

April 5, 2024
Fuji Electric Co., Ltd.

Launch of the HPnC Series Large-Capacity Industrial IGBT Modules for Expansion of the Use of Renewable Energy

Fuji Electric Co., Ltd. (FE) is pleased to announce the launch of the HPnC Series, a new series of large-capacity industrial IGBT* modules for applications including power converters for solar and wind power generation systems.

* Insulated-gate bipolar transistor

1. Background

In order to achieve a decarbonized society, further expansion of the use of renewable energy sources such as solar and wind power is required, and reducing power generation costs has become an issue. IGBT modules are installed in power converters such as inverters and power conditioning systems (PCSs), and they play the role of changing frequencies and voltages by switching electricity on and off.



HPnC Series

FE plans to release the HPnC Series large-capacity industrial IGBT* modules for applications including PCSs that perform power conversion in solar power generation systems and power converters for wind power generation systems. With increased rated current and voltage, these products improve the capacity and reduce the overall size of the power converters on which they are installed, thereby contributing to reducing power generation costs.

2. Features

(1) Improves the capacity of power converters, contributing to reducing the number of units installed and expanding the installation area of solar panels

In addition to using the latest generation of IGBT chips, the module's internal terminal layout and chip layout have been optimized and high heat dissipation materials have been applied to increase the current density per unit area, thereby achieving an industry-leading rated current of 1800 A (approximately 80% increase compared to the company's previous products) while maintaining the size of the module. The number of power converters installed can be reduced by improving the capacity per unit. In solar power generation, they can also be used to expand the installation area of solar panels. These features contribute to improving power generation efficiency and reducing power generation costs.

(2) The 2300 V breakdown voltage product supports 1500 VDC, contributing to reducing the number of parts in power converters

Power converters are being upgraded to support higher voltage (1500 VDC) in order to improve power conversion efficiency and connection with large-scale power generation systems. The rated voltage required for an IGBT module installed on a 1500-VDC power converter is 2000 V or higher. To accommodate this, generally, two IGBT modules with a rated voltage of 1200 V or 1700 V are connected in series. FE has optimized the breakdown voltage structure of the IGBT chip and the FWD* chip and now offers a lineup of IGBT modules with a rated

voltage of 2300 V.

One module can support a 1500-VDC power converter, which makes it possible to reduce the number of IGBT modules installed and other components such as wiring in peripheral circuits, allowing for a smaller power converter footprint. This contributes to lower power generation costs.

* Free-wheeling diode

3. Product Specifications

| Model No. | Rated current | Rated voltage | Circuit configuration | Dimensions W x D x H |
|-------------------|----------------------|----------------------|------------------------------|-----------------------------|
| 2MBI1200XZF170-50 | 1200 A | 1700 V | 2-Pack | 100mm x 144mm x 40mm |
| 2MBI1500XZF170-50 | 1500 A | | | |
| 2MBI1800XZF170-50 | 1800 A | | | |
| 2MBI1200XZF230-50 | 1200 A | 2300 V | | |

4. Launch Schedule

June 2024

5. Product Inquiries

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[Product Website]

https://www.fujielectric.com/products/semiconductors_devices/semiconductor/product_series/model_power_modules_igbt_2pack.html

*The information contained in this release (product features, inquiry information, prices, etc.) is accurate as of the date of this announcement. This information is subject to change without prior notice.