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FOR IMMEDIATE RELEASE **No. 3908**

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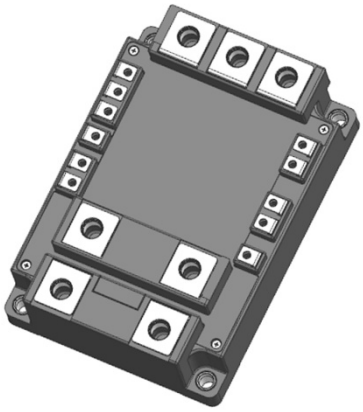
Mitsubishi Electric and Semikron Danfoss Jointly Develop New Standard Package for Power Semiconductor Modules

New LV100-type standard package with integrated 3-level circuit contributes to standardized inverter designs



New LV100-type standard package with integrated 3-level circuit

TOKYO, June 8, 2026 – Mitsubishi Electric Corporation (TOKYO: 6503) announced today that it has jointly developed a new standard package for power modules with integrated 3-level circuits,[1] designed for industrial drive equipment and renewable energy systems, in collaboration with Semikron Danfoss Elektronik GmbH & Co. KG, a leading global manufacturer of power semiconductors.

This new standard package is based on Mitsubishi Electric's LV100-type package for high-power applications and Semikron Danfoss's SEMITRANS20 package. By optimizing terminal layout and functions specifically for 3-level circuits while ensuring compatibility between the two companies' products, the new package will help customers standardize their inverter designs.

As the movement toward Green Transformation (GX) accelerates to realize a decarbonized society, demand is growing for power semiconductors that efficiently convert electricity. Particularly in the industrial sector, to further reduce power consumption, there is increasing adoption of 3-level circuits, which offer higher efficiency and allow for smaller peripheral components compared to conventional 2-level circuits.

[1] 3-level circuit: A circuit topology that controls DC voltage using three potential levels. Compared to conventional 2-level circuits, it produces an output waveform closer to a sine wave, enabling higher efficiency and the miniaturization of peripheral components.

The new package, jointly developed by Mitsubishi Electric and Semikron Danfoss, incorporates a 3-level T-type circuit, contributing to higher efficiency and more compact inverter designs. Furthermore, the optimal arrangement of main electrode terminals and auxiliary control terminals specifically for 3-level T-type circuits enhances inverter design flexibility.

Moving forward, both companies will independently develop products using this new standard package, contributing to standardized inverter designs.

The package concept is scheduled to be exhibited at Power Conversion Intelligent Motion (PCIM) Expo & Conference 2026 in Nuremberg, Germany from June 9 to 11, as well as upcoming exhibitions in Japan, China and other countries.

Key Features of the New Standard Package

1) Jointly developed with Semikron Danfoss to ensure compatibility and standardized inverter design

- Developed a new standard power module package that ensures compatibility in terminal layout and functions, based on Mitsubishi Electric's LV100-type and Semikron Danfoss's SEMITRANS20 high-power packages.
- By having both companies develop products using this shared standard, customers can more easily standardize their inverter designs across different suppliers.

2) Integrated 3-level T-type circuit contributes to higher efficiency and miniaturization of inverters

- Consolidates a 3-level T-type circuit, which typically requires a complex configuration, into a single power module package.
- This integration simplifies the design of 3-level T-type inverters—which offer higher efficiency and smaller peripheral components than 2-level designs—thereby contributing to overall inverter efficiency and miniaturization.

3) *Optimized terminal layout and functions for 3-level T-type circuits enhance design flexibility*

- Optimized placement of main electrode terminals reduces the parasitic inductance[2] of the power module and simplifies the design of the inverter's busbars.[3]
- Equipped with auxiliary control terminals for four elements required for 3-level inverter control. The optimized placement of these auxiliary terminals simplifies the design of the drive circuitry.
- The overall optimization of main and auxiliary terminals significantly improves design flexibility for high-power 3-level inverters.

[2] One of the electrical characteristics; during the operation of power semiconductor modules, it can lead to product failures such as overvoltage, so it is desirable to reduce it.

[3] When designing inverter using power semiconductor modules, the copper plate required to connect the capacitors (which are passive components) to the power semiconductor modules is referred to as a busbar. Busbars are typically optimized for each specific inverter system.

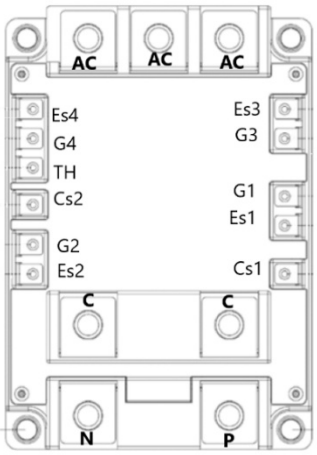


Fig.1 External dimensions and terminal layout

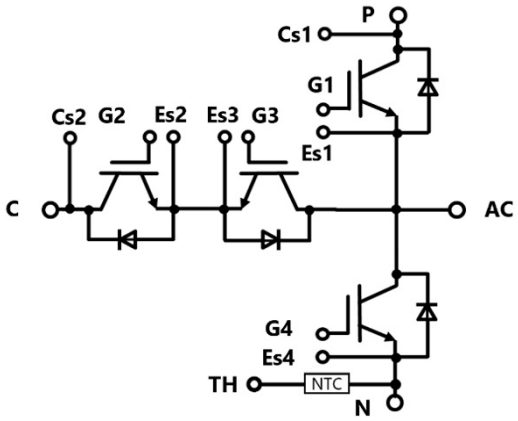


Fig.2 The internal circuit diagram

Main Specifications

Applications	Industrial drive equipment, Renewable energy systems
Connection	3-level T-type circuit (4 elements integrated)
External Dimensions	100mm × 144mm × 40mm

Website

https://www.MitsubishiElectric.com/semiconductors/powerdevices/

About Semikron Danfoss Elektronik GmbH & Co. KG

Semikron Danfoss is a global leader in power electronics. With approximately 3,500 employees, the company provides innovative solutions in industrial drives, renewable energy, and automotive sectors.

For more details, please visit: http://www.semikron-danfoss.com/

"SEMITRANS" is a trademark or registered trademark of Semikron Danfoss Elektronik GmbH & Co. KG.

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About Mitsubishi Electric Corporation

Guided by its corporate philosophy, Mitsubishi Electric Corporation (TOKYO: 6503) places sustainability at the core of its operations and values stakeholder trust—encompassing society, customers, shareholders and employees. In pursuing profitability, capital efficiency and growth, Mitsubishi Electric works closely alongside customers to develop value-added solutions that address today's complex challenges while enhancing the company's sustainable corporate value.

Founded in 1921, Mitsubishi Electric has over a century of experience in delivering reliable, high-quality products and solutions. With over 200 group companies and approximately 150,000 employees worldwide, the company is a recognized global leader in manufacturing, marketing and selling electrical and electronic equipment and systems across a broad range of sectors, including public utility systems, energy systems, defense and space systems, factory automation systems, automotive equipment, building systems, air conditioning systems & home products, digital innovations, and semiconductor & devices.

Mitsubishi Electric recorded consolidated revenue of 5,894.7 billion yen (U.S.$ 36.8 billion*) in the fiscal year that ended on March 31, 2026. For more information, please visit www.MitsubishiElectric.com

*JPY 160=USD 1, the approximate rate on the Tokyo Foreign Exchange Market on March 31, 2026