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Alpha and Omega Semiconductor Unveils World's First NVIDIA OVR4-22 Multiphase PWM Controller Powering AI Server and Graphic Cards

The Latest AOZ73004CQI 4-Phase PWM Controller pairing with AOS Benchmark DrMOS Exhibits the Best System Efficiency for Blackwell GPU Platforms

SUNNYVALE, Calif., Dec. 10, 2024 – [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 unveiled its [AOZ73004CQI](#), the world's first 4-Phase controller for Blackwell GPUs. Its advanced design has received full OpenVReg (Open Voltage Regulator) OVR4-22 compliance.

The performance and energy efficiency gains from the introduction of the Blackwell platform help propel AI capabilities supported by increased GPU performance. AOZ73004CQI's cycle-by-cycle current limit meets the overcurrent limit (OCL) specification that helps safely throttle GPU power for maximized performance. AOZ73004CQI includes an external reference input and PWMVID dynamic output voltage control, which also follows the OVR4-22 specification. Furthermore, it can minimize ripple effects, enabling the device to triple the PWMVID slew rate up to 30mV/us, which is required for next-generation GPUs. Moreover, AOZ73004CQI features deep-off and shallow-off power states to minimize power consumption, providing a significant advantage in battery-powered applications such as laptops with discrete GPUs and gaming laptops.

The AOZ73004CQI with 4-Phase PWM is not limited to being paired with four DrMOS as a standard application. With AOS' proprietary DrMOS design capable of precise turn-on time, the AOZ73004CQI can enable one PWM to drive two or three DrMOS devices. By doubling and tripling DrMOS, designers can create a high-power, cost-effective multiphase power solution that can achieve up to 12 power stages. For AI server and graphic card applications powered by 12V input, AOS offers AOZ5310NQi-A DrMOS for the best GPU power efficiency. Similarly, the controller can pair with DrMOS power stages such as AOZ5316NQi/AOZ5317NQi/AOZ5318NQi, which are well-suited to laptop GPU powered by a 20V input. MOSFETs in DrMOS are TrenchFET, which further enhances OCL capability.

"AOS designs and manufactures multiphase PWM controller and power stage total solutions for our SoC customers to power AI server, Graphic, and Computing Core Power with the considerations of best system performance and reliability. AOZ73004CQI is a great example of our breakthrough control scheme that meets stringent power delivery requirements with minimum external components and the best system power efficiency in the world. The total solution can be quickly adopted by data center and computing customers with the reference design provided by the SoC supplier," said Starry Tsai, Senior Product Marketing Director for Power IC at AOS.

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Technical Highlights

- Fully Compliant with OVR4-22 specifications
- Cycle-by-cycle current limit control for specific OCL requirements
- Differential remote sensing to achieve 1% regulated VOUT accuracy
- Supports industry-standard DrMOS
- Proprietary, high-performance AOS Advanced Transient Modulator (A²TM) control scheme
- Dynamic phase-to-phase current balancing
- Seamless CCM to DCM control to maximize efficiency
- Supports DCR or RON_LG sensing current balance
- Automatic Phase Shedding (APS) with user settable thresholds
- Power Saving Interface (PSI)
- PWMVID interface
- Acoustic Noise Suppression
- QFN 4x4-32L Package

Pricing and Availability

The AOZ73004CQI is immediately available in production quantities with a lead time of 12-16 weeks. The unit price for AOZ73004CQI starts at \$1.2 in 1,000-piece quantities.

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 band gap power devices, power management ICs, and modules, including a wide portfolio of [Power MOSFET](#), [SiC](#), [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 portable computers, flat-panel TVs, LED lighting, smartphones, battery packs, consumer and industrial motor controls, automotive electronics, and power supplies for TVs, computers, servers, and telecommunications 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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