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Alpha and Omega Semiconductor Announces New P-Channel MOSFET for USB PD Load Switch

Robust, versatile solution for USB PD load switch applications with extended input voltage range

SUNNYVALE, Calif., Oct. 10, 2017 – [Alpha and Omega Semiconductor Limited](#) (AOS) (Nasdaq: AOSL), a designer, developer and global supplier of a broad range of power semiconductors and power ICs, today introduced [AONR21357](#), the initial product in this P-Channel family. The new AONR21357 uses the improved P-Channel MOSFET process to achieve low power loss and reliable startup. The new device rated at -30V drain-source breakdown voltage (BVD_{SS}) and -25V gate-source voltage. It features a maximum on-resistance (R_{DS(ON)}) of 12.3mohm under V_{GS} = -4.5V, and a thermally enhanced 3x3mm DFN package. The new P-Channel MOSFET is ideal for load switch applications in Notebook Adapter-In/ Battery In sockets.

USB Type-C is becoming the de-facto interface for the latest PCs and mobile designs. With that, the USB-PD standard is implemented to cover various power delivery requirements for many portable devices. The load switch circuit is used to switch on/off the power bus according to the power management proxy. The new MOSFET used as the load switch offers extended input/output voltage range, and is robust and reliable enough to accommodate the possible working conditions. AOS' enhanced P-Channel technology offers robustness toward linear mode operation, and low Miller's Plateau (<3.5V) to cover the possible USB-PD voltages.

“The AONR21357 comprehensively addresses the need for -30V_{DS} and -25V_{GS} discrete P-Channel MOSFET. High performance such as low Miller Plateau and low loss of turn-on switching behaviors ensures reliable and secure safe operation area, allowing designers to take advantage of simple design with P-Channel MOSFETs,” said Rack Tsai, Director of Marketing for low voltage MOSFET product line in AOS.

Technical Highlights

The new product family offers various R_{DS(ON)} levels in combination with multiple package options.

| Part Number | Package | V _{DS} (V) | V _{GS} (±V) | R _{DS(ON)} (mΩ max)* at V _{GS} = | | Available |
|---------------------------|---------|---------------------|----------------------|--|------|-----------|
| | | | | 10V | 4.5V | |
| AONR21357 | DFN3x3 | -30 | 25 | 7.8 | 12.3 | Now |
| AONR21307 | DFN3x3 | -30 | 25 | 12 | 20 | Q4-2017 |
| AONR21321 | DFN3x3 | -30 | 25 | 18 | 26 | Q1-2018 |
| AONS21357 | DFN5x6 | -30 | 25 | 7.8 | 12.3 | Now |
| AOSP21357 | SO-8 | -30 | 25 | 8.5 | 13 | Now |
| AONS21307 | DFN5x6 | -30 | 25 | 12 | 20 | Q4-2017 |

Pricing and Availability

The AONR21357 is immediately available in production quantities with a lead-time of 12 weeks. The unit price of 1,000 pieces is \$0.60.

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](#) and [Power IC](#) 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's 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.

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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