

Surface Mount Power Splitter/Combiner

16 Way-0° 50Ω 5 to 1000 MHz

JEPS-16-1W+

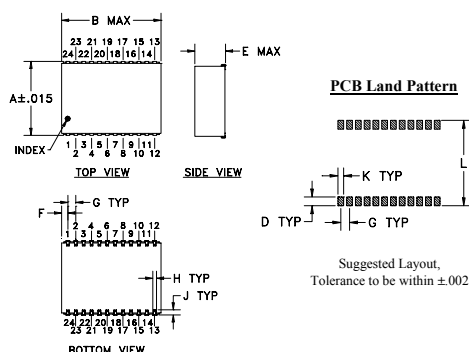
Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
Power Input (as a splitter)	0.5W max.
Internal Dissipation	1.875W max.
Permanent damage may occur if any of these limits are exceeded.	

Pin Connections

SUM PORT	18	PORT 9	13
PORT 1	2	PORT 10	14
PORT 2	3	PORT 11	15
PORT 3	4	PORT 12	16
PORT 4	5	PORT 13	20
PORT 5	9	PORT 14	21
PORT 6	10	PORT 15	22
PORT 7	11	PORT 16	23
PORT 8	12	GROUND	1,6,7,8,17,19,24

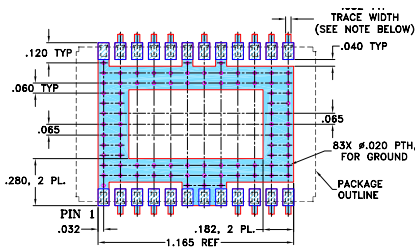
Outline Drawing



Outline Dimensions (inch/mm)

A	B	C	D	E	F
.940	1.426	--	.100	.250	.163
23.88	36.22	--	2.54	6.35	4.14
G	H	J	K	L	wt
.100	.047	.065	.065	.970	grams
2.54	1.19	1.65	1.65	24.64	6.4

Demo Board MCL P/N: TB-135 Suggested PCB Layout (PL-090)



- 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.
3. DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
4. DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

Notes

- A. 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.
- B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- C. The parts covered by this specification document are subject to Mini-Circuit's 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-Circuit's website at www.minicircuits.com/MCLStore/terms.jsp

Features

- wideband, 5 to 1000 MHz
- good VSWR, 1.2 typ.
- good isolation, 23 dB typ.
- shielded metal case
- J-leads for good solderability and strain relief
- aqueous washable
- protected by U.S. Patent 6,963,255

Applications

- clock distribution
- cellular

Electrical Specifications

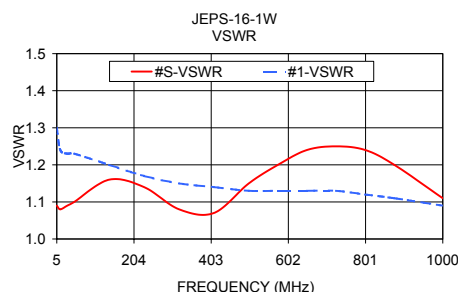
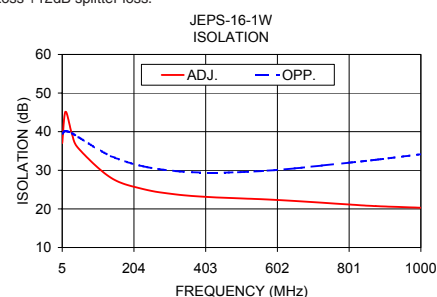
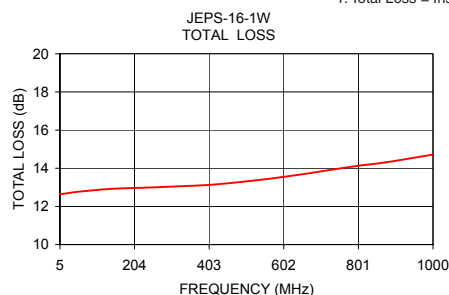
FREQ. RANGE (MHz)	ISOLATION (dB)						INSERTION LOSS (dB) ABOVE 12 dB						PHASE UNBALANCE (Degrees)			AMPLITUDE UNBALANCE (dB)			VSWR (:1)	
	L		M		U		L		M		U		L	M	U	L	M	U	S	OUT
	Typ.	Min	Typ.	Min	Typ.	Min	Typ.	Max.	Typ.	Max.	Typ.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Typ.	Typ.
f _L -f _U	36	23	23	17	20	15	0.8	2.0	1.5	2.5	3.0	4.2	8	13	20	1.5	1.2	1.8	1.2	1.2

L = low range [f_L to $10 f_L$] M = mid range [$10 f_L$ to $f_U/2$] U = upper range [$f_U/2$ to f_U]

Typical Performance Data

Freq. (MHz)	Total Loss ¹ (dB)	Amplitude Unbalance (dB)	Isolation (dB)		Phase Unbalance (deg.)	VSWR S	VSWR OUT
			Adjacent	Opposite			
5.00	12.65	0.71	37.04	39.47	1.56	1.09	1.30
14.00	12.66	0.66	45.14	40.14	0.51	1.08	1.24
32.00	12.71	0.63	39.39	39.61	0.34	1.09	1.23
50.00	12.76	0.64	35.69	38.58	0.71	1.10	1.23
140.00	12.92	0.64	28.07	33.68	2.06	1.16	1.20
230.00	12.98	0.70	25.13	31.03	2.97	1.14	1.17
320.00	13.05	0.77	23.75	29.80	3.41	1.08	1.15
410.00	13.14	0.74	23.08	29.39	4.59	1.07	1.14
500.00	13.31	0.58	22.73	29.52	5.75	1.15	1.13
575.00	13.48	0.37	22.43	29.92	6.57	1.20	1.13
650.00	13.68	0.42	22.06	30.50	7.25	1.24	1.13
725.00	13.91	0.54	21.62	31.22	7.63	1.25	1.13
800.00	14.13	0.61	21.14	31.98	7.58	1.24	1.12
875.00	14.31	0.63	20.72	32.72	9.11	1.20	1.11
1000.00	14.72	0.55	20.30	34.16	11.29	1.11	1.09

1. Total Loss = Insertion Loss + 12dB splitter loss.



electrical schematic



16 Way-0° Power Splitter/Combiner

JEPS-16-1W+

Typical Performance Data

FREQ. (MHz)	TOTAL LOSS ¹ (dB)	AMP. UNBAL. (dB)	ISOLATION (dB)		PHASE UNBAL. (deg.)	FREQ. (MHz)	VSWR (:1)	
			Adjacent	Opposite			S	OUTPUTS
5.0	12.65	0.71	37.04	39.47	1.56	5.0	1.09	1.30
14.0	12.66	0.66	45.14	40.14	0.51	14.0	1.08	1.24
23.0	12.69	0.64	42.37	40.00	0.50	23.0	1.08	1.23
32.0	12.71	0.63	39.39	39.61	0.34	32.0	1.09	1.23
41.0	12.73	0.64	37.26	39.15	0.55	41.0	1.10	1.23
50.0	12.76	0.64	35.69	38.58	0.71	50.0	1.10	1.23
80.0	12.82	0.63	32.04	36.72	1.27	80.0	1.13	1.22
110.0	12.86	0.64	29.71	35.06	1.63	110.0	1.15	1.21
140.0	12.92	0.64	28.07	33.68	2.06	140.0	1.16	1.20
170.0	12.94	0.63	26.84	32.58	2.45	170.0	1.16	1.19
200.0	12.96	0.66	25.88	31.70	2.76	200.0	1.15	1.18
230.0	12.98	0.70	25.13	31.03	2.97	230.0	1.14	1.17
260.0	13.02	0.73	24.55	30.50	3.23	260.0	1.12	1.16
290.0	13.01	0.74	24.08	30.09	3.33	290.0	1.10	1.16
320.0	13.05	0.77	23.75	29.80	3.41	320.0	1.08	1.15
350.0	13.08	0.76	23.47	29.59	3.80	350.0	1.06	1.14
380.0	13.11	0.75	23.24	29.43	4.20	380.0	1.06	1.14
410.0	13.14	0.74	23.08	29.39	4.59	410.0	1.07	1.14
440.0	13.20	0.70	22.95	29.39	5.02	440.0	1.10	1.13
470.0	13.23	0.64	22.80	29.40	5.41	470.0	1.12	1.13
500.0	13.31	0.58	22.73	29.52	5.75	500.0	1.15	1.13
525.0	13.36	0.51	22.64	29.63	6.08	525.0	1.17	1.13
550.0	13.41	0.44	22.52	29.75	6.36	550.0	1.19	1.13
575.0	13.48	0.37	22.43	29.92	6.57	575.0	1.20	1.13
600.0	13.56	0.35	22.33	30.10	6.81	600.0	1.22	1.13
625.0	13.61	0.37	22.20	30.32	7.09	625.0	1.23	1.13
650.0	13.68	0.42	22.06	30.50	7.25	650.0	1.24	1.13
675.0	13.75	0.47	21.91	30.72	7.32	675.0	1.24	1.13
700.0	13.84	0.50	21.77	30.97	7.45	700.0	1.24	1.13
725.0	13.91	0.54	21.62	31.22	7.63	725.0	1.25	1.13
750.0	13.97	0.59	21.45	31.46	7.71	750.0	1.24	1.12
775.0	14.04	0.61	21.28	31.70	7.62	775.0	1.24	1.12
800.0	14.13	0.61	21.14	31.98	7.58	800.0	1.24	1.12
825.0	14.20	0.61	21.01	32.23	8.31	825.0	1.23	1.12
850.0	14.25	0.63	20.86	32.48	8.95	850.0	1.22	1.11
875.0	14.31	0.63	20.72	32.72	9.11	875.0	1.20	1.11
900.0	14.42	0.58	20.65	33.05	9.55	900.0	1.19	1.10
925.0	14.49	0.55	20.56	33.34	10.40	925.0	1.17	1.10
950.0	14.53	0.57	20.44	33.66	10.84	950.0	1.15	1.10
975.0	14.61	0.55	20.34	33.87	10.91	975.0	1.13	1.09
1000.0	14.72	0.55	20.30	34.16	11.29	1000.0	1.11	1.09

¹Total Loss = Insertion Loss + 12dB Splitter Loss

REV. X2
JEPS-16-1W+
100623
Page 1 of 1



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

P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661



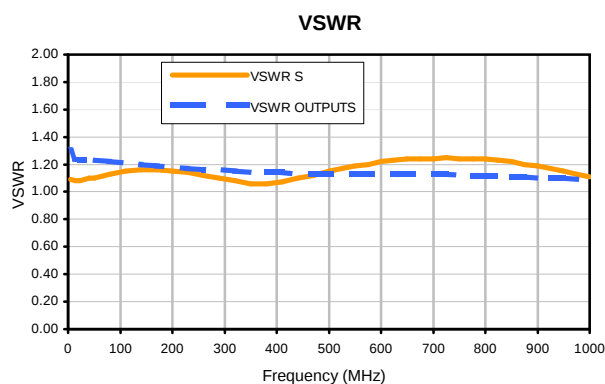
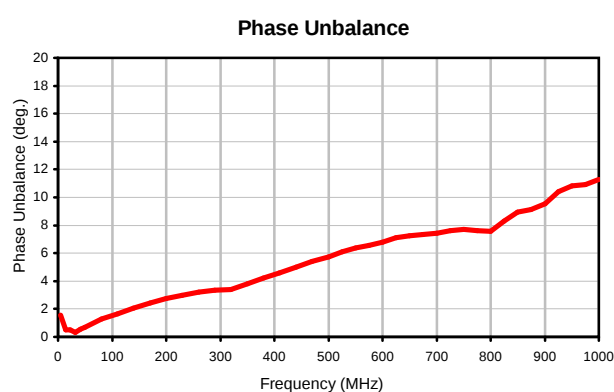
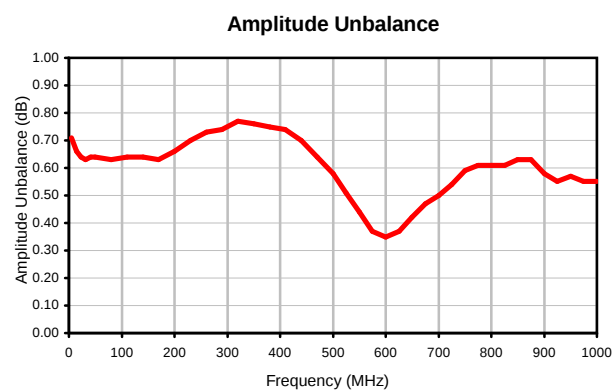
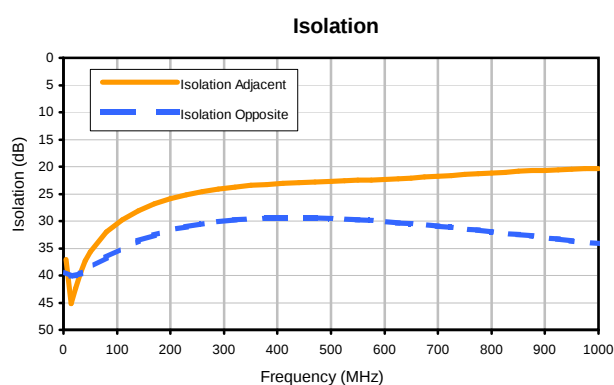
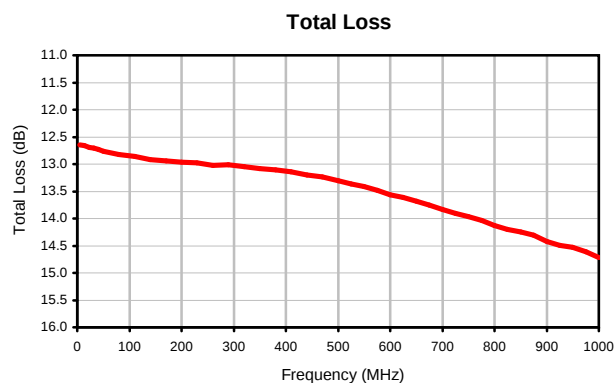
The Design Engineers Search Engine finds the model you need, Instantly • For detailed performance specs & shopping online see



16 Way-0° Power Splitter/Combiner

JEPS-16-1W+

Typical Performance Curves



REV. X2
JEPS-16-1W+
100623
Page 1 of 1



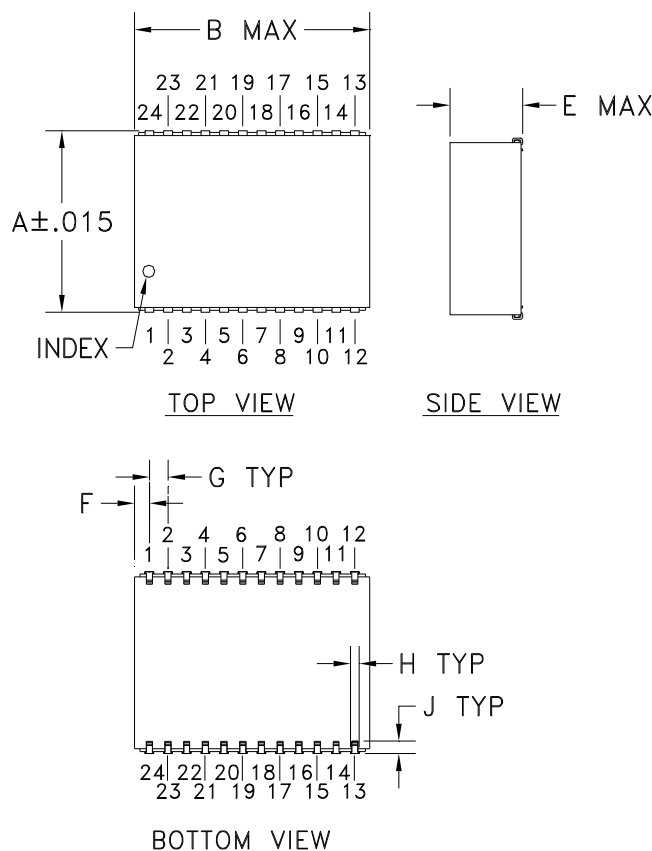
Mini-Circuits®
IF/RF MICROWAVE COMPONENTS • ISO 9001 ISO 14001 AS 9100 CERTIFIED RoHS compliant
P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661

The Design Engineers Search Engine finds the model you need, Instantly • For detailed performance specs & shopping online see

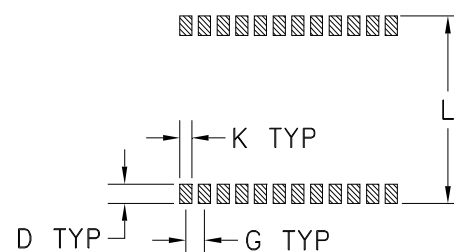


Outline Dimensions

BL372



PCB Land Pattern



Suggested Layout,
Tolerance to be within ±.002

CASE #	A	B	C	D	E	F	G	H	J	K	L	WT. GRAM
BL372	.940 (23.88)	1.426 (36.22)	-- --	.100 (2.54)	.250 (6.35)	.163 (4.14)	.100 (2.54)	.047 (1.19)	.065 (1.65)	.065 (1.65)	.970 (24.64)	6.4

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

Notes:

- Case material: Copper-Nickel alloy.
- Base material: Printed wiring laminate.
- 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.

Mini-Circuits®
ISO 9001 ISO 14001 CERTIFIED

ALL NEW
minicircuits.com

P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site



The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: www.minicircuits.com

RF/IF MICROWAVE COMPONENTS

REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	M82272	NEW RELEASE	08/06/02	GF	DJ
A	M102713	UPDATED NOTES, ADDED "...WITH SMOBC"	01/16/06	GT	IL

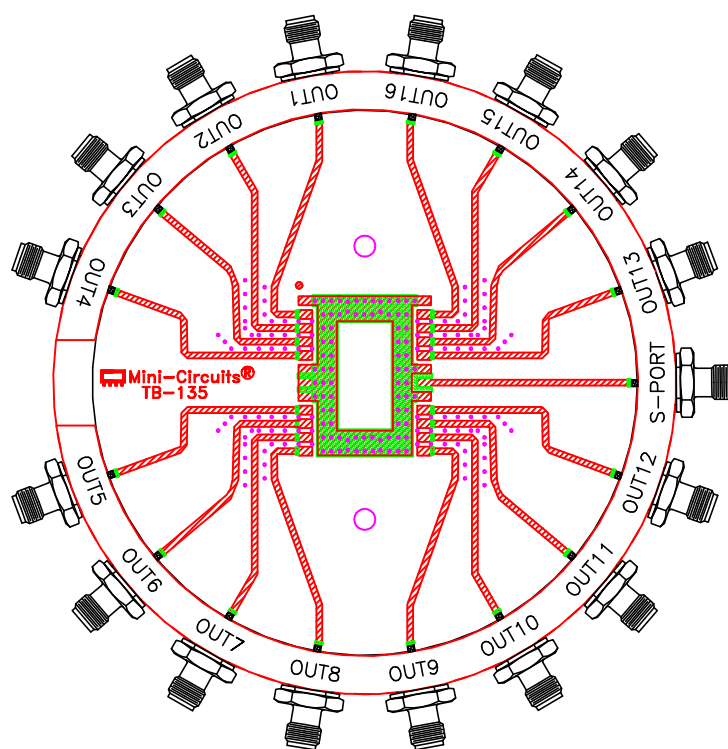
Top view of a 16-pin DIP package. The package is rectangular with a central white area. The dimensions and features are as follows:

- Pin 1:** Located at the bottom left corner.
- Pin Pitch:** .100 TYP (typical).
- Pin Width:** .032 (typical).
- Pin Spacing:** .182 TYP (typical).
- Package Width:** 1.165 REF (reference).
- Package Height:** .280 TYP (typical).
- Trace Width:** .043 TYP (typical) (SEE NOTE BELOW).
- PTH:** 83 X ϕ .020 PTH, FOR GROUND.
- PTH Spacing:** .065 (typical).
- PTH Diameter:** .040 TYP (typical).
- Package Outline:** Indicated by a dashed line.

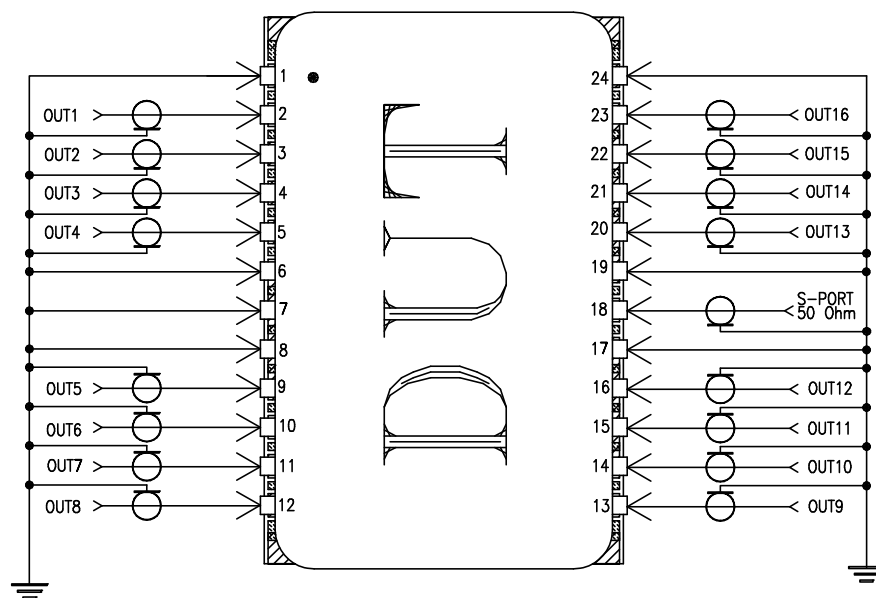
 DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

SHEET:	1	OF	1
--------	---	----	---

Evaluation Board and Circuit



TB-135



Schematic Diagram

Notes:

1. 50 Ohm SMA Female connectors.
2. PCB Material: Rogers R04350 or equivalent,
Dielectric Constant=3.5, Thickness=.020 inch.

 **Mini-Circuits®**



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