

SYBD-24-142HP+

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

[illegible]

Outline Dimensions (inch)

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

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

1. The 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.

2. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.

3. The parts covered by this specification document are subject to Mini-Circuits 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-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp

- high power handling, 50 watts
- low mainline loss, 0.04 dB typ.
- excellent VSWR, 1.15:1 typ.
- excellent directivity 25 dB typ.
- wideband frequency, 960 to 1400 MHz

- GPS
- defense communications

FREQ. (MHz)	COUPLING (dB)		MAINLINE LOSS' (dB)		DIRECTIVITY (dB)		VSWR (:1)	POWER INPUT (W)
$f_u - f_l$	Nom.	Flatness	Typ.	Max.	Typ.	Min.	Typ.	Max.
960-1400			0.04	0.30	25	17	1.15	
960-1240	24.8±0.8	±1.2	0.04	0.25	26	18	1.15	50
1240-1400	23.2±0.8	±0.7	0.05	0.30	24	17	1.15	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	0.02	25.98	26.00	29.78	31.19	37.45	33.59	39.26	36.79
1000.00	0.01	25.65	25.67	28.84	30.44	35.49	32.57	37.59	35.15
1040.00	0.02	25.32	25.34	28.31	29.15	33.39	31.25	36.91	34.33
1080.00	0.02	25.02	25.04	27.73	28.70	32.16	30.39	35.34	33.49
1180.00	0.03	24.31	24.34	26.37	27.22	29.13	28.08	32.71	31.38
1240.00	0.03	23.94	23.97	25.90	26.79	27.85	27.07	31.20	29.91
1280.00	0.04	23.69	23.71	25.45	26.12	27.03	26.37	30.45	29.60
1300.00	0.04	23.57	23.59	25.29	25.99	26.78	26.07	30.20	29.46
1340.00	0.04	23.34	23.36	24.95	25.64	26.17	25.68	29.59	28.67
1400.00	0.05	23.00	23.02	24.67	25.14	25.39	24.98	28.86	28.19

Frequency (MHz)	Mainline Loss (dB)
960	0.02
1000	0.01
1040	0.02
1080	0.02
1120	0.03
1160	0.03
1200	0.03
1240	0.04
1280	0.04
1320	0.04
1360	0.05

Frequency (MHz)	Coupling IN-CPL FWD (dB)	Directivity IN-CPL-REV (dB)
960	25	31
1070	24	29
1180	23	27
1290	22.5	26
1400	22	25

Frequency (MHz)	IN (dB)	OUT (dB)	CPL-FWD (dB)	CPL-REV (dB)
960	38	34	38	36
1070	34	30	34	32
1180	30	28	30	28
1290	28	26	28	26
1400	26	24	26	24

The diagram shows a rectangular block labeled "BI-DIRECTIONAL COUPLER (DC THRU)*". On the left side, there is a port labeled "DC+RF INPUT". On the right side, there is a port labeled "DC+RF OUTPUT". Inside the block, two horizontal arrows point from left to right, representing the main signal path. Below the main path, there are two ports: "COUPLED FORWARD DC+RF" on the left and "COUPLED REVERSE DC+RF" on the right. Curved arrows indicate that the forward path is coupled to the "COUPLED FORWARD" port and the reverse path is coupled to the "COUPLED REVERSE" port.

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

REV. C
M151107
ED-12832/4
SYBD-24-142HP+
WZ/QL/AM
200811

Bi-Directional Coupler

SYBD-24-142HP+

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	0.03	0.02	31.24	31.25	38.49	36.34	41.15	42.17	40.47	44.01
600	0.02	0.02	29.70	29.70	36.85	34.22	38.61	39.04	39.14	40.82
700	0.00	0.00	28.42	28.43	34.96	32.78	36.36	36.23	38.05	38.31
800	0.01	0.01	27.29	27.30	33.85	32.02	34.77	34.67	37.15	36.89
850	0.02	0.01	26.79	26.79	33.18	31.09	34.01	33.57	36.83	36.45
900	0.02	0.02	26.31	26.33	32.95	30.67	33.47	33.04	36.56	36.23
950	0.03	0.03	25.86	25.87	32.04	30.55	32.71	32.25	36.07	35.70
960	0.03	0.03	25.76	25.78	32.10	30.31	32.56	32.20	36.12	35.61
970	0.01	0.01	25.66	25.67	32.00	29.97	32.60	32.15	35.98	35.73
980	0.01	0.01	25.56	25.58	31.46	29.68	32.56	32.06	35.97	35.79
990	0.01	0.01	25.49	25.51	31.20	29.05	32.53	32.04	35.91	35.91
1000	0.02	0.01	25.42	25.43	30.75	28.72	32.50	31.89	35.96	35.89
1100	0.02	0.03	24.68	24.70	30.26	28.00	32.23	31.50	36.01	36.12
1150	0.03	0.03	24.32	24.34	29.99	27.60	31.90	31.18	35.81	36.61
1200	0.04	0.04	23.97	23.98	29.29	27.85	32.08	31.37	35.94	37.09
1230	0.04	0.04	23.81	23.82	28.54	26.85	32.04	31.31	36.57	37.65
1240	0.04	0.05	23.73	23.76	28.37	26.99	32.04	31.35	36.53	37.80
1250	0.03	0.04	23.67	23.70	28.17	26.41	32.15	31.47	36.52	37.85
1260	0.03	0.04	23.63	23.65	28.02	26.25	32.19	31.56	36.78	38.29
1300	0.03	0.04	23.37	23.39	28.23	26.54	32.55	31.87	37.44	38.68
1350	0.04	0.05	23.04	23.07	28.75	26.90	32.70	32.02	38.11	39.47
1400	0.05	0.05	22.80	22.81	27.70	26.06	33.50	32.81	39.00	41.27
1450	0.06	0.06	22.52	22.54	28.10	25.98	34.21	33.53	39.73	42.51
1500	0.06	0.07	22.34	22.36	26.19	24.91	35.68	34.97	41.24	45.05
1600	0.08	0.08	21.76	21.78	28.06	26.74	38.34	37.37	41.44	43.70
1700	0.09	0.09	21.44	21.45	26.20	24.67	46.35	44.90	39.29	39.87
1800	0.10	0.11	21.08	21.09	25.84	24.63	52.79	51.49	36.86	36.65
1900	0.12	0.12	20.82	20.84	24.37	23.30	40.51	39.53	34.44	34.38
2000	0.12	0.13	20.42	20.44	25.98	25.17	37.00	36.11	33.50	33.16
2100	0.15	0.15	20.10	20.14	26.76	26.05	34.42	33.33	32.84	33.26
2200	0.16	0.16	19.77	19.82	29.03	28.57	33.49	32.66	33.31	34.04
2300	0.18	0.17	19.60	19.68	27.53	27.40	33.33	32.46	33.67	34.70
2400	0.19	0.18	19.38	19.38	29.21	28.83	33.67	32.93	36.33	37.67
2500	0.19	0.19	19.13	19.20	29.96	31.19	36.20	35.59	41.11	43.84
2600	0.22	0.20	19.00	19.07	27.27	28.95	40.14	40.94	49.50	54.69
2700	0.23	0.20	18.81	18.84	27.67	28.06	48.45	47.16	37.84	38.06
2800	0.23	0.25	18.58	18.68	27.07	25.76	37.26	35.45	32.24	32.03
2900	0.23	0.24	18.48	18.50	25.65	25.37	30.62	29.93	28.65	28.78
3000	0.26	0.26	18.39	18.40	22.98	22.02	27.01	26.45	26.26	26.42
3100	0.28	0.27	18.20	18.22	22.29	21.60	24.34	24.05	24.08	24.12
3200	0.29	0.29	18.10	18.13	20.45	19.10	22.27	22.20	22.51	22.84
3300	0.31	0.31	17.97	18.05	18.66	17.82	20.74	20.82	21.57	21.95
3400	0.33	0.32	17.83	17.89	17.58	17.22	19.73	19.81	20.95	21.15
3500	0.35	0.33	17.73	17.73	17.12	16.32	19.22	19.28	20.48	20.69
3600	0.36	0.34	17.61	17.57	16.01	15.37	18.87	18.85	20.60	20.62
3700	0.37	0.36	17.51	17.48	15.39	14.86	18.77	19.03	20.61	20.80
3800	0.38	0.36	17.39	17.35	14.92	14.32	19.09	19.41	21.03	21.27
3900	0.38	0.36	17.24	17.28	14.22	13.76	19.79	20.09	21.99	22.08
4000	0.38	0.37	17.17	17.22	13.50	13.24	20.87	20.88	23.12	23.17
4500	0.42	0.42	16.91	17.00	12.37	12.31	48.53	39.94	40.14	38.66
5000	0.48	0.47	17.10	17.15	12.68	12.68	27.52	28.54	32.42	34.78
5500	0.51	0.52	17.49	17.50	11.73	11.21	34.57	34.24	46.27	50.07
6000	0.59	0.58	17.91	17.82	8.81	8.57	26.41	27.99	27.46	30.11

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SYBD-24-142HP+

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Bi-Directional Coupler

SYBD-24-142HP+

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	0.06	0.11	31.23	31.23	43.11	39.09	46.05	51.46	43.89	52.43
600	0.05	0.10	29.67	29.68	39.10	36.41	41.84	43.10	42.12	44.44
700	0.04	0.10	28.38	28.39	36.70	35.06	38.16	38.14	41.20	41.03
800	0.03	0.09	27.26	27.27	36.05	33.41	36.39	36.31	39.43	38.40
850	0.03	0.10	26.75	26.77	34.94	32.40	35.32	34.89	38.45	37.61
900	0.03	0.09	26.27	26.28	34.59	32.18	34.38	33.97	38.12	37.47
950	0.02	0.09	25.82	25.84	33.34	31.25	33.23	32.82	36.59	35.88
960	0.02	0.09	25.73	25.74	33.16	30.86	33.05	32.73	36.50	35.72
970	0.04	0.11	25.62	25.63	33.34	30.78	33.03	32.63	36.27	35.82
980	0.04	0.11	25.54	25.54	33.34	30.78	32.91	32.46	36.21	35.96
990	0.04	0.11	25.44	25.46	33.43	30.45	32.78	32.36	36.07	36.11
1000	0.03	0.11	25.36	25.37	32.89	30.24	32.69	32.17	36.08	36.19
1100	0.03	0.11	24.60	24.62	31.40	28.26	31.89	31.19	34.52	35.36
1150	0.02	0.10	24.26	24.28	30.48	28.20	31.39	30.71	34.38	35.88
1200	0.02	0.10	23.94	23.93	29.89	27.62	31.45	30.78	34.81	36.38
1230	0.01	0.10	23.79	23.79	28.38	26.38	31.47	30.73	34.99	36.29
1240	0.02	0.10	23.70	23.71	28.83	26.80	31.46	30.80	34.79	36.18
1250	0.02	0.10	23.62	23.62	28.77	27.15	31.44	30.83	34.63	36.02
1260	0.03	0.11	23.54	23.56	28.66	27.36	31.45	30.88	34.65	36.18
1300	0.02	0.10	23.33	23.35	27.04	25.67	31.94	31.39	34.92	36.33
1350	0.02	0.10	23.00	23.01	28.39	26.80	32.08	31.66	36.19	37.50
1400	0.01	0.10	22.70	22.71	27.99	26.92	32.72	32.32	36.03	37.53
1450	0.01	0.11	22.50	22.51	26.55	25.39	33.56	33.07	37.92	38.99
1500	0.01	0.10	22.17	22.17	28.38	26.48	34.29	33.77	39.58	40.69
1600	0.01	0.09	21.77	21.74	25.40	24.51	37.17	35.46	39.88	45.15
1700	0.02	0.09	21.42	21.43	24.72	23.32	41.15	39.59	38.01	38.18
1800	0.03	0.08	20.96	20.95	26.03	24.79	46.93	43.22	37.45	36.56
1900	0.04	0.08	20.44	20.47	29.55	27.41	50.74	41.97	34.56	33.92
2000	0.06	0.08	20.27	20.29	25.39	25.68	35.05	34.54	32.83	33.25
2100	0.07	0.06	19.98	20.00	26.12	27.98	33.19	32.39	32.59	33.90
2200	0.06	0.06	19.76	19.81	25.89	25.19	33.12	32.48	31.96	32.75
2300	0.08	0.05	19.59	19.58	27.06	25.75	31.33	31.06	31.89	32.04
2400	0.08	0.06	19.16	19.20	29.91	28.97	32.21	31.41	35.15	35.44
2500	0.10	0.05	18.88	18.96	36.35	40.10	36.41	35.66	42.97	40.90
2600	0.11	0.06	18.87	18.92	27.79	29.36	40.91	40.90	52.19	55.29
2700	0.13	0.03	18.66	18.75	26.57	25.66	48.56	53.93	35.49	35.69
2800	0.13	0.03	18.52	18.53	26.92	26.42	38.47	36.09	31.87	32.54
2900	0.14	0.03	18.27	18.30	25.79	25.50	31.77	30.20	27.76	28.58
3000	0.15	0.01	18.07	18.12	23.84	22.92	28.13	27.70	25.15	25.92
3100	0.16	0.01	18.02	18.03	21.95	21.22	25.15	24.61	23.47	23.63
3200	0.17	0.00	17.91	17.94	19.99	19.31	22.53	22.62	22.67	22.95
3300	0.19	0.01	17.83	17.78	18.28	17.85	20.84	20.80	21.58	21.84
3400	0.21	0.01	17.68	17.67	17.70	17.43	19.39	19.47	21.40	21.73
3500	0.24	0.02	17.55	17.55	16.80	16.42	18.51	18.69	21.34	21.42
3600	0.23	0.02	17.40	17.35	16.07	15.73	18.44	18.44	21.86	21.75
3700	0.26	0.04	17.32	17.25	16.33	15.08	18.86	18.90	21.46	21.56
3800	0.24	0.03	17.19	17.16	15.07	14.57	19.18	19.38	20.84	20.88
3900	0.25	0.03	17.06	17.06	14.11	14.19	19.79	20.04	20.91	20.89
4000	0.25	0.04	17.04	17.02	13.14	13.45	20.79	20.74	21.97	21.93
4500	0.26	0.06	16.59	16.62	13.40	12.85	50.64	39.70	30.02	29.27
5000	0.31	0.07	16.77	16.88	12.30	12.50	27.99	29.10	29.04	29.79
5500	0.33	0.08	17.21	17.26	11.18	11.13	36.23	33.81	33.18	32.20
6000	0.40	0.12	17.60	17.58	8.78	8.79	26.14	27.21	27.06	31.51

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Bi-Directional Coupler

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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	0.02	31.25	31.26	36.25	33.85	38.54	39.30	37.76	40.10
600	0.01	0.04	29.71	29.72	35.22	32.78	36.71	37.09	37.61	39.30
700	0.03	0.06	28.43	28.44	33.31	31.68	35.19	35.15	37.25	37.87
800	0.05	0.08	27.32	27.33	33.26	30.93	34.36	34.29	36.84	37.05
850	0.05	0.08	26.81	26.83	32.42	30.73	33.95	33.54	36.99	36.92
900	0.06	0.09	26.33	26.36	32.39	30.58	33.73	33.28	37.10	37.02
950	0.07	0.10	25.89	25.91	31.52	29.97	33.31	32.79	37.12	36.74
960	0.06	0.10	25.80	25.83	31.56	29.83	33.19	32.77	37.35	36.76
970	0.05	0.08	25.70	25.72	31.68	30.01	33.29	32.75	37.36	37.01
980	0.05	0.08	25.61	25.63	31.70	30.07	33.30	32.70	37.55	37.24
990	0.05	0.08	25.51	25.54	31.65	29.99	33.26	32.70	37.62	37.53
1000	0.06	0.09	25.43	25.45	31.42	30.00	33.27	32.60	37.91	37.70
1100	0.07	0.11	24.68	24.70	30.59	27.85	33.47	32.64	38.96	38.63
1150	0.08	0.11	24.37	24.39	29.32	27.90	33.54	32.68	39.65	40.34
1200	0.08	0.13	24.02	24.03	29.84	28.18	33.90	33.10	40.46	41.80
1230	0.09	0.13	23.87	23.89	28.59	27.25	34.05	33.11	41.77	42.98
1240	0.09	0.13	23.78	23.81	29.15	27.62	33.95	33.16	41.57	43.21
1250	0.08	0.13	23.71	23.73	29.17	27.71	33.98	33.19	41.62	43.65
1260	0.08	0.12	23.64	23.66	29.30	27.65	33.99	33.24	42.04	44.50
1300	0.08	0.13	23.45	23.47	28.28	26.62	34.54	33.69	43.35	45.75
1350	0.09	0.14	23.12	23.13	29.31	27.43	34.72	33.71	44.28	47.43
1400	0.10	0.14	22.80	22.82	30.13	28.23	35.35	34.35	43.93	49.95
1450	0.11	0.15	22.59	22.61	28.67	27.04	36.21	35.29	43.64	49.30
1500	0.12	0.16	22.29	22.31	29.28	28.11	37.48	36.60	44.22	48.36
1600	0.14	0.19	21.87	21.88	27.30	26.99	42.21	40.56	42.56	45.17
1700	0.15	0.20	21.52	21.54	26.59	25.47	60.28	54.02	40.46	40.28
1800	0.16	0.23	21.03	21.06	29.54	28.28	55.28	50.20	38.70	38.98
1900	0.20	0.24	20.69	20.71	29.55	28.47	46.43	45.40	37.97	37.49
2000	0.20	0.25	20.44	20.47	28.28	27.02	39.57	39.36	37.09	35.63
2100	0.24	0.29	20.12	20.19	27.43	27.39	38.05	37.04	36.12	37.52
2200	0.24	0.29	19.92	20.00	26.69	26.39	35.46	35.42	38.25	39.01
2300	0.24	0.31	19.70	19.73	27.73	27.49	37.51	35.93	40.40	42.64
2400	0.26	0.34	19.46	19.41	27.81	29.24	40.13	38.39	41.67	50.11
2500	0.29	0.35	19.27	19.27	26.49	26.24	40.27	40.51	45.31	51.85
2600	0.30	0.35	19.12	19.16	26.25	26.10	47.64	47.48	45.68	47.40
2700	0.31	0.38	19.03	19.11	24.97	24.80	42.43	43.04	38.12	36.77
2800	0.34	0.40	18.72	18.76	26.86	27.57	36.20	33.87	33.50	32.85
2900	0.34	0.41	18.58	18.63	25.34	25.21	30.79	29.61	29.83	29.71
3000	0.36	0.44	18.39	18.44	24.33	23.68	26.75	26.50	27.81	27.59
3100	0.37	0.47	18.29	18.40	22.41	21.13	24.16	24.04	25.72	25.41
3200	0.38	0.48	18.19	18.23	21.12	19.72	22.68	22.80	23.81	23.94
3300	0.42	0.51	18.21	18.15	19.58	18.71	21.26	21.56	22.67	22.94
3400	0.43	0.53	18.05	18.05	17.79	17.65	20.72	20.91	21.77	21.80
3500	0.45	0.55	17.83	17.90	17.72	16.63	20.25	20.45	20.86	21.09
3600	0.47	0.57	17.80	17.73	16.08	15.55	19.69	19.74	20.53	20.84
3700	0.50	0.59	17.67	17.67	15.24	15.23	19.18	19.36	20.66	21.11
3800	0.50	0.61	17.50	17.51	15.00	14.73	19.30	19.53	21.22	21.81
3900	0.52	0.62	17.47	17.49	13.95	13.64	19.85	20.29	22.17	22.53
4000	0.51	0.62	17.35	17.40	13.50	13.02	20.98	21.05	23.28	23.61
4500	0.56	0.69	17.06	17.13	12.15	12.39	38.45	37.25	40.18	38.75
5000	0.64	0.80	17.37	17.44	12.69	11.95	27.37	28.16	31.78	40.16
5500	0.69	0.85	17.76	17.85	11.72	11.19	31.37	32.73	41.68	37.76
6000	0.76	0.95	18.30	18.11	8.66	8.49	26.18	28.23	27.05	28.66

REV. X1

SYBD-24-142HP+

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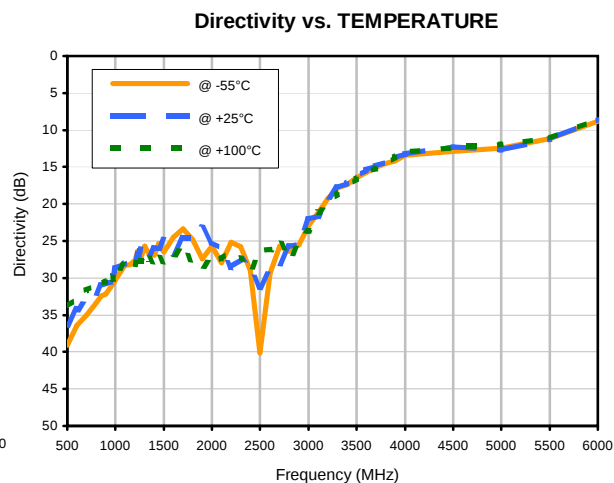
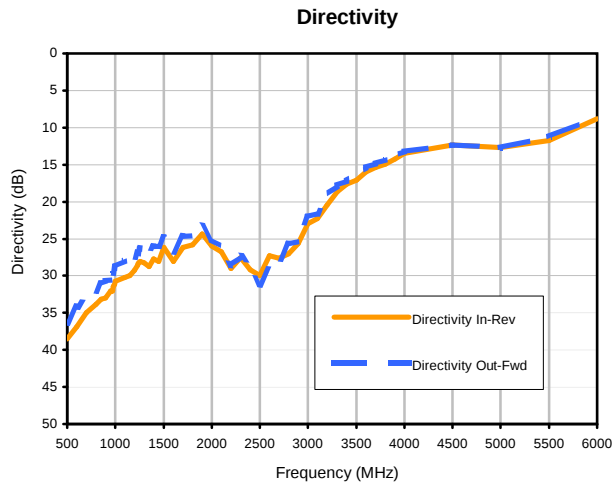
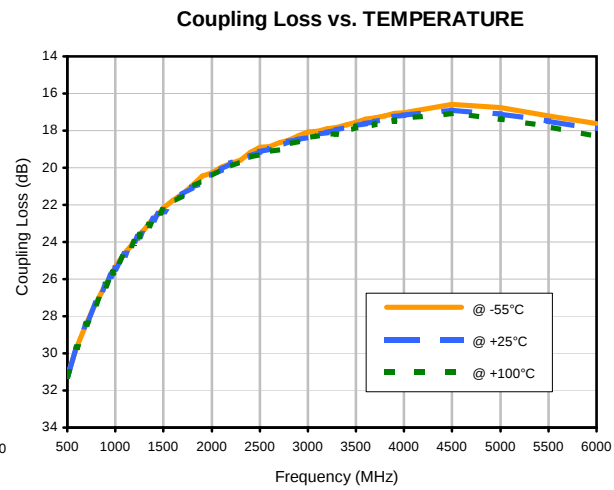
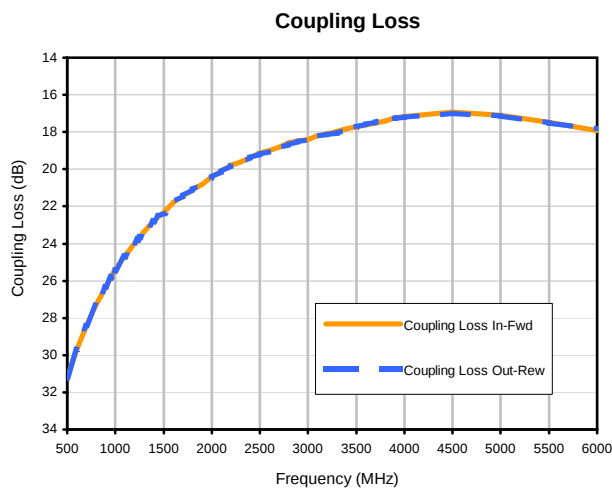
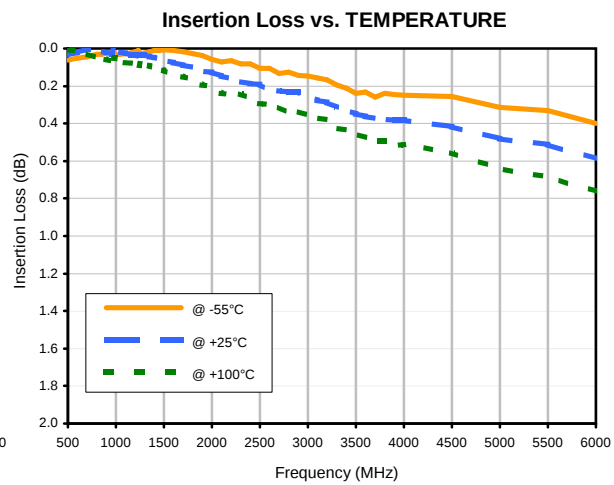
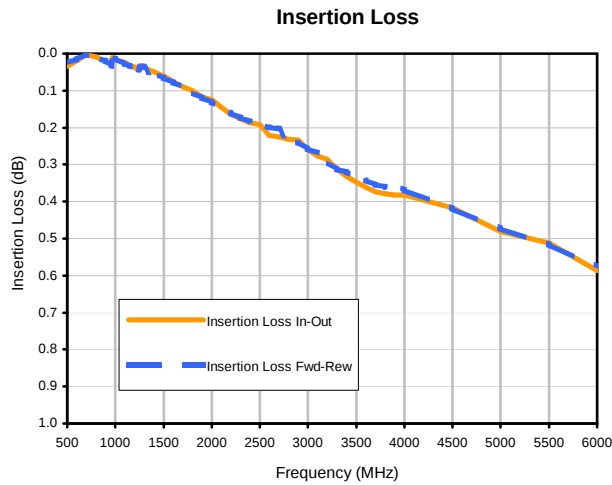
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Bi-Directional Coupler

Typical Performance Curves

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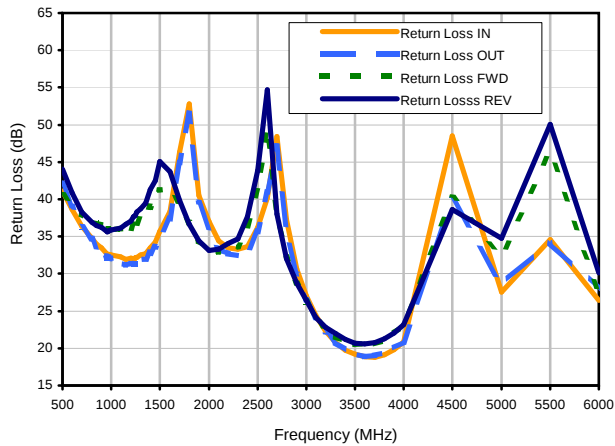


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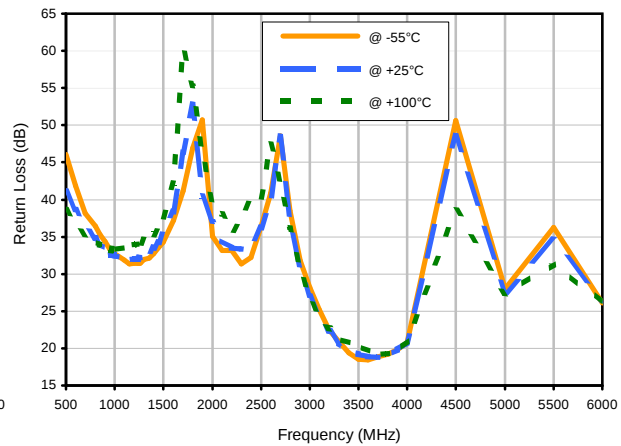
Typical Performance Curves

SYBD-24-142HP+

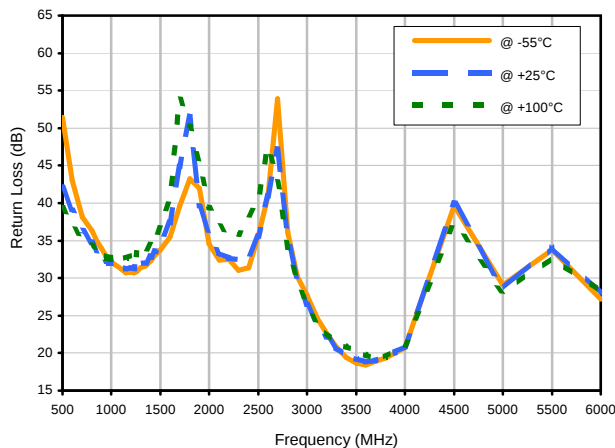
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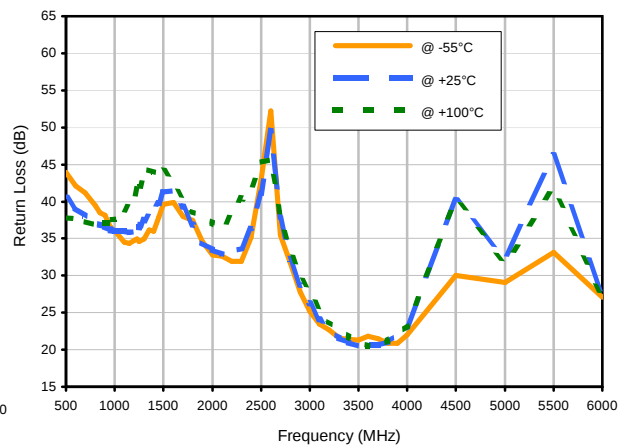
Return Loss In vs. TEMPERATURE



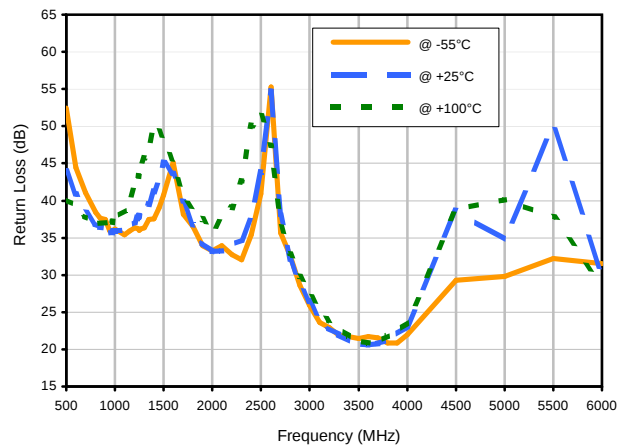
Return Loss Out vs. TEMPERATURE



Return Loss Fwd vs. TEMPERATURE



Return Loss Rev vs. TEMPERATURE



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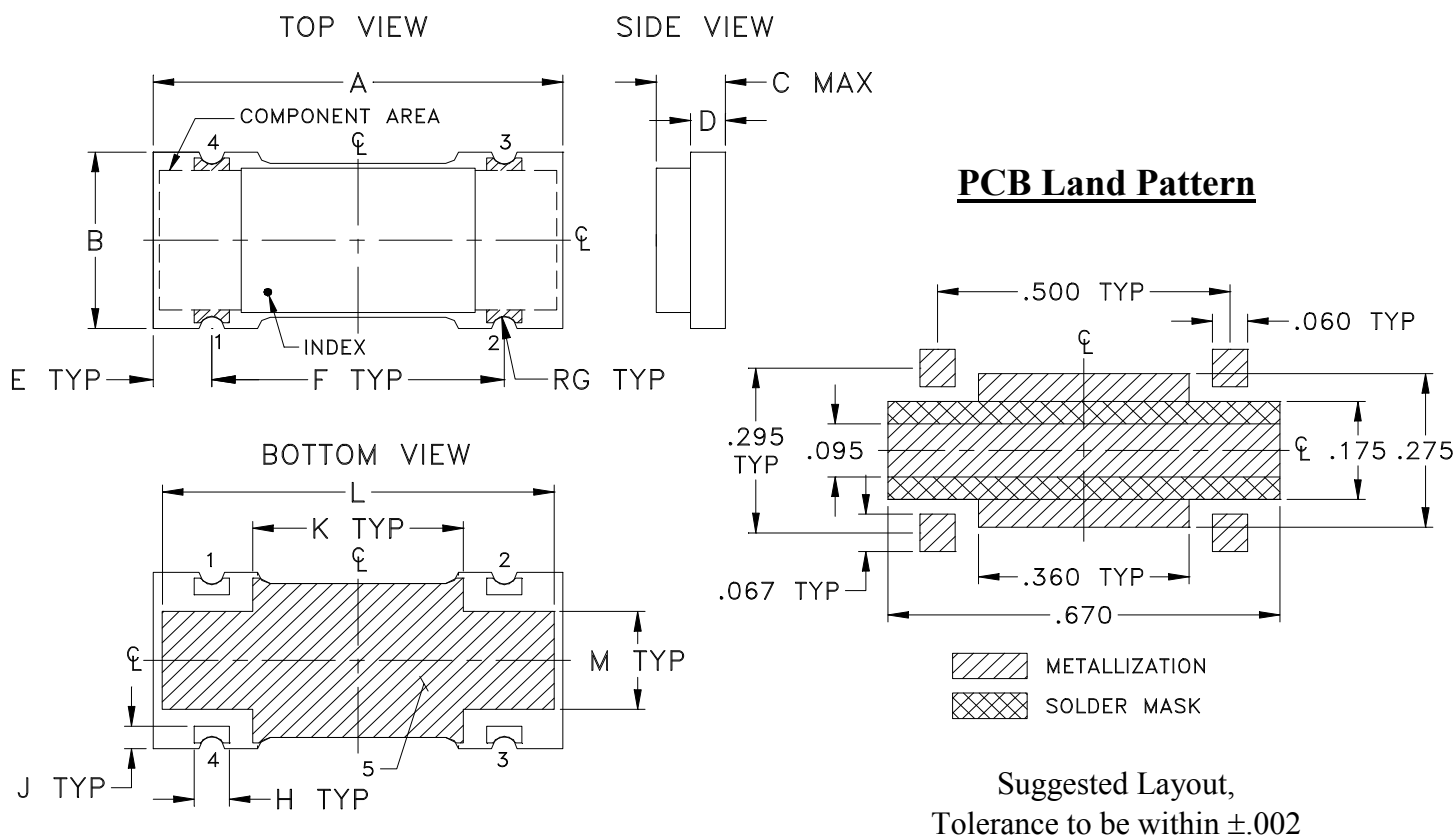
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Outline Dimensions



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.



INTERNET <http://www.minicircuits.com>

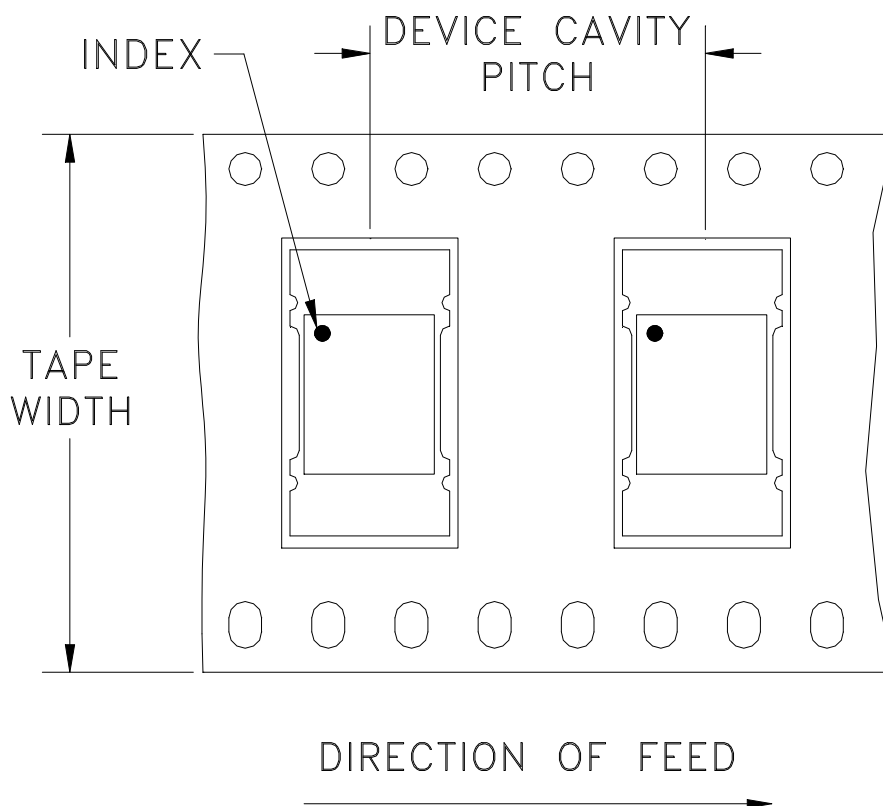
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DEVICE ORIENTATION IN T&R



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

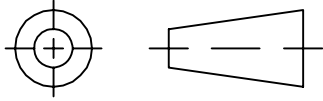
Mini-Circuits carrier tape materials provide protection from ESD (Electro-Static Discharge) during handling and transportation. Tapes are static dissipative and comply with industry standards EIA-481/EIA-541.

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



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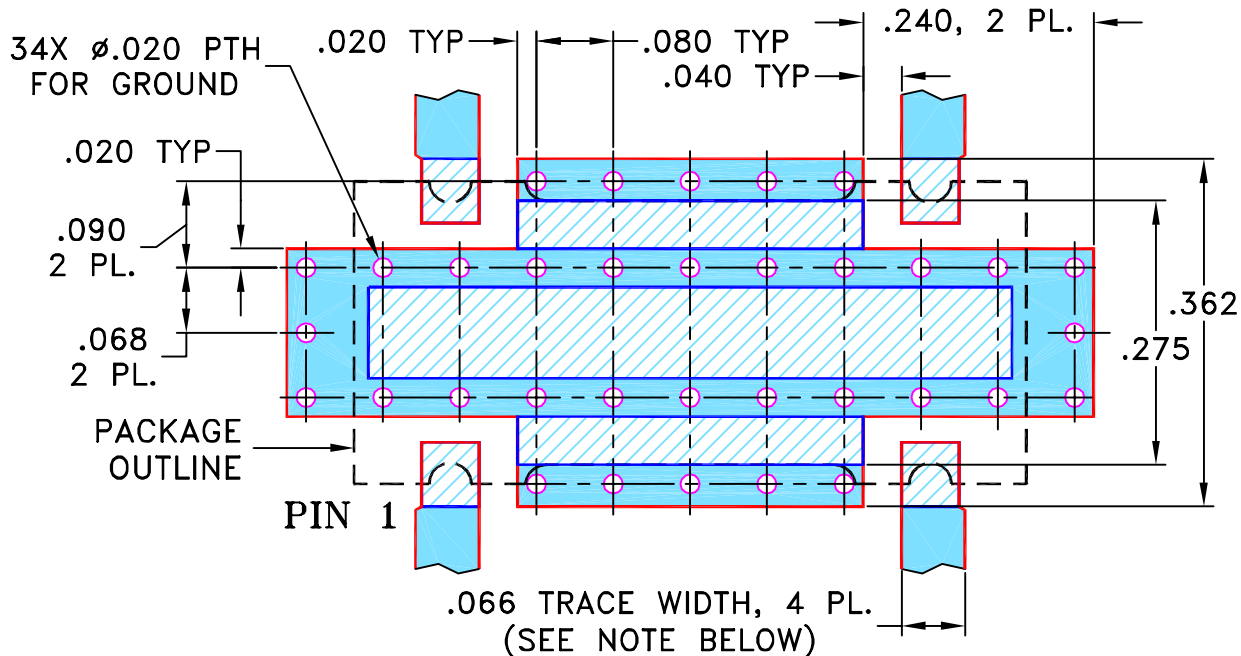
THIRD ANGLE PROJECTION



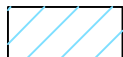
REVISIONS

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 $\pm$.005
 ANGLES $\pm$
 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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CODE IDENT
15542

DRAWING NO:
98-PL-260

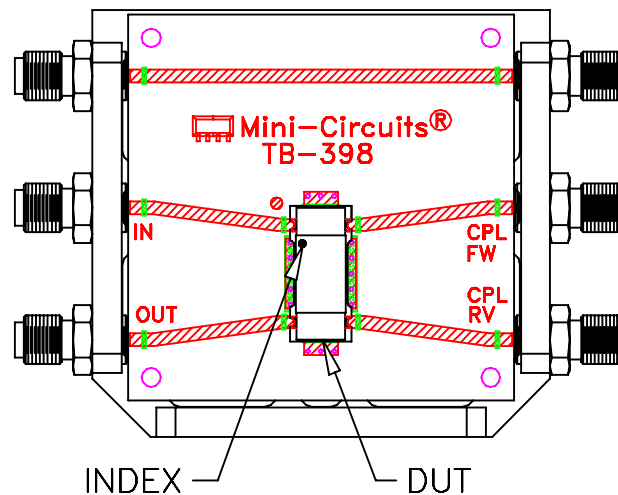
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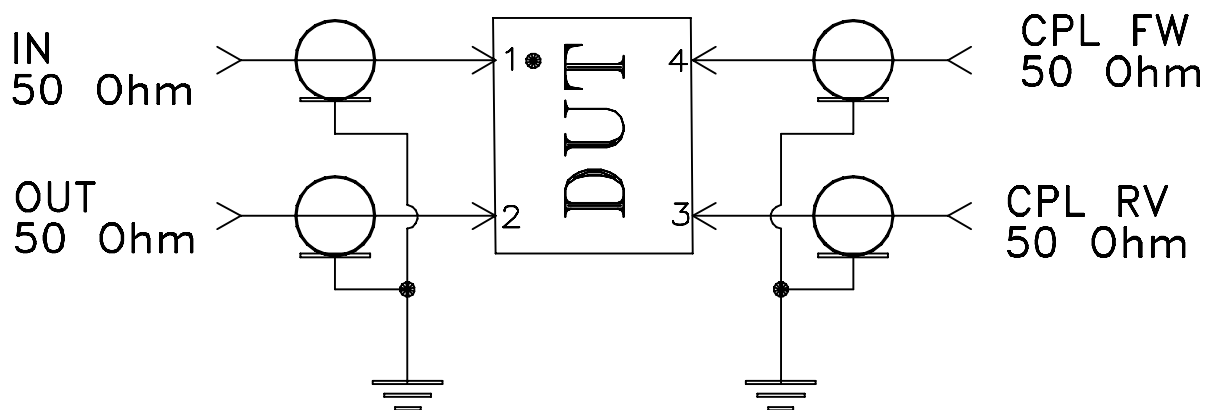
SCALE: 5:1

SHEET: 1 OF 1

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