



***For immediate release***

## **Diodes Incorporated and Weltrend Semiconductor Announce Industry-First Qualcomm Quick Charge 4 Compliant 27W Reference Design**

*Reference Design Supports Qualcomm Quick Charge 4 Class A*

**Plano, Texas – November 1, 2017** – Diodes Incorporated (Nasdaq: DIOD), a leading global manufacturer and supplier of high-quality application specific standard products within the broad discrete, logic, analog and mixed-signal semiconductor markets, and Weltrend Semiconductor Inc., a leader in USB Type-C™ Power Delivery (PD) controllers, today announced a joint reference design for a 27W, Class A charger that is one of the industry’s first chargers to support Qualcomm® Quick Charge™ 4 specification for the fast charging of mobile devices.

Quick Charge 4 is the latest fast-charging specification from Qualcomm Technologies, Inc., a subsidiary of Qualcomm Incorporated, offering up to 20% faster charging, up to 30% greater efficiency, and running 5% cooler when compared to Quick Charge 3.0. Quick Charge 4 also supports USB PD and PPS (programmable power supply), helping to standardize the capabilities of adaptors using these technologies, while being designed to deliver headline-making charging performance that provides five hours of talk time from just five minutes of charging, along with comprehensive safety features.

“Diodes’ key corporate strength is rooted in its integrated device manufacturing (IDM) operations model. Leveraging our vertical integration manufacturing strength in conjunction with a platform solution approach provides the relevant active components required for target systems, especially as Diodes has a well-established business in providing primary- and secondary-side power regulation products for chargers and power adapter applications”, said Ernest Lin, Division Manager, AC-DC Power and Lighting Division. “Diodes recognized Weltrend’s core competency in MCU-based power management applications and its established market position in protocol decoding products for quick charging, which made for a logical partnership for

developing a reference design to meet the demanding requirements of the Qualcomm Quick Charge 4 specification.”

The reference design uses Diodes’ AP3302 peak-current control, quasi-resonant (QR) PWM controller, which is optimized for high performance, low standby power and cost-effective offline flyback conversion, and its APR345 secondary-side MOSFET synchronous rectification driver that directly supports CCM, DCM and QR flyback topologies. Weltrend provides the highly integrated WT6615F programmable protocol decoder that supports the latest programmable power supply specification for Quick Charge protocols and USB PD, and consequently fully implements all the requirements of the Quick Charge 4 specification.

Tony Lin, Executive Assistant to the CEO and Acting VP of Marketing at Weltrend, said, “Working closely with Qualcomm Technologies, our expertise lies in understanding fast charge protocols and we are excited to be one of the first in our industry to provide a Quick Charge 4 compatible chipset. The joint development of this 27W Quick Charge 4 Class A reference design with Diodes provides a cost-effective, ready-to-go charger design that enables a rapid time-to-market solution for our mutual customer bases”.

Weltrend’s WT6615F Qualcomm Quick Charge 4 Controller is certified by GRL. The reference design supports Quick Charge 4 Class A (18-27W) and also provides optional Quick Charge 2.0 and Quick Charge 3.0 compliance to support the Quick Charge 4+ program. It provides support for USB PD 3.0 and PPS, including PDO at 5V and 9V, ADPO from 3V to 11V in 20mV steps, and current from 0A to 3A in 50mA steps. Its safety management capability provides monitoring of voltage, current, and temperature, with reporting and protection features. The charger design supports low standby current consumption and meets Energy Star DOE VI and CoC Tier II efficiency requirements.

Further information is available at [www.diodes.com](http://www.diodes.com).

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*Qualcomm Quick Charge is a product of Qualcomm Technologies, Inc.*

*USB Type-C and USB-C are registered trademarks of the USB Implementers Forum.*

## **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' 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 facility is located in Manchester, with an additional facility located in 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.

## **About Weltrend Semiconductor Inc.**

Founded in 1989 in the "Silicon Valley of Taiwan", the Science-Based Industrial Park (SBIP) in Hsinchu, Weltrend Semiconductor, Inc. (TWSE: 2436) is a leading fabless semiconductor company, also known as IC design house, specializing in the planning, design, testing, application development and distribution of mixed-signal/digital IC products across multiple applications. For more information, please visit [www.weltrend.com](http://www.weltrend.com).

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](mailto:diodes-fin@diodes.com).

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