

Reliability Testing Procedures

Varistor testing procedures comply with CECC 42200.

Testing in accordance with IEC 1051-1, 2 available upon customer request.

Reliability Parameter	Test	Tested according to	Condition to be satisfied after testing
AC/DC Bias Reliability	AC/DC Life Test	CECC 42000, Test 4.20 or IEC 1051-1, Test 4.20. 1000 h at UCT	$ \delta V_n (1 \text{ mA}) < 10 \%$ $R > 10 \text{ M}\Omega$
Pulse Current Capability	I_{\max} 8/20 μs	CECC 42000, Test C 2.1 or IEC 1051-1, Test 4.5. 10 pulses in the same direction at 2 pulses per minute at maximum peak current for 10 pulses	$ \delta V_n (1 \text{ mA}) < 10 \%$ no visible damage
Pulse Energy Capability	W_{\max} 10/1000 μs	CECC 42000, Test C 2.1 or IEC 1051-1, Test 4.5. 10 pulses in the same direction at 1 pulse every 2 minutes at maximum peak current for 10 pulses	$ \delta V_n (1 \text{ mA}) < 10 \%$ no visible damage
Isolation Voltage Capability	Isolation Voltage	CECC 42000, Test 4.7 or IEC 1051-1, Test 4.8. Metal Ball method, 1 minute	$> 2500 \text{ V}$
Environmental and Storage Reliability	Climatic Sequence	CECC 42000, Test 4.16 or IEC 1051-1, Test 4.17. a) Dry heat, 16 h, UCT, Test Ba, IEC 68-2-2 b) Damp heat, cyclic, the first cycle : 55 °C, 93 % RH, 24 h, Test Db 68-2-4 c) Cold, LCT, 2 h, Test Aa, IEC 68-2-1 d) Damp heat cyclic, remaining 5 cycles : 55 °C, 93 % RH, 24 h /cycle, Test Bd, IEC 68-2-30	$ \delta V_n (1 \text{ mA}) < 10 \%$ $R > 10 \text{ M}\Omega$
	Thermal Shock	CECC 42000, Test 4.12, Test Na, IEC 68-2-14 5 cycles UCT/LCT, 30 minutes	$ \delta V_n (1 \text{ mA}) < 10 \%$ no visible damage
	Steady State Damp Heat	CECC 42000, Test 4.17, Test Ca, IEC 68-2-3 56 days, 40 °C, 93 % RH	$ \delta V_n (1 \text{ mA}) < 10 \%$ $R > 10 \text{ M}\Omega$
	Storage Test	IEC 68-2-2, Test Ba, 1000 h at maximum storage temperature	$ \delta V_n (1 \text{ mA}) < 5 \%$
Mechanical Reliability	Solderability	CECC 42000, Test 4.10.1., Test Ta, IEC 68-2-20 solder bath and solder iron method	Solderable at shipment and after 2 year of storage, criteria $> 95 \%$ must be covered by solder
	Resistance to Soldering Heat	CECC 42000, Test 4.10.2., Test Tb, IEC 68-2-20 solder bath and solder iron method	$ \delta V_n (1 \text{ mA}) < 5 \%$
	Robustness of Termination	CECC 42000, Test 4.11 Test Ua, IEC 68-2-21	$ \delta V_n (1 \text{ mA}) < 5 \%$
	Vibration	CECC 42000, Test 4.15., Test Fc, IEC 68-2-6, Frequency range 10 to 55 Hz Amplitude 0.75 m/s^2 or 98 m/s^2 Total duration 6 h (3 x 2 h) Waveshape - half sine	$ \delta V_n (1 \text{ mA}) < 10 \%$ no visible damage
	Mechanical Shock	CECC 42000, Test 4.14, Test Ea, IEC 68-2-27 Acceleration = 490 m/s^2 , Pulse duration = 11 ms, Waveshape - half sine Number of shocks = 3 x 6	$ \delta V_n (1 \text{ mA}) < 10 \%$ no visible damage