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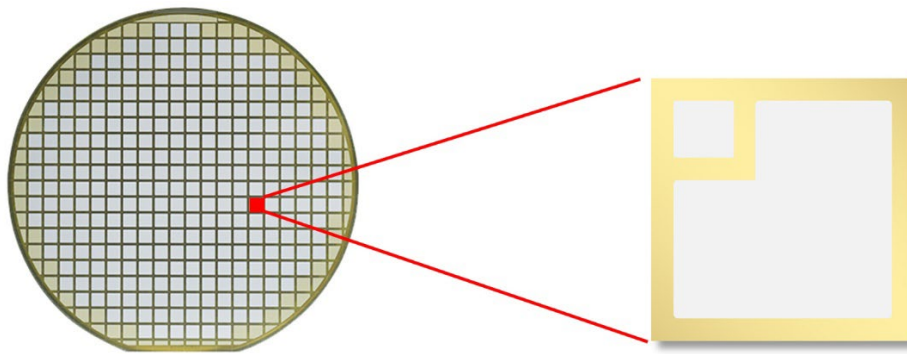
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Mitsubishi Electric to Ship 5th-generation SiC-MOSFET Bare Die Samples

Industry-leading low on-resistance, approx. 25% less than existing products, enhances xEV power efficiency



Wafer with trench SiC-MOSFETs (rendition)

Trench SiC-MOSFET bare die layout (rendition of sample)

TOKYO, June 4, 2026 – [Mitsubishi Electric Corporation](https://www.mitsubishielectric.com) (TOKYO: 6503) announced today that it will begin sequentially shipping samples in late June of two types of new 5th-generation silicon carbide metal-oxide-semiconductor field-effect transistors (SiC-MOSFETs) in bare die form. The new SiC-MOSFETs are designed for use in inverters for drive motors and eAxles¹ of electric vehicles (EVs), plug-in hybrid vehicles (PHEVs), and other electrified vehicles (xEVs). They feature Mitsubishi Electric’s proprietary trench structure² and achieve industry-leading³ low on-resistance⁴ approximately 25% lower⁵ than that of existing products.

The products will be displayed at PCIM Expo & Conference 2026 (June 9-11, Nuremberg, Germany) as well as exhibitions in Japan, China and other countries.

Mitsubishi Electric’s 5th-generation SiC-MOSFET bare dies will contribute to the performance and miniaturization of xEV inverters and eAxles, which will extend the range and improve the power efficiency of xEVs. In addition, the company’s proprietary manufacturing process technology suppresses performance degradation and fluctuations in power loss and on-resistance, ensuring stable quality even after long-term use, and contributing to the durability and performance of xEV inverters and eAxles.

¹ A drive unit integrating the motor, inverter, and gearbox, which forms the heart of an EV.

² A structure where grooves (trenches) are etched from the wafer surface and filled with gate electrodes.

³ Mitsubishi Electric’s research as of May 29, 2026.

⁴ On-resistance refers to the resistance value generated between the drain and source when a power semiconductor such as a MOSFET is in the switch-on state.

⁵ When comparing the on-resistance of the new product and the conventional product (4th generation trench SiC-MOSFET) with the same rated voltage and threshold voltage adjusted.

Product Features

- 1) ***New trench SiC-MOSFET structure cuts on-resistance for improved xEV range and power efficiency***
 - Mitsubishi Electric’s proprietary flat source contact (FSC) structure,⁶ a new trench structure, and conventional oblique ion implantation technology increase cell density and facilitate current flow for industry-leading³ low on-resistance.
 - On-resistance is approximately 25% lower than that of conventional trench SiC-MOSFETs,⁵ enabling improved performance and miniaturization of xEV inverters, which will extend the range and improve the power efficiency of xEVs.
- 2) ***New manufacturing technology for trench SiC-MOSFETs maintains xEV performance over long term***
 - Mitsubishi Electric’s proprietary manufacturing technology suppresses performance degradation due to body diode conduction,⁷ helping to stabilize quality.
 - The new trench SiC-MOSFETs suppress fluctuations in power loss and on-resistance that occur during switching operations. This was achieved by applying the company’s 20-year manufacturing expertise in researching and manufacturing planar⁸ and trench SiC-MOSFETs and silicon carbide Schottky barrier diodes (SiC-SBDs⁹), including proprietary SiC process control and a unique gate oxide film manufacturing method.
 - Stable quality will contribute to xEV inverter and eAxle durability for long-term xEV performance.

Main Specifications

Type	WF0007Q-1200AA	WF0005Q-0750AA
Application	For xEV	
Rated Voltage	1200V	750V
On-Resistance	6.7mΩ	4.8mΩ
Surface Electrode Specification	Supports solder bonding	
Back Electrode Specification	Supports solder bonding and Ag sintering	
Price	By individual quotation	
Sample Shipments	Late June 2026	Late July 2026
Environmental Impact	Compliant with RoHS ¹⁰ Directive (2011/65/EU, (EU) 2015/863)	

Demand is growing for power semiconductors that efficiently convert electricity for enhanced decarbonization. In the automotive sector, the demand for power semiconductors for power conversion equipment, such as inverters for motor drives, is expanding and diversifying, driven by vehicle electrification aimed at reducing greenhouse gas emissions. Expectations are rising for SiC power semiconductors that significantly reduce power loss.

⁶ A structure where an insulating film is embedded inside the trench.

⁷ The phenomenon where the diode built into the MOSFET automatically flows as a bypass when switching off.

⁸ A structure where the gate electrode is formed on the wafer surface.

⁹ A diode that utilizes the Schottky barrier generated at the junction between a semiconductor and a metal.

¹⁰ Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment.

Mitsubishi Electric began mass producing power semiconductor modules for xEVs in 1997, ahead of the industry. Since then, the company has achieved success in overcoming challenges related to inverter miniaturization, including improved reliability despite thermal cycling,¹¹ and its products have been adopted by various EV and hybrid EV (HEV) manufacturers. Additionally, since the company's 2010 commercialization of SiC power semiconductor modules that significantly reduce power loss, these product have been adopted in inverter systems for air conditioners, industrial equipment and railway vehicles, contributing to lower power consumption in home appliances, industrial equipment and railcars.

Going forward, Mitsubishi Electric intends to expand its supply of high-quality, low-loss SiC-MOSFET bare dies for xEVs and other energy-saving power electronics equipment in support of the Green Transformation.

Website

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

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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

¹¹ Repeated cycles of temperature increase and decrease of the entire product due to changes in the external environment, etc.