

FOR IMMEDIATE RELEASE

Media Contact: Mina Galvan
Tel: 408.789.3233
Email: mina.galvan@aosmd.com

Alpha and Omega Semiconductor Supports 800 VDC Power Architecture for Next-Generation AI Factories with Innovative SiC and GaN, Power MOSFET, and Power IC Solutions

SUNNYVALE, Calif., Oct. 13, 2025 – [Alpha and Omega Semiconductor Limited](#) (AOS) (Nasdaq: AOSL) a designer, developer, and global supplier of a broad range of discrete power devices, wide bandgap power devices, power management ICs, and modules, today announced support for the power requirements of the innovative [800 VDC architecture](#) announced by NVIDIA. This architecture is set to power the next generation of AI data centers, which will feature megawatt-scale racks to meet the exponential growth of AI workloads.

The shift from traditional 54V power distribution to an 800 VDC system is a fundamental change in data center design, aimed at overcoming the physical limits of existing infrastructure. By reducing power conversion steps and enabling more efficient power delivery, the 800 VDC architecture promises significant efficiency gains, reduced copper usage, and improved reliability. This paradigm shift requires advanced power semiconductors, particularly Silicon Carbide (SiC) and Gallium Nitride (GaN), to handle the higher voltages and frequencies with maximum efficiency.

"As a key supplier to the high-performance data center market, our portfolio of SiC and GaN products is strategically aligned with the core technical demands of next generation AI factories with 800 VDC power architecture," said Ralph Monteiro, Sr. VP, Power IC and Discrete Product lines at AOS. "We are collaborating with NVIDIA to design 800 VDC power semiconductors to provide the high efficiency and power density necessary for the new power distribution modules, from the initial AC-to-DC conversion to the final DC-to-DC stages within the racks."

AOS' expertise in developing and manufacturing wide bandgap (WBG) semiconductors positions it as a strong enabler for this transition. The company's products are well-suited for the crucial power conversion stages highlighted in the next generation AI factory 800 VDC power architecture:

- **High-Voltage Conversion:** AOS' SiC devices, including the Gen3 AOM020V120X3 or topside cooled AOGT020V120X2Q, offer superior voltage handling and low losses, making them ideal for either the power sidecar configuration or the single-step conversion of 13.8kV AC grid power directly to 800 VDC at the data center perimeter. This simplifies the power chain and enhances overall system efficiency.
- **High-Density DC-DC Conversion:** Within the racks, AOS' 650V GaN FETs, like our upcoming AOGT035V65GA1, and our 100V GaN FETs like AOFG018V10GA1 provide the required density essential for converting the 800 VDC power to the lower voltages needed by GPUs. Their high-frequency switching capabilities allow for smaller, lighter converters, freeing up valuable space for more compute resources and improving cooling efficiency.

-more-

- **Packaging Innovations:** AOS' 80V, 100V stacked-die MOSFETs like AOPL68801, and 100V GaN FETs share a common package footprint, allowing designers to trade off cost and efficiency in the secondary side of LLC topologies and also in 54V to 12V bus converters. AOS' innovative stacked die packages enable next-level power density for the secondary side LLC socket.
- **Multiphase Controllers:** AOS also offers high-performance, multi-rail 16-phase controllers for the 54V to 12V and further downstream conversion stages to the AI SoC.

By providing these foundational power technologies, AOS is helping to advance the benefits of the 800 VDC architecture, including up to a 5 percent improvement in end-to-end efficiency, a 45 percent reduction in copper requirements, and a significant cut in maintenance and cooling costs. This reinforces AOS' commitment to enabling the creation of more sustainable and scalable AI infrastructure.

About AOS

Alpha and Omega Semiconductor Limited, or [AOS](#), is a designer, developer, and global supplier of a broad range of discrete power devices, wide bandgap power devices, power management ICs, and modules, including a wide portfolio of [Power MOSFET](#), [SiC](#), [GaN](#), [IGBT](#), [IPM](#), [TVS](#), [HV Gate Drivers](#), [Power IC](#), and [Digital Power](#) products. AOS has developed extensive intellectual property and technical knowledge that encompasses the latest advancements in the power semiconductor industry, which enables us to introduce innovative products to address the increasingly complex power requirements of advanced electronics. AOS differentiates itself by integrating its Discrete and IC semiconductor process technology, product design, and advanced packaging know-how to develop high-performance power management solutions. AOS' portfolio of products targets high-volume applications, including personal computers, graphics cards, data centers, AI servers, smartphones, consumer and industrial motor controls, TVs, lighting, automotive electronics, and power supply units for various equipment. For more information, please visit www.aosmd.com.

Forward-Looking Statements

This press release contains forward-looking statements that are based on current expectations, estimates, forecasts, and projections of future performance based on management's judgment, beliefs, current trends, and anticipated product performance. These forward-looking statements include without limitation, references to the efficiency and capability of new products and the potential to expand into new markets. Forward-looking statements involve risks and uncertainties that may cause actual results to differ materially from those contained in the forward-looking statements. These factors include, but are not limited to, the actual product performance in volume production, the quality and reliability of the product, our ability to achieve design wins, the general business and economic conditions, the state of the semiconductor industry, and other risks as described in the Company's annual report and other filings with the U.S. Securities and Exchange Commission. Although the Company believes that the expectations reflected in the forward-looking statements are reasonable, it cannot guarantee future results, level of activity, performance, or achievements. You should not place undue reliance on these forward-looking statements. All information provided in this press release is as of today's date unless otherwise stated, and AOS undertakes no duty to update such information except as required under applicable law.

###