



High-Efficiency Buck Converters from Diodes Incorporated Provide Wide-Ranging POL Design Versatility

Plano, Texas – April 20, 2023 – Diodes Incorporated (Diodes) (Nasdaq: DIOD) has announced new additions to its synchronous buck converter portfolio. With continuous output current ratings of 5A and 8A respectively, the [AP62500](#) and [AP62800](#) offer the flexibility engineers need to develop point-of-load (POL) solutions that are optimized for either efficiency or size. Enabling compact implementations with minimal component count, these devices are targeted at use in mass-market consumer products, such as 5V and 12V distributed power bus supplies, television sets and monitors, white goods and small home appliances, FPGA, DSP, and ASIC supplies, home audio, network systems, gaming consoles, consumer electronics, and general purpose point of loads.

Both buck converters have wide input voltage ranges—with the AP62500 covering 4.5V to 18V, and the AP62800 covering 4.5V to 17V (making both suitable for 5V and 12V rail applications). Their output voltages can be adjusted down to 0.6V. Three different switching frequencies may be selected (400kHz, 800kHz, and 1.2MHz), allowing engineers to prioritize elevated conversion efficiency or focus on having a compact form factor. In addition, the devices have three selectable operating modes; pulse frequency modulation (PFM) for improved light-load efficiency, pulse width modulation (PWM) for reduced output voltage ripple, and ultrasonic (USM) for avoiding audible frequency range while ensuring the switching frequency stays above 20kHz.

On-resistance ($R_{DS(ON)}$) figures are kept low in relation to both the high-side MOSFET (47m Ω for AP62500; 22m Ω for AP62800) and low-side MOSFET (18m Ω for AP62500; 10m Ω for AP62800). This helps to improve step-down conversion efficiency levels. An ultra-low quiescent current (I_Q) is also achieved while in PFM mode (195 μ A typical), further enhancing light-load efficiencies.

The design of these buck converters minimizes electromagnetic interference (EMI) issues. A proprietary gate-driver design mitigates switching-node ringing without having to extend MOSFET turn-on/turn-off times, which would otherwise impact high-frequency switching capabilities. Constant on-time (COT) control results in fast transient response and low-output voltage ripple, as well as facilitates better loop stabilization. Soft-start time adjustability is another important feature to protect against the risk of damage from inrush currents.

In 1,000 piece quantities, the [AP62500](#) is available at \$0.325 and the [AP62800](#) is available at \$0.570. They are both supplied in 12-pin V-QFN2030 packages.

About Diodes Incorporated

Diodes Incorporated (Nasdaq: DIOD), a Standard and Poor's SmallCap 600 and Russell 3000 Index company, delivers high-quality semiconductor products to the world's leading companies in the automotive, industrial, computing, consumer electronics, and communications markets. We leverage our expanded product portfolio of discrete, analog, and mixed-signal products and leading-edge packaging technology to meet customers' needs. Our broad range of application-specific solutions and solutions-focused sales, coupled with worldwide operations of 32 sites, including engineering, testing, manufacturing, and customer service, enables us to be a premier provider for high-volume, high-growth markets. For more information visit www.diodes.com.

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