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Alpha and Omega Semiconductor Unveils SmartClamp™ Protected DrMOS Family for AI Servers and High-End GPUs

New DrMOS technology delivers industry-leading peak-to-peak current limiting, ensuring safe and reliable operation for high-demand AI workloads

SUNNYVALE, Calif., April 30, 2026 – [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 the launch of the **SmartClamp™** family of protected DrMOS. Designed specifically for the extreme power demands of AI servers, data centers, and high-end graphics cards, the SmartClamp™ family offers high-accuracy Over Current Protection (OCP) and Negative Current Protection (NCP). The flagship [AOZ53228QI](#) provides a unique safeguard for multiphase voltage regulators (VRs), preventing catastrophic failures in environments where high peak currents are the norm.

In AI applications, peak workloads often push current levels beyond the physical limits of standard inductors and power stages. Traditional protection methods often suffer from delays; even a mere **50ns OCP delay** can result in a **30A current runaway**, risking permanent damage to the high-side MOSFET—especially when inductor saturation occurs.

The SmartClamp™ family eliminates this risk by implementing current limiting directly within the power stage rather than relying solely on the controller. Key technical highlights include:

- **Cycle-by-Cycle Monitoring:** Utilizes an internal rising-edge current ramp to monitor inductor current in real-time.
- **Precision Protection:** Delivers accurate positive and negative current limiting to handle high di/dt slew rates.
- **Universal Compatibility:** Optimized for industry-standard constant-on-time (COT) and fixed-frequency PWM controllers, as well as the company's own proprietary AOS Advanced Transient Modulator (A²TM) multiphase controllers.

"AOS engineered the SmartClamp™ DrMOS family to address the specific 'stress tests' of modern AI workloads," said Zach Zhang, Power IC Marketing Director at AOS. "By pairing these with our advanced controllers—such as the OVR16, OVR4-22, and Intel IMVP/AMD SVI3 compatible series—we offer a seamless, high-efficiency Vcore solution that gives designers peace of mind in high-density power applications."

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Technical Highlights of SmartClamp™ DrMOS Family with 10% Peak Current Accuracy

Part Number	Voltage/Current Range	Application
AOZ53228QI	18V / 60A	AI server, data center, high-end graphics cards
AOZ53262QI	18V / 70A	AI server, data center, high-end graphics cards
AOZ53263QI	18V / 80A	AI server, data center, high-end graphics cards
AOZ53261QI	25V / 55A	Gaming PC, AI PC
AOZ53267QI	25V / 60A	Gaming PC, AI PC
AOZ53268QI	25V / 70A	Gaming PC, AI PC

Pricing and Availability

The SmartClamp series is immediately available in production quantities with a lead time of 12 weeks. The unit price for 1,000-piece quantities of AOZ53228QI is \$1.40.

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.

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