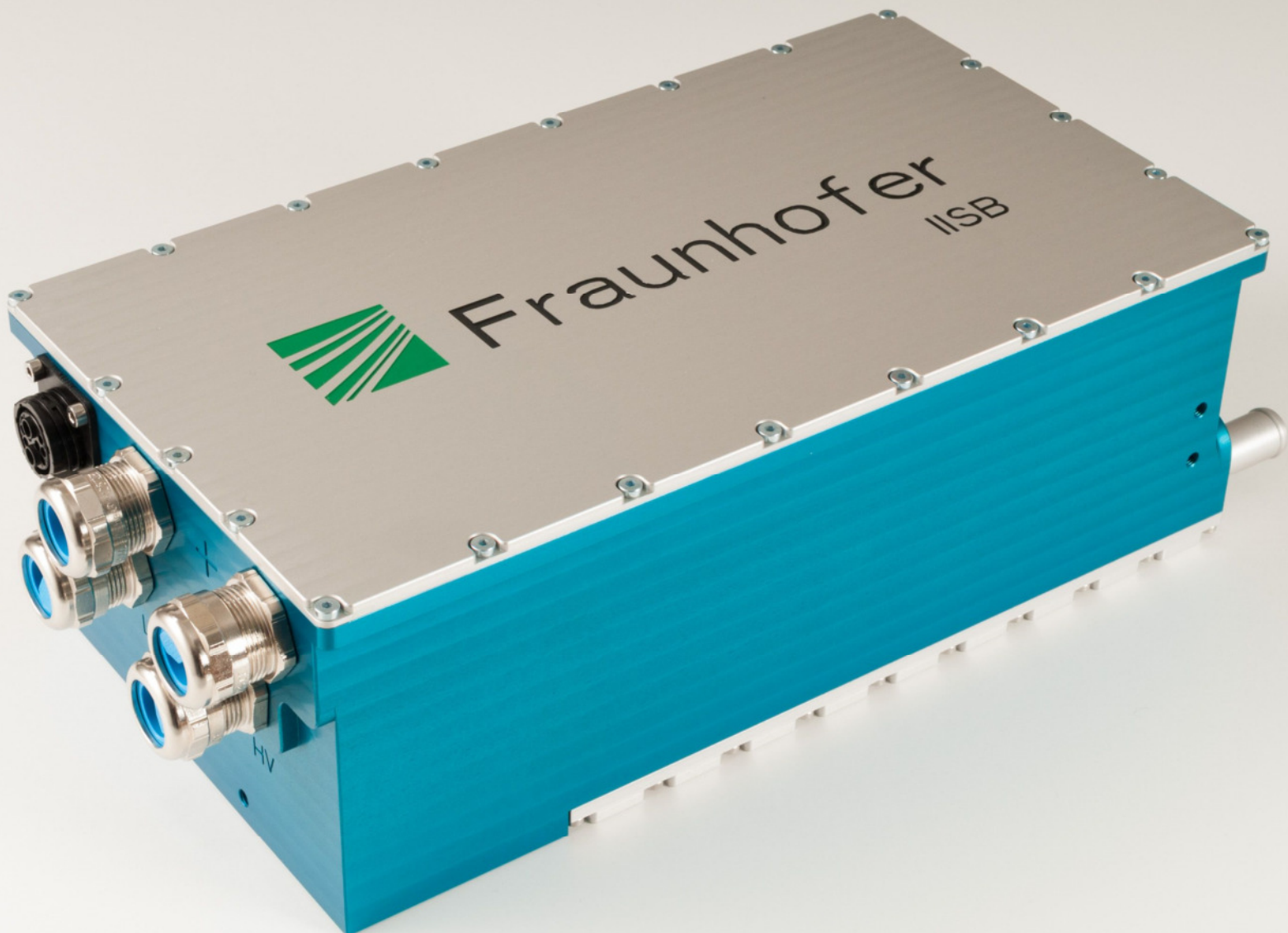
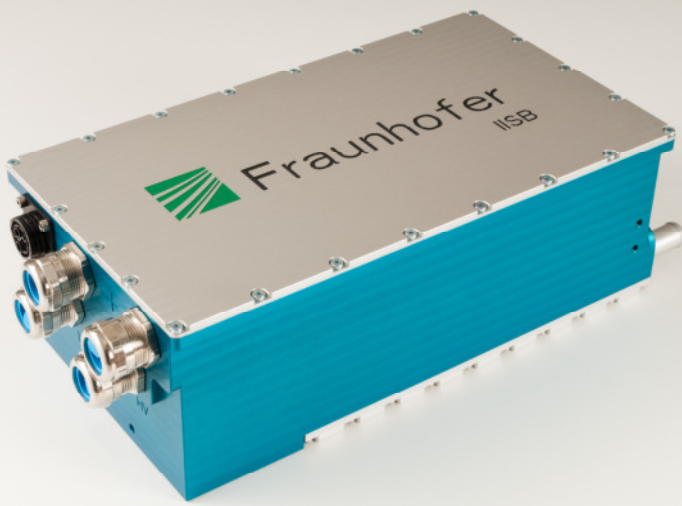


Bidirectional Power Train DC-DC Converter

for Electric, Hybrid, and Fuel Cell Vehicles





Bidirectional Power Train DC-DC Converter for Electric, Hybrid, and Fuel Cell Vehicles

Description

In electric or hybrid vehicles without a traction DC-DC converter, the battery, the inverter, and all other high voltage components must be selected very carefully being able to work with the variable battery voltage even under full load conditions. This leads often to expensive and voluminous components.

Fraunhofer IISB offers with the non-isolating high power DC-DC converter a solution that combines both very high efficiency and power density. It is a very modular design that can be adapted to higher power demands very easily and shows a high reliability using Semikron Skim 63 modules combined with custom-made Si/SiC hybrid DCB modules.

The Fraunhofer IISB converter fits perfectly in most electric, hybrid and especially fuel cell vehicles providing a stabilized DC voltage.

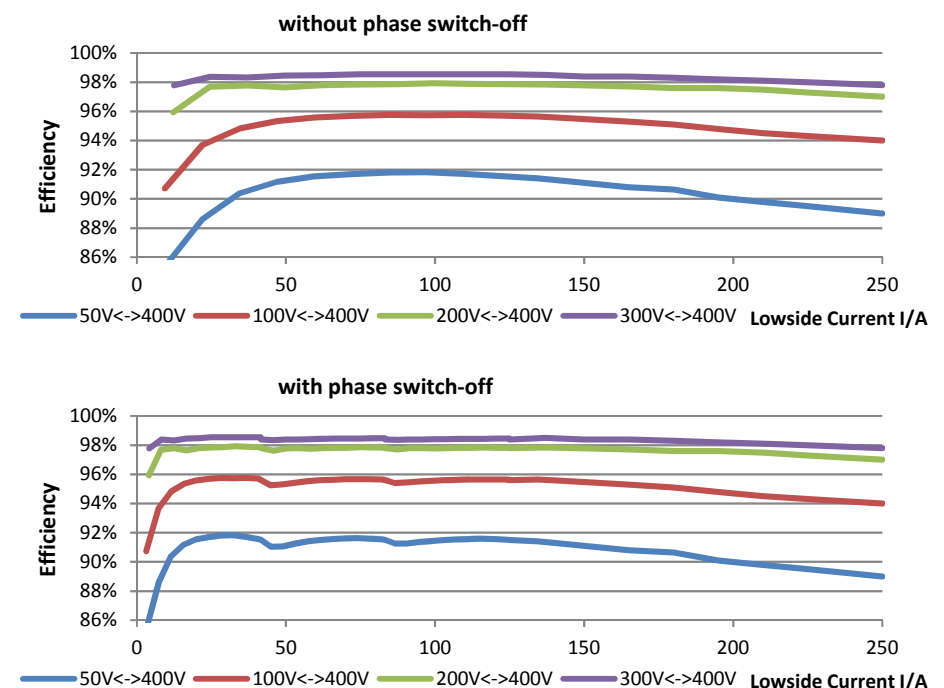
Technical Data

Lowside Voltage Range V_{LV}	50 - 400 V
Highside Voltage Range V_{HV}	$(V_{LV}+10V)$ - 430 V
Maximum Lowside Current	250 A
Maximum Output Power @ 333 V Input Voltage	83 kW
Coolant Temperature	-25°C to 85 °C
Switching Frequency	80 kHz
Dimension	35,5x22,5x12,5 cm ³
Weight	12,5 kg
Power Density	up to 8,3 kW/dm ³
Efficiency	up to 98,5 %

Features

- Fully digital controlled via CAN-Bus
- Programmable control loop parameters
- Temperature derating
- Over current protection
- Active discharge of capacitors
- Wide input and output voltage range
- High efficiency
- High power density
- Wide coolant temperature range
- Modular setup (can be extended easily)
- High switching frequency
- Intelligent phase switch-off function for high light load efficiency
- Highly reliable power modules

Efficiency Data



Fraunhofer Institute for Integrated Systems and Device Technology IISB

Schottkystrasse 10
91058 Erlangen, Germany

Contact

Stefan Matlok
Tel.: +49 9131 761-176
stefan.matlok@iisb.fraunhofer.de

www.iisb.fraunhofer.de