

## MULTILAYER CHIP VARISTORS

The multilayer chip varistor is a nonlinear resistive element containing zinc oxide (ZnO) as a main ingredient, which is newly developed for protection against surge voltage, noise, and other abnormal voltages.

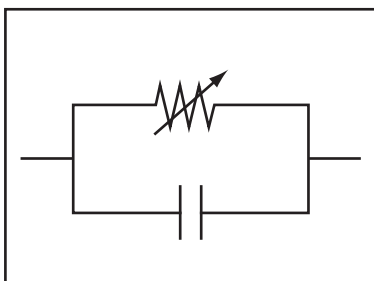
Unlike conventional varistors, the maximum peak current and nonlinear coefficient are very large, and the resistance is very high under a certain critical voltage, hardly allowing the current to flow. When the critical voltage is exceeded, the resistance drops abruptly, allowing a large current to flow.

Such properties cause a dramatic effect as a protective element for electric and electronic equipment, absorbing abnormal voltages and lightning surge.

### Features and Applications

Series (Pages)	Features	Applications
<b>LVS</b> (P2)	Multilayer chip ceramic varistor for ESD protection for high-speed signals. For surface mounting. The low capacitance will not cause signal waveform damping even during use in high-speed data line. Highly reliable termination with Ni+Sn barrier ensures excellent solderability.	ESD protection for USB2.0 and other high-speed signal lines. Also for protection of high-speed data lines and high-frequency applications from electrostatic surge.
<b>AVS</b> (P3)	Multilayer chip varistors for ESD protection requirements. Compact and high maximum peak current. This varistor is quick response to pulses, applied to electrostatic surge due to low ESR. Highly reliable termination with Ni+Sn barrier ensures excellent solderability.	It is the best for ESD protection in electric devices, such as a notebook PC and a mobile phone. Protection of various semiconductor elements from overvoltage.
<b>CVG</b> (P4~P5)	General-purpose multilayer chip varistors for surface mounting. Compact and high maximum peak current. Large voltage nonlinear coefficient and low clamping voltage. Quick response to pulses.	Protection of various semiconductor elements from overvoltage. Protection of various types of equipment from inductive lightning surge. Absorption of switching surge and electrostatic surge for relays, horns, and motors.
<b>CVA</b> (P6)	High maximum energy type multilayer chip varistors for surface mounting. Use in 12 VDC automobile circuits. Applicable to JASO transient voltage test (Type A, A-1) (Size 90).	Protection of various semiconductor elements from overvoltage. Absorption of switching surge and electrostatic surge for relays, horns, and motors. Protection of electronic equipment for automobiles from induced lightning surge.
<b>CVH</b> (P7)	Across-the-line multilayer chip varistors for surface mounting. Development of high-voltage varistor composition allows application to AC100Vrms and AC200Vrms power circuits, which has not been materialized by conventional multi layer chip varistors hitherto.	Protection of various semiconductor elements from overvoltage. Protection of various types of equipment from inductive lightning surge. Absorption of switching surge and electrostatic surge for relays, horns, and motors.

### Equivalent Circuit



### Example of electrostatic absorption waveform Human model LEVEL4 (8kV)

