

**Table I : Types and Details of Reliability Tests**

Sl.	Test	Test Condition	Reference Method	Sample	LTPD Size	Acc No. No
1.	High Temperature Storage	$T_a = T_j$ (max.) Time: 1000 hrs Unbiased	MIL STD 750 1031	55	7	1
2.	High Temperature Reverse Bias (HTRB)	$T_a = T_j$ (max.) Time = 1000 hrs $V_{CB} = 0.8 \times V_{CBO}$		55	7	1
3.	Wet High Temperature Reverse Bias (WHTRB)	$T_a = 85^\circ\text{C}$, RH = 85% Time = 1000 hrs. $V_{CB} = 0.8 \times V_{CBO}$		22	10	0
4.	Operating Life Test $P_c = P_c$ (max.)	$T_a = 25^\circ\text{C}$ 1026.3 Time = 1000 hrs	MIL STD 750 1026.3	22	10	0
5.	Intermittent Operating Life Test (IOPL)	$T_a = 25^\circ\text{C}$ $P_c = P_c$ (max.) 2 min/2 min ON/OFF 1000 hrs	MIL STD 750 1036.3	22	10	0
6.	Pressure Cooker Test (PCT)	$T_a = 121 \pm 2^\circ\text{C}$ RH = 100%, 15PSIG 168 hrs		22	10	0
7.	Thermal Shock	$0^\circ\text{C} \ll 100^\circ\text{C}$ 5 min, 10 sec, 5 min, 200 cycles Liquid \ll liquid	MIL-800-883 105	55	7	1
8.	Temperature cycling	$-65^\circ\text{C} \ll 150^\circ\text{C}$ 30 min, 5 min, 30 min, 5 cycles air \ll air	MIL-800-750 1051	55	7	1
9.	Resistance to soldering heat	$T = 260 \pm 5^\circ\text{C}$ $t = 10 \pm 1$ sec once with flux	MIL STD 750 2031	15	15	0
10.	Vibration, variable frequency	20 G, 3 axis 100 to 2000 c/s 4 cycles, 4 min each	MIL STD 750 2056	15	15	0
11.	Constant Acceleration Test	20,000 G x, y, z axes 1 min. in each of six directions	MIL STD 750 2006	15	15	0
12.	Mechanical shock Test	1500 G, 0.5 ms 5 times each in x1, y1, y2, z1 directions	MIL STD 750 2016	15	15	0
13.	Seal Test	Helium bombing 60 psi, one hour 5×10^{-7} cc/sec max.	MIL STD 750 1071	55	7	1
14.	Salt Atmosphere Test	$T_a = 35^\circ\text{C}$ 5% NaCl spray for 24 hrs.	MIL STD 750 1046	15	15	0
15.	Robustness of Termination	250 gms, 3 bends of 90° , each lead	MIL STD 750 2036	15	15	0
16.	Solderability Test	$235 \pm 5^\circ\text{C}$ 5 sec	MIL STD 750 2026	15	15	0