

DC Pass Power Splitter/Combiner

ZB4PD-222-75+

4 Way-0° 75Ω 950 to 2200 MHz



Generic photo used for illustration purposes only

BNC version shown
CASE STYLE: UU188

Connectors Model
BNC ZB4PD-222-75+
F-TYPE ZB4PD-222-75-F+

+RoHS Compliant

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

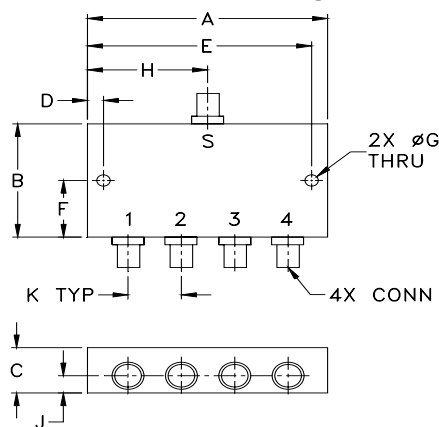
Maximum Ratings

| | |
|---|----------------|
| Operating Temperature | -55°C to 100°C |
| Storage Temperature | -55°C to 100°C |
| Power Input (as a splitter) | 10W max. |
| Internal Dissipation | 1W max. |
| DC Current (each port) | 0.5A max. |
| Permanent damage may occur if any of these limits are exceeded. | |

Coaxial Connections

| | |
|----------|---|
| SUM PORT | S |
| PORT 1 | 1 |
| PORT 2 | 2 |
| PORT 3 | 3 |
| PORT 4 | 4 |

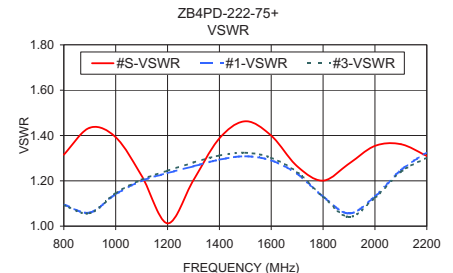
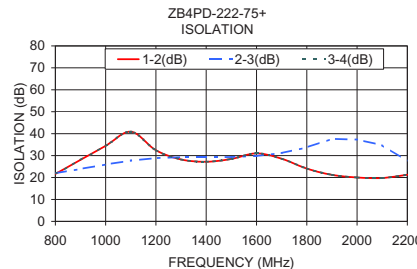
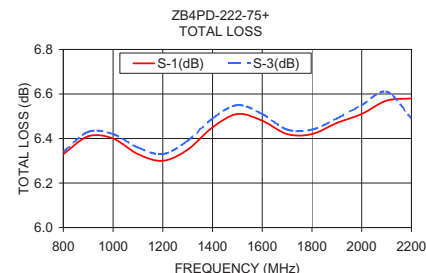
Outline Drawing



Outline Dimensions (inch/mm)

| A | B | C | D | E | F |
|-------|-------|-------|-------|-------|-------|
| 3.50 | 2.13 | .88 | .150 | 3.350 | 1.06 |
| 88.90 | 54.10 | 22.35 | 3.81 | 85.09 | 26.92 |
| G | H | J | K | wt | |
| .125 | 1.75 | .44 | .89 | grams | |
| 3.18 | 44.45 | 11.18 | 22.61 | 260 | |

Electrical Schematic



Notes

- 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.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- 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/WCLStore/terms.jsp



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Features

- wideband, 950 to 2200 MHz
- high isolation, 25 dB typ.
- rugged, shielded case
- up to 10W power input as a splitter
- DC pass from sum port to all output ports

Applications

- satellite communications
- GPS
- CATV

Electrical Specifications at 25°C

| Parameter | Frequency (MHz) | Min. | Typ. | Max. | Unit |
|---|-----------------|------|------|------|--------|
| Frequency Range | | 950 | | 2200 | MHz |
| Insertion Loss (above theoretical 6.0 dB) | 950 - 2200 | — | 0.9 | 1.1 | dB |
| Isolation | 950 - 2200 | 20 | 23 | — | dB |
| Phase Unbalance | 950 - 2200 | — | 2.7 | 7.0 | Degree |
| Amplitude Unbalance | 950 - 2200 | — | 0.3 | 0.7 | dB |
| VSWR (Port S) | 950 - 2200 | — | 1.27 | 1.65 | :1 |
| VSWR (Port 1-4) | 950 - 2200 | — | 1.24 | 1.6 | :1 |

Typical Performance Data

| Freq. (MHz) | Total Loss ¹ (dB) | | | | Amp. Unb. (dB) | Isolation (dB) | | | Phase Unb. (deg.) | VSWR S | VSWR 1 | VSWR 2 | VSWR 3 | VSWR 4 |
|-------------|------------------------------|------|------|------|----------------|----------------|-------|-------|-------------------|--------|--------|--------|--------|--------|
| | S-1 | S-2 | S-3 | S-4 | | 1-2 | 2-3 | 3-4 | | | | | | |
| 800.00 | 6.33 | 6.34 | 6.34 | 6.34 | 0.01 | 21.64 | 21.93 | 21.64 | 0.41 | 1.32 | 1.10 | 1.10 | 1.09 | 1.09 |
| 900.00 | 6.41 | 6.42 | 6.43 | 6.41 | 0.01 | 28.07 | 23.89 | 28.07 | 0.40 | 1.43 | 1.06 | 1.05 | 1.06 | 1.06 |
| 1000.00 | 6.40 | 6.42 | 6.42 | 6.40 | 0.02 | 34.44 | 25.95 | 34.44 | 0.38 | 1.39 | 1.14 | 1.14 | 1.15 | 1.15 |
| 1100.00 | 6.33 | 6.35 | 6.36 | 6.33 | 0.03 | 40.89 | 27.73 | 40.89 | 0.41 | 1.22 | 1.20 | 1.21 | 1.21 | 1.21 |
| 1200.00 | 6.30 | 6.33 | 6.33 | 6.30 | 0.03 | 32.43 | 28.85 | 32.43 | 0.42 | 1.01 | 1.23 | 1.25 | 1.24 | 1.25 |
| 1300.00 | 6.35 | 6.38 | 6.39 | 6.35 | 0.04 | 28.24 | 29.29 | 28.24 | 0.51 | 1.20 | 1.26 | 1.28 | 1.28 | 1.28 |
| 1400.00 | 6.45 | 6.49 | 6.49 | 6.44 | 0.05 | 27.17 | 29.29 | 27.17 | 0.57 | 1.39 | 1.29 | 1.32 | 1.31 | 1.30 |
| 1500.00 | 6.51 | 6.54 | 6.55 | 6.49 | 0.06 | 28.46 | 29.35 | 28.46 | 0.58 | 1.46 | 1.31 | 1.34 | 1.32 | 1.31 |
| 1600.00 | 6.48 | 6.51 | 6.51 | 6.46 | 0.06 | 31.02 | 29.84 | 31.02 | 0.61 | 1.40 | 1.29 | 1.31 | 1.30 | 1.28 |
| 1700.00 | 6.42 | 6.46 | 6.44 | 6.39 | 0.06 | 28.57 | 31.13 | 28.57 | 0.62 | 1.26 | 1.23 | 1.24 | 1.24 | 1.20 |
| 1800.00 | 6.42 | 6.45 | 6.44 | 6.39 | 0.06 | 24.07 | 33.71 | 24.07 | 0.61 | 1.20 | 1.13 | 1.14 | 1.13 | 1.11 |
| 1900.00 | 6.47 | 6.51 | 6.49 | 6.44 | 0.06 | 21.24 | 37.62 | 21.24 | 0.66 | 1.28 | 1.06 | 1.04 | 1.04 | 1.07 |
| 2000.00 | 6.51 | 6.56 | 6.55 | 6.49 | 0.07 | 20.01 | 37.32 | 20.01 | 0.81 | 1.35 | 1.13 | 1.11 | 1.13 | 1.15 |
| 2100.00 | 6.57 | 6.70 | 6.61 | 6.51 | 0.19 | 19.76 | 34.75 | 19.76 | 2.07 | 1.36 | 1.25 | 1.23 | 1.24 | 1.24 |
| 2200.00 | 6.58 | 6.54 | 6.49 | 6.52 | 0.10 | 21.25 | 27.54 | 21.25 | 1.09 | 1.31 | 1.33 | 1.30 | 1.30 | 1.30 |

4 Way-0° Power Splitter/Combiner

ZB4PD-222-75+

Typical Performance Data

| FREQ. (MHz) | TOTAL LOSS ¹ (dB) | | | | AMP UNBAL. (dB) | ISOLATION (dB) | | | PHASE UNBAL. (Deg) | FREQ. (MHz) | VSWR (:1) | | | | |
|----------------|---------------------------------|------|------|------|-----------------------|-------------------|-------|-------|--------------------------|----------------|--------------|------|------|------|------|
| | S1 | S2 | S3 | S4 | | 1-2 | 2-3 | 3-4 | | | S | 1 | 2 | 3 | 4 |
| 800.0 | 6.33 | 6.34 | 6.34 | 6.34 | 0.01 | 21.64 | 21.93 | 21.64 | 0.41 | 800.0 | 1.32 | 1.10 | 1.10 | 1.09 | 1.09 |
| 850.0 | 6.38 | 6.39 | 6.39 | 6.39 | 0.01 | 24.79 | 22.88 | 24.79 | 0.38 | 850.0 | 1.39 | 1.05 | 1.05 | 1.05 | 1.05 |
| 900.0 | 6.41 | 6.42 | 6.43 | 6.41 | 0.01 | 28.07 | 23.89 | 28.07 | 0.40 | 900.0 | 1.43 | 1.06 | 1.05 | 1.06 | 1.06 |
| 950.0 | 6.42 | 6.43 | 6.43 | 6.42 | 0.02 | 31.16 | 24.94 | 31.16 | 0.39 | 950.0 | 1.43 | 1.10 | 1.10 | 1.10 | 1.10 |
| 1000.0 | 6.40 | 6.42 | 6.42 | 6.40 | 0.02 | 34.44 | 25.95 | 34.44 | 0.38 | 1000.0 | 1.39 | 1.14 | 1.14 | 1.15 | 1.15 |
| 1050.0 | 6.37 | 6.39 | 6.39 | 6.37 | 0.02 | 38.47 | 26.91 | 38.47 | 0.40 | 1050.0 | 1.32 | 1.18 | 1.18 | 1.18 | 1.19 |
| 1100.0 | 6.33 | 6.35 | 6.36 | 6.33 | 0.03 | 40.89 | 27.73 | 40.89 | 0.41 | 1100.0 | 1.22 | 1.20 | 1.21 | 1.21 | 1.21 |
| 1150.0 | 6.31 | 6.33 | 6.34 | 6.30 | 0.03 | 36.39 | 28.42 | 36.39 | 0.44 | 1150.0 | 1.12 | 1.22 | 1.23 | 1.23 | 1.23 |
| 1200.0 | 6.30 | 6.33 | 6.33 | 6.30 | 0.03 | 32.43 | 28.85 | 32.43 | 0.42 | 1200.0 | 1.01 | 1.23 | 1.25 | 1.24 | 1.25 |
| 1250.0 | 6.31 | 6.35 | 6.34 | 6.31 | 0.03 | 29.82 | 29.13 | 29.82 | 0.46 | 1250.0 | 1.09 | 1.25 | 1.27 | 1.26 | 1.26 |
| 1300.0 | 6.35 | 6.38 | 6.39 | 6.35 | 0.04 | 28.24 | 29.29 | 28.24 | 0.51 | 1300.0 | 1.20 | 1.26 | 1.28 | 1.28 | 1.28 |
| 1350.0 | 6.40 | 6.44 | 6.45 | 6.40 | 0.05 | 27.44 | 29.33 | 27.44 | 0.53 | 1350.0 | 1.30 | 1.28 | 1.30 | 1.29 | 1.29 |
| 1400.0 | 6.45 | 6.49 | 6.49 | 6.44 | 0.05 | 27.17 | 29.29 | 27.17 | 0.57 | 1400.0 | 1.39 | 1.29 | 1.32 | 1.31 | 1.30 |
| 1450.0 | 6.49 | 6.52 | 6.53 | 6.47 | 0.05 | 27.56 | 29.33 | 27.56 | 0.54 | 1450.0 | 1.44 | 1.30 | 1.33 | 1.32 | 1.31 |
| 1500.0 | 6.51 | 6.54 | 6.55 | 6.49 | 0.06 | 28.46 | 29.35 | 28.46 | 0.58 | 1500.0 | 1.46 | 1.31 | 1.34 | 1.32 | 1.31 |
| 1550.0 | 6.50 | 6.54 | 6.54 | 6.48 | 0.06 | 29.79 | 29.52 | 29.79 | 0.59 | 1550.0 | 1.44 | 1.30 | 1.33 | 1.32 | 1.30 |
| 1600.0 | 6.48 | 6.51 | 6.51 | 6.46 | 0.06 | 31.02 | 29.84 | 31.02 | 0.61 | 1600.0 | 1.40 | 1.29 | 1.31 | 1.30 | 1.28 |
| 1650.0 | 6.45 | 6.48 | 6.48 | 6.42 | 0.06 | 30.79 | 30.40 | 30.79 | 0.66 | 1650.0 | 1.33 | 1.27 | 1.28 | 1.28 | 1.24 |
| 1700.0 | 6.42 | 6.46 | 6.44 | 6.39 | 0.06 | 28.57 | 31.13 | 28.57 | 0.62 | 1700.0 | 1.26 | 1.23 | 1.24 | 1.24 | 1.20 |
| 1750.0 | 6.41 | 6.45 | 6.43 | 6.38 | 0.06 | 26.08 | 32.21 | 26.08 | 0.64 | 1750.0 | 1.21 | 1.18 | 1.19 | 1.19 | 1.15 |
| 1800.0 | 6.42 | 6.45 | 6.44 | 6.39 | 0.06 | 24.07 | 33.71 | 24.07 | 0.61 | 1800.0 | 1.20 | 1.13 | 1.14 | 1.13 | 1.11 |
| 1850.0 | 6.44 | 6.47 | 6.46 | 6.41 | 0.06 | 22.46 | 35.62 | 22.46 | 0.66 | 1850.0 | 1.23 | 1.08 | 1.08 | 1.07 | 1.07 |
| 1900.0 | 6.47 | 6.51 | 6.49 | 6.44 | 0.06 | 21.24 | 37.62 | 21.24 | 0.66 | 1900.0 | 1.28 | 1.06 | 1.04 | 1.04 | 1.07 |
| 1950.0 | 6.49 | 6.54 | 6.53 | 6.48 | 0.06 | 20.47 | 38.53 | 20.47 | 0.68 | 1950.0 | 1.32 | 1.08 | 1.06 | 1.08 | 1.10 |
| 2000.0 | 6.51 | 6.56 | 6.55 | 6.49 | 0.07 | 20.01 | 37.32 | 20.01 | 0.81 | 2000.0 | 1.35 | 1.13 | 1.11 | 1.13 | 1.15 |
| 2050.0 | 6.52 | 6.58 | 6.57 | 6.49 | 0.09 | 19.83 | 35.20 | 19.83 | 1.04 | 2050.0 | 1.37 | 1.19 | 1.17 | 1.18 | 1.20 |
| 2100.0 | 6.57 | 6.70 | 6.61 | 6.51 | 0.19 | 19.76 | 34.75 | 19.76 | 2.07 | 2100.0 | 1.36 | 1.25 | 1.23 | 1.24 | 1.24 |
| 2200.0 | 6.58 | 6.54 | 6.49 | 6.52 | 0.10 | 21.25 | 27.54 | 21.25 | 1.09 | 2200.0 | 1.31 | 1.33 | 1.30 | 1.30 | 1.30 |

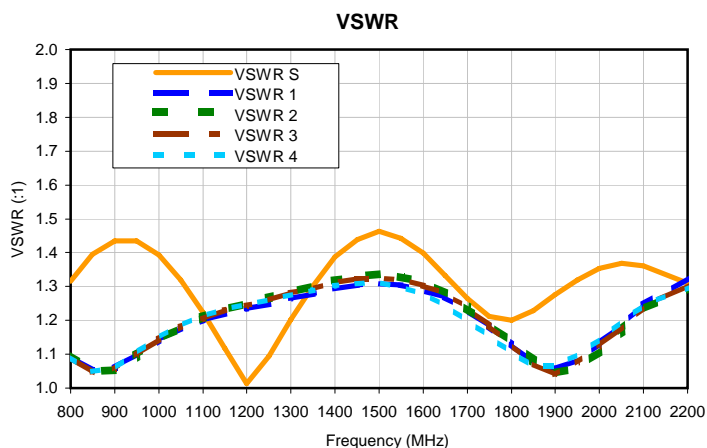
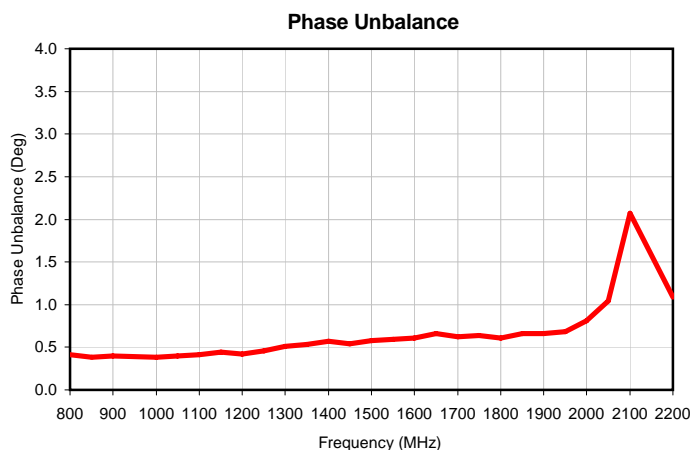
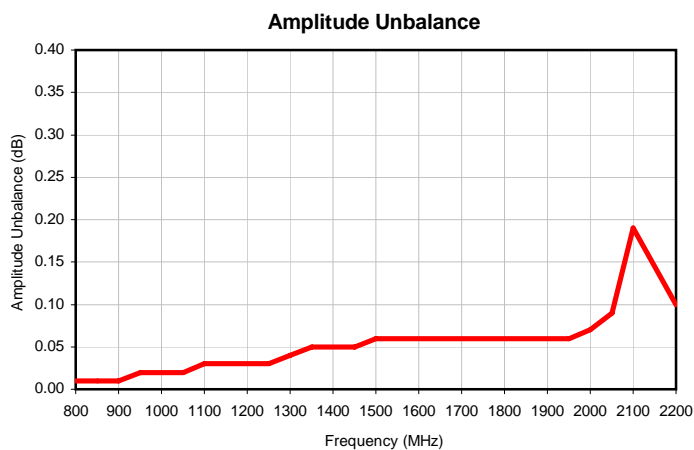
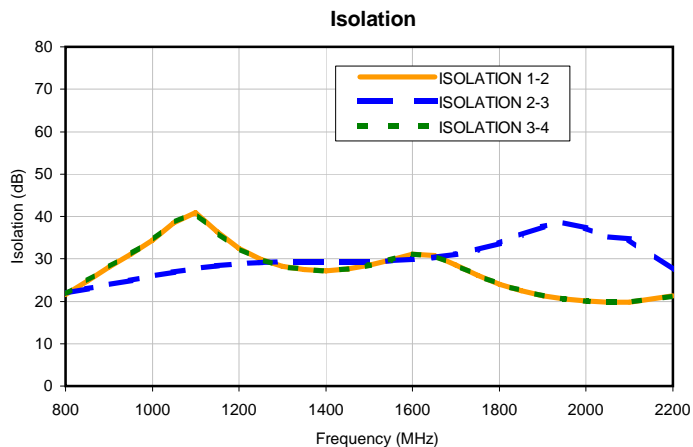
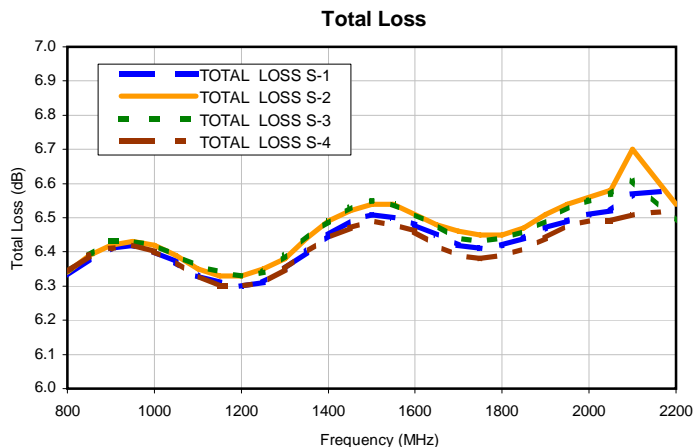
¹ Total Loss = Insertion Loss + 6dB Splitter Loss



4 Way-0° Power Splitter/Combiner

ZB4PD-222-75+

Typical Performance Curves



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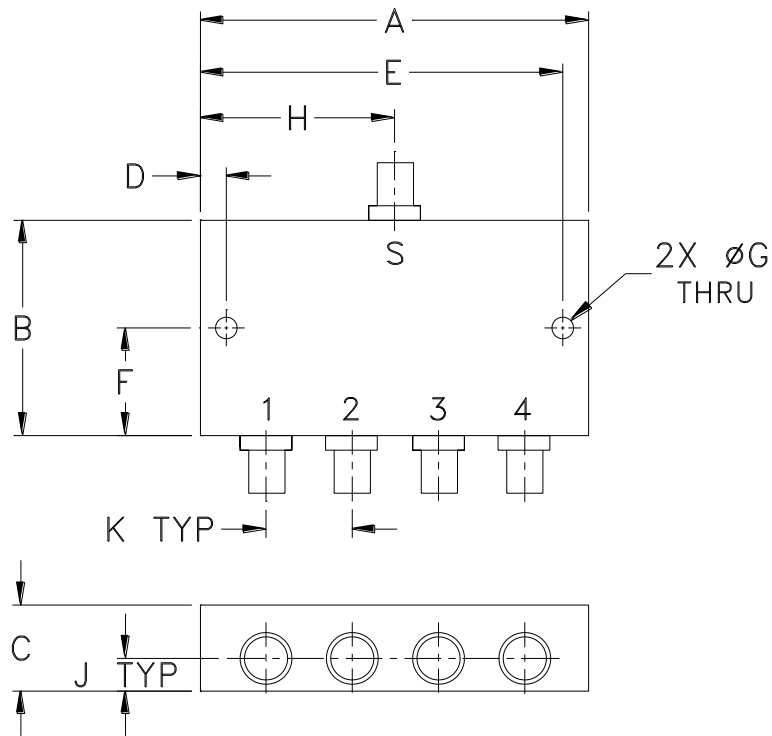


IF/RF MICROWAVE COMPONENTS

REV. X1
 ZB4PD-222-75+
 2/1/2012
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Outline Dimensions

UU188



| CASE# | A | B | C | D | E | F | G | H | J | K | WT. GRAMS |
|-------|-----------------|-----------------|----------------|----------------|------------------|-----------------|----------------|-----------------|----------------|----------------|-----------|
| UU188 | 3.50 (88.90) | 2.13 (54.10) | .88 (22.35) | .150 (3.81) | 3.350 (85.09) | 1.06 (26.92) | .125 (3.18) | 1.75 (44.45) | .44 (11.18) | .89 (22.61) | 260 |

Dimensions are in inches (mm). Tolerances: 2 Pl. $\pm .03$; 3 Pl. $\pm .015$

Notes:

- Case material: Aluminum alloy.
- Case finish:
For RoHS Case Styles: Clear chemical conversion coating, non-chrome or trivalent chrome based.
- Refer to the individual model data sheet for the type of connectors available.



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RF/IF MICROWAVE COMPONENTS

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 | 0° to 70° C Ambient Environment | Individual Model Data Sheet |
| Storage Temperature | -55° to 100° C Ambient Environment | Individual Model Data Sheet |
| Life (HTOL) | 1000 hours at max operating temperature | MIL-STD-202, Method 108, Condition D |
| 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 Eutectic Process: 225°C peak Pb-Free Process, 245°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 |