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6.5-kV SiC MOSFET Is Step On Roadmap To 10-kV MOSFETs And 20-kV IGBTs

[NoMIS Power](#) has demonstrated its first 6.5-kV large-die SiC MOSFET. The device was measured at over 8-kV blocking, 90-m Ω on-resistance, and 55-A drain current. The result carries NoMIS Power's proven planar SiC device technology from its established 3.3-kV devices into the high-voltage class, and establishes a clear, demonstrated path toward the company's forthcoming 10-kV MOSFETs and 20-kV SiC IGBTs, says the vendor.

NoMIS Power's high-voltage SiC roadmap spans three stages—3.3 kV in production and 6.5 kV sampling, with 10 kV in development. The 3.3 kV is available now in production in the form of a complete SiC MOSFET family, spanning 80 m Ω (34 A), 50 m Ω (55 A), and 25 m Ω (105 A) devices in TO-247-4L-HC and bare die. These are complemented by 50- to 160-m Ω SiC bidirectional switches and a 500-A half-bridge power module.

The 6.5-kV large-die SiC MOSFET is sampling now to U.S.-based customers for evaluation and anchors an expanding 6.5-kV line, adding on-resistance variants, small-die devices, hybrid junction-barrier Schottky FET (JBSFET) devices, and standalone diodes. According to the vendor, its JBSFET construction prevents body diode degradation issues, making it very robust for critical applications. Target applications include HVDC, solid-state transformers, pulsed power, rail traction, and MW-scale EV charging. Standard production 6.5-kV parts are scheduled for Q4 2026 and will be available to commercial customers.

Meanwhile, 10-kV and higher voltage devices are in development with sampling expected in Q4 2026. The pipeline includes MOSFETs, diodes, hybrid (JBSFET) devices, and SiC IGBTs targeting grid-scale HVDC, next-generation traction, and advanced pulsed power, extending the roadmap toward 20 kV.

With regard to the 6.5-kV devices, NoMIS Power is engaging system developers on design-in, custom current ratings, and packaging. Teams evaluating high-voltage SiC for HVDC, solid-state transformers, pulsed power, traction, high-power charging, or aerospace and defense platforms can contact NoMIS Power to align to the 6.5-kV, 10-kV, and 20-kV roadmap.

"Demonstrating 6.5-kV blocking to over 8 kV proves our planar SiC platform scales cleanly from the 3.3-kV devices shipping today into the high-voltage class," said Adam Morgan, co-founder and CEO of NoMIS Power. "High-voltage SiC is becoming foundational to data-center, grid, aerospace, and defense power systems, and it should be built at home—we're building the domestic source the industry can qualify against, from 3.3 kV and 6.5 kV today to 10-kV MOSFETs and 20-kV SiC IGBTs on our roadmap."

The company's devices are U.S.-designed, ITAR- and DFARS-aware, and available through various foundry options, and its SiC is already specified into U.S. government-funded programs such as U.S. Department of Energy and Department of War programs. The company supports device qualification and design-in—including form-fit-function-compatible devices and support for existing high-voltage SiC platforms—to reduce single-source risk and strengthen continuity of supply for mission-critical programs.

NoMIS Power designs SiC devices, packaging, and power modules at its facility within the Albany Nanotech Complex in Albany, New York. For more information, see the company [website](#) or contact [Adam Morgan](#).