HIGH-PERFORMANCE GALLIUM NITRIDE POWER DISCRETES

RENESAS GaN PORTFOLIO

Solutions for High-efficiency, High-Density, Reliable Power Conversion

Renesas is a pioneer of Gallium Nitride (GaN) power semiconductors with reliable, high-performance solutions for applications from 25 W to 10 kW. With over 20 million devices shipped and 300 billion hours of field usage, its robust architecture, diverse packaging, and integrated Silicon MOSFET front end enable seamless system integration, outperforming other GaN designs in versatility and efficiency.

Robust and Reliable

- Highly robust GaN-on-Si cascode technology with 300+ billion hours in the field
- Market leadership for high power (1 kW+) adoption
- Reliable GaN supplier with vertically integrated supply chain and more than 1000 patents for GaN technology

High-Performance Portfolio

- 650 V and 700 V GaN devices address the power spectrum from 25 W to 10+ kW
- 25% lower losses and improved efficiency compared to other GaN products
- Outperforms Silicon, SiC and e-mode GaN in Infrastructure, Industrial, Automotive and Consumer applications

Easy to Design

- Unique cascode structure makes our GaN easy to drive with standard gate drivers
- Widest range of pin-to-pin compatible leaded, SMD and top-side cooled package offerings available
- High frequency operation enables size reduction and overall cost saving for end systems

Benefits

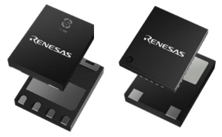
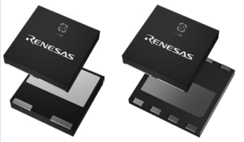
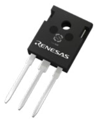
- Superior normally off architecture with d-mode GaN HEMT
- Compatible with standard silicon drivers
- Enhanced noise immunity with up to 4 V threshold voltage and no negative gate drive required
- Enables high-efficiency, high power density, and reliable power conversion
- Facilitates cost-effective GaN adoption reducing system size, weight, and costs

Target Markets

- AI datacenter and telecom power supplies
- Consumer electronics
- eMobility charging
- PV inverters and battery energy storage systems (BESS)
- UPS
- Automotive OBC and DC/DC converters

RENESAS GaN PORTFOLIO

Renesas GaN Packaging

30 W to 250 W			0.2 kW to 2 kW	1 kW to 3 kW			1 kW to 10+ kW	
								
DPAK	PQFN 56	PQFN 88	TO-220	D2PAK	TOLT	TOLL	TO-247-3	TO-247-4

Focus Markets from Low to High Power

xEV, EV Charging

ESS/PPS/UPS

Server, AI

High-Power
1.5 kW – 10 kW+

eMobility

PV Inverters

Lighting

High-Power
300 W – 1.5 KW

Smartphone,
Tablet Chargers

Power Tools

Low-Power
System in Pkg. (SIP)
25 W – 240 W

Smartphone,
Tablet Chargers

Laptop Adapters

Low-Power
Discrete
45 W – 300 W

Tools and Support

Evaluation kits from 1kW - 4kW and low power reference designs from 65W - 240W are available.

1200 W
Half Bridge

2500 W
Bridgeless Totem-pole

3000 W
Inverter

4000 W
Bridgeless Totem-pole

For more information including tools, documentation and samples, visit renesas.com/GaN

Corporate Headquarters
TOYOSU FORESIA, 3-2-24 Toyosu, Koto-ku, Tokyo 135-0061, Japan
www.renesas.com

Contact Information

For further information on a product, technology, the most up-to-date version of a document, or your nearest sales office, please visit: www.renesas.com/contact/

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