

May 26, 2026



Microchip Launches 3.3 kV HV-D3 mSiC® Power Modules to Enable Solid-State Transformers for AI Data Centers

New silicon carbide modules deliver the required thermal performance and efficiency for SSTs to increase power available for token generation

CHANDLER, Ariz., May 26, 2026 (GLOBE NEWSWIRE) -- Microchip Technology (**Nasdaq: MCHP**) today announces the availability of its new [3.3 kV HV-D3 mSiC® Power Modules](#), designed to simplify and accelerate the adoption of solid-state transformers (SSTs) in AI hyperscale data centers and other high-voltage power applications. The new modules integrate 3.3 kV silicon carbide (SiC) mSiC® MOSFETs and Schottky diodes in an industry-standard 62 mm package, enabling efficient power delivery from the medium-voltage grid directly to the server rack.

As AI data centers continue to scale, token generation is limited by power availability, while efficiency is a defining factor for return on investment. Traditional architectures based on bulky, low-frequency transformers add complexity, increase losses and limit flexibility. [Solid-state transformers](#) represent a foundational shift in power delivery, reducing conversion stages and enabling higher system efficiency. The industry's shift toward higher-voltage DC rack distribution in next-generation AI facilities further amplifies the value of SSTs, which are intended to deliver regulated DC directly from the medium-voltage grid with fewer conversion stages.

Microchip's HV-D3 mSiC modules are engineered specifically to meet these requirements. The modules use Microchip's mSiC MOSFET technology, which offers highly competitive $R_{DS(on)}$ stability over temperature, with packaging that supports 6 kV isolation, incorporates CTI 600-rated materials and features extended creepage distances, designed to allow safe series connection for high-voltage operation. A silicon nitride (Si_3N_4) substrate delivers enhanced thermal conductivity and power-cycling capability, helping designers achieve higher power density with less aggressive cooling.

"As AI datacenters continue to push limits in supplying power from the grid to the GPU, the need for solid-state transformers becomes increasingly important," said Clayton Pillion, vice president of Microchip's high-power solutions business unit. "Our 3.3 kV HV-D3 mSiC power modules enable designers to reduce the number of series connected devices by roughly half versus lower-voltage SiC alternatives when interfacing to 13.8 kV or 34.5 kV grids. The devices also address a key gap in the industrial market for 100–300A products, bridging discrete SiC devices and much larger power modules."

The HV-D3 mSiC power modules are available in half-bridge and common-source configurations, with and without anti-parallel Schottky diodes, addressing applications in the 100-300A range. Microchip's mSiC MOSFET technology, offers balanced switching losses

for both hard-switched and soft-switched topologies, making the devices well suited for SST designs and other high-frequency, high-voltage systems.

While optimized for solid-state transformers in AI data centers, the HV-D3 mSiC power modules also address a wide range of applications, including megawatt charging infrastructure for heavy-duty vehicles, auxiliary power supplies for rail/heavy transportation, medium-voltage motor drives, industrial and defense power systems. These markets benefit from the same combination of high isolation, thermal robustness, and efficient power conversion.

Microchip has over 20 years of experience in the development, design, manufacturing and support of SiC devices and power solutions, to help customers adopt SiC with ease, speed and confidence. The company's mSiC products and solutions are designed to provide lower system cost, faster time to market and lower risk. Microchip offers a broad and flexible portfolio of SiC diodes, MOSFETs and gate drivers. For more information, visit www.microchip.com/sic.

Development Tools

The 3.3 kV power modules are supported by an [application note, design guide, device and simulation models](#) for rapid prototyping. Additionally, Microchip provides global technical support, design services and field application engineering support.

Pricing and Availability

The 3.3 kV mSiC power modules are available to purchase in production quantities. You can [purchase](#) directly from Microchip or contact a Microchip [sales representative or authorized worldwide distributor](#).

Resources

High-res images available through Flickr or editorial contact (feel free to publish):

- Application image: www.flickr.com/photos/microchiptechnology/55264371024/sizes/l

About Microchip Technology:

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Source: Microchip Technology Inc.