

The impact of high voltage on inverter





Overview

How does high voltage affect power supply efficiency?

through high voltage will occur through the efficiency. advancement of switch-mode power supplies With pulse-width modulation (PWM), these switches (SMPS) enabled by power electronics. In addition to energy-efficiency improvements, the incorporation of high voltage makes system wiring less complex and lighter.

What is a traction inverter?

These inverters, called traction inverters, usually transfer power in the tens-of-kilowatts range (+50kW). The power switches used in these full-bridge topologies are insulated gate bipolar transistors (IGBTs). Typical voltage levels for the power switches are 600V to 1200V.

Why do traction inverters need a SiC power module?

Since the power levels in traction inverters are significantly higher compared to those in OBCs, the current solution is a SiC power module. SiC power modules can reduce parasitics such as ringing, improving switching speed and increasing power density.

How many gate drivers does a 3 phase inverter use?

Considering the high power levels and voltage levels, a three-phase inverter uses six isolated gate drivers, as shown in Figure 2. Each phase uses a high- and low-side IGBT switch, usually operating in the 5kHz to 20kHz range, to apply positive and negative high-voltage DC pulses to the motor windings in an alternating mode.



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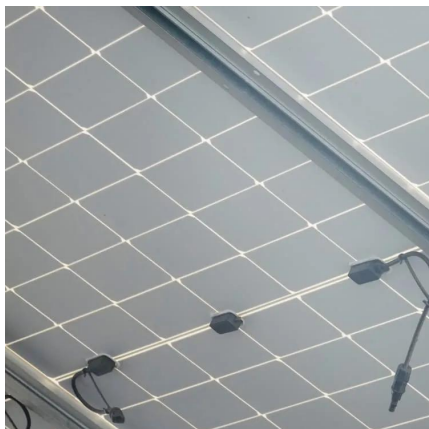
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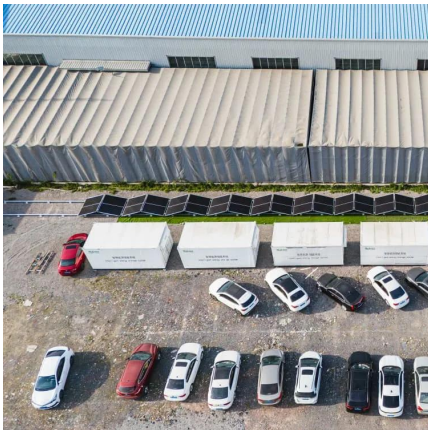
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