

Attracting Tomorrow



# Capacitors for DC-Link circuits

Interactive application support



# Capacitors for DC-Link circuits

## Application Support

The selection of the right capacitor for the DC-link function is the key to achieve the best solution in terms of electrical function, mechanical and thermal requirements, as well as an optimized cost ratio.

The application support for DC-Link circuits provides a good overview and supports the best solution decision based on TDKs large variety of technologies and product portfolio.

### Capacitors for DC-Link circuits



12 / 48 V  
500 W

12 / 48 V  
1 kW

48 V Inverter

OBC

HV DCDC

HV Heater

1 kW range

**Select the desired application:**

12 / 48 V  
500 W

12 / 48 V  
1 kW

48 V Inverter

OBC

HV DCDC

HV Heater

HV  
1 kW range

HV Traction  
Inverter

Inverter applications for the 12 V and 48 V Bordnet in the range of 500 W  
like HVAC Fan, Wiper, ABS/ESR Pump, etc.

Key Characteristics	12 V			48 V		
	Aluminum Capacitors	Film Capacitors	MLCC	Aluminum Capacitors	Film Capacitors	MLCC
Max. Operational Temperature (ambient + self heating)	125 °C 135 °C	125 °C	all values apply for a single element	125 °C 150 °C (special)	125 °C	125 °C 150 °C (special)
Max. Ripple Current Capability (10 kHz, 125 °C / 150 °C)	3.2 A (125 °C) 4.4 A (125 °C)	2 ... 20 A <sub>RMS</sub> (55 °C, 20 kHz)	1.2 ... 1.6 A	3.5 ... 108 A (85 °C, 20 kHz)	0.8 ... 1.1 A	3.5 ... 108 A (85 °C, 20 kHz) 0.8 ... 1.1 A
ESR	≤ 18 mΩ (20 °C, 100 kHz) ≤ 28 mΩ (20 °C, 100 kHz)	3 ... 12 mΩ (20 °C, 20 kHz)	10 kHz: 2 ... 17 mΩ 100 kHz: 1.3 ... 3.8 mΩ 1 MHz: 1.6 ... 8.0 mΩ	0.5 ... 3 mΩ (70 °C, 10 kHz)	10 kHz:	0.5 ... 3 mΩ (70 °C, 10 kHz) 10 kHz:
Capacitance	380 µF (35 V <sub>DC</sub> ) 3000 µF (35 V <sub>DC</sub> )	2 x 2.2 µF (83 V <sub>DC</sub> , 2 A, 55 °C, 20 kHz) 4.7 µF (83 V <sub>DC</sub> , 2 A, 55 °C, 20 kHz) 22 µF (83 V <sub>DC</sub> , 9 A, 55 °C, 20 kHz) 68 µF (83 V <sub>DC</sub> , 12 A, 55 °C, 20 kHz) 80 µF (83 V <sub>DC</sub> , 20 A, 55 °C, 20 kHz)	10 ... 100 µF	3.5 ... 108 A (85 °C, 20 kHz) 0.8 ... 1.1 A	0.8 ... 1.1 A	3.5 ... 108 A (85 °C, 20 kHz) 0.8 ... 1.1 A
Mounting type, terminals	SMD Single-ended	Parallel wire leads	SMD	0.5 ... 3 mΩ (70 °C, 10 kHz)	10 kHz:	0.5 ... 3 mΩ (70 °C, 10 kHz) 10 kHz:
Volume	0.98 cm <sup>3</sup> 5.03 cm <sup>3</sup>	0.12 ... 15.6 cm <sup>3</sup>	0.02 ... 0.15 cm <sup>3</sup>	0.5 ... 3 mΩ (70 °C, 10 kHz)	10 kHz:	0.5 ... 3 mΩ (70 °C, 10 kHz) 10 kHz:
Height	12.5 mm 25 mm	6.5 ... 27.5 mm	2.5 ... 5.0 mm	0.5 ... 3 mΩ (70 °C, 10 kHz)	10 kHz:	0.5 ... 3 mΩ (70 °C, 10 kHz) 10 kHz:

**Receive information about the key characteristics:**

Max. Ripple Current Capability (10 kHz, 125 °C / 150 °C)	3.5 ... 108 A (85 °C, 20 kHz)	0.8 ... 1.1 A
ESR	0.5 ... 3 mΩ (70 °C, 10 kHz)	10 kHz:

**Explore product features and get detailed information:**

CeraLink® Capacitors  
B58031 Low Profile (LP) Series



**Features**

- Low Profile (LP) series with only 4 mm in height: 1 chip
- Increasing capacitance with DC bias and best in class capacitance density at operating point (V<sub>DC</sub> + T<sub>amb</sub>)
- High current capability due to low losses at high frequencies (up to several MHz) and high temperatures (up to +150 °C)
- No limitation of dV/dt
- Good self-regulating properties
- RoHS-compatible PLZT ceramic (lead lanthanum zirconium titanate)
- Qualification based on AEC-Q200 rev. D
- Soldering Method: Reflow

**Construction**

- Rated voltage: 500 VDC / 900 VDC
- Capacitance: C<sub>nom</sub> typ. 1 µF for 500 V types / 0.25 µF for 900 V types
- High current rating: 11 A<sub>RMS</sub> for 500 V types / 5 A<sub>RMS</sub> for 900 V types (@ 100 kHz, 85 °C ambient temperature)
- Low equivalent serial inductance (ESL): typ. 3 nH
- High temperature rating: +150 °C

[Further Product Data](#)
[Buy Now](#)

Start your investigation under:



<https://www.tdk-electronics.tdk.com/en/2804170/products/product-catalog/dc-link-capacitors>



[www.tdk.eu](http://www.tdk.eu)