DC link capacitor for new IGBT modules

- ESL of just 25 nH
- Minimum ESR of just 0.6 mΩ

TDK Corporation presents a new EPCOS DC link capacitor that has been specifically designed for the HybridPACK™ 1-DC6 IGBT module from Infineon Technologies. The outstanding features of this component are the six busbar terminals with dimensions that are matched precisely to fit the IGBT module. This multiple contacting produces an excellent current capability while at the same time offering very low parasitics. For example, the ESR has a maximum value of 0.6 mΩ and the ESL value is just 25 nH. Thanks to this low ESL, voltage peaks on switching off the IGBTs are almost completely eliminated.

The new capacitor with the order number B25655P4607J021 is designed for a rated voltage of 450 V DC and offers a capacitance of 600 µF. Its current capability is about 150 A at a maximum ambient temperature of 105°C and a cooled temperature on the underside of 75°C. The component is designed using power capacitor chip (PCC) technology in which the capacitor element is constructed as a stacked winding, with which a volume fill factor of nearly 1 is achieved. The dimensions of the housing are correspondingly compact, at just 140 mm x 72 mm x 50 mm.

Furthermore, a flat winding version is offered in the same housing (B25655P4477J121). This type has a capacitance of 470 µF and is likewise designed for 450 V DC. At a maximum ambient temperature of 105°C and a cooled temperature on the underside of 75°C, its current capability is about 150 A. The ESR value of this design is 0.8 mΩ and the ESL value is 25 nH.

Apart from the standard version, the capacitor is also available with an additional connection for the EPCOS high-voltage DC EMC filter. All in all, the combination of the IGBT module with the new link circuit capacitor enables the design of extremely compact inverters for xEV applications or for use as industrial inverters.

Main applications

- DC link capacitor for HybridPACK 1-DC6 from Infineon Technologies

Main features and benefits

- Low ESL of just 25 nH
- Minimum ESR of just 0.6 mΩ
- Compact dimensions of just 140 mm x 72 mm x 50 mm