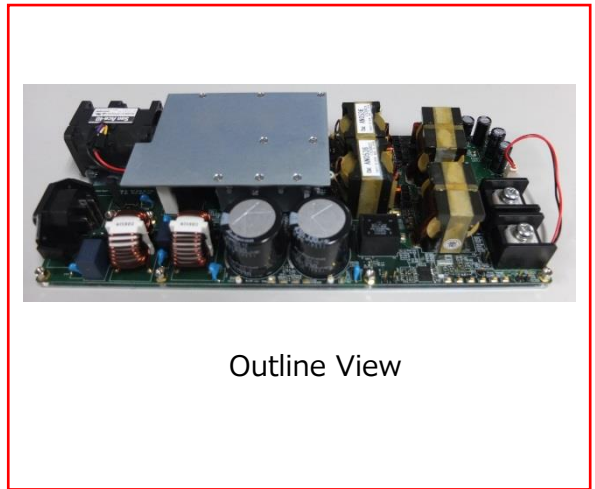


## 1.6kW Server Power Supply Reference Design

This is an 1.6kW power(200V input case) AC-DC power supply reference design for servers.

Thanks to optimum power devices, the high efficiency power supply which meets 80Plus<sup>®1</sup> Platinum<sup>®2</sup> specification is realized in 1U<sup>®3</sup> size. This power supply contains ORing circuit and can apply to redundant power supply system that requires multiple power supplies.

Circuit information and design information is available on the web<sup>®4</sup> as reference design to support customers design. It can be considered for industrial power supplies other than servers, when provided information is edited and processed.



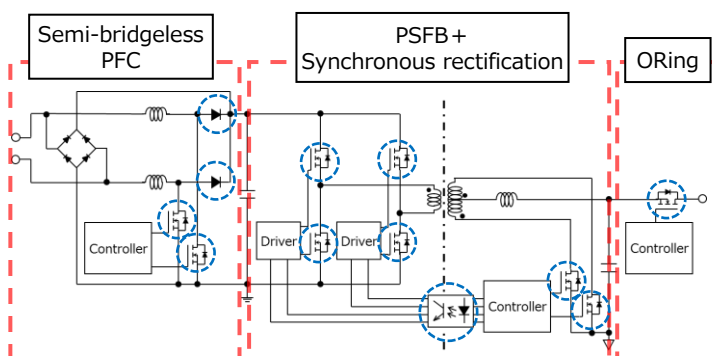
Outline View

### > Features

- High efficiency and high power within 1U size
- 93% efficiency(Vin=230V, 100% load)
- Outline size : 307mm x 133mm x 43mm (including base plate and cover plate)
- Offer optimum power devices(MOSFET, SiC schotkky diode) and a photocoupler totally
- Both documents for designers and digital files for EDA<sup>®5</sup> software

### > Topology

Semi-bridgeless PFC  
PSFB(Phase-shift full-bridge) + Synchronous rectification  
ORing output circuit



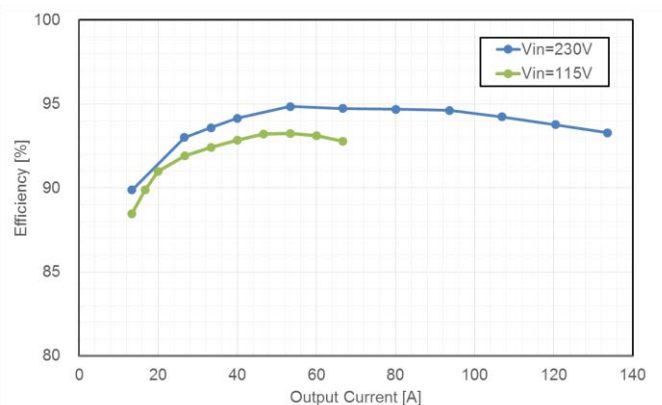
### > Application

- Server and industrial equipment

### > Outline

- Specification  
Input voltage : AC 90V to 264 V  
Output voltage : DC12 V  
Output power : 0.8 kW(100 V input)  
1.6 kW(200V input)
- Provided Information  
Documents for designers  
Reference guide, Design guide, etc.  
Digital files for EDA software  
Circuit schematic, PWB layers,  
PWB fabrication data, etc.

### > Efficiency Curve



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## > Equipped Devices

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Part Number	Device Category	Portion·Usage	Description
TK25N60X	MOSFET	PFC·2	DTMOSIV/600V/125mΩ(max)@V <sub>GS</sub> =10V /High-speed switching type/TO-247
TRS8E65F	SiC schottky barrier diode	PFC·2	Second generation/650V/8A/TO-220-2L
TK25N60X5	MOSFET	Primary side·4	DTMOSIV/600V/140mΩ(max)@V <sub>GS</sub> =10V /High-speed switching type /High-speed diode type/TO-247
TPH3R70APL	MOSFET	Secondary side·12	U-MOSIX-H/100V/3.7mΩ(max)@V <sub>GS</sub> =10V /High-speed switching type/SOP Advance
TPHR9003NC	MOSFET	ORing·10	U-MOSVIII/30V/0.9mΩ(max)@V <sub>GS</sub> =10V /SOP Advance
TLP2767	Photocoupler	Communication between primary side and secondary side·4	For high-speed communication/50Mbps /Totempole output(INV)/5pin SO6L

※1 : Efficiency specification of power supply for servers Pcs

※2 : 230V Internal Redundant category

※3 : One unit of rack for rack mounted server, and 1U means its height(around 45mm).

※4 : On "My Page" required log-on

※5 : Electronic Design Automation

## Contact Information

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Please refer to the web page below.

<https://toshiba.semicon-storage.com/ap-en/contact.html>

Before creating and producing designs and using, customers must also refer to and comply with the latest versions of all relevant TOSHIBA information and the instructions for the application that Product will be used with or for.
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