



Transphorm and Weltrend Semiconductor's New GaN System-In-Package Delivers Competitive Advantage by Supporting Multiple Power Levels

December 14, 2023

Cost-effective SuperGaN IC Supports 65-Watt and 100-Watt Adapters as Proven by Weltrend's New Reference Design, Giving Customers Economies of Scale and Unparalleled GaN Robustness

GOLETA, Calif.--(BUSINESS WIRE)--Dec. 14, 2023-- [Transphorm, Inc.](#) (Nasdaq: TGAN), the global leader in robust GaN power semiconductors, and [Weltrend Semiconductor Inc.](#) (TWSE: 2436), the global leader in adapter USB Power Delivery (PD) Controller Integrated Circuits (ICs), today announced availability of a 100 watt USB-C PD Power Adapter Reference Design. The board uses the companies' SuperGaN® System-in-Package (SiP)—the [WT7162RHUG24A](#)—to achieve 92.7 percent efficiency in a Quasi-Resonant Flyback (QRF) topology.

This is Weltrend's second USB-C PD adapter board using the WT7162RHUG24A in a QRF topology. The first is a 65-watt board released earlier this year. The fact that both boards deploy the same SuperGaN SiP is beneficial to customers seeking to achieve economies of scale and a lower cost implementation for 100-watt designs compared to the competition. It demonstrates that the 65-watt-class SuperGaN SiP also meets the performance and thermal requirements of 100-watt designs.

"The idea of a GaN-based integrated circuit is a great one as it can simplify the design experience. However, it must be done right. It should be a truly integrated single device with the necessary controllers packaged inside. Which is where Weltrend and Transphorm's SuperGaN SiP excels," said Philip Zuk, Senior Vice President, Business Development and Marketing, Transphorm. "The SiP is a simple, normally-off solution that does not require protection, a driver, or an external controller. Add to that the ability for the same SiP to perform in a 65-watt and 100-watt power adapter board...now we're seeing the inherent versatility and robustness of GaN really shine. And that only comes from Transphorm's SuperGaN platform today."

"It's important to us to ensure what we bring to market the best, most functional solutions possible. Particularly as we deepen our footprint in the AC-to-DC power market," said Wayne Lo, Vice President of Marketing, Weltrend Semiconductor. "The power adapter market continues to evolve, innovating around GaN's very attractive advantages. We're just making sure customers can tap into those advantages not just for technical benefit but for broad ROI benefit as well. One SiP accommodating an adapter's physical design needs plus the financial objectives of an entire adapter line with varying models is a win for all of us. The 100-watt reference design released today is a strong proof point of what our technology can do at lower price points. And we're just getting started."

100-Watt Adapter Reference Design Specifications

Weltrend's universal 100-watt power adapter board is designed to the USB PD 3.0 + PPS standards. Its use is intended to speed development of various high performance, low-profile power adapters charging smartphones, tablets, laptops, and other smart devices. Additional key specifications follow:

Specification	Detail
GaN Device	WT7162RHUG24A SuperGaN SiP
Topology	Boundary Mode PFC + Flyback Quasi-Resonant Mode/Valley-Switching Multi-mode Operation
Full Load Efficiency	91.2% @ 90 VAC/Full Load
Overall Peak Efficiency	92.7% @ 264VAC/Full Load
Power Density	15.8 W/in ³ (w/o housing)
Output Voltage Operation	USB-C PD 3.0, PPS 3.3 V - 21 V
No Load Power Loss	< 50 mW @ 264 VAC
Output Voltage and Current	PPS: 3.3 V – 21 V/5 A 5 V/3 A; 9 V/3 A; 12 V/3 A; 15 V/3 A; 20 V/5 A
EMI Compliant	Conducted and Radiated
Dimensions	69mm x 63mm x 23.8mm

The SuperGaN SiP: Compact, Cost Effective, Fast Development

The WT7162RHUG24A is a true integrated circuit designed for use in 45- to 100-watt USB-C PD power adapters. It integrates Weltrend's WT7162RHSG08 quasi-resonant/multi-mode flyback PWM controller with Transphorm's [240 milliohm, 650-volt SuperGaN® FET](#). The surface mount device is available in a 24-pin 8x8 QFN package and offers a peak efficiency of 92.7%. Key benefits include increased power density with better thermal management for long-term reliability and reduction of BOM costs. For more information, visit: <https://bit.ly/WeltSiPBdpm>.

Availability

For demo board access and/or SiP samples, contact Weltrend's sales team at sales@weltrend.com.tw.

About Transphorm

Transphorm, Inc., a global leader in the GaN revolution, designs and manufactures high performance and high reliability GaN semiconductors for high voltage power conversion applications. Having one of the largest Power GaN IP portfolios of more than 1,000 owned or licensed patents, Transphorm produces the industry's first JEDEC and AEC-Q101 qualified high voltage GaN semiconductor devices. The Company's vertically integrated device

business model allows for innovation at every development stage: design, fabrication, device, and application support. Transphorm's innovations move power electronics beyond the limitations of silicon to achieve over 99% efficiency, 50% more power density and 20% lower system cost. Transphorm is headquartered in Goleta, California and has manufacturing operations in Goleta and Aizu, Japan. For more information, please visit www.transphormusa.com. Follow us on Twitter @transphormusa and WeChat at Transphorm_GaN.

About Weltrend Semiconductor Inc.

Founded in 1989 in the "Silicon Valley of Taiwan", the Hsinchu Science Park, Weltrend Semiconductor, Inc. (TWSE: 2436) is a leading fabless semiconductor company specializing in the planning, design, testing, application development, and distribution of mixed-signal/digital IC products in power supplies, motor controls, image processing, and more across multiple applications. For more information, please visit www.weltrend.com.

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