



Small Footprint 3.8V-32V Buck Converters from Diodes Incorporated Support High-Efficiency Automotive PoL Applications

Plano, Texas – February 24, 2022 – Diodes Incorporated (Diodes) (NASDAQ: DIOD) has launched a series of automotive-compliant synchronous buck converters. With 2A and 3A current ratings respectively, the [AP6320xQ](#) and [AP6330xQ](#) devices support a wide input voltage range, going from 3.8V to 32V. They are suited for automotive point-of-load (PoL) applications, including powertrains, instrumentation clusters, telematics, and infotainment systems. They can also benefit the performance of automotive body electronics and lighting, plus advanced driver assistance system (ADAS) implementations.

The AP6320xQ devices integrate 125/68mΩ high/low-side power MOSFETs and the AP6330xQ devices integrate 70/40mΩ high/low-side power MOSFETs, enabling both to deliver high-efficiency step-down DC-DC conversion, while keeping the external component count to a minimum. Adoption of peak current mode control and use of integrated loop compensation networks help streamline deployment.

The proprietary gate driver arrangement in these buck converters mitigates switching node ringing effects, without lengthening MOSFET turn-on and turn-off times. This considerably reduces the high frequency radiated electromagnetic interference (EMI) noise normally associated with MOSFET switching.

The AP63200Q, AP63203Q, AP63205Q, and AP63300Q devices incorporate a frequency spread spectrum (FSS) function that helps alleviate EMI. Also featured is a pulse frequency modulation (PFM) mode that significantly improves light load efficiency levels. It enables a quiescent current (IQ) of 22μA (typical), which is almost half that of most competing devices. This enhances conversion efficiency levels when under light load situations.

The AP63200Q, AP63201Q, AP63300Q, and AP63301Q support 500kHz switching frequencies. The AP63203Q and AP63205Q support 1100kHz, and their faster switching frequency allows the use of smaller accompanying inductor and capacitor components. This allows further board space savings and an overall reduction in bill-of-materials (BOM) costs.

The AP6320xQ and AP6330xQ buck converter series are supplied in compact TSOT26 packages, with each having an operational temperature range of -40°C to +125°C. Undervoltage lockout (UVLO), output overvoltage protection (OVP),

and thermal shutdown mechanisms are all incorporated to ensure ongoing reliability.

The [AP6320xQ](#) and [AP6330xQ](#) are AEC-Q100 Grade 1 qualified, PPAP capable, and manufactured in IATF 16949 certified facilities. In 1000 piece quantities, the AP6320xQ is available at \$0.40 and the AP6330xQ is available at \$0.43.

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 consumer electronics, computing, communications, industrial, and automotive 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 31 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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