

Engineering Development Model

Power Splitter/Combiner 6 Way-0°

JCPS-ED11649/1

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 : BG291

ELECTRICAL SPECIFICATIONS 50Ω @ +25°C				
Parameter		Min.	Typ.	Max. Units
Frequency		6		1000 MHz
Isolation	6 - 60 MHz		27	dB
	60 - 500 MHz		30	dB
	500 - 1000 MHz		29	dB
Insertion Loss Above 7.8 dB	6 - 60 MHz		0.70	dB
	60 - 500 MHz		0.80	dB
	500 - 1000 MHz		1.30	dB
Phase Unbalance	6 - 60 MHz		0.353	deg.
	60 - 500 MHz		2.101	deg.
	500 - 1000 MHz		6.428	deg.
Amplitude Unbalance	6 - 60 MHz		0.143	dB
	60 - 500 MHz		0.126	dB
	500 - 1000 MHz		0.281	dB
VSWR	SUM Port		1.30	(:1)
	OUT Ports		1.17	(:1)

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

PIN CONNECTIONS	
SUM PORT	11
PORT 1	1
PORT 2	2
PORT 3	3
PORT 4	5
PORT 5	6
PORT 6	7
GND EXT	4,8,9,10,12,13,14

Functional Diagram



6 Way-0° Power Splitter/Combiner

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Typical Performance Data

FREQ. (MHz)	TOTAL LOSS ¹			AMP. UNBAL. (dB)	ISOLATION			PHASE UNBAL. (deg.)	FREQ. (MHz)	VSWR		
	S-1	S-3	S-5		1-2	1-3	1-6			S	1	3
2.0	9.18	9.30	9.16	0.18	19.40	28.83	28.69	0.96	2.0	2.95	1.90	1.85
3.0	8.61	8.73	8.61	0.16	21.32	28.80	28.68	0.67	3.0	2.13	1.61	1.58
4.0	8.45	8.57	8.45	0.16	22.67	28.94	28.83	0.53	4.0	1.82	1.47	1.45
6.0	8.42	8.53	8.42	0.15	24.41	29.32	29.20	0.39	6.0	1.61	1.35	1.33
8.0	8.44	8.55	8.45	0.15	25.34	29.53	29.42	0.33	8.0	1.55	1.30	1.28
10.0	8.47	8.58	8.47	0.15	25.86	29.63	29.52	0.29	10.0	1.52	1.27	1.25
24.0	8.42	8.52	8.43	0.14	26.18	29.42	29.30	0.30	24.0	1.45	1.22	1.19
38.0	8.39	8.50	8.40	0.14	25.64	29.27	29.16	0.36	38.0	1.43	1.20	1.17
52.0	8.38	8.49	8.40	0.13	25.13	29.21	29.10	0.45	52.0	1.41	1.20	1.17
66.0	8.38	8.49	8.40	0.13	24.72	29.21	29.09	0.55	66.0	1.40	1.20	1.17
80.0	8.39	8.49	8.41	0.13	24.39	29.23	29.09	0.63	80.0	1.39	1.19	1.16
110.0	8.40	8.51	8.43	0.12	23.86	29.37	29.17	0.85	110.0	1.37	1.19	1.16
140.0	8.42	8.52	8.45	0.12	23.45	29.62	29.33	1.07	140.0	1.35	1.19	1.16
170.0	8.44	8.54	8.48	0.12	23.12	29.96	29.53	1.28	170.0	1.33	1.18	1.16
200.0	8.46	8.55	8.50	0.12	22.84	30.40	29.83	1.51	200.0	1.30	1.18	1.15
230.0	8.48	8.56	8.52	0.11	22.60	30.96	30.16	1.72	230.0	1.28	1.17	1.15
245.0	8.48	8.57	8.53	0.11	22.48	31.29	30.36	1.84	245.0	1.27	1.17	1.15
260.0	8.49	8.58	8.55	0.11	22.39	31.66	30.57	1.94	260.0	1.25	1.17	1.15
275.0	8.50	8.58	8.56	0.11	22.29	32.07	30.80	2.07	275.0	1.24	1.17	1.14
301.0	8.51	8.59	8.58	0.11	22.12	32.90	31.26	2.27	301.0	1.22	1.16	1.14
327.0	8.53	8.60	8.60	0.11	21.97	33.90	31.77	2.48	327.0	1.19	1.16	1.14
353.0	8.54	8.61	8.62	0.11	21.81	35.13	32.36	2.68	353.0	1.17	1.16	1.14
379.0	8.56	8.62	8.64	0.13	21.66	36.65	33.04	2.90	379.0	1.14	1.16	1.14
405.0	8.57	8.63	8.67	0.14	21.50	38.59	33.81	3.10	405.0	1.12	1.15	1.14
434.0	8.60	8.65	8.70	0.15	21.31	41.56	34.79	3.38	434.0	1.10	1.15	1.14
463.0	8.63	8.66	8.74	0.16	21.11	45.74	35.93	3.64	463.0	1.09	1.15	1.14
492.0	8.66	8.69	8.78	0.17	20.90	48.85	37.22	3.90	492.0	1.09	1.15	1.14
521.0	8.69	8.72	8.83	0.18	20.68	44.94	38.63	4.18	521.0	1.11	1.15	1.14
550.0	8.73	8.75	8.88	0.19	20.45	40.67	40.07	4.48	550.0	1.14	1.15	1.15
615.0	8.84	8.84	9.01	0.22	19.94	34.76	41.64	5.16	615.0	1.22	1.15	1.15
680.0	8.96	8.94	9.16	0.25	19.50	31.32	39.33	5.89	680.0	1.30	1.14	1.15
745.0	9.09	9.04	9.31	0.28	19.21	29.07	36.48	6.67	745.0	1.36	1.14	1.14
810.0	9.20	9.12	9.44	0.32	19.11	27.58	34.43	7.49	810.0	1.39	1.13	1.13
875.0	9.30	9.18	9.55	0.38	19.19	26.61	33.18	8.35	875.0	1.37	1.13	1.12
940.0	9.40	9.23	9.66	0.43	19.29	25.99	32.55	9.20	940.0	1.31	1.15	1.13
1005.0	9.59	9.36	9.84	0.48	18.97	25.41	32.20	10.05	1005.0	1.30	1.19	1.17
1070.0	10.03	9.71	10.23	0.53	17.77	24.40	31.33	10.86	1070.0	1.52	1.25	1.23
1135.0	10.91	10.48	11.04	0.56	15.91	22.75	29.43	11.63	1135.0	2.05	1.32	1.31
1200.0	12.37	11.82	12.39	0.57	14.02	20.96	27.22	12.40	1200.0	2.92	1.39	1.40
1250.0	13.87	13.23	13.78	0.64	12.77	19.81	25.86	13.09	1250.0	3.79	1.44	1.46
1300.0	15.60	14.88	15.40	0.72	11.68	18.92	24.89	14.79	1300.0	4.75	1.48	1.50

¹ Total Loss = Insertion Loss + 7.8dB Splitter Loss

REV. X2

JCPS-ED11649/1

100707

Page 1 of 1



RF/MICROWAVE COMPONENTS • ISO 9001 ISO 14001 AS9100 CERTIFIED • RoHS compliant

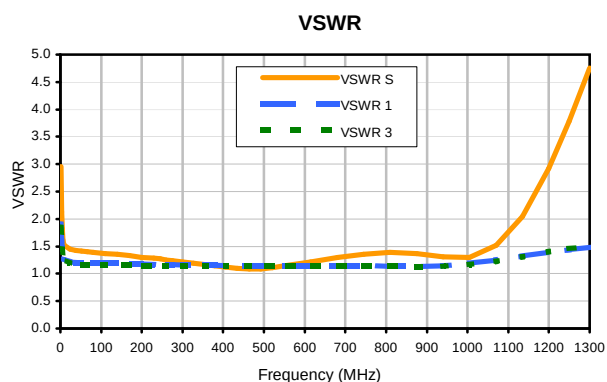
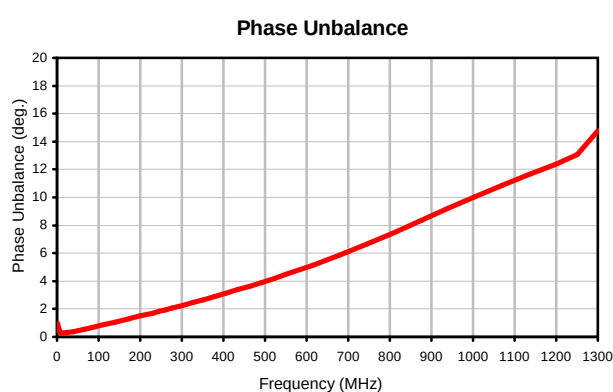
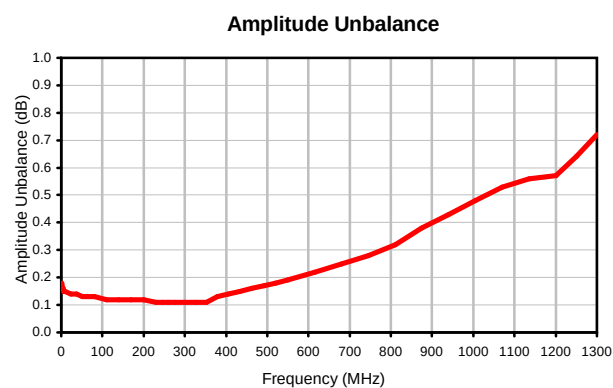
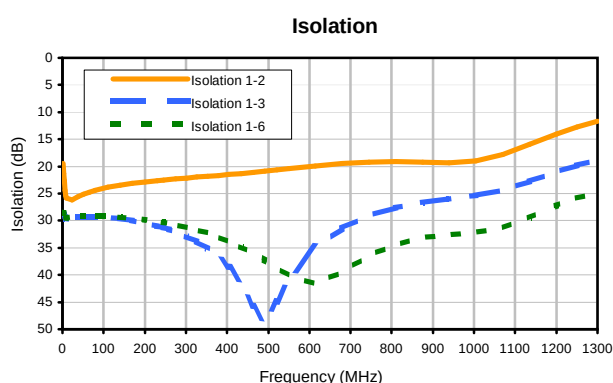
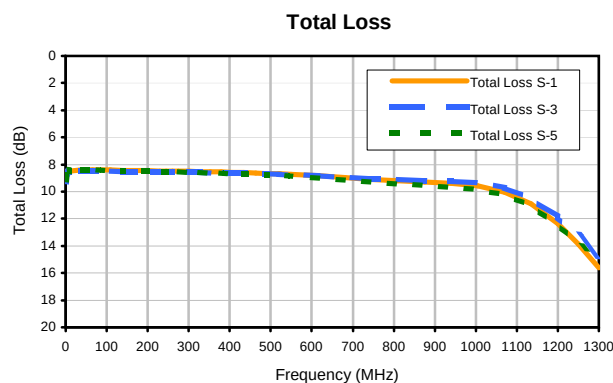
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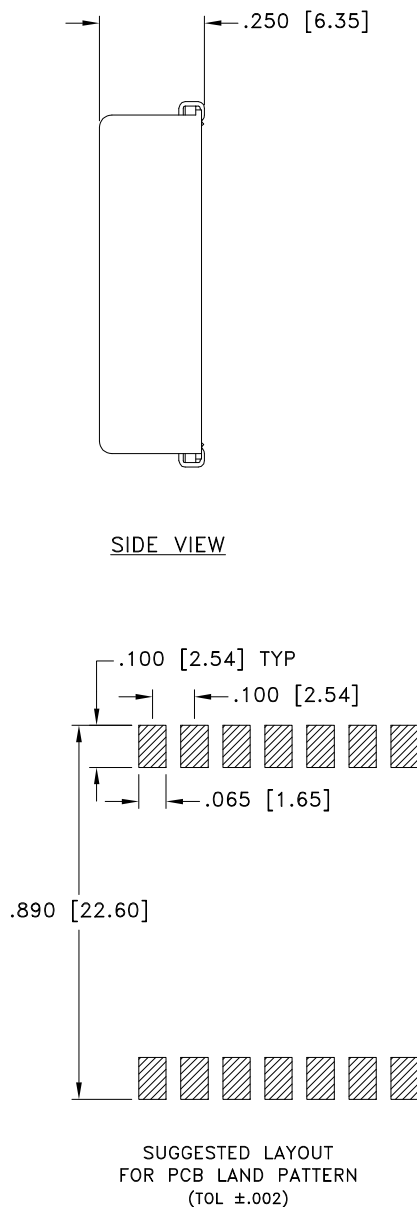
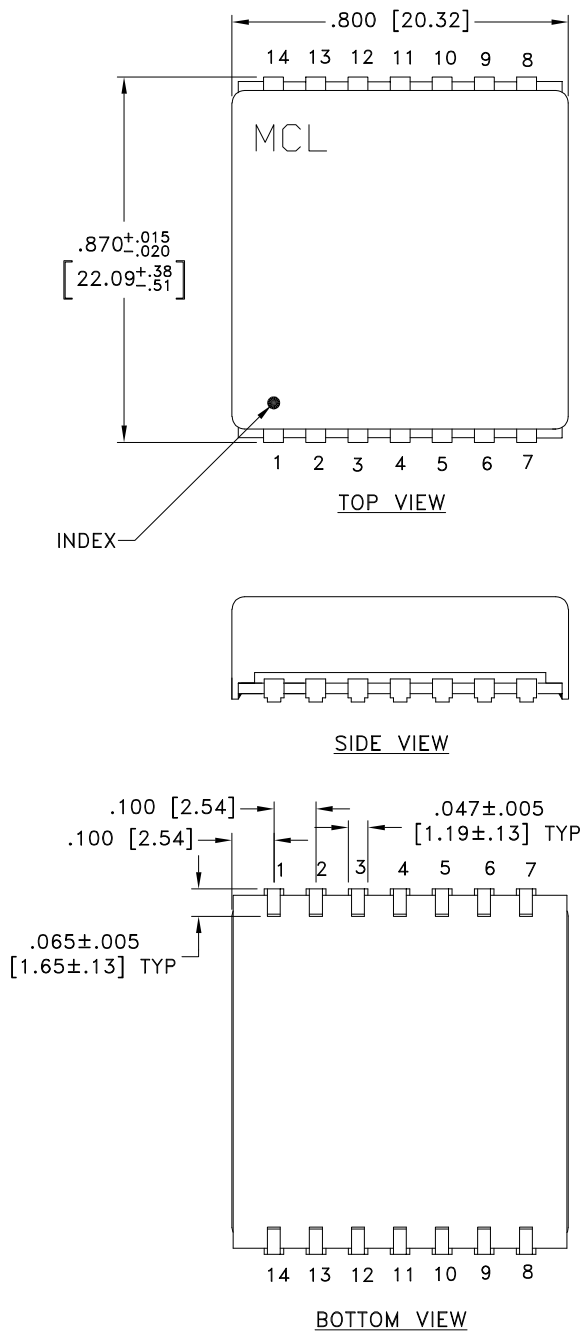


Typical Performance Curves



Outline Dimensions

BG291



 DENOTES METALLIZATION

Weight: 4 gram

Dimensions are in inches[mm]. Tolerances: 2PL $\pm$ 0.03[0.76]; 3 PL $\pm$ 0.015 [0.381] inches[mm], unless otherwise specified

Notes:

1. Case material: Copper-Nickel alloy.
2. Base material: Printed wiring laminate.
3. Termination finish:

For RoHS Case Styles: Tin plate over Nickel plate. All models, (+) suffix.

For RoHS-5 Case Styles: Tin-Lead plate. All models, no (+) suffix.

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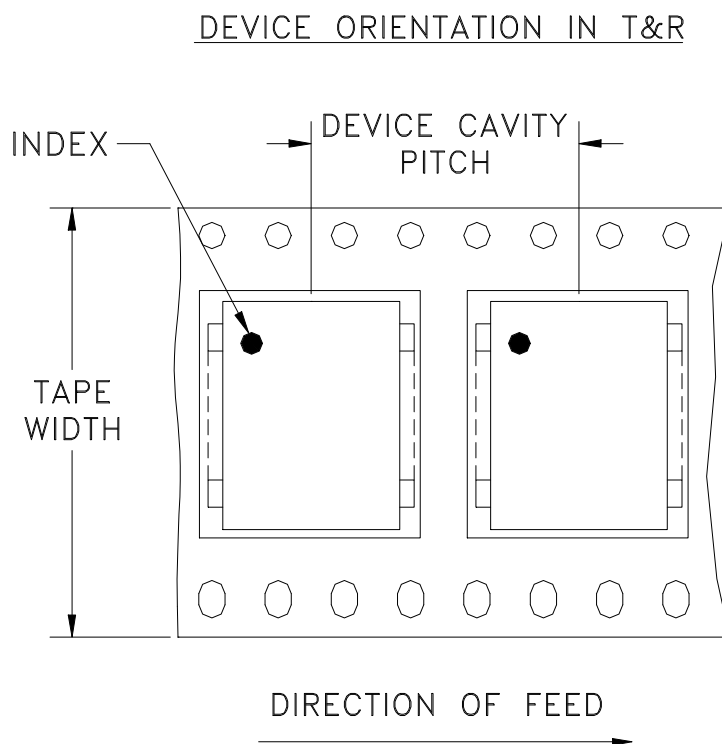
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RF/IF MICROWAVE COMPONENTS

Tape & Reel Packaging TR-F21



Tape Width, mm	Device Cavity Pitch, mm	Reel Size, inches	Devices per Reel
32	32	13	200

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.

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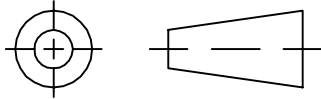
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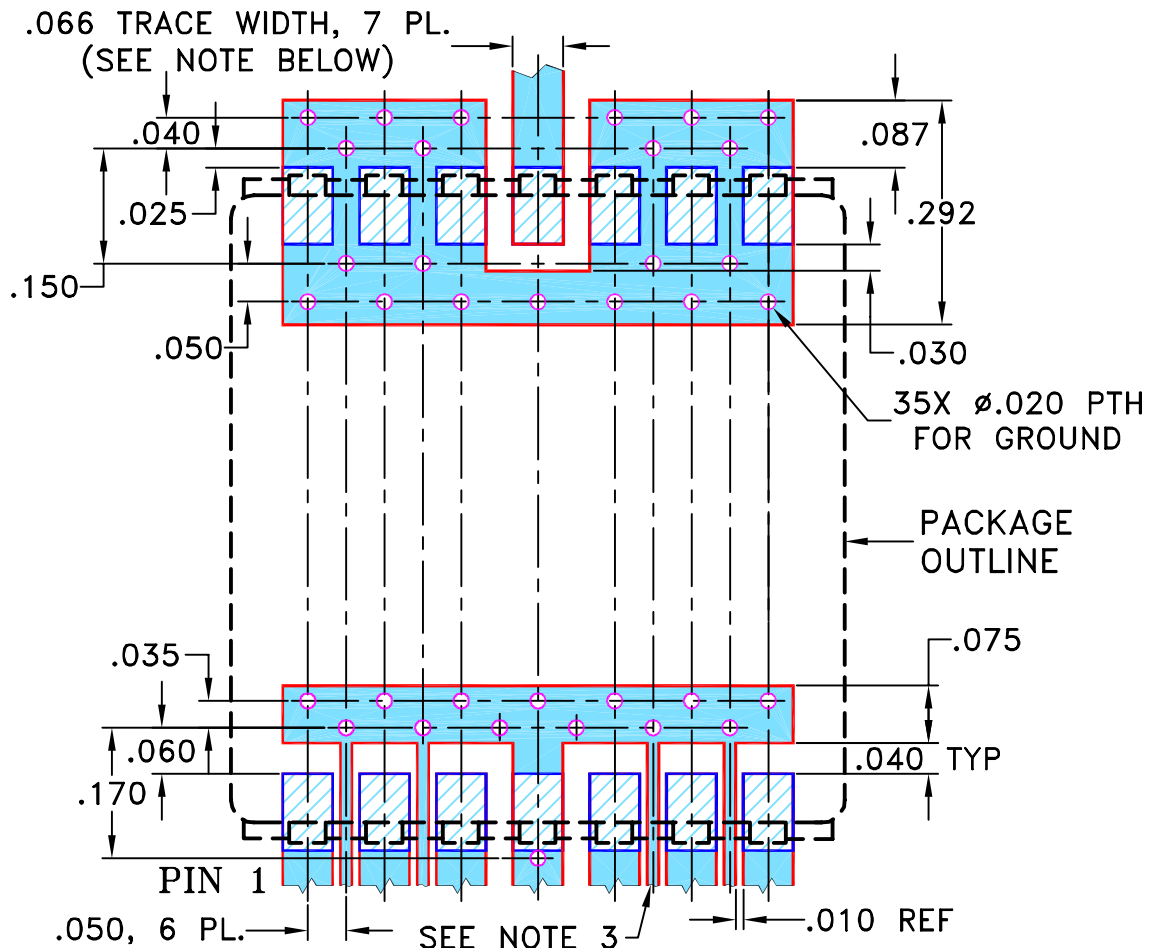
THIRD ANGLE PROJECTION



REVISIONS

REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	M88786	NEW RELEASE	10/06/05	MMG	HY
A	M102713	ADDED "...WITH SMOBC"	01/16/06	GF	IL

SUGGESTED MOUNTING CONFIGURATION FOR BG291 CASE STYLE, "mf" PIN CONNECTION



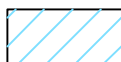
NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS 0.030" ± 0.002"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.

2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

3. IF DESIGN RULES ALLOW, EXTEND GROUND AS SHOWN TO ACHIEVE BETTER ISOLATION.



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

MMG

09/28/05

TOLERANCES ON:
2 PL DECIMALS ±
3 PL DECIMALS ± .005

CHECKED

AV

10/06/05

ANGLES ±
FRACTIONS ±

APPROVED

HY

10/06/05

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PL, mf, BG291, JCPS-6-3, TB-234

SIZE
A

CODE IDENT
15542

DRAWING NO:
98-PL-139

REV:
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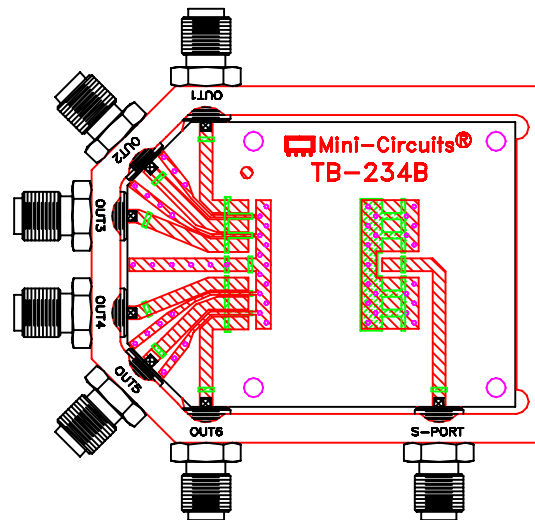
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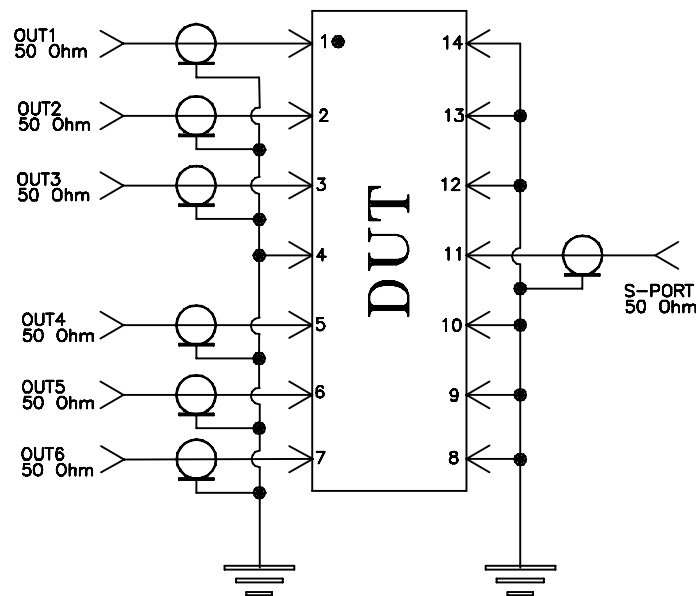
SHEET: 1 OF 1

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

Evaluation Board and Circuit



TB-234



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	-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