



Product news

Flash LED Drivers from Diodes Incorporated Deliver High-Current Stability in Portable Devices for Dual- and Quad-Channel Applications

Plano, Texas – September 19, 2019 – Diodes Incorporated (Nasdaq: DIOD) today announced the [AL3644](#), a high-speed, dual-channel flash LED driver designed to support advanced camera flash and torch functionality, as offered by the latest smartphones and other portable consumer devices. Key features include independently controlled output currents configured through an I²C-compatible interface and the ability to combine two devices (with different device identification addresses) to drive four LEDs up to 6A for quad-channel applications. The AL3644 is offered in chip-scale packaging and combines flexible switching-frequency capabilities with constant output current.

The AL3644 employs a constant-frequency, synchronous-boost, current-mode PWM converter to deliver up to 1.5A for each of the two constant current sources across its 2.5V to 5V input voltage range. The I²C-compatible interface, operating at up to 400kHz, is used to configure the device to deliver a constant current at one of 128 levels between 1.4mA and 1.5A. The ratio between the two outputs is also adjustable through the I²C-compatible interface.

With the increasing trend towards portable and wearable devices that offer sophisticated camera functionality, including video, along with the convenience of a torch, the demand for highly flexible LED drivers is increasing. The AL3644 meets this need by offering dual, parallel current sources at efficiencies over 85% in both torch mode and flash mode.

Two switching-frequency options, 2MHz and 4MHz, are provided, giving engineers greater flexibility while simplifying the overall design. The higher switching frequency also allows smaller passive components to be used, such as low-profile inductors and small 10µF ceramic capacitors, reducing the overall bill of materials.

As well as being the first LED driver from Diodes Incorporated to feature an I²C-compatible interface, the AL3644 also integrates a comparator that can be used with an external NTC to detect thermal variations. An input voltage monitor ensures the output current remains stable if, for example, the input voltage level drops as the device's battery supply falls. Fault status bits, interrogated over the I²C-compatible interface, provide a host controller with operational data, such as flash current time-out, LED overtemperature, LED open/short failure, thermal shutdown, and input undervoltage.

The AL3644 and AL3644TT (signifying different device identification addresses) are available in low torch current and high torch current variants in a U-WLB1713-12 package measuring 1.75mm × 1.35mm.

Further information is available at www.diodes.com.

About Diodes Incorporated

Diodes Incorporated (Nasdaq: DIOD), a Standard and Poor's SmallCap 600 and Russell 3000 Index company, is a leading global manufacturer and supplier of high-quality application specific standard products within the broad discrete, logic, analog and mixed-signal semiconductor markets. Diodes serves the consumer electronics, computing, communications, industrial, and automotive markets. Diodes' products include diodes, rectifiers, transistors, MOSFETs, protection devices, function-specific arrays, single gate logic, amplifiers and comparators, Hall-effect and temperature sensors, power management devices, including LED drivers, AC-DC converters and controllers, DC-DC switching and linear voltage regulators, and voltage references along with special function devices, such as USB power switches, load switches, voltage supervisors, and motor controllers. Diodes also has timing, connectivity, switching, and signal integrity solutions for high-speed signals. Diodes' corporate headquarters and Americas' sales office are located in Plano, Texas and Milpitas, California. Design, marketing, and engineering centers are located in Plano; Milpitas; Taipei, Taiwan; Taoyuan City, Taiwan; Zhubei City, Taiwan; Manchester, England; and Neuhaus, Germany. Diodes' wafer fabrication facilities are located in Manchester and Greenock, UK, and Shanghai, China. Diodes has assembly and test facilities located in Shanghai, Jinan, Chengdu, and Yangzhou, China, as well as in Hong Kong, Neuhaus and Taipei. Additional engineering, sales, warehouse, and logistics offices are located in Taipei; Hong Kong; Manchester; Shanghai; Shenzhen, China; Seongnam-si, South Korea; and Munich, Germany, with support offices throughout the world.

Recent news releases, annual reports and SEC filings are available at the Company's website: <http://www.diodes.com>. Written requests may be sent directly to the Company, or they may be e-mailed to: diodes-fin@diodes.com.

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