



SMD Transient Voltage Suppressors

RELIABILITY EXPERIMENT

Experiment	Test Method and Description			
High Temperature Storage/ Dry Heat	The specimen shall be subjected to $150 \pm 2^\circ\text{C}$ for 1000 ± 12 hours in a thermostatic bath without load and then stored at room temperature and humidity for 1 to 2 hours. Therefore, the change of varistor voltage shall be measured.			
Temperature Cycle	The temperature cycle of specified temperature shall be repeated five times and then stored at room temperature and humidity for one or two hours. The change of varistor voltage and mechanical damage shall be examined.	Step	Temperature	Period
		1	-40 ± 3	30Min ± 3
		2	Room Temperature	1~2 hours
		3	125 ± 2	30Min ± 3
4	Room Temperature	1~2 hours		
High Temperature Load/ Dry Heat Load	After being continuously applied the maximum allowable voltage at $125 \pm 2^\circ\text{C}$ for 1000 ± 2 hours, the specimen shall be stored at room temperature and humidity for one or two hours. Therefore the change of varistor voltage should be measured.			
Damp Heat Load/ Humidity Load	The specimen should be subjected to $40 \pm 2^\circ\text{C}$, 90 to 95% RH and the maximum allowable voltage for 1000 hours and then stored at room temperature and humidity for one or two hours. Therefore the change of varistor voltage should be measured.			
Low Temperature Storage/ Cold	The specimen should be subjected to $40 \pm 2^\circ\text{C}$, without load for 1000 hours and then stored at room temperature for one or two hours. Therefore the change of varistor voltage should be measured.			

ENVIRONMENT CONDITION

Temperature and humidity	
Storage Temperature range	(0402...0603) $-55^\circ\text{C} \sim +125^\circ\text{C}$ (0805...2220) $-55^\circ\text{C} \sim +150^\circ\text{C}$
Operation Temperature range	(0402...0603) $-55^\circ\text{C} \sim +85^\circ\text{C}$ (0805...2220) $-55^\circ\text{C} \sim +125^\circ\text{C}$
Max. relative humidity (Without condensation)	<75% annual average, <95% on max. 30days per annum.

OVERHEAT OF THE ELEMENT

Due to the unpredictable nature of transients, a transient voltage suppressor may be overloaded, although it was carefully selected. Overload may result in package rupture expulsion of hot material. For this reason the TVS should be physically shielded from adjacent components. The TVS can be additionally protected by a thermal fuse which is connected to the TVS body.