

# **Inverter high voltage silicon replacement**





## Overview

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What is a silicon based inverter?

Silicon-based inverters, primarily utilizing IGBTs and MOSFETs, have been the industry standard for decades. Their advantages include high reliability, mature manufacturing processes, and cost-effectiveness.

What is a high-power inverter?

It thoroughly utilizes the high-frequency and low-loss features of the SiC devices and validates the characteristics of SiC MOSFETs and IGBTs under the hybrid application of SiC&Si through simulations and experimentations. High-power inverters have been commonly used as power conversion devices in the fields of transportation and energy.

What is a silicon carbide inverter?

Our solution for this challenge?

The 800-Volt Silicon Carbide Inverter for Electrified Vehicles. Viper is the first 800-Volt inverter to use an innovative, double-side cooled silicon carbide (SiC)-based power switch that delivers the higher power densities and efficiencies needed to extend battery range and performance, and reduce costs.

Can a silicon carbide inverter be scaled?

Lastly, the 800-Volt Silicon Carbide Inverter for Electrified Vehicles can be scaled and adapted to lower and higher voltage systems, giving manufacturers much-needed economies of scale managing the multiple voltages and current levels required by PHEVs and BEVs.



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Schaeffler starts volume production of its ...

Sep 4, 2025 · First large-scale production of high voltage inverter brick for leading Chinese automotive manufacturer Production ramp-up in Tianjin, ...

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Inverter Innovations for High Voltage Applications

Sep 6, 2025 · The inverter brick generates high-frequency current pulses that operate the vehicle's electric motor. The component supports battery voltages beyond the standard 800V ...

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SiC MOSFETs Replacing Si IGBTs in EV ...

The year 2023 began with two major design wins for silicon carbide (SiC) semiconductors in traction inverters for electric vehicles (EVs). A traction ...

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Comparing Inverter Solutions: Silicon vs. Wide Bandgap ...

Apr 24, 2025 · IGBTs, in particular, are well-suited for high-voltage applications (above 600V) due to their high current-carrying capacity and low conduction losses. However, silicon devices ...

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SiC MOSFETs Replacing Si IGBTs in EV Inverters

The year 2023 began with two major design wins for silicon carbide (SiC) semiconductors in traction inverters for electric vehicles (EVs). A traction inverter--located between the high ...

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Viper Inverter Power Switch

Lastly, the 800-Volt Silicon Carbide Inverter for Electrified Vehicles can be scaled and adapted to lower and higher voltage systems, giving manufacturers much-needed economies of scale ...

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Inside a Hybrid Inverter that Integrates SiC ...

May 14, 2024 · Silicon Carbide (SiC) After decades of domination by silicon, silicon carbide (SiC) is replacing it as the gold standard in high-voltage ...

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Schaeffler starts volume production of its high voltage inverter ...

Sep 4, 2025 · First large-scale production of high voltage inverter brick for leading Chinese automotive manufacturer Production ramp-up in Tianjin, China within just one year despite ...

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Infineon high voltage Inverter Application Presentation

May 25, 2025 · Infineon high voltage Inverter Application Presentation Traction Inverter trends Semiconductors contribute to improved energy efficiency, but also to size and weight ...

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Comparing Inverter Solutions: Silicon vs. Wide ...

Apr 24, 2025 · IGBTs, in particular, are well-suited for high-voltage applications (above 600V) due to their high current-carrying capacity and ...

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Research on the Application of the High-Power SiC& Si ...

Dec 3, 2024 · This paper primarily discusses the hybrid application technology of high-voltage SiC MOSFETs and IGBTs in high-power three-level, three-phase inverters. It thoroughly utilizes ...

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Inside a Hybrid Inverter that Integrates SiC MOSFETs and ...

May 14, 2024 · Silicon Carbide (SiC) After decades of domination by silicon, silicon carbide (SiC) is replacing it as the gold standard in high-voltage power electronics, including in traction ...

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Extreme high efficiency enabled by silicon carbide (SiC) ...

Mar 15, 2024 · SiC MOSFETs are also poised to enable new applications, such as the replacement of the century-old 60 Hz Low-Frequency Transformer (LFT) with a Solid-State ...

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