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Fifth-Generation SiC MOSFETs Lower On-Resistance 30% At High Temperatures

ROHM Semiconductor's fifth-generation SiC MOSFETs, members of the EcoSiC series, are said to achieve industry-leading low loss, driving the broader adoption of SiC technology. Through structural enhancements and manufacturing process optimization, these MOSFETs reduce on-resistance by approximately 30% during high temperature operation (Tj = 175°C) compared to conventional fourth-generation products (under the same breakdown voltage and chip size conditions). See the figure.

This improvement contributes to making units smaller while increasing output power in high temperature applications such as traction inverters for xEVs. The company notes that this technology is also suitable for use in power supplies for AI servers and data centers, PV inverters, energy storage systems, uninterruptible power supplies, eVTOL, and ac servos.

ROHM began supporting the bare dies business with fifth-generation SiC MOSFETs in 2025 and completed development in March 2026. Furthermore, starting from July 2026, ROHM will provide samples of discrete devices and modules incorporating fifth-generation SiC MOSFETs.

Going forward, ROHM plans to expand its fifth-generation SiC MOSFET lineup with additional breakdown voltage and package options. ROHM will also continue to enhance its design tools and strengthen application support. By further promoting the implementation of SiC technology—now entering the mainstream phase—ROHM contributes to more efficient power utilization across a wide variety of high-power applications.

EcoSiC is a brand of devices that utilize silicon carbide. ROHM independently develops the core technologies needed to advance SiC devices completely in-house, from wafer fabrication and process development to packaging and quality control. At the same time, the company has established a fully integrated production system that spans the entire manufacturing flow.

For more on the company's fourth-generation SiC power devices see the SiC MOSFETs page. For more about the fifth-generation devices, contact the company.

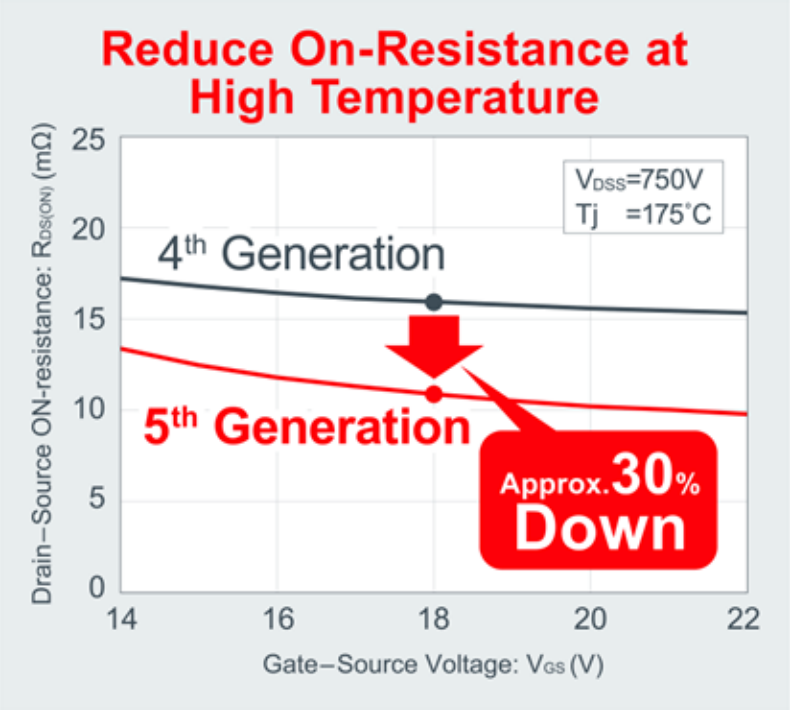

Table. Rohm's fifth-generation SiC MOSFETs reduce on-resistance at high temperature versus fourth-generation devices.