

Attracting Tomorrow



MKP DC link capacitors

Low-inductance series
B2563*E

TDK Electronics AG
Aluminum & Film Capacitors Business Group
Munich, Germany
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MKP DC ultra low-inductance series B2563*E

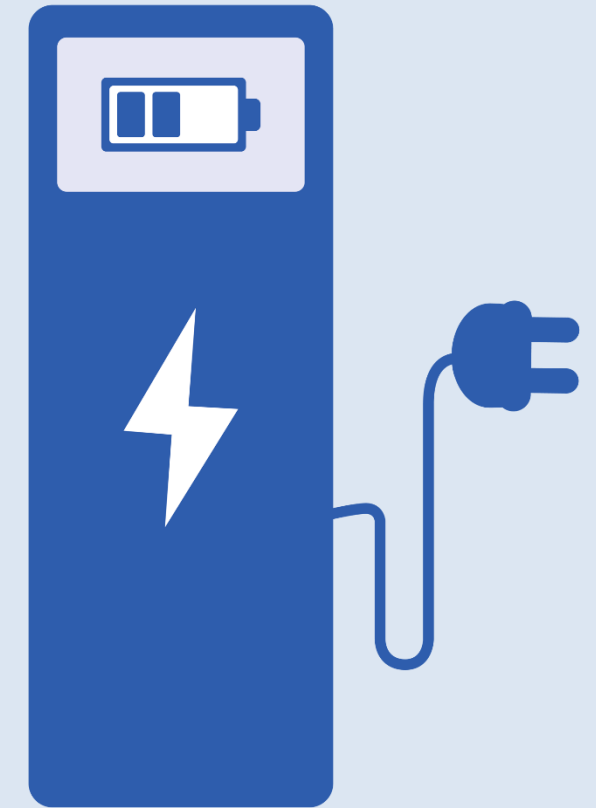
Ultra low ESL <13 nH

Main applications

- DC fast charging
- Solar string inverters
- Induction heating
- Traction
- High speed switching applications

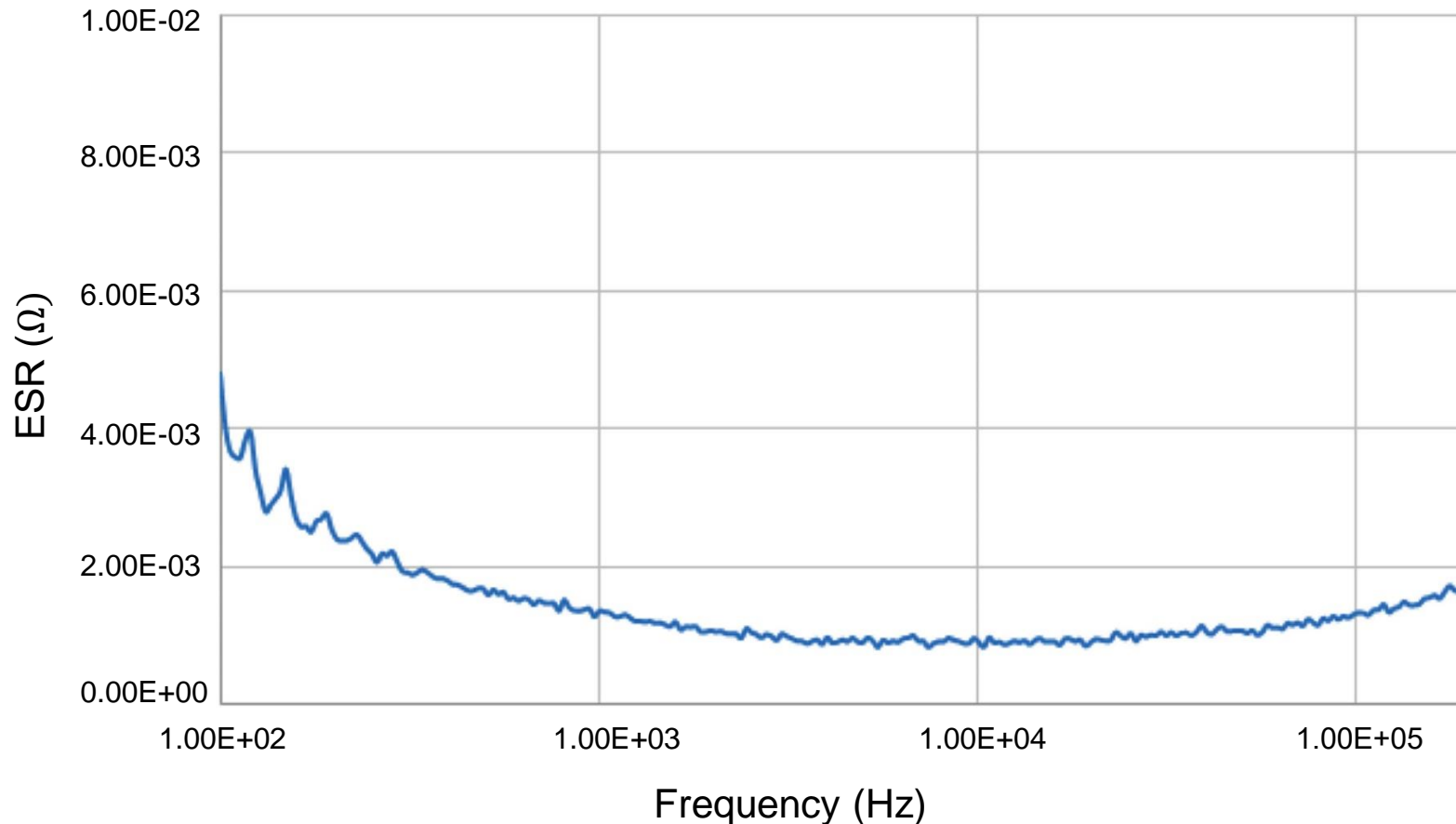
Product description

- Capacitance 20 to 270 μF ; V DC: 700 V to 2 KV
- **ESL <13 nH**
- **Low ESR** over frequency (measured to 1 MHz)
- Diameter 85 mm
- Height 50 and 65 mm
- Male (M8) or female (M5) terminals
- High-current capability
- DC link for SiC power modules and Si modules with high speed switching
- For 85 °C HS, 105 °C HS, samples available now



MKP DC ULSI HF ESR versus frequency

B25632E117K000 (110 μ F, 1000 V DC)



Typical switching frequency power module

20 to 40 kHz, so it is important to characterize the capacitor to 1 MHz and consider all the harmonics for the thermal considerations

110 μ F, 1000 V DC

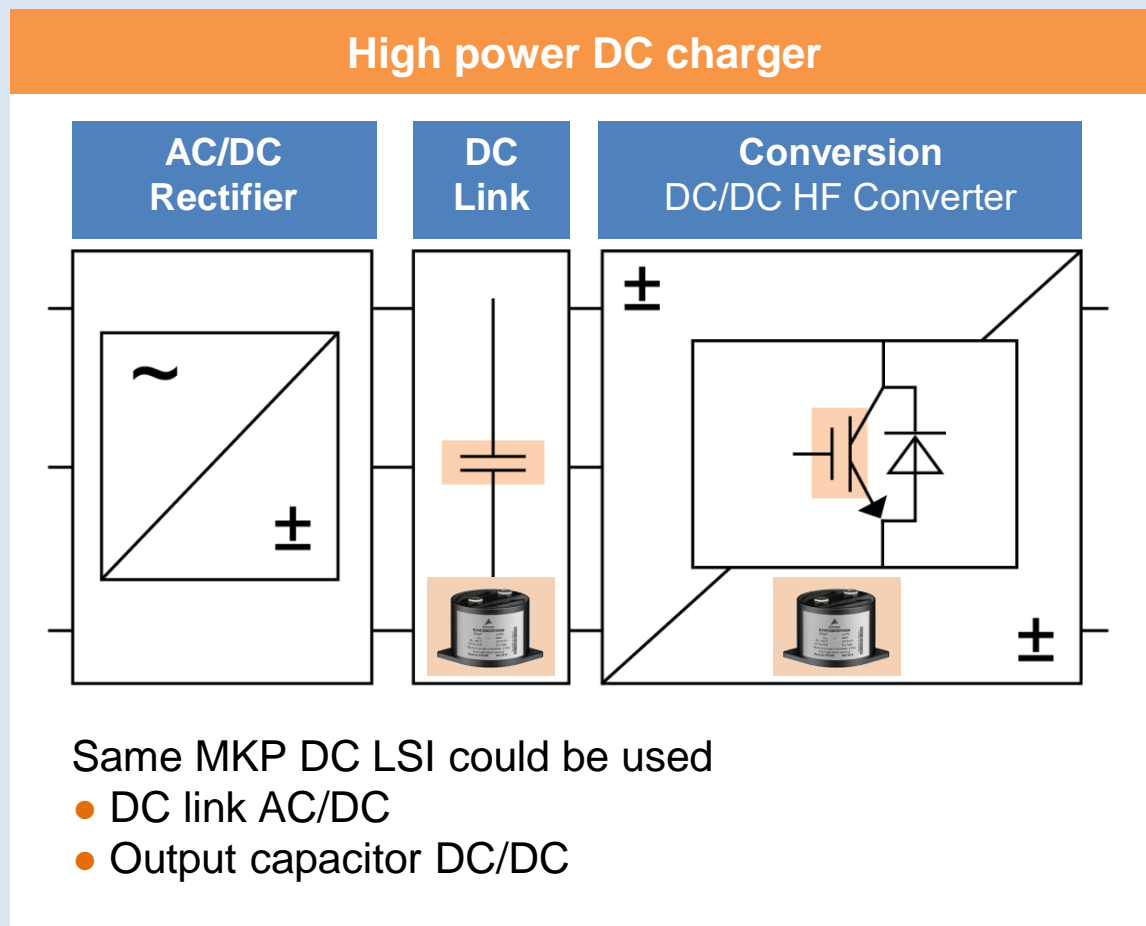
10 kHz: 1.18 m Ω
100 kHz: 1.38 m Ω
160 kHz: 1.5 m Ω

Low ESR in the working frequency range

(measurements done to 1 MHz)

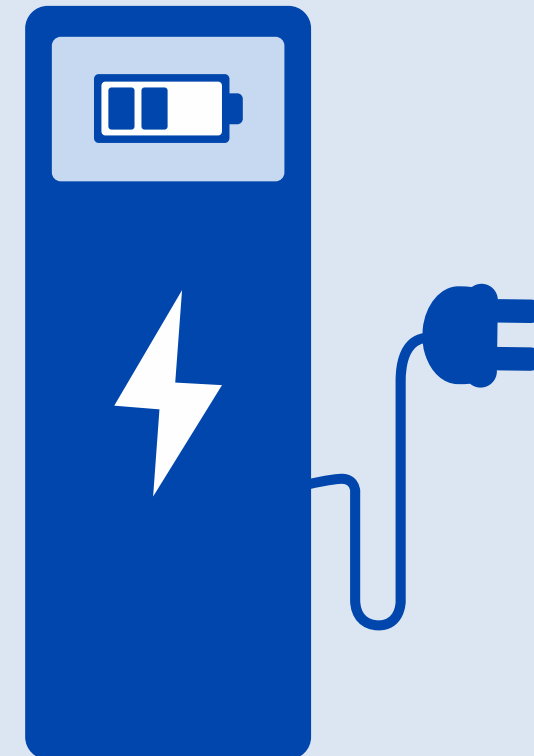
The best DC link capacitor for screw type SiC power modules

Several design-in in fast chargers applications



Example specification for DC link 1 kV bus
150 μ F/120 A at 50 °C/
Switching frequency 25 kHz

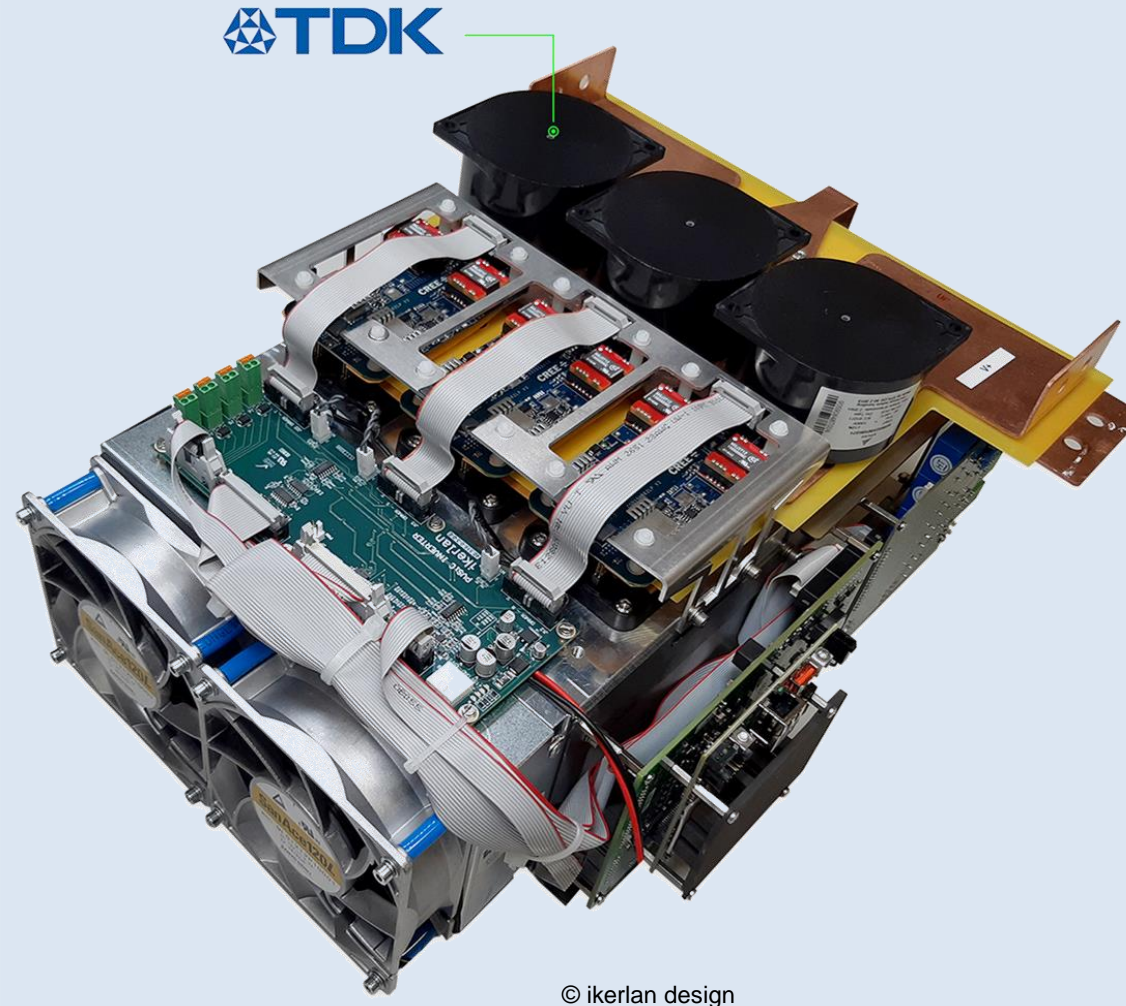
Solution
Two in parallel
B25632E1117K0
(110 μ F/1000 V),
220 μ F, 6 nH ESL



High power DC charger

The best DC link capacitors for screw type SiC power modules: Design-in example

- **TDK solution**
Ultra low ESL MKP capacitors
- 100 kW silicon carbide PV inverter power core



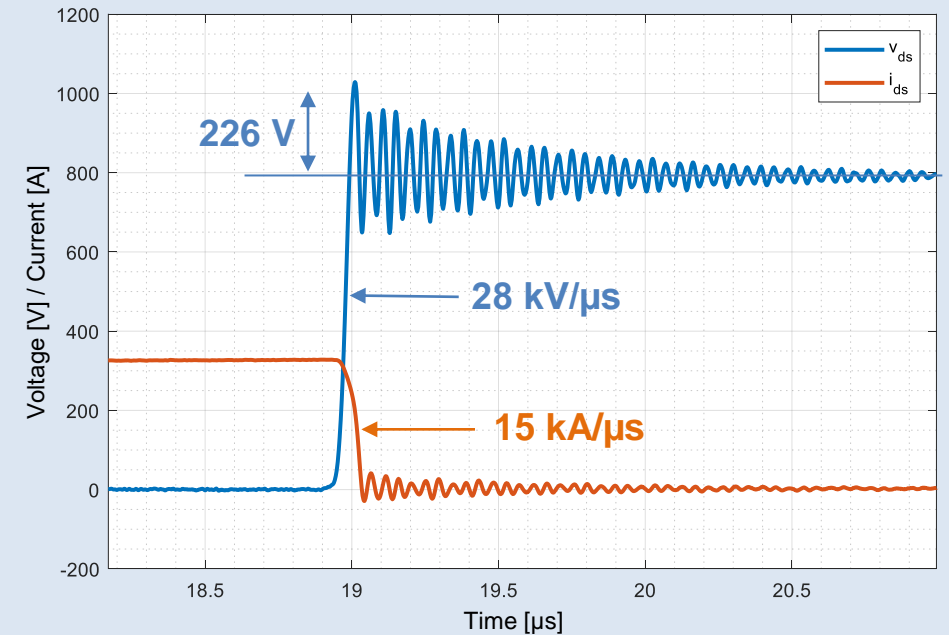
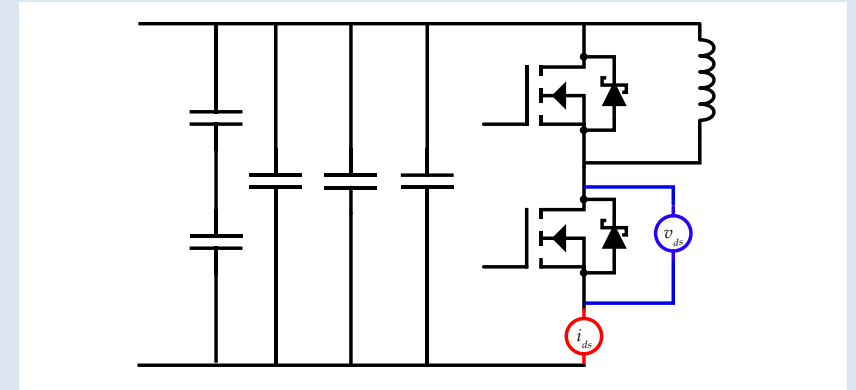
Double pulse test 800 V

SiC based solar converter

- MKP LSI used as complete DC link solution (no snubbers)
- Low ESR even at high frequency
- Fast response based on low inductance design
- Double pulse test slopes
 - dV/dT 28 kV/ μ sec
 - dI/dT 15 kA/ μ sec
- Switching loop inductance 15 nH



120 μ F/1 kV
D 85 x 50 mm
ESL 12 nH





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