

# transphorm

Highest Performance, Highest Reliability GaN

## Introducing the Powerful, New GaN Solution for USB-C Adapters



Integrates Weltrend Semiconductor's high frequency multi-mode flyback PWM controller with Transphorm's 240 mΩ SuperGaN<sup>®</sup> FET.

Designed to work with USB PD controllers to provide a complete USB PD or other programmable adapter solution.

Improves overall system efficiency, reduces bill of materials (BOM), and quickens development of low-profile adapters.

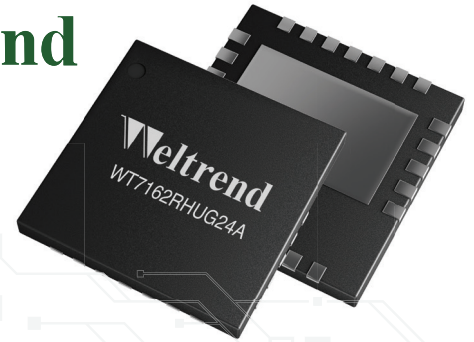
### WT7162RHUG24A SiP Specifications

Power Levels	45 W – 100 W*
GaN FET $R_g$	Adjustable
Operating Frequency (max)	180 kHz, variable
High-voltage Start-up	700 V (external VDD (LDO) not required)
Package	24-pin QFN 8x8
Protection	Various modes: BI/O, OVP, OLP, OCP, OTP, CSP
Controller	WT7162RHSG08 Multi-mode PWM Flyback
Operating Modes	Heavy Load: Quasi-resonant Light Load: Discontinuous Conduction Mode
GaN FET	TP65H300G4LSG SuperGaN 650 V, 240 mΩ FET
GaN FET $R_g$	Adjustable (external pin access)

\* > 65 W power output requires PFC

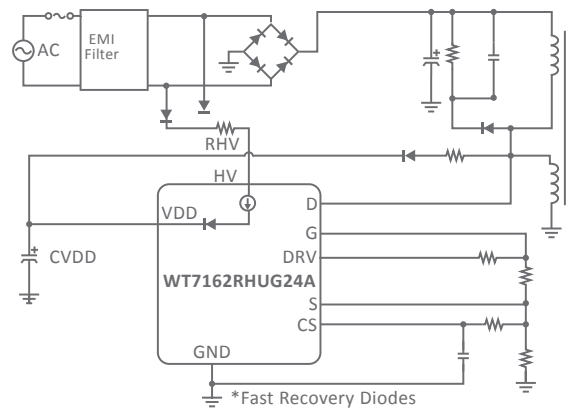
## New SuperGaN<sup>®</sup> SiP

Weltrend



Compact | Cost Effective | Fast Development

### 65 W Adapter Schematic



Primary Side

### About Weltrend Semiconductor Inc.

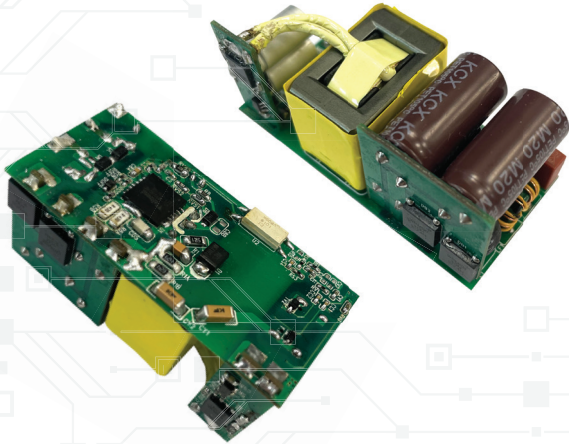
Founded in 1989 in the "Silicon Valley of Taiwan", the Hsinchu Science Park, Weltrend Semiconductor, Inc. is a leading fabless semiconductor company specializing in the planning, design, testing, application development, and distribution of mixed-signal/digital Integrated Circuit (IC) products in power supplies, motor controls, image processing, and more across multiple applications. The company is currently recognized as the global leader in adapter USB Power Delivery (PD) Controller ICs.

Click for additional product information.  
For samples, contact sales@weltrend.com.tw



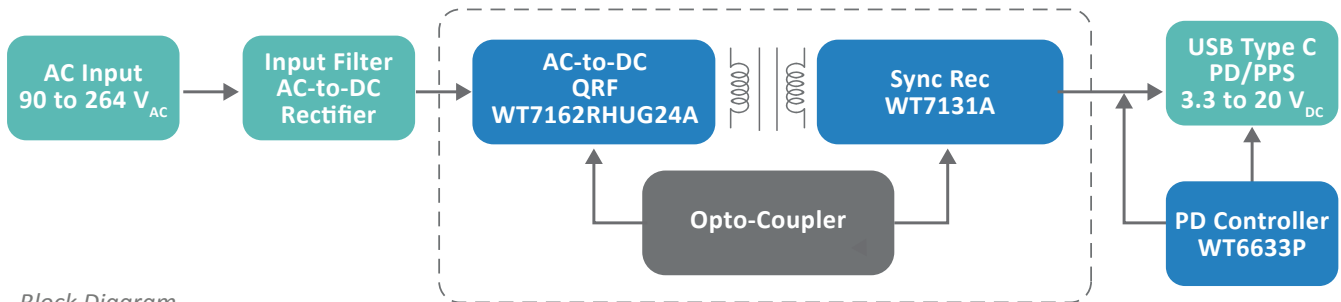
## 65 W USB PD Adapter Reference Design

Weltrend developed a high efficiency single-stage 65 W USB-C PD 3.0 + PPS power adapter reference design. The board pairs the WT7162RHUG24A SuperGaN SiP IC, a WT7131A SR controller, and a WT6633P USB PD controller to present a total, cost-effective solution delivering high performance.



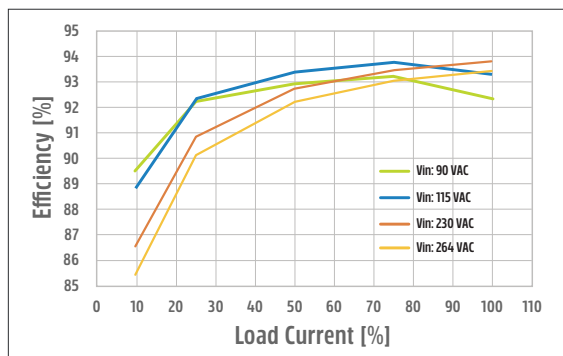
### Reference Design Specifications

<b>Topology</b>	Flyback Quasi-Resonant Mode/Valley-Switching Multi-mode Operation
<b>Peak Efficiency</b>	93.2% @ 90 VAC
<b>Overall Peak Efficiency</b>	93.8%
<b>Power Density</b>	26 W/in <sup>3</sup>
<b>Output Voltage Operation</b>	USB-C PD 3.0, PPS 3.3 V - 21 V
<b>Input Voltage</b>	90 VAC – 264 VAC
<b>Input Frequency</b>	47 Hz – 63 Hz
<b>Standby Power</b>	< 50 mW @ 230 VAC
<b>Output Voltage and Current</b>	PPS: 3.3 V – 21 V/3 A 5 V/3 A; 9 V/3 A; 12 V/3 A; 15 V/3 A; 20 V/3.25 A
<b>Dimensions</b>	56 mm x 27 mm x 27 mm



Block Diagram

65 W: Efficiency vs. Load Current at (20 V<sub>out</sub>)



65 W: Full Load Efficiency vs. Input V<sub>AC</sub>

