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## **Alpha and Omega Semiconductor Announces Type-C Power Delivery 2-in-1 Combo Protection Switch with Source and Sink Capability**

*Combining Trench MOSFET and IC Technology, the AOZ1380 smart protection switch, provides industry-leading Safe Operating Area*

**SUNNYVALE, Calif., April 14, 2020**, [Alpha and Omega Semiconductor Limited](#) (AOS) (Nasdaq: AOSL), a designer, developer and global supplier of a broad range of power semiconductors and power ICs, announced today a new Type-C Power Delivery compliant 2-in-1 combo protection switch capable up to 28V absolute maximum voltage. The [AOZ1380](#) is a smart protection switch combining both current source and sink function into a single small thermally enhanced 3mm x 5.2mm DFN package. Made possible by AOS' advanced co-packaging technology, AOZ1380 combines a high-performance IC with protection features and AOS' state-of-the-art high SOA MOSFET. This new device provides true reverse current blocking intended for applications where protection from exposure to high voltages is required. The AOZ1380 provides an ideal solution for the latest notebooks, ultrabooks, Chromebooks, and docking stations, with Thunderbolt/USB Type-C PD ports.

In the sinking application, two discrete back to back MOSFETs along with resistors and capacitors provide soft start functionality to prevent Type C power adaptor brownout at the plugin. However, programmability and protection features such as reverse-current blocking and over-voltage and over-temperature protection are lacking in this implementation. As a Type C port must also provide power delivery of up to 15W in a notebook application, there's also a need for a 5V current limited load switch with protection features. The AOZ1380 provides all this functionality and reduces board footprint by over 50% compared to competing solutions.

The internal back to back discrete MOSFET that provides the sinking path has a low 20mOhm source to source resistance of 20mOhm. Manufactured on AOS' high SOA hot-swap platform of trench MOSFETs, it has high SOA in soft start conditions. The ultra-low resistance enables high continuous current of 7A and peak currents of up to 20A, making it an ideal load switch for notebook applications where high peak current capability from the adaptor are needed for CPU or GPU turbo mode events. The AOZ1380 also supports the sinking switch requirements with the fastest response time in the industry to support fast role swap events.

“The thinner profile, higher power, and greater flexibility offered by USB Type-C and USB PD 3.0 standards have prompted many computer manufacturers to drop the barrel jack in favor of USB Type-C ports for charging their notebook and ultrabook offerings. The unique combination of AOS' high SOA MOSFET technology and controller ICs enables system designers to achieve a compact footprint while enhancing the reliability of the Type C port,” said Peter Cheng, Power IC Senior Marketing Director at AOS.

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## Technical Highlights

- Operating Range: 3.4V to 22V for sink path and 3.4V to 5.5V for sourcing path
- 28V Absolute Maximum rating at VBUS
- On Resistance: 20mΩ for sink and 39mΩ for source
- 20A peak sink current for 10ms @ 2% duty cycle
- Common protection features: True Reverse Current Blocking, Under-Voltage Lock-Out, Over-Voltage Protection, Thermal Shutdown Protection
- Additional features for sink: Programmable Soft-Start
- Additional features for source: Programmable Over-Current Protection, Fast Role Swap support

## Pricing and Availability

The AOZ1380 is immediately available in production quantities with a lead-time of 12 weeks. The unit price of 1,000 pieces is \$2.25.

## About AOS

Alpha and Omega Semiconductor Limited, or [AOS](#), is a designer, developer and global supplier of a broad range of power semiconductors, including a wide portfolio of [Power MOSFET](#), [IGBT](#), [IPM](#), [TVS](#), [HVIC](#), [GaN/SiC](#), [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, smart phones, battery packs, consumer and industrial motor controls and power supplies for TVs, computers, servers and telecommunications equipment. For more information, please visit [www.aosmd.com](http://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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