

Power Capacitors

TDK releases ModCap™ HF DC link capacitors with ultra-low ESL

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TDK Corporation (TSE: 6762) presents ModCap™ HF, a modular capacitor concept for DC link applications that is able to work at very high switching frequencies. The six newly developed power capacitors of the B25647A* series are available for rated voltages from 900 V to 1600 V and cover a capacitance spectrum from 640 µF to 1850 µF. Depending on the type, the rated currents range from 160 A to 210 A with a maximum permitted hot spot temperature of 90 °C.

Thanks to the ultra-low ESL value of only 8 nH and to its flat ESR vs Freq evolution that allows minimizing losses even at high frequency, ModCap HF is particularly well suited for fast-switching SiC-based inverters. The very low self-inductance prevents voltage overshooting on the power semiconductors when the current is shut off. As a result, generally, no snubber capacitors are needed.

In contrast to conventional cylindrical designs, the ModCap HF types are cubic in design with dimensions of 205 x 90 x 170 mm. Thanks to this design, the capacitors fit perfectly to the new generation of power modules improving compactness and maximizing power density.

External materials are fully compliant with fire and smoke standard EN 45545-2 HL3 R23 and UL94 V-0, specially demanded for traction application. UL recognition is especially required by the American market.

Typical applications are compact converters for traction, renewable energies as well as industrial applications with high switching frequencies.

Main applications

- Compact converters for traction
- Renewable energies
- Industrial applications

Main features and benefits

- Modular concept
- Wide voltage range from 900 V to 1600 V
- Wide capacitance range from 640 µF to 1850 µF
- Ultra low ESL (8nH)
- A maximum 90 °C hot spot temperature
- Qualified according to IEC 61071, IEC 61881-1, EN 45545-2 HL3 R23 regarding fire and smoke formation
- UL recognized

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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