

Transformer

TDK offers compact SMT transformers with high dielectric strength for DC-DC converters

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TDK Corporation (TSE:6762) presents the EPCOS E13EMHV series of compact SMT transformers with high dielectric strength for a wide range of DC-DC converter topologies. The isolation distances comply with IEC 60664-1, 61558-2-16 standard, achieving a high working voltage of 1000 V DC. Transient overvoltages of up to 2500 V_{peak} are permitted. The high dielectric strength between the primary and secondary sides is 3000 V AC (50 Hz, 60 seconds).

With dimensions of only 12.9 x 15.8 x 11.4 mm, the B78308*A003 series transformers are space-saving. The requirements for clearance and creepage distances according to the IEC 60664-1 standard (Np/Ns: min. 8.14 mm clearance, min. 11.2 mm creepage) are met in this compact design thanks to the internal construction of the transformers.

Two types are available for DC-DC converters in flyback topology with turns ratios of 1 : 0.22 : 0.78 and 1 : 0.33 : 0.7. Three types are available for push-pull and half-bridge converters with turns ratios of 1 : 1.07 and 1 : 1 : 0.57 : 2.14. All new transformers are designed for a frequency range from 100 kHz to 500 kHz and have a very low coupling capacitance of only 2 pF. The permissible operating temperature range is between -40 °C and +150 °C. The components of the new EPCOS transformer series are qualified to AEC-Q200 Rev. D and are suitable for various DC-DC converter topologies and gate driver circuits in e-mobility and industrial electronics.

Main applications

- DC-DC converters and gate driver circuits in e-mobility and industrial electronics

Main features and benefits

- High dielectric strength prim/sec 3000 V AC, 50 Hz, 60 seconds, working voltage up to 1000 V DC
- Compact dimensions of only 12.9 x 15.8 x 11.4 mm
- Clearance and creepage distances according to IEC 60664-1
- Qualified according to AEC-Q200 Rev. D

About TDK Corporation

TDK Corporation is a world leader in electronic solutions for the smart society based in Tokyo, Japan. Built on a foundation of material sciences mastery, TDK welcomes societal transformation by resolutely remaining at the forefront of technological evolution and deliberately “Attracting Tomorrow.” It was established in 1935 to commercialize ferrite, a key material in electronic and magnetic products. TDK’s comprehensive, innovation-driven portfolio features passive components such as ceramic, aluminum electrolytic and film capacitors, as well as magnetics, high-frequency, and piezo and protection devices. The product spectrum also includes sensors and sensor systems such as temperature and pressure, magnetic, and MEMS sensors. In addition, TDK provides power supplies and energy devices, magnetic heads and more. These products are marketed under the product brands TDK, EPCOS, InvenSense, Micronas, Tronics and TDK-Lambda. TDK focuses on demanding markets in automotive, industrial and consumer electronics, and information and communication technology. The company has a network of design and manufacturing locations and sales offices in Asia, Europe, and in North and South America. In fiscal 2022, TDK posted total sales of USD 15.6 billion and employed about 117,000 people worldwide.

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Contacts for regional media

Region	Contact	Phone	Mail
Europe	Mr. C. JEHLE TDK Electronics AG Munich, Germany	+49 89 54020 2441	christoph.jehle@tdk.com
North America	Ms. D. MARTIN TDK Electronics Inc. Fountain Hills, AZ, USA	+1 480 836 4104	debbie.martin@tdk.com
South America	Mr. C. DALL'AGNOL TDK Electronics do Brasil Ltda., Gravataí, Brazil	+55 51 3484 7158	candido.dallagnol@tdk.com
India	Mr. H. BAGHEL TDK India Private Limited Noida, India	+91 12 04 50 58 42	himalaya.baghel@tdk.com
Greater China	Ms. S. SUEN TDK Electronics Hong Kong Limited, Hong Kong	+852 3669 8224	stella.suen@tdk.com
Japan	Mr. Y. OSUGA TDK Corporation Tokyo, Japan	+813 6778 1055	pr@jp.tdk.com