MITSUBISHI ELECTRIC CORPORATION
PUBLIC RELATIONS DIVISION
7-3, Marunouchi 2-chome, Chiyoda-ku, Tokyo, 100-8310 Japan

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Customer Inquiries

Power Device Overseas Marketing Dept.A and Dept.B
Mitsubishi Electric Corporation

www.MitsubishiElectric.com/semiconductors/

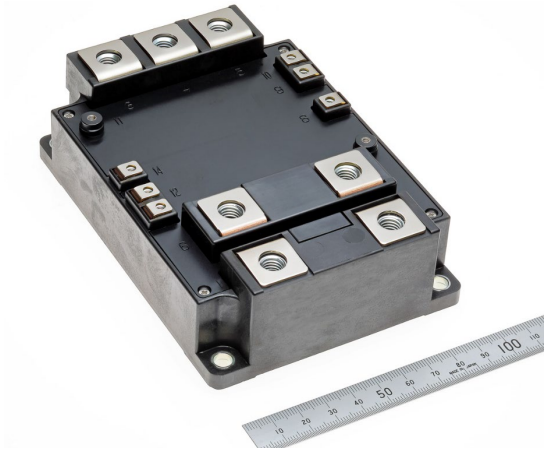
Media Inquiries

Public Relations Division
Mitsubishi Electric Corporation

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

Mitsubishi Electric to Ship Samples of LV100-type T-series 2.0kV IGBT Module for Industrial Use

Will reduce size and power consumption of DC1500V converters including renewable-energy types



LV100-type T-series 2.0kV IGBT Module for industrial use

TOKYO, April 21, 2022 – Mitsubishi Electric Corporation (TOKYO: 6503) announced today that it will begin shipping samples of its LV100-type T-series 2.0kV insulated-gate bipolar transistor (IGBT) Module for industrial use this May. The new power-semiconductor product is expected to downsize and reduce the power consumption of power-conversion equipment for use with renewable-energy sources. Also, the product will be exhibited at major trade shows, including Power Conversion Intelligent Motion (PCIM) Europe 2022 in Nuremberg, Germany from May 10 to 12.

Power semiconductors for efficiently converting electric power are being increasingly utilized as key devices that can help to lower the carbon footprint of global society. At the same time, efficient power conversion through the deployment of increasingly higher system-operating voltages is being demanded for power grids that use renewable-energy power sources, which has led to the development of power converters rated at DC1500V, the upper limit of the EU's Low Voltage Directive.[1]

[1] The directive provides common broad objectives for safety regulations, so that electrical equipment approved by any EU member country can be acceptable for use in any other EU country

Module samples that Mitsubishi Electric will start shipping soon have a blocking-voltage capability of 2.0kV, which is suitable for DC1500V power conversion equipment used mainly for large-capacity systems of several hundred kW to several MW, including renewable-energy power sources. Adopting 2.0kV withstand voltage semiconductors will enable customers to simplify the design of their DC1500V power-conversion equipment. Also, the latest 7th-generation IGBT and Relaxed Field of Cathode (RFC) diode[2] will help to downsize and reduce the power consumption of power-conversion equipment for renewable-energy power supply. In addition, the module's industrial LV100-type package, which is suitable for large-capacity systems due to its easy-paralleling configuration, will help to simplify large-capacity system designs.

Product Features

1) ***IGBT module with 2.0kV withstand voltage will downsize DC1500V power converters***
   - The new 2.0kV-rated IGBT simplifies the design of DC1500V-rated power converters, including for renewable-energy power sources, which are difficult to design using conventional 1.7kV-rated IGBTs.
2) ***7th-generation IGBT and RFC diode reduce power loss in power converters***
   - Latest (seventh-generation) IGBT with CSTBT™[3] structure and RFC diode optimized for high withstand voltage are suitable for high-voltage, lower-power-loss applications.
3) ***Industrial LV100-type package will increase capacity of power-conversion systems***
   - The terminal layout is optimized for easy paralleling and flexible inverter configurations and capacities.
   - Three AC main terminals help to spread and equalize current density for increased inverter capacity.
   - Integrating the structure's insulated and copper-base parts and optimizing the internal electrode structure increases thermal cycle life[4] and lowers package inductance for enhanced reliability.

Next Step

Mass production of the new IGBT Module is scheduled to begin in December 2022, after which its introduction will support the adoption of DC1500V power-conversion equipment for renewable-energy power sources, such as solar power-generation systems and power-storage systems, thereby contributing to the eventual realization of a carbon-free world.

Main Specifications

Type name	Voltage rating	Current rating	Isolation voltage	Connection	Size	Sample shipments
CM1200DW-40T	2.0kV	1200A	4kVrms	2 in 1	100 x 140 x 40 mm	May 2022

Environmental Awareness

This product is compliant with the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) directive 2011/65/EU and (EU) 2015/863.

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[2] Mitsubishi Electric's original diode that optimizes electron mobility on the cathode side
[3] Mitsubishi Electric's original IGBT structure using the carrier-storage effect
[4] Lifespan impacted by strain of relatively gradual temperature changes due to system start/stop

About Mitsubishi Electric Corporation

With 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 4,191.4 billion yen (U.S.$ 37.8 billion*) in the fiscal year ended March 31, 2021. For more information, please visit www.MitsubishiElectric.com

*U.S. dollar amounts are translated from yen at the rate of ¥111=U.S.$1, the approximate rate on the Tokyo Foreign Exchange Market on March 31, 2021