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Alpha and Omega Semiconductor Introduces MRigidCSP™ Package Technology Strengthening its Battery Management MOSFETs

SUNNYVALE, Calif., (Aug. 29, 2023) – [Alpha and Omega Semiconductor Limited](#) (AOS) (Nasdaq: AOSL), a designer, developer, and global supplier of a broad range of power discretes, ICs, modules, and digital power solutions, today introduced the company's MRigidCSP™ packaging technology for battery management applications. Designed to decrease on-resistance while increasing mechanical strength, AOS initially offers its MRigidCSP technology on its [AOCR33105E](#), 12V common-drain dual N-channel MOSFET. AOS' more robust package technology is particularly suited to battery applications in smartphones, tablets, and ultra-thin notebooks.

Fast charging, which requires lower power loss in the battery management circuit, is now widely adopted for portable devices. As the charging currents increase, ultra-low electrical resistance is needed for improved performance. In standard wafer-level chip scale packages (WL-CSPs), the substrate can be a significant portion of the total resistance when back-to-back MOSFETs are employed in battery management applications. A thinner substrate reduces the overall resistance but drastically reduces the package's mechanical strength. This reduction of mechanical strength can lead to more stress during the PCB assembly reflow process, potentially causing warping or cracking in the die and, ultimately, failure in the application. The new AOCR33105E is designed with the latest trench-power MOSFET technology in a common drain configuration for design simplicity. It features ultra-low on resistance with ESD protection to improve performance and safety in battery management, such as protection switches and mobile battery charging and discharging circuits.

"Incorporating the AOS MRigidCSP packaging technology with our new dual N-channel MOSFET combines electrical performance improvements with the benefit of high robustness. AOS designed the MRigidCSP package technology to be used with high-aspect ratio CSP die sizes, helping to alleviate one of the major causes of battery management application production problems. Our advanced CSP construction delivers a significantly strengthened battery MOSFET that won't warp or break during the board manufacturing process, making it a higher performance and higher reliability solution," said Peter H. Wilson, Senior MOSFET Product Line Marketing Director at AOS.

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Technical Highlights

Part Number	Dimensions	V _{SS} (V)	V _{GS} (±V)	R _{SS(on)} Max (mOhms) @4.5V	R _{SS(on)} Max (mOhms) @3.8V	R _{SS(on)} Max (mOhms) @3.1V
AOCR33105E	2.08mm x 1.45mm	12	8	3	3.4	4.2

Pricing and Availability

The AOCR33105E in the MRigidCSP package is immediately available in production quantities with a lead time of 14-16 weeks. It is RoHS 2.0 compliant and is halogen-free, priced at \$0.405 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 power discretes, ICs, modules, and digital power solutions, including a wide portfolio of [Power MOSFET](#), [SiC](#), [IGBT](#), [IPM](#), [TVS](#), [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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