74	23.85	22.72	30.06	29.09	29.86	28.88
2350	0.15	0.01	16.58	16.59	25.87	25.00	30.14	28.98	30.75	30.25
2400	0.16	0.01	16.54	16.53	24.72	23.24	29.44	28.69	31.12	30.17
2500	0.18	0.02	16.23	16.26	27.97	26.76	29.60	29.18	32.01	30.89
2750	0.21	0.04	15.59	15.66	31.08	30.38	37.19	43.91	32.57	35.76
3000	0.21	0.04	15.40	15.38	24.55	25.45	30.32	30.97	26.95	28.55
3250	0.25	0.08	15.01	15.04	20.48	20.12	23.92	23.87	23.29	23.99
3500	0.29	0.10	14.66	14.67	17.17	17.35	20.69	20.72	22.93	23.03
3750	0.30	0.12	14.27	14.30	16.01	16.02	21.65	21.77	23.73	24.08
4000	0.33	0.11	14.02	13.95	14.45	14.26	24.75	25.32	26.29	26.38
4250	0.35	0.13	13.77	13.74	13.47	13.50	31.57	40.37	36.71	38.42
4500	0.40	0.17	13.56	13.58	13.95	12.80	26.02	27.46	31.29	28.07
4750	0.46	0.19	13.51	13.49	13.36	12.51	20.70	21.48	23.71	23.27
5000	0.51	0.25	13.58	13.41	12.83	11.93	19.04	19.34	19.78	19.58
5250	0.54	0.26	13.56	13.46	13.30	11.68	17.41	18.05	19.26	18.64
5500	0.61	0.31	13.56	13.20	12.92	12.24	16.86	17.64	18.66	18.21
5750	0.60	0.33	13.45	13.28	12.30	11.53	16.32	16.88	17.90	17.76
6000	0.70	0.36	13.35	13.07	11.05	10.89	15.52	15.59	16.97	17.12
6250	0.81	0.42	13.18	12.88	10.37	9.81	14.44	14.47	16.17	16.18
6500	0.94	0.60	12.89	12.65	9.41	9.08	12.96	13.02	13.62	13.60
6750	1.19	0.78	13.13	12.79	8.77	7.28	11.37	11.50	11.72	11.32
7000	1.43	1.08	13.35	12.97	8.34	7.31	9.73	10.00	9.81	9.59

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Typical Performance Data

TEST CONDITIONS: INPUT POWER =0 dBm @Temperature = +100°C

FREQ. (MHz)	INSERTION LOSS		COUPLING		DIRECTIVITY		RETURN LOSS			
	(dB) IN-OUT	(dB) FWD-REV	(dB) IN-FWD	(dB) OUT-REV	(dB) IN-REV	(dB) OUT-FWD	(dB) IN	(dB) OUT	(dB) FWD	(dB) REV
500	0.01	0.03	28.56	28.57	33.39	32.68	37.46	36.18	35.73	36.10
600	0.03	0.05	27.03	27.04	32.01	31.16	34.76	34.41	33.96	34.12
700	0.04	0.07	25.73	25.75	30.65	29.34	32.27	32.46	32.07	31.96
800	0.06	0.09	24.64	24.64	29.18	27.86	30.75	31.22	31.02	30.78
900	0.07	0.11	23.66	23.67	28.19	27.02	29.66	30.19	29.86	29.88
950	0.08	0.12	23.22	23.24	27.60	26.53	29.02	29.66	29.43	29.41
960	0.09	0.12	23.14	23.15	27.70	26.43	29.00	29.55	29.39	29.37
1000	0.07	0.11	22.78	22.79	27.67	26.13	28.74	29.11	29.12	29.15
1050	0.09	0.12	22.36	22.37	27.14	25.75	28.46	28.69	28.90	29.00
1100	0.10	0.13	22.05	22.05	25.52	24.41	28.42	28.73	28.89	29.18
1150	0.11	0.15	21.69	21.66	24.96	23.23	28.41	28.53	28.75	29.00
1200	0.11	0.14	21.39	21.38	25.40	23.93	28.51	28.62	28.91	29.17
1240	0.11	0.15	21.10	21.12	25.18	23.73	28.59	28.70	28.98	29.28
1250	0.11	0.15	21.03	21.04	25.11	23.71	28.61	28.76	28.96	29.26
1300	0.11	0.16	20.73	20.74	25.04	23.39	28.80	29.03	29.03	29.44
1350	0.12	0.17	20.42	20.42	24.92	23.25	29.01	29.23	29.10	29.52
1400	0.13	0.18	20.15	20.16	24.64	22.93	29.20	29.47	29.59	30.15
1450	0.14	0.19	19.91	19.91	24.19	22.67	29.88	30.04	30.15	30.85
1500	0.14	0.19	19.66	19.67	24.09	22.51	31.00	31.29	30.68	31.13
1600	0.16	0.22	19.23	19.24	23.35	21.67	33.30	34.05	32.39	32.58
1650	0.16	0.23	18.99	19.00	23.77	21.98	35.17	36.23	33.49	33.10
1700	0.18	0.24	18.79	18.79	23.45	21.98	37.47	38.75	34.38	33.79
1750	0.19	0.24	18.50	18.50	25.29	22.81	39.52	41.89	34.82	33.47
1800	0.19	0.26	18.34	18.34	24.79	22.62	41.40	45.71	36.51	33.92
1850	0.22	0.27	18.23	18.24	23.32	21.90	46.68	57.66	37.40	34.25
1900	0.21	0.31	18.15	18.11	22.71	20.79	43.24	46.02	36.12	35.41
1950	0.22	0.28	17.92	17.93	23.24	21.57	41.84	43.02	37.64	33.03
2000	0.24	0.30	17.75	17.79	23.57	21.56	40.19	40.76	36.82	32.82
2100	0.25	0.32	17.43	17.46	24.70	21.89	36.33	34.97	34.39	31.94
2150	0.29	0.34	17.41	17.36	22.88	21.88	34.55	34.31	33.63	32.46
2200	0.29	0.34	17.16	17.14	25.70	23.55	34.08	33.45	34.29	32.41
2300	0.29	0.34	17.02	17.01	24.55	22.08	32.05	31.32	33.34	31.90
2350	0.31	0.38	16.86	16.88	24.86	22.64	32.89	31.93	32.58	33.10
2400	0.32	0.38	16.77	16.73	25.33	22.77	32.89	32.80	33.32	33.17
2500	0.34	0.39	16.40	16.52	27.72	25.24	34.29	35.14	33.14	34.87
2750	0.39	0.46	15.94	15.95	27.20	28.53	35.57	50.99	33.24	38.59
3000	0.40	0.50	15.65	15.67	23.58	25.17	29.85	30.35	29.16	30.21
3250	0.45	0.56	15.30	15.37	21.05	20.13	24.83	24.57	25.00	25.14
3500	0.50	0.61	15.02	14.98	18.19	17.91	22.50	22.66	22.79	22.70
3750	0.54	0.65	14.65	14.69	16.00	15.36	21.96	22.47	24.28	24.24
4000	0.58	0.70	14.42	14.34	14.53	13.77	25.30	26.22	30.38	29.65
4250	0.61	0.75	14.14	14.18	13.36	12.87	34.19	42.61	42.17	34.28
4500	0.69	0.80	14.00	13.97	13.14	12.71	27.58	28.45	26.54	26.51
4750	0.78	0.87	14.01	13.99	13.16	12.41	21.34	21.80	22.33	22.57
5000	0.81	0.93	14.04	13.96	13.14	12.26	18.60	19.11	21.61	22.07
5250	0.89	0.99	14.03	13.99	12.72	11.91	17.46	18.00	21.36	21.87
5500	0.95	1.05	13.96	13.81	13.01	12.19	16.68	17.35	20.29	20.31
5750	0.97	1.13	14.01	13.83	12.57	11.08	16.25	16.74	19.11	18.72
6000	1.05	1.19	13.82	13.69	11.64	10.23	15.70	16.01	16.75	16.55
6250	1.14	1.34	13.77	13.42	10.15	9.68	15.09	14.84	14.70	14.35
6500	1.35	1.49	13.61	13.32	9.75	8.99	13.63	13.18	13.55	13.20
6750	1.60	1.71	13.94	13.43	8.29	7.74	11.53	11.62	12.84	12.69
7000	1.93	1.90	13.84	13.59	7.98	8.46	9.89	10.31	11.59	11.86

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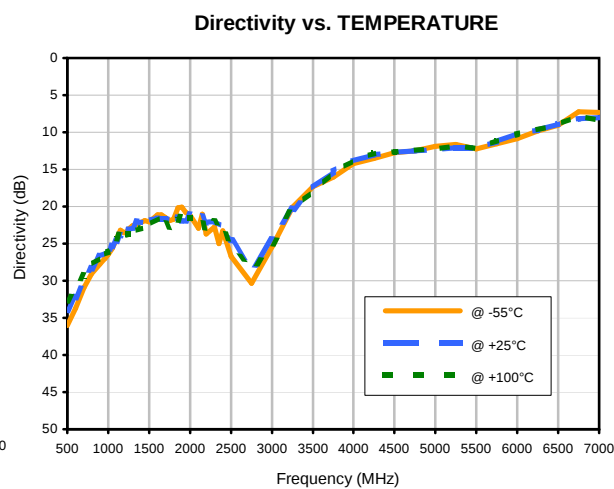
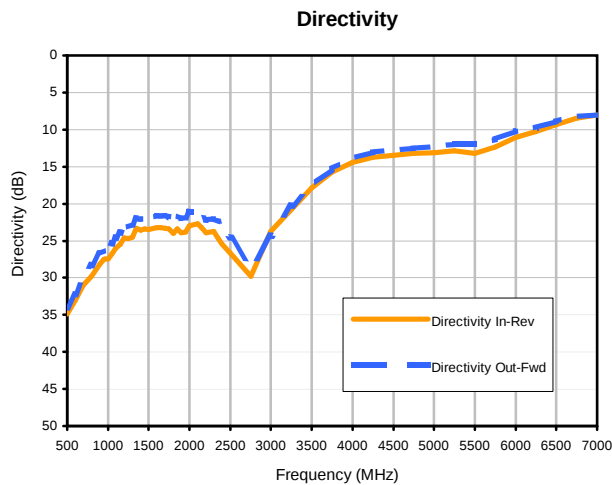
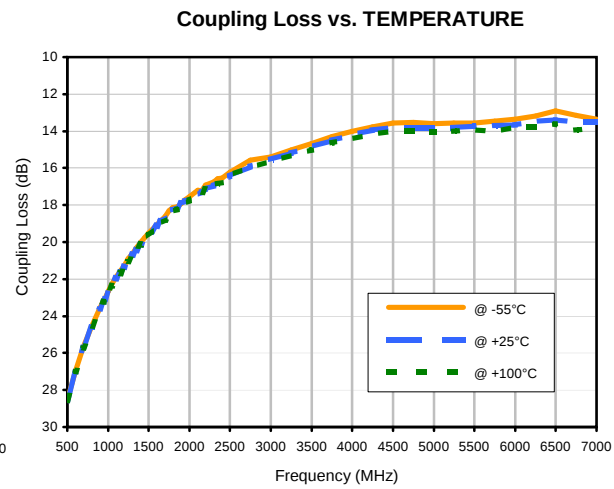
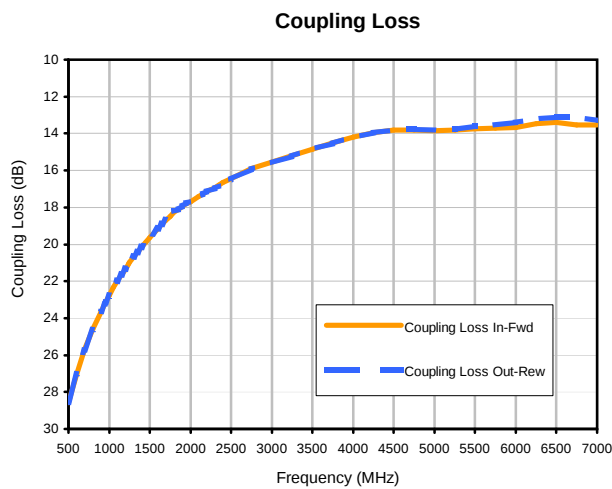
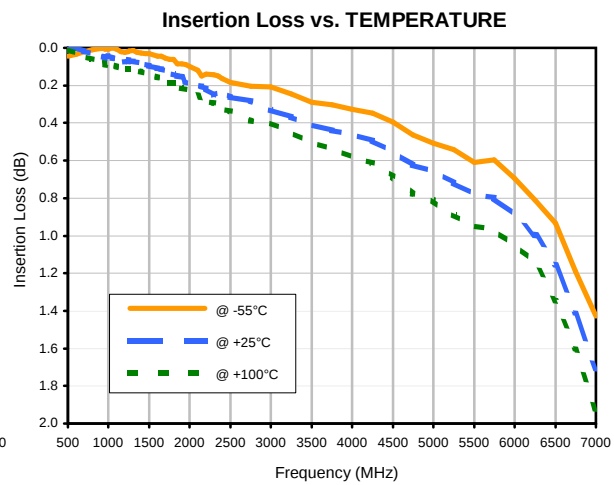
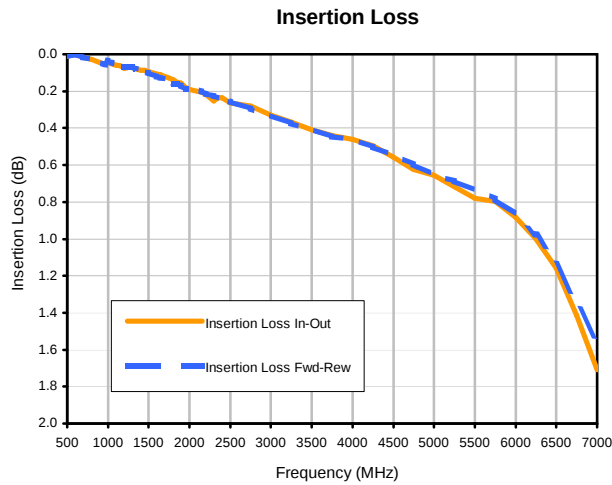
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Bi-Directional Coupler

Typical Performance Curves

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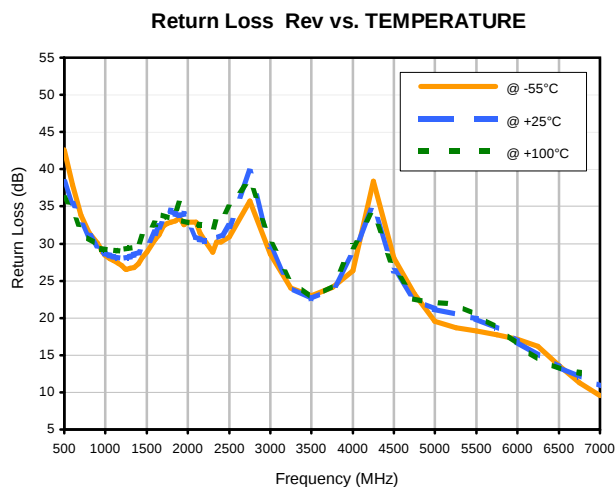
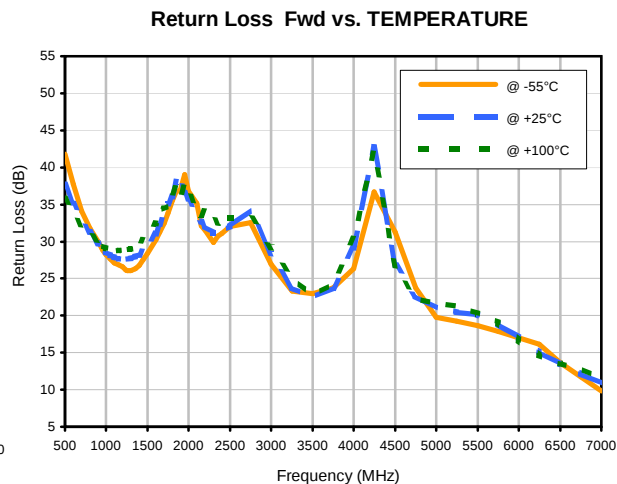
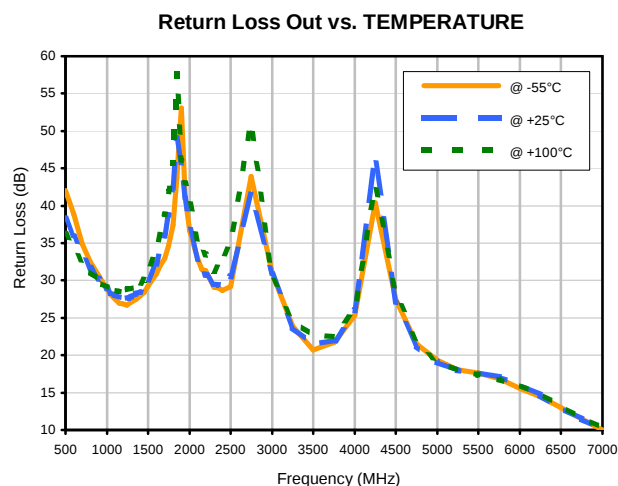
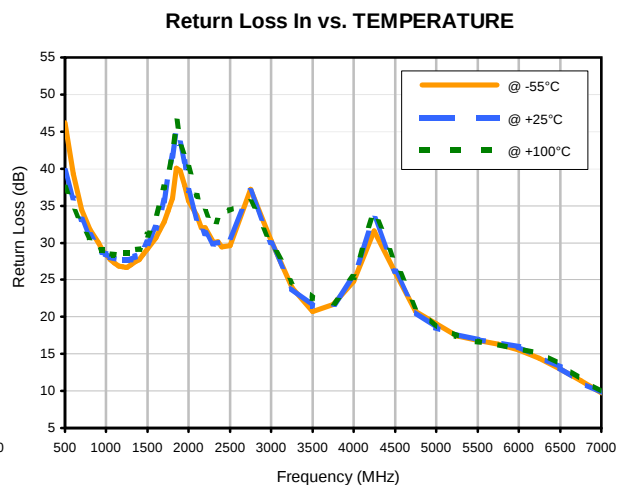
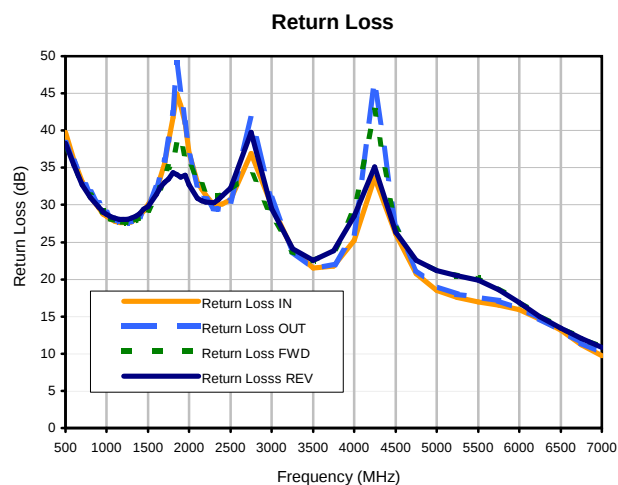
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Bi-Directional Coupler

Typical Performance Curves

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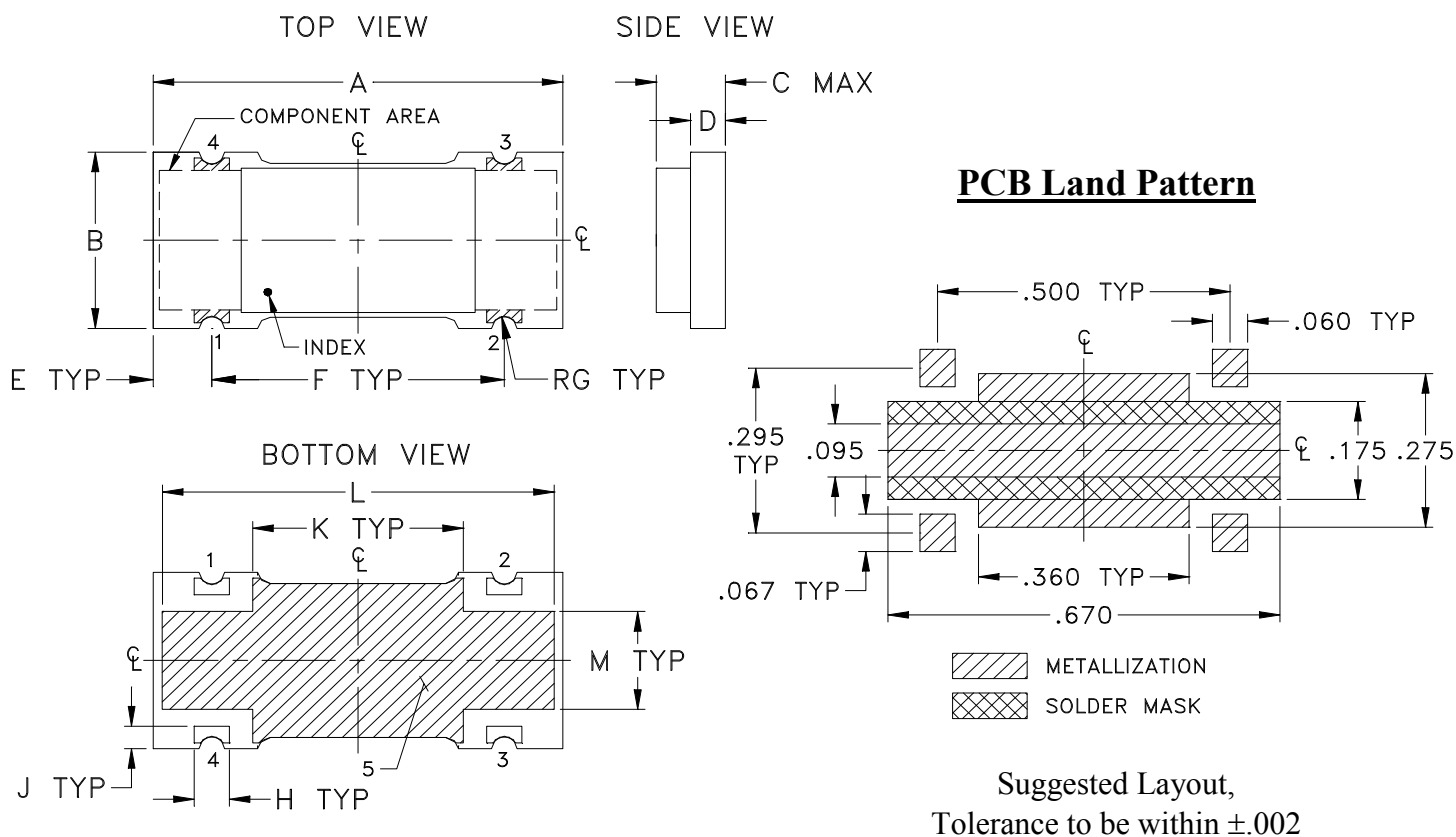


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Outline Dimensions



CASE #.	A	B	C	D	E	F	G	H	J	K	L	M	WT, GRAM
JB1233	.70 (17.78)	.32 (8.13)	.13 (3.30)	.060 (1.52)	.100 (2.54)	.500 (12.70)	.022 (0.56)	.060 (1.52)	.040 (1.02)	.360 (9.14)	.670 (17.02)	.175 (4.45)	0.68

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

Notes:

- Open style, Base material: Printed wiring laminate.
- Termination finish: 3-5 μ inch (.08-.13 microns) Gold over 120-240 μ inch (3.05-6.10 microns) Nickel plate.
All models, (+) suffix.



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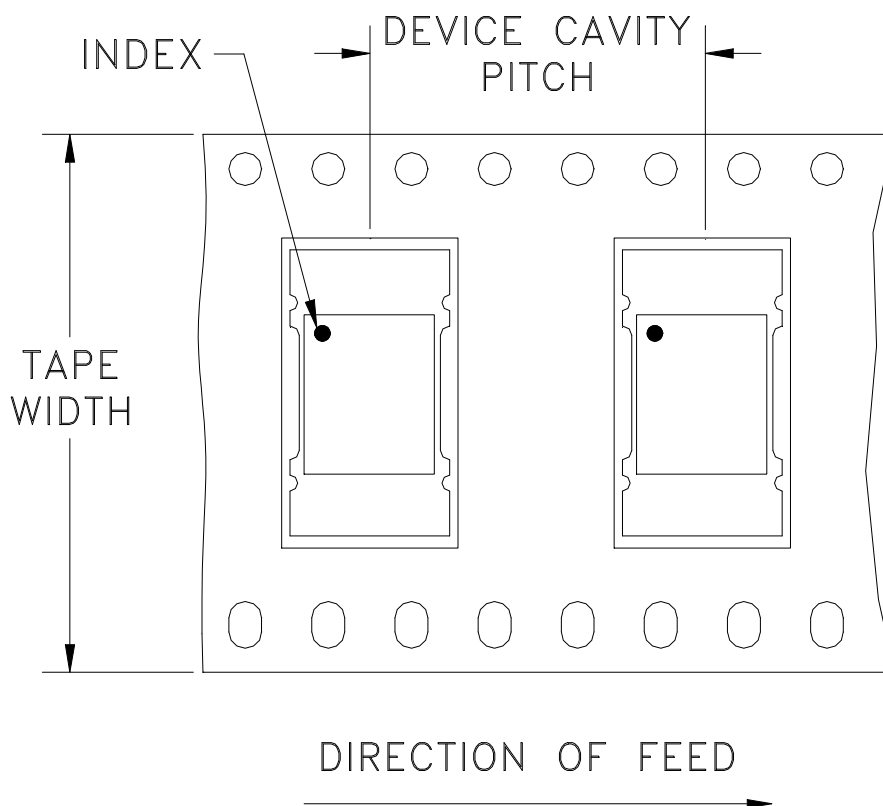
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DEVICE ORIENTATION IN T&R



Tape Width, mm	Device Cavity Pitch, mm	Reel Size, inches	Devices per Reel
32	12	13	500

Mini-Circuits carrier tape materials provide protection from ESD (Electro-Static Discharge) during handling and transportation. Tapes are static dissipative and comply with industry standards EIA-481/EIA-541.

Go to: www.minicircuits.com/pages/pdfs/tape.pdf



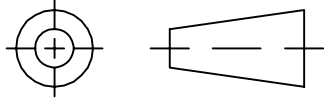
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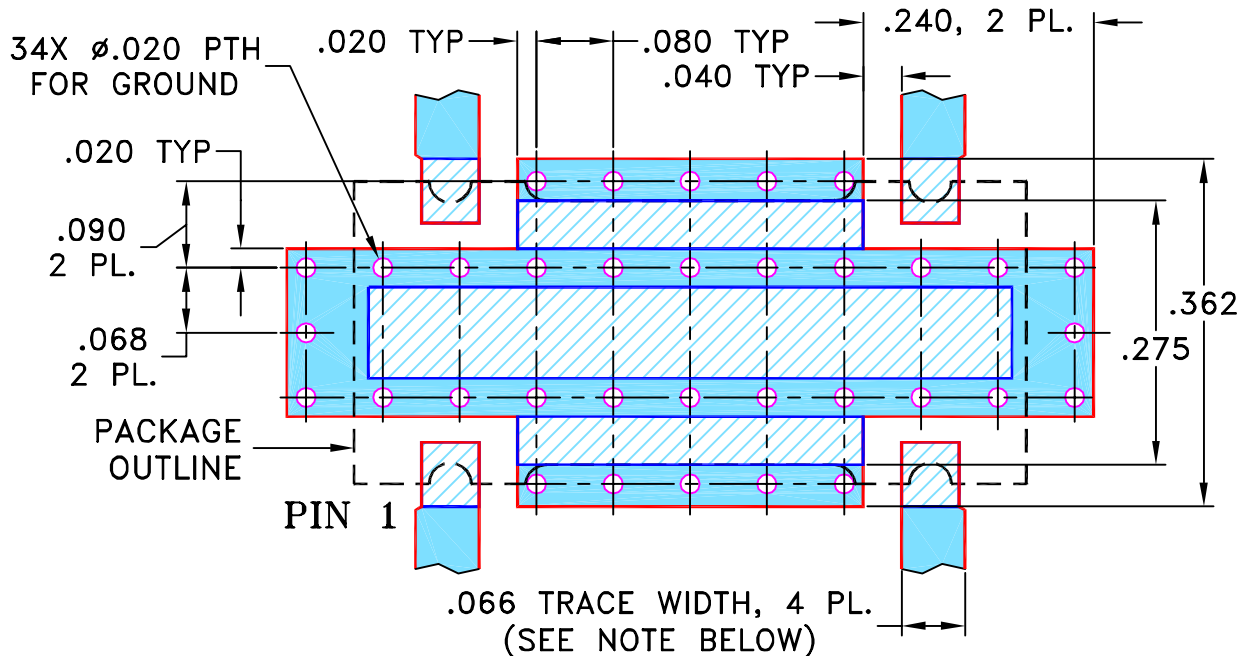
THIRD ANGLE PROJECTION



REVISIONS

REV OR	ECN No.	DESCRIPTION	DATE	DR	AUTH
	M109017	NEW RELEASE	12/29/06	MMG	WP

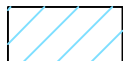
SUGGESTED MOUNTING CONFIGURATION FOR
JB1233 CASE STYLE, "rw" PIN CONNECTION



- NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B 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

INITIALS

DATE

DIMENSIONS ARE IN INCHES

TOLERANCES ON:

2 PL DECIMALS $\pm$ 3 PL DECIMALS $\pm$.005ANGLES $\pm$ FRACTIONS $\pm$

DRAWN

MMG

12/21/06

CHECKED

AV

12/29/06

APPROVED

WP

12/29/06



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PL, rw, JB1233, SYBD, TB-398

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SIZE
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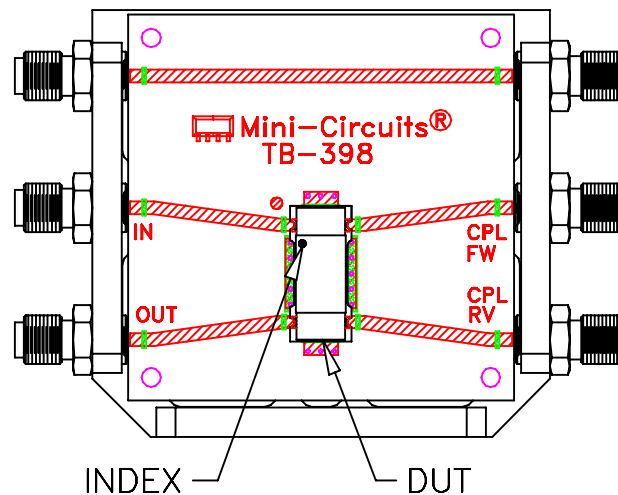
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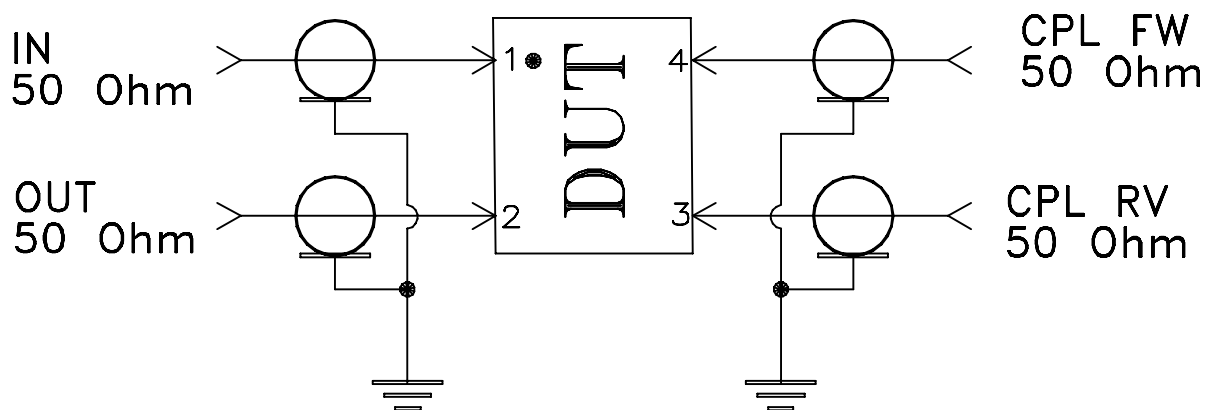
SHEET: 1 OF 1

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

Evaluation Board and Circuit



TB-398



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	-55° to 100°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