

RELIABILITY TEST PROCEDURES FOR ECS-33B2 Series



<u>NO.</u>	<u>TEST NAME</u>	<u>TEST PROCEDURES</u>	<u>REQUIREMENTS</u>
1	SHOCK	Drop 3 times from the height of 100cm onto hard wooden board.	Frequency Drift ± 5 PPM Max. Resistance Drift $\pm 15\%$ Max.
2	VIBRATION	Vibration Frequency: 10 to 55Hz, 1.5mm, full wave Cycle: 2 min. Direction: X.Y.Z. Time: 2 hours in each direction	Frequency Drift ± 5 PPM Max. Resistance Drift $\pm 15\%$ Max.
3	STORAGE IN HIGH TEMPERATURE	+85 $\pm 2^\circ\text{C}$ for 500 hours.	Frequency Drift ± 5 PPM Max. Resistance Drift $\pm 15\%$ Max.
4	STORAGE IN LOW TEMPERATURE	-40 $\pm 2^\circ\text{C}$ for 500 hours.	Frequency Drift ± 5 PPM Max. Resistance Drift $\pm 15\%$ Max.
5	RESISTANCE TO SOLDERING HEAT	Pass through reflow for 10s (Max.) which is pre-heated at a temperature of 160 $^\circ\text{C}$ $\pm 10^\circ\text{C}$ and 240 $^\circ\text{C}$ $\pm 5^\circ\text{C}$	Frequency Drift ± 5 PPM Max. Resistance Drift $\pm 15\%$ Max.
6	HUMIDITY	+ 60 $\pm 2^\circ\text{C}$ in humidity 95% for 500 hours.	Frequency Drift ± 5 PPM Max. Resistance Drift $\pm 15\%$ Max.
7	THERMAL SHOCK	Supply 500 cycles as follows: Temperature shift shall be done within 30 sec. -55 $\pm 2^\circ\text{C}$ +125 $\pm 2^\circ\text{C}$ (30 min) <-----> (30 min)	Frequency Drift ± 5 PPM Max. Resistance Drift $\pm 15\%$ Max.
8	TEMPERATURE CYCLE	Supply 100 cycles as follows: +25 $\pm 5^\circ\text{C}$ 10 min. +25 $\pm 5^\circ\text{C}$ 10 min. +125 +5 -2 $^\circ\text{C}$ 30 min. -55 +3-5 $^\circ\text{C}$ 30 min. 1 Cycle	Frequency Drift ± 5 PPM Max. Resistance Drift $\pm 15\%$ Max.
9	SEALING TIGHTNESS MIL-STD 202F METHOD 112D TEST C AND D	1) Dipping in Florinert at: +125 $\pm 5^\circ\text{C}$ for 5 min. (Gross Leak)	There are no visual abnormalities.
		2) Leak rate shall be measured by using: Helium leak Detector (Fine Leak)	There are no visual abnormalities.
10	Mean Time Between Failures (MTBF)	$\text{MTBF (25}^\circ\text{C)} = \frac{\text{Ea} \times (1/\text{T1} - 1/\text{T2}) / \text{K}}{\pi}$ Ea x (1/T1-1/T2) / K HsXe $^\circ\text{Ce}$ π	16396600 Hours