December 19, 2025
Fuji Electric Co., Ltd.

Fuji Electric Announces Collaboration with Robert Bosch GmbH for SiC Power Semiconductor Modules for Electric Vehicles with Mechanical Compatibility

Fuji Electric Co., Ltd. today announced an agreement with Robert Bosch GmbH (hereinafter "Bosch"), a leading German automotive parts manufacturer, to collaborate on SiC (silicon carbide) power semiconductor modules for electric vehicles that feature package compatibility.

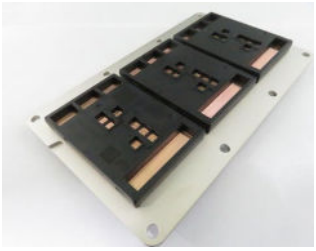
To achieve a carbon-neutral society, the widespread adoption of electric vehicles (EVs), including hybrid and electric vehicles, is highly anticipated. Power semiconductors are essential components for EVs, installed in inverter systems—the drive units of EVs—to convert and control electric power. Currently, SiC power semiconductors, which possess characteristics such as high breakdown voltage and low loss, are becoming increasingly prevalent. By adopting SiC power semiconductors, automotive manufacturers can achieve smaller and lighter inverter systems, thereby extending the cruising range, which is one of the critical challenges for the widespread adoption of EVs.

Fuji Electric's SiC power semiconductor modules for EVs incorporate our unique packaging technology, contributing to the realization of compact and highly efficient inverter systems with high power density. Furthermore, by flexibly modifying the size and number of mounted chips, these modules can accommodate a wide range of power requirements and circuit configurations from our automotive manufacturer customers.

Moving forward, both companies intend to develop SiC power semiconductor modules with mechanical compatibility in terms of package outer dimensions and terminal positions. This will enable either module to be integrated into an inverter system without additional mechanical modifications, thereby minimizing the adjustment effort required for customers when using both module options in their systems. This collaboration aims to shorten design periods and contribute to diversifying procurement sources. As a result, customers will be able to use SiC power semiconductor modules from both companies without altering their inverter system specifications, leading to reduced design time and diversified procurement.

Furthermore, both companies plan to jointly develop user application technologies related to cooler design and various terminal connections when integrating SiC power semiconductor modules into inverter systems, and plan to provide technical support to customers. Through this initiative, Fuji Electric and Bosch will contribute to enhancing supply chain stability and further promoting the adoption of electric vehicles.

Fuji Electric's SiC power semiconductor module with compatible external dimensions and terminal positions



Customers can combine multiple modules depending on their needs

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