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

2 Way-0° Power Splitter/Combiner SCPJ-ED7311/2

Typical Performance Data

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

FREQ. (MHz)	VSWR (:1) S	VSWR (:1) 1	VSWR (:1) 2
1.0	1.53	2.45	1.74
15.0	1.14	1.46	1.25
20.0	1.14	1.45	1.24
25.0	1.13	1.44	1.24
30.0	1.13	1.44	1.23
32.0	1.13	1.43	1.23
34.0	1.13	1.43	1.23
36.0	1.13	1.43	1.23
38.0	1.13	1.43	1.23
40.0	1.13	1.43	1.23
42.0	1.13	1.43	1.23
44.0	1.13	1.43	1.23
46.0	1.13	1.43	1.23
48.0	1.13	1.43	1.23
50.0	1.13	1.42	1.22
131.0	1.15	1.39	1.21
212.0	1.20	1.37	1.21
293.0	1.20	1.35	1.20
374.0	1.17	1.29	1.16
455.0	1.10	1.20	1.10
536.0	1.03	1.13	1.06
617.0	1.12	1.09	1.06
698.0	1.19	1.05	1.09
779.0	1.23	1.03	1.11
860.0	1.20	1.06	1.09
894.0	1.16	1.09	1.08
928.0	1.10	1.11	1.07
962.0	1.09	1.12	1.07
996.0	1.09	1.14	1.07
1030.0	1.12	1.16	1.09
1064.0	1.21	1.18	1.10
1098.0	1.29	1.20	1.12
1132.0	1.36	1.23	1.14
1166.0	1.45	1.27	1.17
1200.0	1.53	1.30	1.19

[1]Total Loss = Insertion Loss + 3dB Splitter Loss

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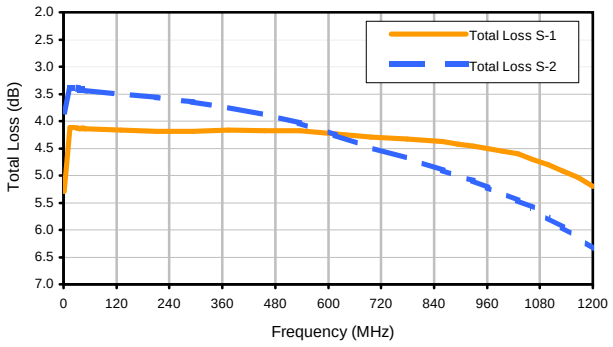
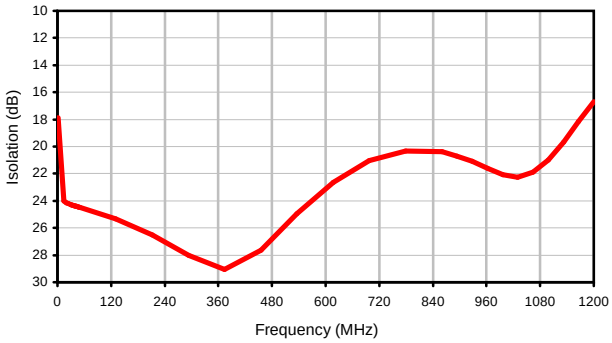
2 Way-0° Power Splitter/Combiner SCPJ-ED7311/2

Typical Performance Curves

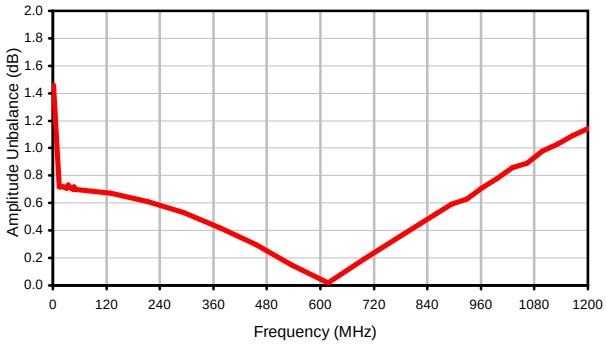
Total Loss



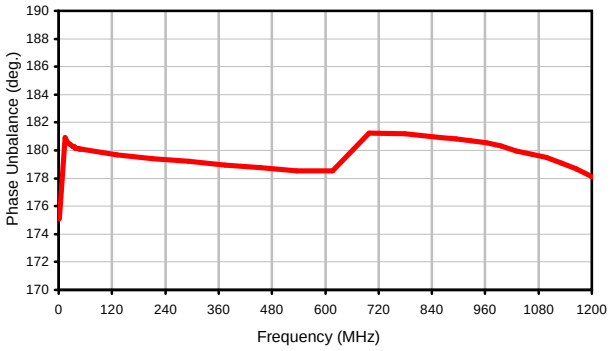
Isolation



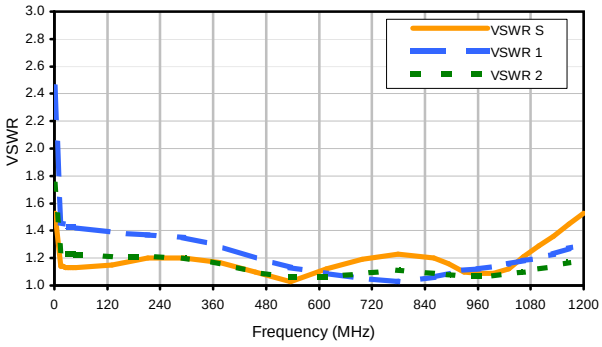
Amplitude Unbalance



Phase Unbalance



VSWR



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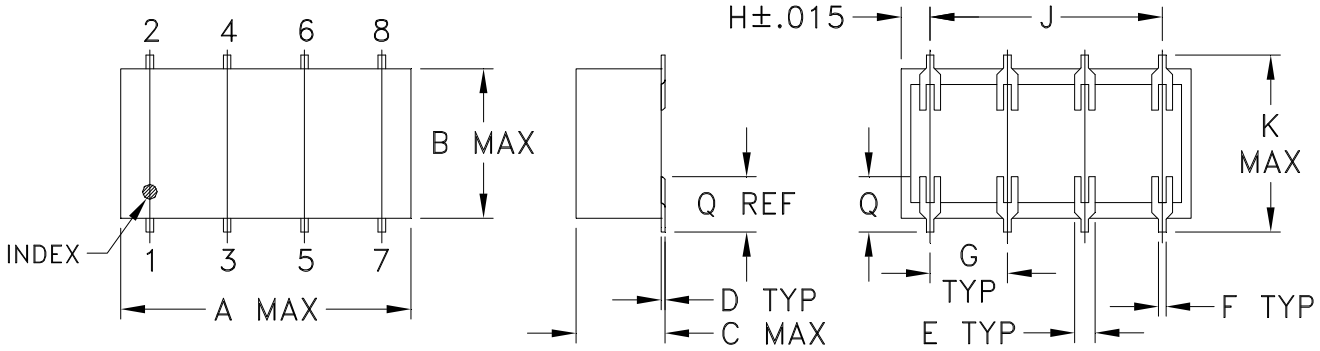
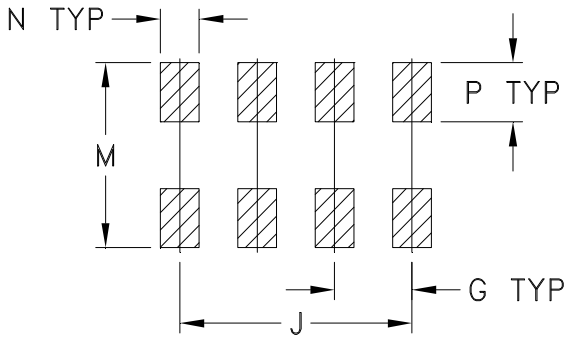
Case Style YY

Outline Dimensions

YY101
YY109
YY161



PCB Land Pattern



Suggested Layout
Tolerance to be within ±.002

CASE#	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	WT. GRAMS
YY101*	.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)	.450 (11.43)	-- --	.470 (11.94)	.100 (2.54)	.150 (3.81)	.148 (3.76)	1.6
YY109*			.20 (5.08)							.720 (18.29)	-- --	.740 (18.80)				1.6
YY161			.28 (7.11)							.450 (11.43)	-- --	.470 (11.94)				1.6

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

Notes:

1. Case material: Plastic.
2. Termination finish:
   For RoHS Case Styles: Tin plate over Nickel plate.
   For RoHS-5 Case Styles: Tin-Lead plate.
3. Special Tolerances: Termination thickness ± .003 inch.
4. * 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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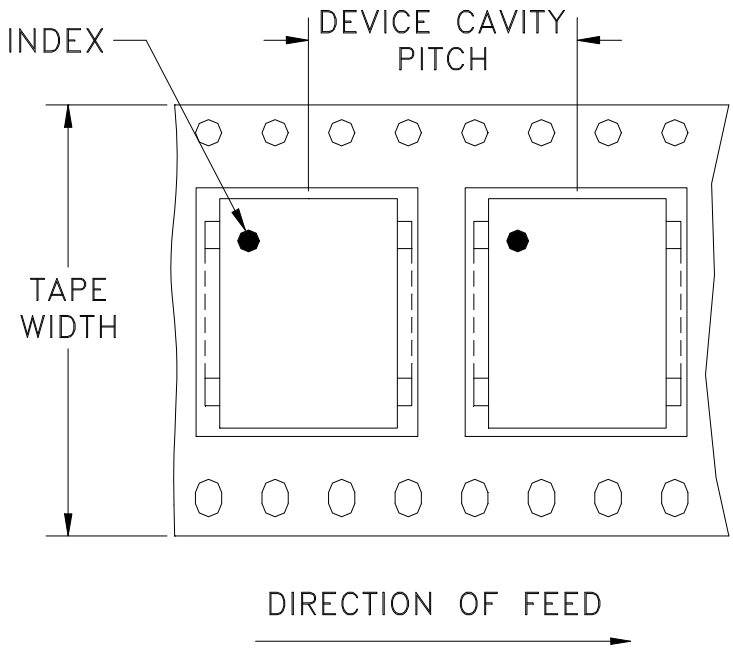
Tape & Reel Packaging TR-F5

DEVICE ORIENTATION IN T&R



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

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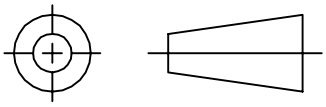
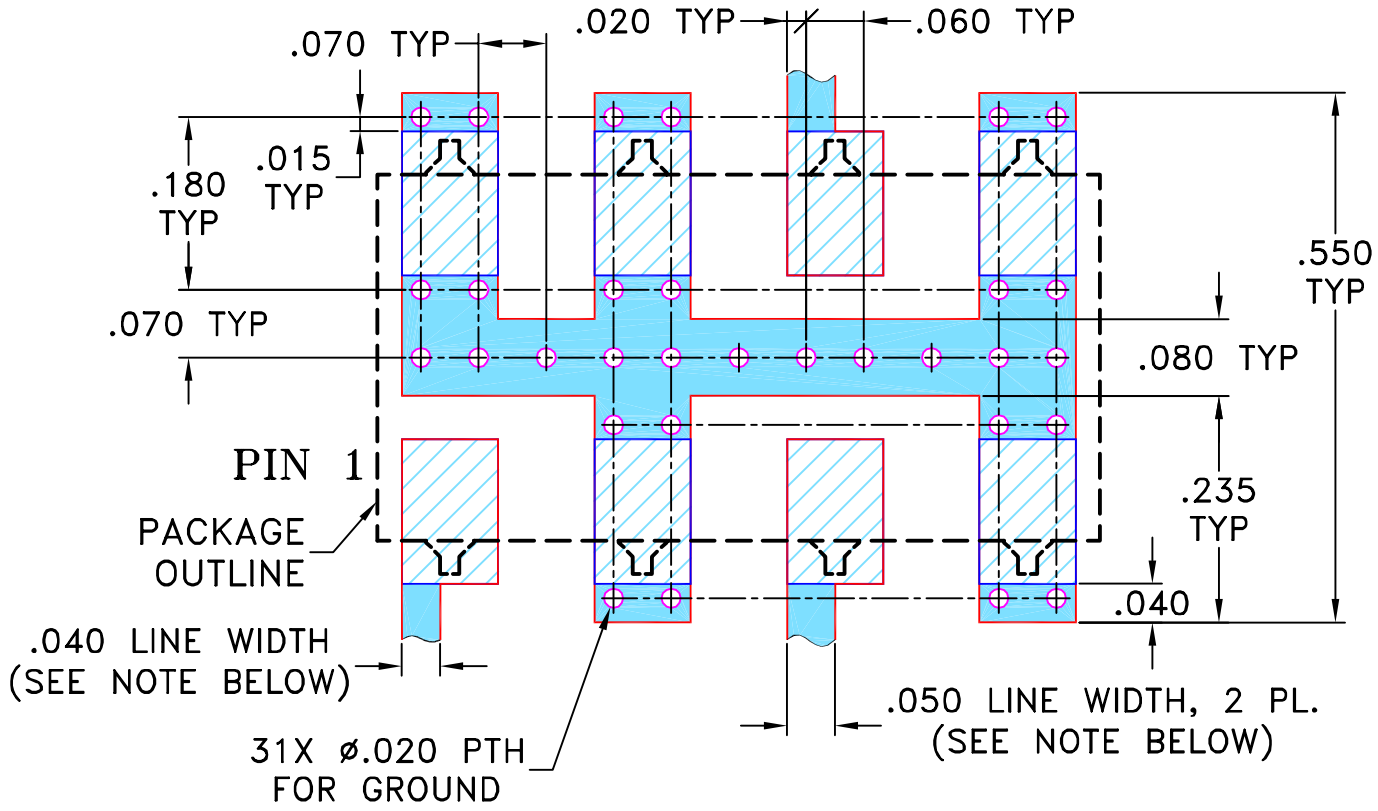
THIRD ANGLE PROJECTION



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" ± 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 ±	APPROVED	HY	01/15/03
3 PL DECIMALS ± .005			
ANGLES ±			
FRACTIONS ±			

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

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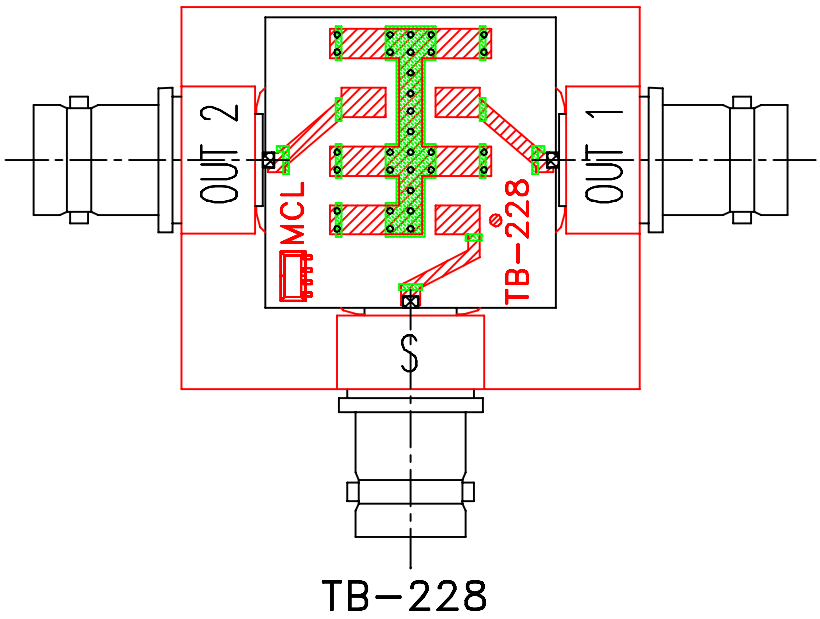
PL, az, 75, YY161, SCPJ, TB-228

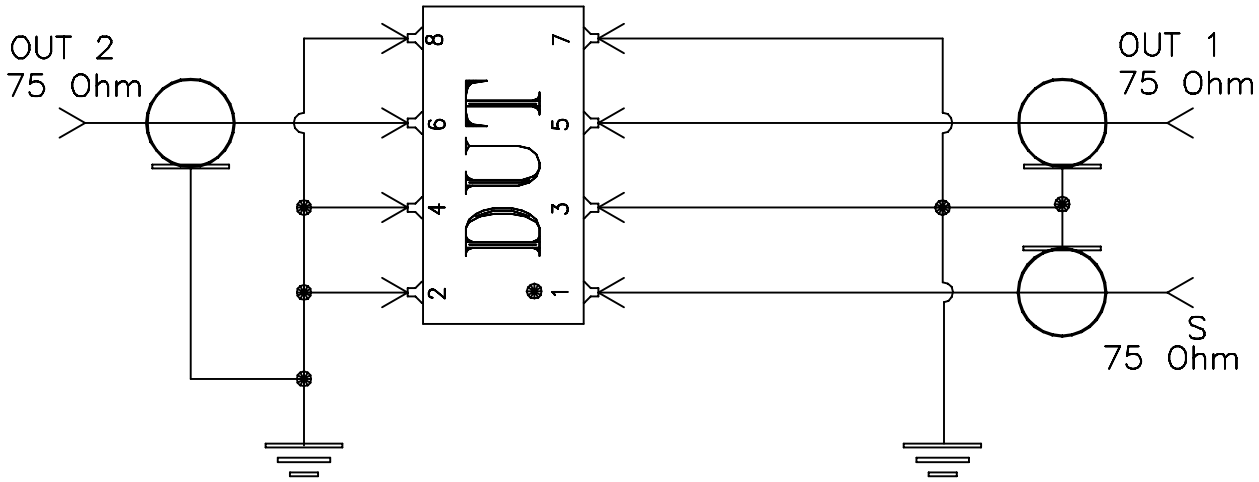
SIZE	CODE IDENT	DRAWING NO:	REV:
A	15542	98-PL-121	B

FILE:	SCALE:	SHEET:
98PL121	5:1	1 OF 1

Evaluation Board and Circuit



TB-228



Schematic Diagram

Notes:

1. BNS Female connectors.
2. PCB Material: Rogers RO4350 or equivalent, Dielectric Constant=3.5, Thickness=.060 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

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