Engineering Development Model

Power Splitter/Combiner JCPS-ED7410/1

8 Way-0°

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 75Ω @ +25°C					
Parameter		**Min.**	**Typ.**	**Max.**	**Units**
Frequency		1		1000	MHz
Isolation	**1 - 10 MHz**		37		dB
	10 - 500 MHz		30		dB
	500 - 1000 MHz		23		dB
Insertion Loss Above 9.0 dB	**1 - 10 MHz**		0.87		dB
	10 - 500 MHz		0.96		dB
	500 - 1000 MHz		1.62		dB
Phase Unbalance	**1 - 10 MHz**		0.182		deg.
	10 - 500 MHz		1.052		deg.
	500 - 1000 MHz		5.177		deg.
Amplitude Unbalance	**1 - 10 MHz**		0.023		dB
	10 - 500 MHz		0.121		dB
	500 - 1000 MHz		0.266		dB
VSWR	**SUM Port**		1.26		(:1)
	OUT Ports		1.27		(:1)

Note: Denotes 75 Ohm model, for coax connector models 75 Ohm BNC connectors are standard.

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

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

Functional Diagram

8 Way-0° Power Splitter/Combiner JCPS-ED7410/1

Typical Performance Data

FREQ. (MHz)	TOTAL LOSS[1] (dB)						AMP. UNBAL. (dB)	ISOLATION (dB)				PHASE UNBAL. (deg.)
	S-1	S-2	S-3	S-4	S-6	S-8		1-2	1-8	3-4	6-7	
1.0	10.23	10.25	10.25	10.26	10.29	10.28	0.03	36.20	30.36	39.43	35.94	0.28
2.0	9.98	9.99	9.99	9.99	10.01	10.01	0.03	36.61	32.67	39.11	36.91	0.20
4.0	9.78	9.79	9.79	9.79	9.81	9.81	0.02	37.27	34.38	39.15	37.20	0.17
6.0	9.73	9.73	9.73	9.73	9.75	9.75	0.02	36.99	35.05	38.52	37.21	0.17
8.0	9.71	9.72	9.72	9.72	9.73	9.74	0.02	36.90	35.34	38.14	37.14	0.15
10.0	9.71	9.72	9.72	9.72	9.73	9.74	0.02	36.75	35.52	37.88	37.12	0.12
55.0	9.80	9.80	9.80	9.80	9.80	9.81	0.01	33.25	36.44	33.61	35.01	0.28
100.0	9.85	9.84	9.83	9.83	9.84	9.85	0.03	30.83	36.93	30.89	32.62	0.51
110.0	9.86	9.85	9.84	9.84	9.84	9.85	0.03	30.32	37.12	30.43	32.20	0.51
150.0	9.93	9.91	9.89	9.89	9.90	9.91	0.05	28.64	37.58	28.64	30.43	0.65
190.0	9.94	9.90	9.88	9.88	9.89	9.90	0.07	27.22	38.16	27.11	28.86	0.84
230.0	10.02	9.97	9.95	9.94	9.94	9.96	0.10	26.01	38.86	25.89	27.55	1.04
270.0	10.03	9.96	9.92	9.92	9.92	9.94	0.13	24.89	39.63	24.75	26.32	1.18
310.0	10.12	10.03	9.99	9.98	9.98	10.00	0.17	23.92	40.49	23.79	25.30	1.37
350.0	10.16	10.04	10.00	9.98	9.99	10.01	0.20	22.99	41.34	22.91	24.33	1.53
390.0	10.24	10.11	10.06	10.04	10.04	10.07	0.23	22.18	41.82	22.14	23.46	1.71
430.0	10.31	10.16	10.11	10.08	10.08	10.11	0.25	21.44	41.98	21.52	22.73	1.91
450.0	10.43	10.27	10.21	10.19	10.19	10.22	0.28	21.12	41.76	21.25	22.41	2.03
550.0	10.63	10.44	10.38	10.36	10.34	10.40	0.31	20.01	39.69	20.44	21.19	1.93
650.0	10.78	10.60	10.55	10.53	10.51	10.58	0.28	19.67	36.69	20.47	20.82	4.30
750.0	10.75	10.62	10.61	10.60	10.58	10.67	0.18	19.54	33.36	20.97	21.32	5.47
850.0	10.66	10.62	10.61	10.62	10.62	10.75	0.15	18.45	30.13	20.53	22.60	6.29
900.0	10.55	10.56	10.54	10.57	10.59	10.73	0.19	17.44	28.62	19.61	23.28	6.36
950.0	10.57	10.64	10.60	10.65	10.71	10.89	0.32	16.38	27.47	18.46	23.78	6.19
1000.0	10.60	10.72	10.68	10.73	10.82	11.03	0.43	15.40	26.54	17.34	24.08	5.70

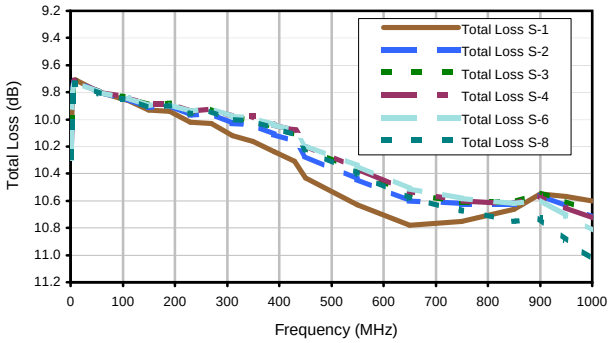
FREQ. (MHz)	VSWR (:1)		
	S	1	8
1.0	1.63	1.54	1.56
2.0	1.51	1.36	1.37
4.0	1.43	1.25	1.25
6.0	1.40	1.21	1.21
8.0	1.38	1.19	1.19
10.0	1.38	1.18	1.19
55.0	1.36	1.18	1.18
100.0	1.33	1.17	1.17
110.0	1.33	1.17	1.17
150.0	1.31	1.18	1.18
190.0	1.27	1.17	1.17
230.0	1.24	1.18	1.18
270.0	1.20	1.19	1.19
310.0	1.16	1.20	1.19
350.0	1.12	1.21	1.20
390.0	1.07	1.23	1.21
430.0	1.06	1.24	1.22
450.0	1.07	1.25	1.23
550.0	1.21	1.30	1.28
650.0	1.33	1.35	1.34
750.0	1.32	1.39	1.40
850.0	1.17	1.38	1.44
900.0	1.06	1.35	1.44
950.0	1.04	1.33	1.45
1000.0	1.17	1.29	1.43

[1]Total Loss = Insertion Loss + 9dB Splitter Loss

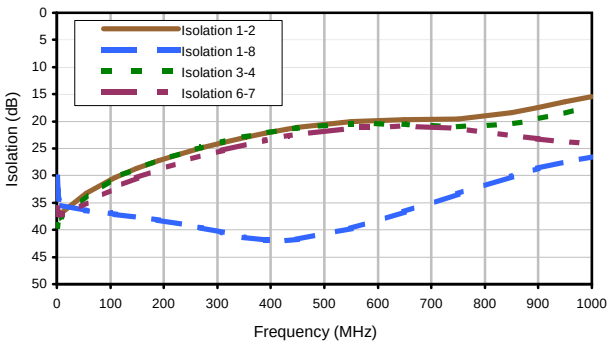
8 Way-0° Power Splitter/Combiner JCPS-ED7410/1

Typical Performance Curves

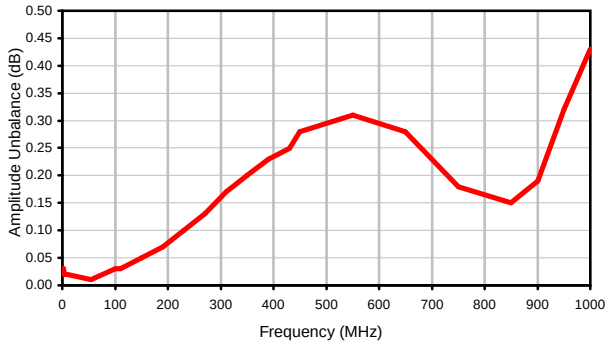
Total Loss



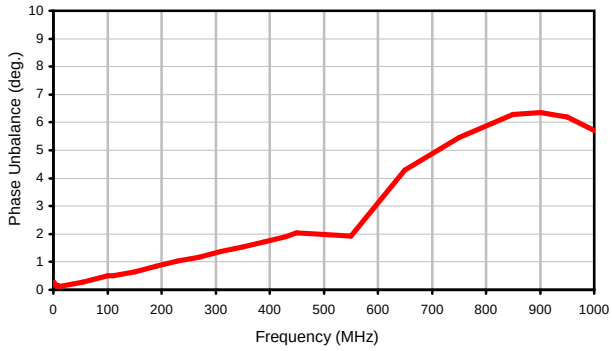
Isolation



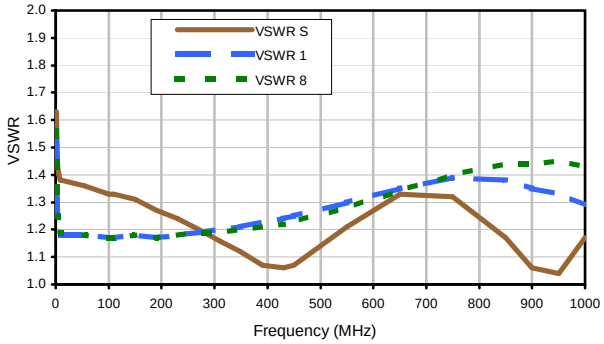
Amplitude Unbalance



Phase Unbalance

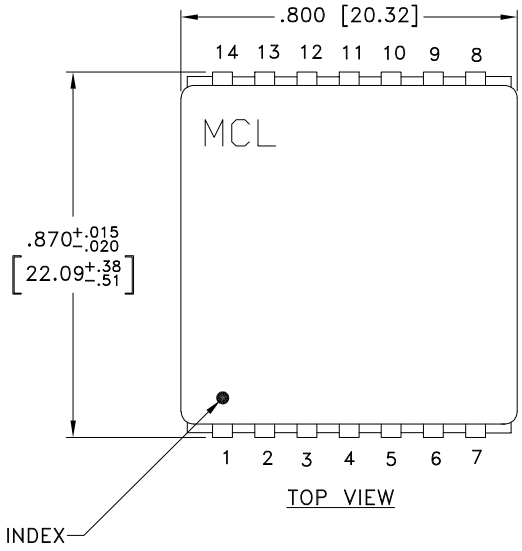


VSWR

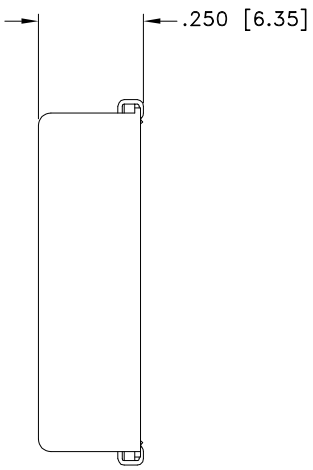


Case Style BG

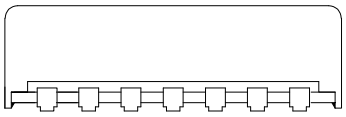
Outline Dimensions BG291



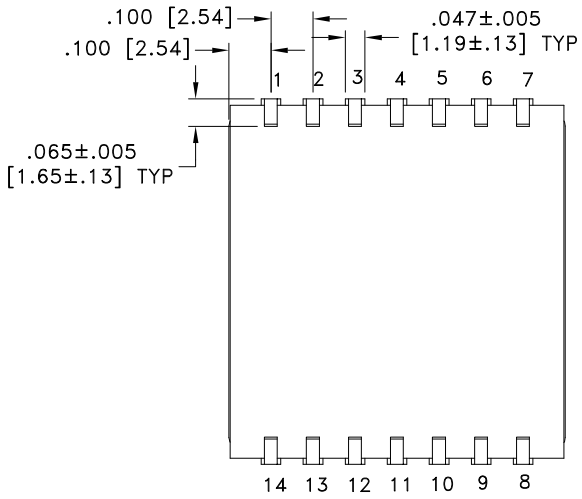
TOP VIEW



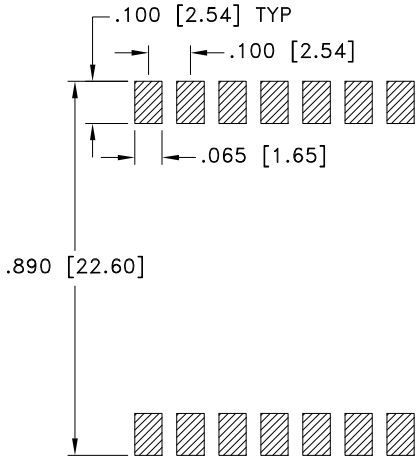
SIDE VIEW



SIDE VIEW



BOTTOM VIEW



SUGGESTED LAYOUT
FOR PCB LAND PATTERN
(TOL ±.002)

DENOTES METALLIZATION

Weight: 4 gram

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

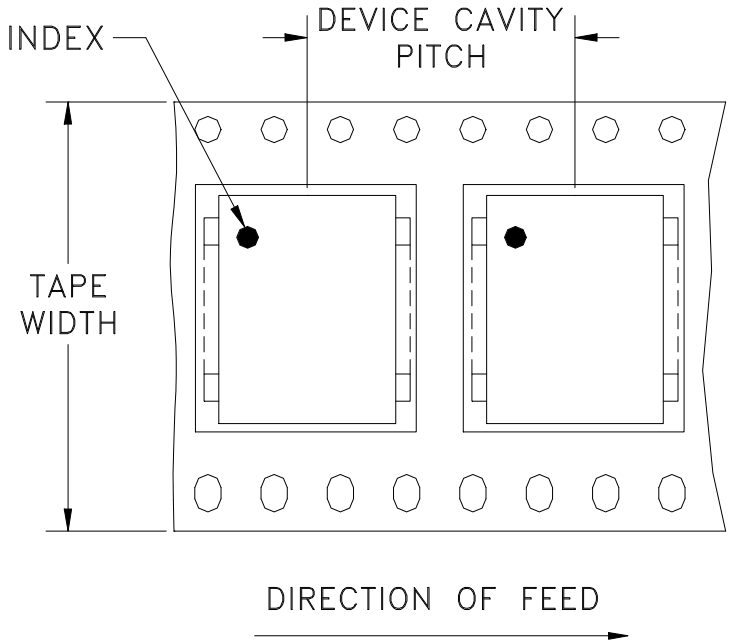
Notes:

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.

Tape & Reel Packaging TR-F21

DEVICE ORIENTATION IN T&R



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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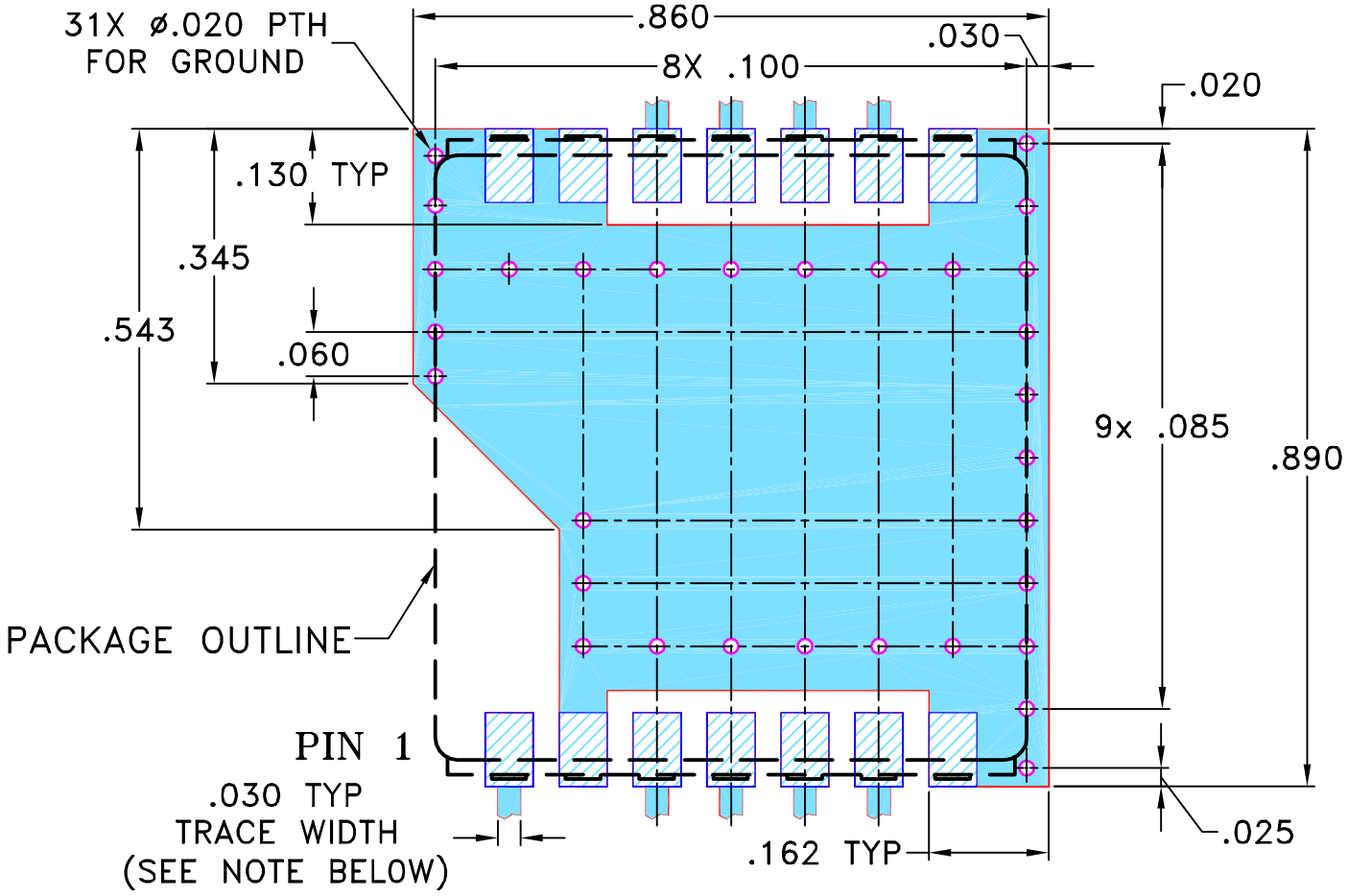
THIRD ANGLE PROJECTION

REVISIONS					
REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	M82272	NEW RELEASE	08/05/02	MMG	DJ
A	M102713	UPDATED NOTES	01/14/06	GF	IL

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



NOTES: 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	MMG	07/18/02
TOLERANCES ON:	CHECKED	HY	08/01/02
2 PL DECIMALS ±	APPROVED	DJ	08/05/02
3 PL DECIMALS ± .005			
ANGLES ±			
FRACTIONS ±			

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

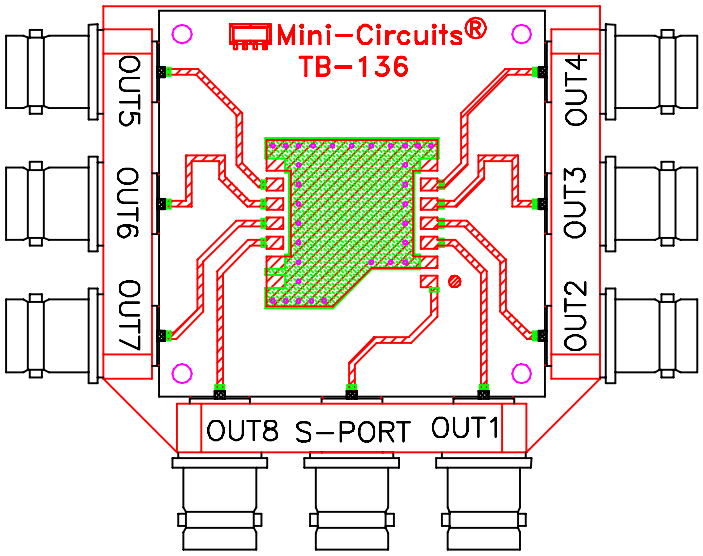
Mini-Circuits® 13 Neptune Avenue Brooklyn NY 11235

PL, hn, 75, BG291, JCPS, TB-136

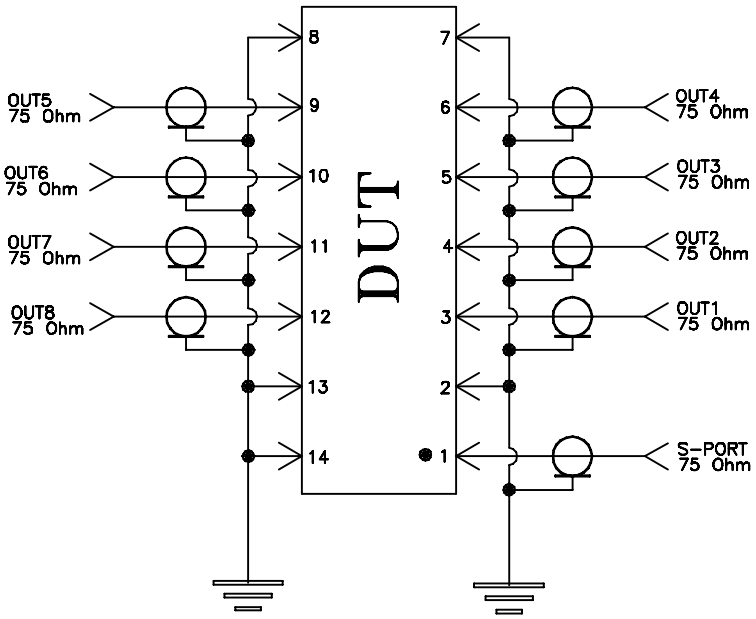
SIZE	CODE IDENT	DRAWING NO:	REV:
A	15542	98-PL-074	A

FILE:	SCALE:	SHEET:
98PL074	4:1	1 OF 1

Evaluation Board and Circuit



TB-136



Schematic Diagram

Notes:

1. 75 Ohm BNC Female connectors.
2. PCB Material: Rogers RO4350 or equivalent, Dielectric Constant=3.5, Thickness=.030 inch.

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Environmental Specifications ENV02T1

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