

AUDI SQ7 HYBRID 48V/12V DC-DC CONVERTER

February 2018, LTEC Corporation released a new analysis report of the Audi SQ7 Hybrid car 48V/12V DC-DC converter manufactured by Bosch. European car makers are developing 48V Hybrid system to improve cost, efficiency and fuel consumption, and we believe, this DC-DC converter is a significant step moving forward. The Audi SQ7 model is the first 48V Hybrid system deployed in an Audi model.

Basic features:

- ▶ Bidirectional multiphase buck-boost converter
- ▶ Multiphase trans-linked buck-boost converter
- ▶ $\geq 96\%$ efficiency
- ▶ 48/12 V bi-directional input/output voltage
- ▶ Up to 3 kW continuous rated output
- ▶ Weight: 2.7 kg
- ▶ Dimensions: 220 x 183 x 75 mm



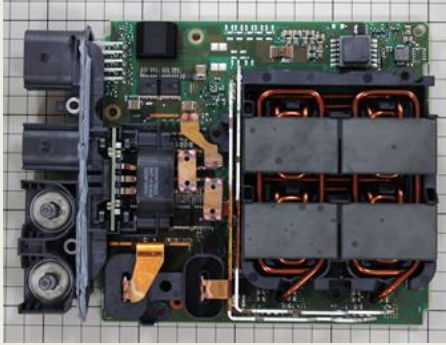
DC-DC module

- Products consists of top housing, bottom housing, connector cover, bus bar module, main board and capacitor board.
- The main board configuration is Internal Power Supply, 48V Side Switch, 12V Side Switch, CAN Communication, 4 Phase Step-down Converter, MCU, Peripherals, High Voltage Logics.
- DCDC convertor has Bidirectional circuit configuration. In both directions, the secondary side output is synchronous rectification type.
- And also it has four-phases system. Unique inductor configuration is used , and it realize the thinner structure.
- The circuit configuration of the 4 phase DC - DC converter has characteristics of the inductor configuration, making it slimmer.
- The current detection is a normal configuration using a shunt resistor on the 48 V side, however it is a configuration that uses ON resistance on the 12 V side.
- 57 pages report includes the layout of each layers, detailed circuit diagram, functional block diagram, parts list and simulation result.

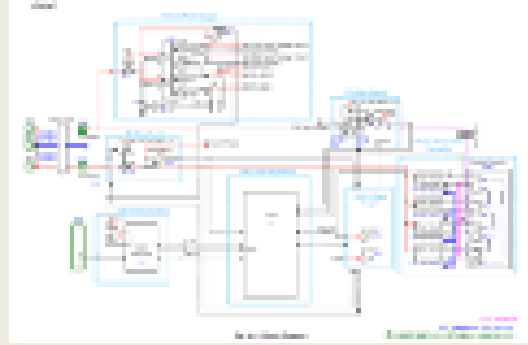
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Control board



Function block diagram

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