Inverter high power module

What is an IGBT-inverter?

An IGBT-inverter is an inverter build with IGBT power modules to ensure high voltage/power switching functions. The IGBT power module is considered the 'heart' of the electrified drive train. Similar to a human heart distributing energy throughout our bodies,the power module functions as a human heart in the electric drive train for EV/HEVs.

What is IPM (Intelligent Power Module)?

IPM (Intelligent Power Module) is a high-performance moduleequipped with a dedicated drive circuit for drawing greater performance from an IGBT chip,and provides a custom IC for executing self-protection functions (short circuit,supply undervoltage,and over-temperature).

What is a power inverter used for?

An inverter enables power conversionfrom a source to a load.The inverter is primarily used for power conversion for two purposes: Power-to-power: Electricity conversion for transmission,distribution or energy storage.

How many IPMs are included in an inverter?

These IPMs integrate a complete inverter stage,including sixshort-circuit rugged IGBTs with freewheeling diodes,associated with high-side and low-side gate drivers in a single package. Built-in features for fault protection and temperature control are also included.

Why are IGBT and Diode Modules made thinner and miniaturized?

The IGBT and diode devices that constitute these modules have been made thinner and miniaturized to optimize the device structure. This has reduced the power loss during inverter operation compared with the conventional products (Fuji Electric's 6th-generation V Series)

What is an example of an electric car inverter?

An example is an electrical car driven by one or more electric motors. Here,the main inverter converts the DC current from the electric vehicle battery to AC current,driving the vehicle propulsion system. The inverter can consist of power semiconductors such as IGBTs,FETs,MOSFETs,SJ MOSFETs,SiC MOSFETs and GaN HEMTs to name a few.

The SKiiP 4 SiC integrates power modules, driver, current sensors and heatsink in a single, high-power unit. Whether you prefer a standard package or a ready-to-use solution, it"s your choice.

In this paper, the design of a high-power density power module using large-area SiC MOSFETs (10 mm × 10 mm) is presented. The performance of the proposed flip-chip double-side cooling ...

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