

FOR IMMEDIATE RELEASE

No. 3709

Customer Inquiries

Media Inquiries

Semiconductor & Device Marketing Dept. A and Dept. B
Mitsubishi Electric Corporation

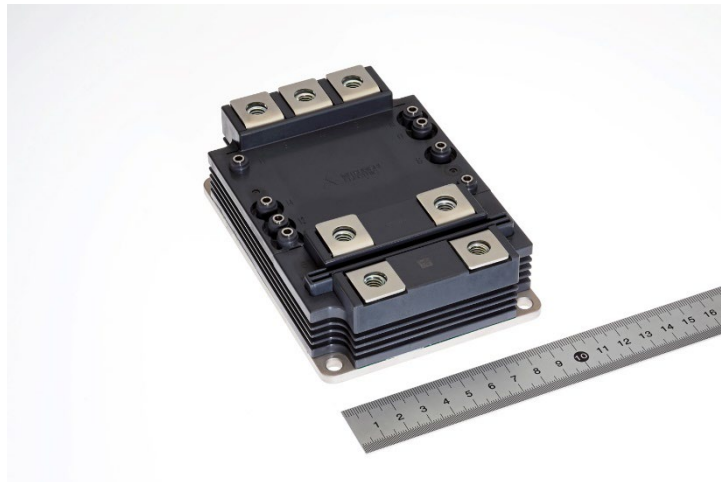
Public Relations Division
Mitsubishi Electric Corporation

www.MitsubishiElectric.com/semiconductors/powerdevices/

prd.gnews@nk.MitsubishiElectric.co.jp
www.MitsubishiElectric.com/news/

Mitsubishi Electric Ships Two New SBD-embedded SiC-MOSFET Modules

For extra-powerful, high-efficiency inverter systems in railcars, electric power systems and more



Unifull™ 3.3kV SBD-embedded SiC-MOSFET module

TOKYO, June 10, 2024 – [Mitsubishi Electric Corporation](https://www.mitsubishielectric.com) (TOKYO: 6503) announced today that it has begun shipping low-current 3.3kV/400A and 3.3kV/200A versions of a Schottky barrier diode (SBD) embedded silicon carbide (SiC) metal-oxide-semiconductor field-effect transistor (MOSFET) module for large industrial equipment, including rolling stock and electric power systems, from today, June 10. Together with the existing 3.3kV/800A version, the newly named Unifull™ series comprises three modules to meet the growing demand for inverters capable of increasing power output and power conversion efficiency in large industrial equipment. The new modules will be exhibited at major trade shows, including Power Conversion Intelligent Motion (PCIM) Europe 2024 in Nuremberg, Germany from June 11 to 13.

Mitsubishi Electric's SBD-embedded SiC-MOSFET modules, including the 3.3kV/800A version released on March 29, feature an optimized package structure to reduce switching loss and improve SiC performance. Compared to existing power modules, Unifull™ modules, significantly reduce switching loss and contribute to higher power output and efficiency in large industrial equipment, making them suitable for auxiliary power supplies in railcars and drive systems with relatively small capacities.

Product Features

1) *Low-current modules suitable for inverters of various output capacities*

- New 3.3kV/400A and 3.3kV/200A versions of Mitsubishi Electric's SBD-embedded SiC-MOSFET module, together with the existing 3.3kV/800A, comprise the new Unifull™ series.
- The new low-current modules are suitable for the auxiliary power supplies of rolling stock and relatively small-capacity drive systems, expanding the range of applications for improving the power conversion efficiency of inverters in large industrial equipment with varying power requirements.

2) *SBD-embedded SiC-MOSFETs contribute to inverter output, efficiency and reliability*

- SBD-embedded SiC-MOSFETs with an optimized package structure reduce switching loss by 54% compared to Mitsubishi Electric's existing full-SiC power module* and by 91% compared to the company's existing Si power module,** contributing to higher power output and efficiency.
- Adoption of Bipolar Model Activation (BMA) cell structure improves surge withstand capacity and contributes to improved inverter reliability.

Main Specifications

Model	FMF400DC-66BEW	FMF200DC-66BE
Voltage rating	3.3kV	3.3kV
Current rating	400A	200A
Isolation voltage	6.0kVrms	6.0kVrms
Connection	2in1	2in1
Dimensions (W×D×H)	100×140×40mm	100×140×40mm
Initial shipment	June 10, 2024	June 10, 2024

Lineup of Unifull™ SBD-embedded SiC-MOSFET Modules

Model	FMF800DC-66BEW	FMF400DC-66BEW	FMF200DC-66BE
Voltage rating	3.3kV	3.3kV	3.3kV
Current rating	800A	400A	200A
Isolation voltage	6.0kVrms	6.0kVrms	6.0kVrms
Initial shipment	March 29, 2024	June 10, 2024	June 10, 2024

To contribute to ongoing decarbonization, there is a growing need for power semiconductors that can efficiently convert power, particularly SiC power semiconductors that significantly reduce power loss. Power semiconductor modules for large industrial equipment are used in power conversion equipment, such as inverters for traction drive systems and power supplies, DC power transmission, and more. Demand is especially strong for high-power, high-efficiency SiC modules that can further improve power conversion efficiency and support inverter designs with varying output capacities.

* Comparisons of new 3.3kV/400A module (FMF400DC-66BEW) to existing full-SiC power module (FMF375DC-66A) and new 3.3kV/200A module (FMF200DC-66BE) to full-SiC power module (FMF185DC-66A)

** Comparison of new 3.3kV/400A module (FMF400DC-66BEW) to Si power module (CM450DA-66X)

Website

www.MitsubishiElectric.com/semiconductors/powerdevices/

Unifull is a trademark of Mitsubishi Electric Corporation.

###

About Mitsubishi Electric Corporation

With more than 100 years of experience in providing reliable, high-quality products, Mitsubishi Electric Corporation (TOKYO: 6503) is a recognized world leader in the manufacture, marketing and sales of electrical and electronic equipment used in information processing and communications, space development and satellite communications, consumer electronics, industrial technology, energy, transportation and building equipment. Mitsubishi Electric enriches society with technology in the spirit of its “Changes for the Better.” The company recorded a revenue of 5,257.9 billion yen (U.S.\$ 34.8 billion*) in the fiscal year ended March 31, 2024. For more information, please visit www.MitsubishiElectric.com

*U.S. dollar amounts are translated from yen at the rate of ¥151=U.S.\$1, the approximate rate on the Tokyo Foreign Exchange Market on March 31, 2024