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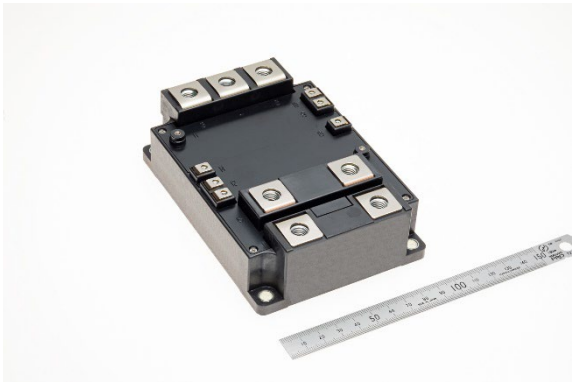
# Mitsubishi Electric to Ship Samples of LV100 1.2-kV IGBT Module for Industrial Use

*Eighth-generation IGBT chips help to minimize power loss in renewable-energy power-supply systems*



LV100-type 1.2-kV IGBT module for industrial use (CM1800DW-24ME)

**TOKYO, January 14, 2025** – Mitsubishi Electric Corporation (TOKYO: 6503) announced today that beginning February 15 it will provide samples of its new LV100-type 1.2-kV IGBT module as an industrial-use power semiconductor module for solar and other renewable-energy power-supply systems. Equipped with an eighth-generation insulated gate bipolar transistor (IGBT), the module minimizes power loss and maximizes output power of inverters and other components in power systems, such as photovoltaic power-generation systems and storage batteries.

The module will be exhibited at the 39th Electronics R&D, Manufacturing and Packaging Technology Expo (NEPCON JAPAN 2025) to be held at Tokyo Big Sight, Japan, from January 22 to 24, as well as other exhibitions in North America, Europe, China and additional locations.

Since their launch in 1990, Mitsubishi Electric's IGBT-based power semiconductor modules have been highly evaluated for their excellent performance and high reliability, leading to diverse applications in the consumer, automotive, industrial and railway sectors. The company has now developed its eighth-generation IGBT with original split-dummy-active (SDA[1]) and controlling-carrier plasma-layer (CPL[2]) structures.

[1] Optimizes gate capacity by dividing the gate dummy trench into two stages.
[2] Forms a deep N layer on the back of the chips to provide carrier control during dynamic operation.

Compared with an existing product,[3] the new LV100-type 1.2-kV module with an eighth-generation IGBT chips reduce power loss by approximately 15%[4] in inverters used in solar power-generation systems, storage batteries and more. In addition, the current rating of 1,800A, which is 1.5 times higher than that of the aforementioned existing product,[3] is achieved by optimizing the IGBT and diode chips layout, which is expected to boost inverter output power. Furthermore, the module's conventional package is easy to connect in parallel and can accommodate inverter configurations spanning a wide range of capacitances.

As the demand for power semiconductors increases, Mitsubishi Electric looks forward to expanding energy savings in power electronic equipment in various fields and providing such products quickly and stably to support green transformation (GX).

**Product Features**

***1) Eighth-generation IGBT contributes to 15% less power loss in inverter***

- An original SDA structure helps to suppress dv/dt[5] and enables higher switching speed compared to seventh-generation IGBT, which is expected to reduce turn-on switching loss.
- An original CPL structure suppresses turn-off spike voltage and realizes a thinner chips than that incorporating the seventh-generation IGBT.

***2) Contributes to higher inverter output power by increasing current rating to 1,800A***

- Optimized chips layout achieves a current rating of 1,800A, which is 1.5 times higher than that of an existing product[3].

***3) Leverages existing LV100 package to simplify paralleling design***

- Adoption of existing package simplifies paralleling and accommodates inverter configurations with a wide range of capacitances.
- Also, use of existing package simplifies replacement of existing products and shortens inverter design process.

**Main Specifications**

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|---|---|
| Product | CM1800DW-24ME |
| Current rating | 1,800A |
| Voltage rating | 1,200V |
| Isolation voltage | 4.0kVrms |
| Connection | 2in1 |
| Package size | 100×140×40mm |
| Shipment date | February 15, 2025 |
| 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. |

[3] Comparison with CM1200DW-24T.
[4] Calculations based on Mitsubishi Electric simulations: 3 level A-NPC, Vcc=750V, Io=920Arms, M=0.65, PF=1, Fc=2.5kHz, Fo=50Hz.
[5] Amount of change in a voltage value over time.

In recent years, there has been a growing demand for power semiconductors as key devices capable of contributing to decarbonization. In particular, power semiconductor modules for renewable-energy applications are being used in power-conversion devices such as inverters in solar-power systems and storage batteries. It is becoming increasingly important to improve these system's power-generation and storage efficiency as well as power consumption, and their power semiconductor modules also must achieve higher efficiency and output.

**Website**

www.MitsubishiElectric.com/semiconductors/powerdevices/

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**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