

# Inverter and high voltage module





## Overview

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Who develops high voltage inverter systems for electric vehicles?

The vehicle manufactures and automotive tier 1 suppliers develop inverter systems for electric vehicles. Discussions were held with their design and research teams during direct meetings to understand future developments. Through these discussions, along with our own research, there are some clear high voltage inverter trends in the EV market. 3.

How can a high voltage inverter improve EV performance?

A better approach is to increase efficiency and decrease weight which extends the range of the EV and potentially reduces vehicle cost and running expenses. A significant contributor to achieving this is the inclusion of enhanced control, high voltage inverter modules in the vehicle. \*  
Corresponding author.

Which EV traction inverter is best?

For EV traction inverter, more efficiency and right performance are key. While IGBT is ideal for cost-optimized drive-train, SiC demonstrates higher efficiency under WLTP partial load scenario. Infineon offers the best scalability in market between IGBT and SiC, allowing customers to freely choose the technology for their needs.

What voltage is a traction inverter?

The product lineup includes a range of modules with rated blocking voltages of 3.3 kV, 4.5 kV, and 6.5 kV with package isolation voltages of 6.0 kV and 10.2 kV, and current ratings up to 1500 A—covering a wide spectrum of traction inverter applications (Table 1).



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### High Voltage IGBT Power Semiconductor Module

HIITIO High Voltage IGBT Modules range from 3300V to 6500V, supporting up to 3600A, ideal for traction drives, motor control, smart grids, and high-reliability inverters. Featuring AISiC ...

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### High Voltage Inverters: Understanding Its Benefits and ...

Jan 23, 2025 · Explore high voltage inverters, their benefits, applications, and how to protect them for optimal performance.

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### HV-IGBT Module for High-Performance Inverter Design

Aug 15, 2025 · To meet growing demands for energy-efficient and reliable inverter systems in traction applications, Mitsubishi Electric has introduced the XB-Series high-voltage IGBT ...

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### High Voltage Solutions in HEV/EV Part II:

Nov 14, 2025 · What will I get out of this session? Purpose: To provide an overview of complete high voltage power solutions in DC-DC Conversions and Tractions Inverters Introduction

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### High Voltage Inverter: Unlocking the ...

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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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### 3-phase Inverter Power Module 1200 V SPM 31 Series

The SPM 31 design objective is to provide a minimized package and a low power consumption module with improved reliability. It is achieved by applying new gate-driving High-Voltage ...

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### High-Voltage Inverter Retrofits in Power Plants

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Medium and High Voltage Inverters: Why IGBT Modules Are ...

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Trends in High Voltage Inverter Systems

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