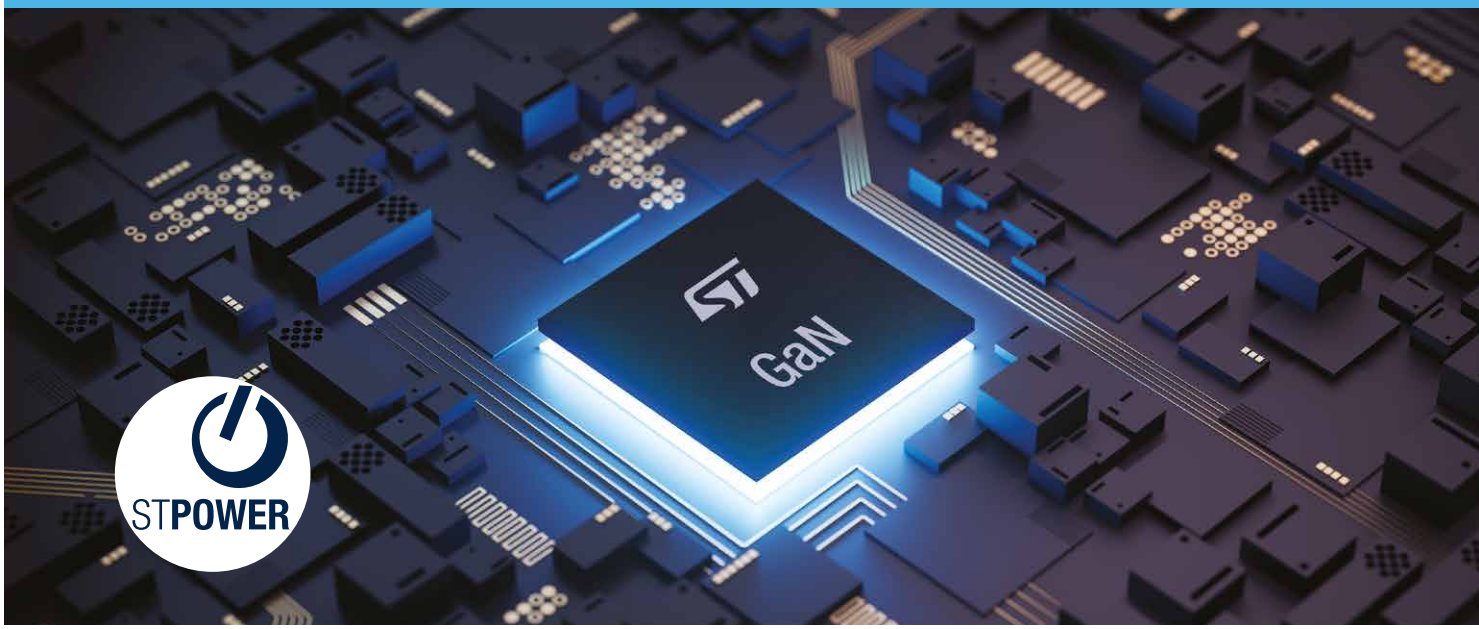
PowerGaN e-mode power transistors

GaN power conversion from a partner you can trust



PowerGaN devices enable outstanding power density and efficiency, as well as smaller system designs

PowerGaN brings the efficiency and power density advantages of gallium nitride to your design, backed by decades of power semiconductor expertise. Our enhancement-mode p-GaN gate architecture delivers normally-off operation through a voltage-driven gate structure. PowerGaN discrete transistors span 100 V to 700 V in multiple package options, supported by a complete system-level ecosystem: dedicated GaN gate drivers, digital power controllers, protection ICs, and proven reference designs.

KEY FEATURES AND BENEFITS

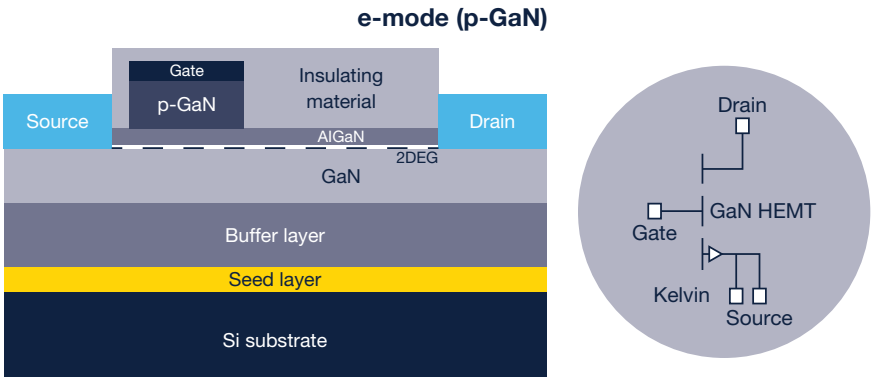
- Very high switching speed (rise/fall 2–5 ns typ.)
- Extremely low parasitic capacitances
- Kelvin source pad for optimum gate driving and clean switching
- Zero Qrr — no hard-switching penalty at high fsw
- Integrated ESD — no external protection needed
- Low gate charge, voltage-driven gate

KEY APPLICATIONS

- AC-DC and DC-DC power converters
- Solar inverters and MPPT
- USB Type-C PD adapters and fast chargers
- Industrial motor drives
- Datacenter & telecom SMPS (totem-pole PFC, LLC)
- On-board chargers and EV DC-DC converters
- Battery energy storage systems (BESS)
- Wireless charging
- Notebook, tablet and all-in-one adapters

Why p-GaN architecture matters

PowerGaN uses the p-GaN gate, the industry-standard approach to achieving normally-off operation in GaN transistors.
A p-type GaN layer beneath the gate depletes the two-dimensional electron gas (2DEG) at zero bias. Positive gate voltage restores the channel. The gate is voltage-driven with low charge, enabling simple drive circuits with minimal power consumption.
For design-in decisions requiring multiple independent semiconductor suppliers, p-GaN provides the right level of architectural freedom.



Package options

PowerGaN devices are available in multiple packages to match your power level and layout requirements:

- TO-LL (TO-Leadless) — High-current SMD with dedicated Kelvin source pin
- DPAK — Cost-effective standard SMD for moderate power levels
- PowerFLAT 8x8 HV — Compact SMD option with dedicated Kelvin source pin
- PowerFLAT 5x6 HV — Compact SMD with dedicated Kelvin source pin. Industry standard footprint.
- En-FCLGA 5x6 —High-performance package optimized for power density and reliable thermal management in advanced designs
- En-FCLGA 3.3x3.3 — High-performance package designed to maximize power density in space-constrained applications


PowerFLAT 8x8 HV


TO-LL


DPAK


PowerFLAT 5x6 HV


FCLGA 3x3


FCLGA 5x6

Find out more

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