

Engineering Development Model

Power Splitter/Combiner

SCPJ-ED7311/2

2 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 : YY161

ELECTRICAL SPECIFICATIONS 75Ω @ +25°C				
Parameter		Min.	Typ.	Max. Units
Frequency		15		860 MHz
Isolation	15 - 150 MHz		25	dB
	150 - 430 MHz		26	dB
	430 - 860 MHz		22	dB
Insertion Loss Above 3.0 dB	15 - 150 MHz		1.00	dB
	150 - 430 MHz		1.50	dB
	430 - 860 MHz		1.32	dB
Phase Unbalance	15 - 150 MHz		0.240	deg.
	150 - 430 MHz		0.807	deg.
	430 - 860 MHz		0.132	deg.
Amplitude Unbalance	15 - 150 MHz		0.711	dB
	150 - 430 MHz		0.520	dB
	430 - 860 MHz		0.257	dB
VSWR	SUM Port		1.20	(:1)
	OUT Ports		1.35	(:1)

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

PIN CONNECTIONS	
SUM PORT	1
PORT 1	5
PORT 2	6
GND EXT	2, 3, 4, 7, 8
CASE GND	2, 3, 4, 7, 8

Functional Diagram



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Typical Performance Data

FREQ. (MHz)	TOTAL LOSS ¹ (dB)		AMP. UNBAL. (dB)	ISOLATION (dB)	PHASE UNBAL. (deg.)	FREQ. (MHz)	VSWR (:1)		
	S-1	S-2					S	1	2
1.0	5.29	3.83	1.46	17.88	175.09	1.0	1.53	2.45	1.74
15.0	4.12	3.40	0.72	24.00	180.90	15.0	1.14	1.46	1.25
20.0	4.12	3.40	0.72	24.13	180.55	20.0	1.14	1.45	1.24
25.0	4.12	3.41	0.72	24.21	180.48	25.0	1.13	1.44	1.24
30.0	4.13	3.42	0.71	24.29	180.33	30.0	1.13	1.44	1.23
32.0	4.13	3.42	0.71	24.29	180.27	32.0	1.13	1.43	1.23
34.0	4.13	3.40	0.73	24.32	180.27	34.0	1.13	1.43	1.23
36.0	4.14	3.42	0.72	24.34	180.25	36.0	1.13	1.43	1.23
38.0	4.14	3.42	0.72	24.37	180.16	38.0	1.13	1.43	1.23
40.0	4.13	3.42	0.71	24.38	180.16	40.0	1.13	1.43	1.23
42.0	4.13	3.42	0.71	24.41	180.12	42.0	1.13	1.43	1.23
44.0	4.14	3.43	0.71	24.44	180.16	44.0	1.13	1.43	1.23
46.0	4.13	3.44	0.70	24.45	180.09	46.0	1.13	1.43	1.23
48.0	4.14	3.42	0.72	24.49	180.11	48.0	1.13	1.43	1.23
50.0	4.14	3.43	0.70	24.50	180.09	50.0	1.13	1.42	1.22
131.0	4.17	3.50	0.67	25.31	179.66	131.0	1.15	1.39	1.21
212.0	4.19	3.57	0.61	26.53	179.39	212.0	1.20	1.37	1.21
293.0	4.19	3.65	0.53	28.01	179.23	293.0	1.20	1.35	1.20
374.0	4.17	3.75	0.42	29.04	178.96	374.0	1.17	1.29	1.16
455.0	4.18	3.88	0.30	27.66	178.77	455.0	1.10	1.20	1.10
536.0	4.18	4.03	0.15	24.95	178.55	536.0	1.03	1.13	1.06
617.0	4.24	4.26	0.02	22.63	178.52	617.0	1.12	1.09	1.06
698.0	4.29	4.48	0.19	21.06	181.25	698.0	1.19	1.05	1.09
779.0	4.33	4.68	0.36	20.32	181.19	779.0	1.23	1.03	1.11
860.0	4.38	4.90	0.52	20.39	180.93	860.0	1.20	1.06	1.09
894.0	4.42	5.01	0.59	20.69	180.81	894.0	1.16	1.09	1.08
928.0	4.46	5.09	0.63	21.09	180.69	928.0	1.10	1.11	1.07
962.0	4.50	5.22	0.71	21.61	180.54	962.0	1.09	1.12	1.07
996.0	4.55	5.33	0.78	22.08	180.34	996.0	1.09	1.14	1.07
1030.0	4.60	5.46	0.86	22.25	179.97	1030.0	1.12	1.16	1.09
1064.0	4.70	5.59	0.89	21.90	179.71	1064.0	1.21	1.18	1.10
1098.0	4.80	5.78	0.98	20.99	179.50	1098.0	1.29	1.20	1.12
1132.0	4.92	5.95	1.03	19.66	179.08	1132.0	1.36	1.23	1.14
1166.0	5.04	6.14	1.09	18.18	178.65	1166.0	1.45	1.27	1.17
1200.0	5.20	6.34	1.14	16.71	178.14	1200.0	1.53	1.30	1.19

¹Total Loss = Insertion Loss + 3dB Splitter Loss

REV. X2

SCPJ-ED7311/2

100714

Page 1 of 1



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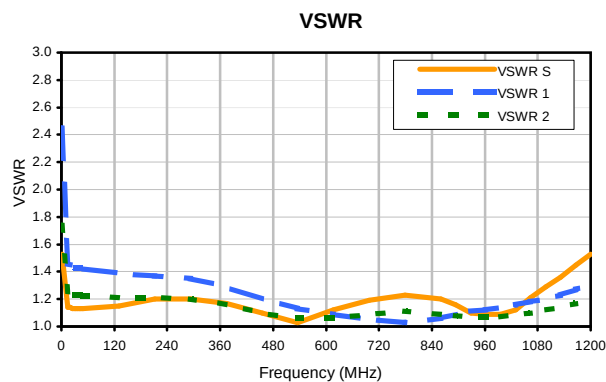
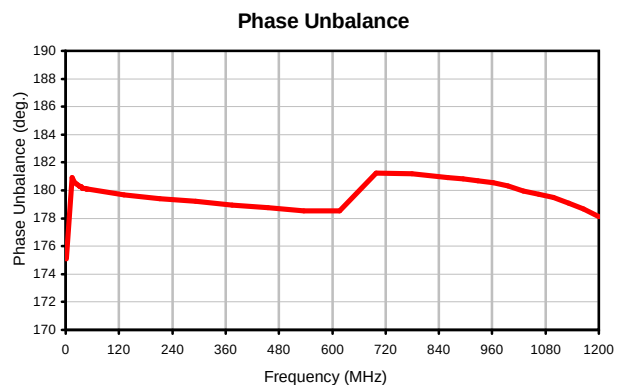
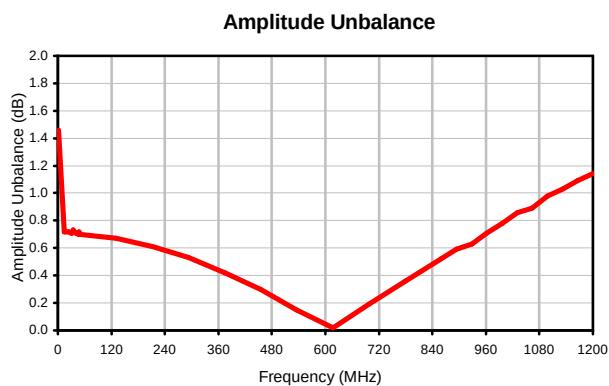
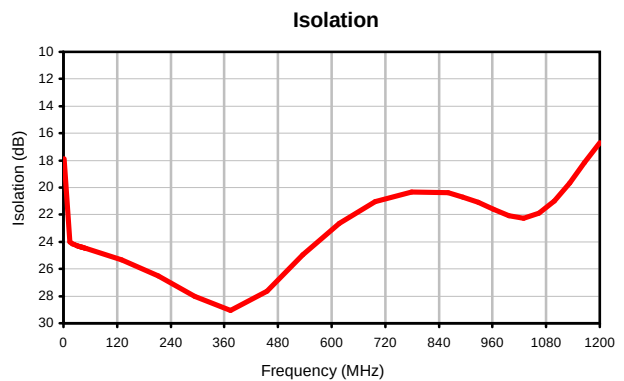
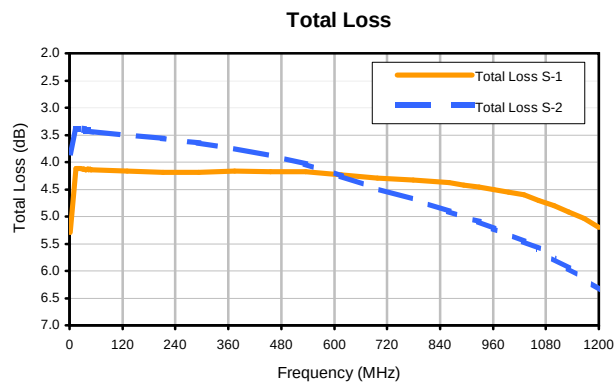
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Typical Performance Curves



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SCPJ-ED7311/2
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Page 1 of 1



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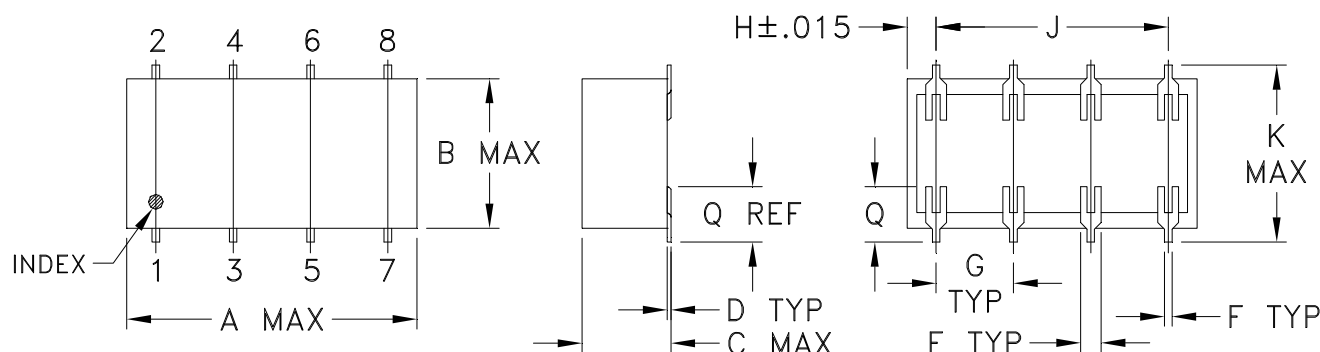


Case Style

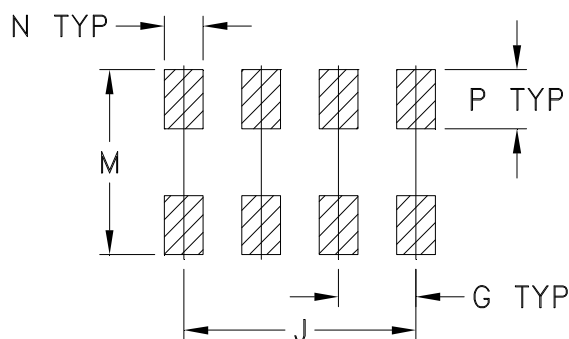
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Outline Dimensions

YY101
YY109
YY161



PCB Land Pattern



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

CASE#	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	WT. GRAM S
YY101*			.20 (5.08)							.450 (11.43)	--	.470 (11.94)				1.6
YY109*	.75 (19.05)	.38 (9.65)	.20 (5.08)	.010 (0.25)	.050 (1.27)	.020 (0.51)	.200 (5.08)	.075 (1.91)	.600 (15.24)	.720 (18.29)	--	.740 (18.80)	.100 (2.54)	.150 (3.81)	.148 (3.76)	1.6
YY161			.28 (7.11)							.450 (11.43)	--	.470 (11.94)				1.6

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.
For RoHS-5 Case Styles: Tin-Lead plate.
- Special Tolerances: Termination thickness $\pm .003$ inch.
- * Denotes: For SCM mixers, long termination version (case YY109) is available upon request, consult factory. To order short termination version (case YY101) add -NL suffix.



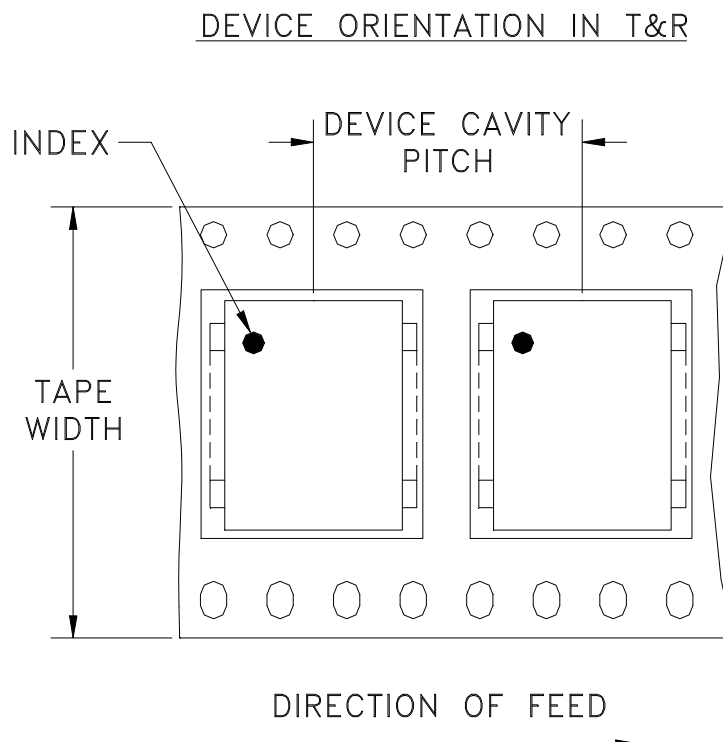
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Tape Width, mm	Device Cavity Pitch, mm	Reel Size, inches	Devices per Reel
32	16	13	500

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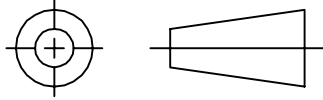
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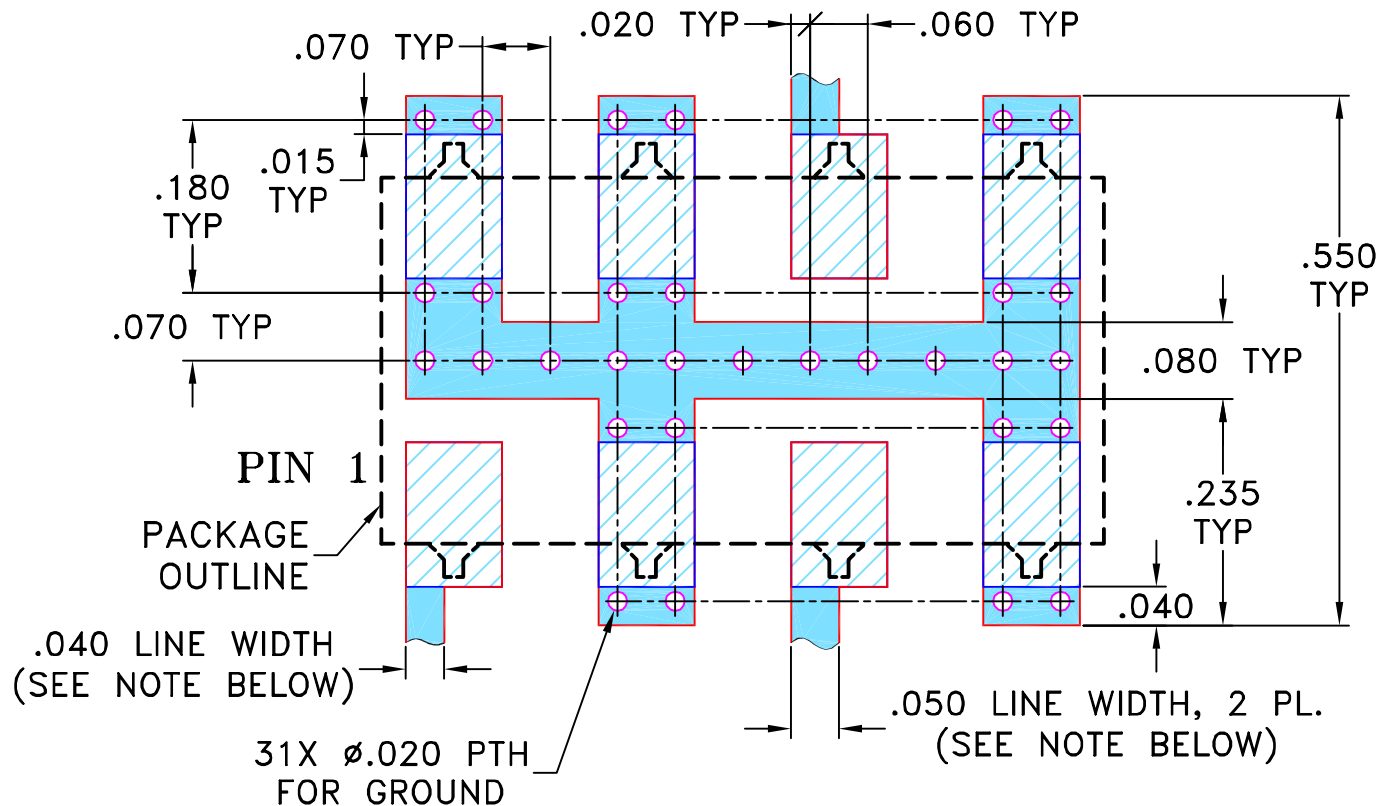
THIRD ANGLE PROJECTION



REVISIONS

REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	M82799	NEW RELEASE	01/15/03	MMG	HY
A	M91639	REMOVED NOTE 2, UPDATED DIMENSIONS	04/14/04	AV	DJ
B	M102713	ADDED "...WITH SMOBC"	01/16/06	GF	IL

SUGGESTED MOUNTING CONFIGURATION
FOR YY161 CASE STYLE, "az" PIN CONNECTION.



NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS $0.060" \pm 0.004"$; 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

01/06/03

TOLERANCES ON:

CHECKED

AV

01/09/03

2 PL DECIMALS $\pm$

APPROVED

HY

01/15/03

3 PL DECIMALS $\pm$.005

ANGLES $\pm$

FRACTIONS $\pm$

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PL, az, 75, YY161, SCPJ, TB-228

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A

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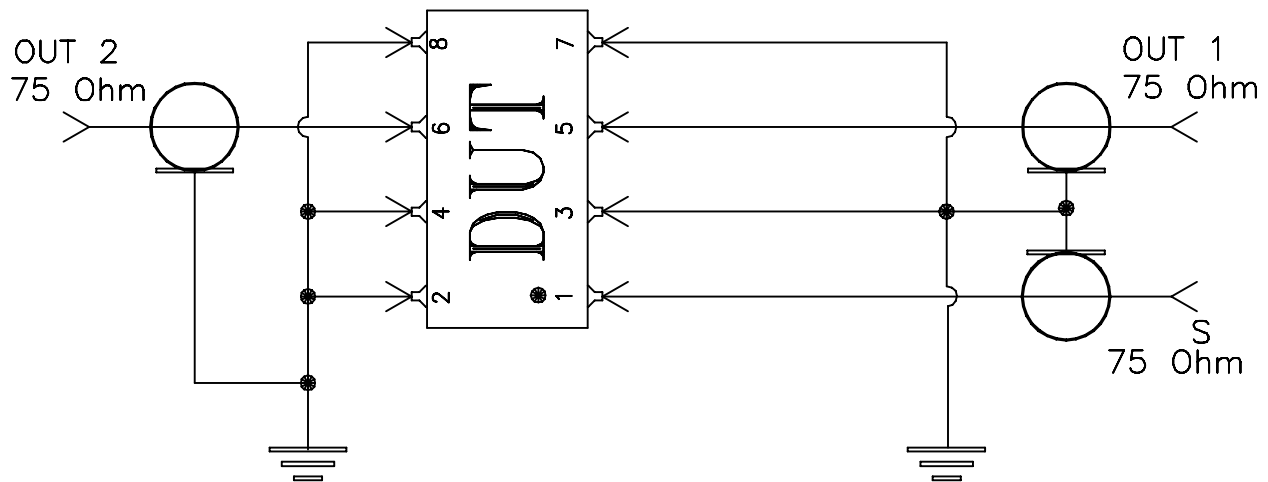
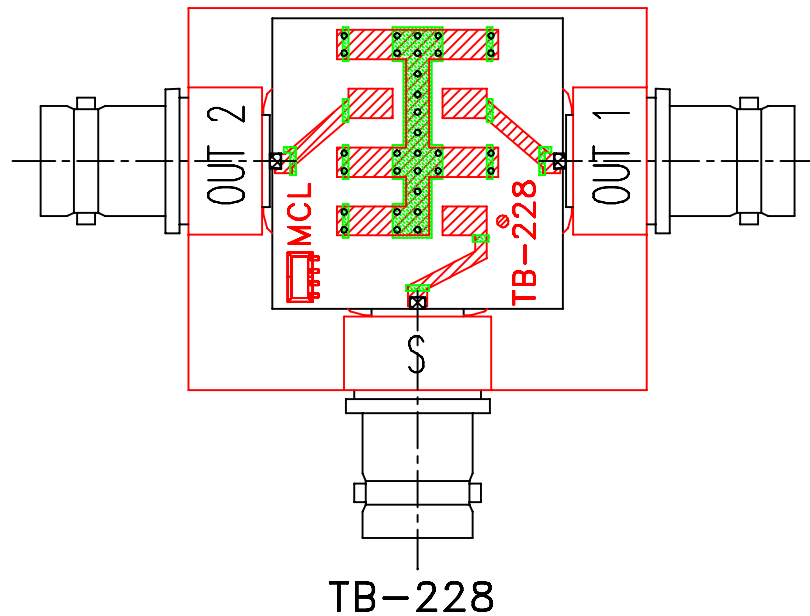
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Evaluation Board and Circuit



Schematic Diagram

Notes:

1. BNS Female connectors.
2. PCB Material: Rogers R04350 or equivalent,
Dielectric Constant=3.5, Thickness=.060 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