

Multilayer varistors: Ultra-flat and compact varistors for ESD protection

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TDK Corporation presents a new series of EPCOS multilayer varistors of the CeraDiode family, which includes the most compact, flattest and most rugged varistor for the ESD protection of mobile equipment. It has a footprint of only 0.47 mm x 0.47 mm at an extremely low profile of 0.1 mm in LGA packaging. These new SMD protection components are available in EIA case sizes of 0402, 0201 and even smaller. This enables the production of varistors that are thus about 80 percent smaller than their predecessors and simultaneously offer extremely reliable ESD protection.

The new CeraDiodes have an ESD immunity of 15 kV or 25 kV, depending on the type, which more than satisfies the higher requirements on the ESD protection of sensitive ICs. Their clamping voltage is only 70 V or 90 V at a pulse voltage of 8 kV (IEC-61000-4-2), depending on the type. Thanks to their low capacitance, the signal integrity of high-speed interfaces such as HDMI is not impaired.

TDK has achieved this new breakthrough in the miniaturization of its protection components by combining a new and extremely efficient semiconductor material with its innovative micro core technology. The new ZnO material also possesses significantly more grain boundaries per volume, which increases the ability of the components to absorb ESD pulses by a factor of 50. These new micro core components can also be incorporated directly into 3D circuits and modules. The further miniaturization, improved performance and low cost of the latest CeraDiodes makes them an ever more attractive alternative to TVS

diodes.

The main applications of the new CeraDiodes are in the RF components of mobile communications devices as well as high-speed interfaces such as HDMI.

Provided by TDK Corporation

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