

## Capacitors

### **CeraLink™ – a compact solution for converters**

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November 11, 2014

TDK Corporation presents a new generation of the EPCOS CeraLink™, a highly compact solution for the snubber and DC links of fast-switching converters based on SiC and GaN semiconductors. These new capacitors are based on the ceramic material PLZT (lead lanthanum zirconate titanate). In contrast to conventional ceramic capacitors, CeraLink has its maximum capacitance at the application voltage, and this even increases proportionately to the share of the ripple voltage.

The smallest version of the CeraLink is the SMD low-profile variant with a capacitance of 1  $\mu\text{F}$  at a rated voltage of 500 V DC. It has dimensions of 4.25 mm x 7.85 mm x 10.84 mm. A further type with solder-pin contacts is also available. This 20- $\mu\text{F}$  capacitor has a rated voltage of 500 V DC and measures 33.00 mm x 22.00 mm x 11.50 mm. Both types offer extremely low ESL values below 3.5 nH. The capacitors are designed for an operating temperature of -40 to +125 °C and can even withstand brief exposures to 150 °C.

A great advantage of the SMD low-profile CeraLink versions is that they can even be embedded in IGBT modules thanks to their compact dimensions. This results in a very low-inductance design, so that no significant overvoltages are produced when the semiconductors are switched.

Furthermore, samples are available for two further types: An SMD variant with a capacitance of 5  $\mu\text{F}$  at 500 V DC and measuring 13.25 mm x 14.26 mm x 9.35 mm. The second type, which is fitted with solder-pin contacts, has a capacitance of 5  $\mu\text{F}$  of 1000 V DC and dimensions of 33.00 mm x 22.00 mm x 11.50 mm.

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#### **Main applications**

- Snubber and DC link circuits for SiC and GaN power semiconductors

#### **Main features and benefits**

- Extremely ESL values below 3.5 nH
- High operating temperature of -40 °C to +125 °C, briefly up to +150 °C
- Rated voltages of 500 V DC and 1000 V DC
- Capacitance values of 1, 5, and 20  $\mu\text{F}$
- Can be embedded in IGBT modules

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## About TDK Corporation

TDK Corporation is a leading electronics company based in Tokyo, Japan. It was established in 1935 to commercialize ferrite, a key material in electronic and magnetic products. TDK's portfolio includes electronic components, modules and systems\* marketed under the product brands TDK and EPCOS, power supplies, magnetic application products as well as energy devices, flash memory application devices, and others. TDK focuses on demanding markets in the areas of information and communication technology and consumer, automotive and industrial electronics. The company has a network of design and manufacturing locations and sales offices in Asia, Europe, and in North and South America. In fiscal 2014, TDK posted total sales of USD 9.6 billion and employed about 83,000 people worldwide.

\* The product portfolio includes ceramic, aluminum electrolytic and film capacitors, ferrites, inductors, high-frequency components such as surface acoustic wave (SAW) filter products and modules, piezo and protection components, and sensors.

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