

GaNPower Launches Generation-II P2P™ GaN Technology

A Major Milestone Toward Replacing IGBTs in Next-Generation Power Electronics

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GaNPower International today announced the successful development of its second-generation P2P™ (Pin-to-Pin Compatible) GaN technology, establishing a new benchmark for enhancement-mode GaN power switches with one of the industry's highest effective gate turn-on voltages while preserving the ultra-fast switching performance that has made GaN the preferred wide-bandgap technology for next-generation power conversion.

The new Generation-II platform represents a major advancement in GaNPower's proprietary All-GaN-IC technology and further strengthens the company's vision that 750 V GaN will become the first GaN technology to replace IGBTs in mainstream industrial, automotive, renewable-energy and AI power applications.

Solving the Last Major Barrier

For years, engineers have recognized that GaN offers substantially faster switching, higher efficiency and much higher power density than conventional IGBTs. The remaining challenge has not been switching performance, but achieving higher gate-drive robustness and compatibility with existing industrial gate-drive infrastructures.

GaNPower addressed this challenge through its proprietary P2P™ architecture, which monolithically integrates an All-GaN gate regulation circuit with the power transistor. Rather than directly applying the external PWM signal to the GaN gate, the P2P™ circuit intelligently regulates the internal gate voltage, enabling compatibility with standard MOSFET and SiC gate drivers while preserving the intrinsic switching advantages of monolithic GaN.

Generation-II Performance (as integrated with 700V/30A/50mΩ GaN)

Parameter	Gen-I	Gen-II
Effective gate turn-on voltage	2.5–4.0 V	Typical 7.5 V
Gate drive range	Limited to around 10-12V	10–20 V (12–18 V preferred)
Zero-volt turn-off	Not recommended	Supported
Gate on-state leakage	Tens of mA	<6 mA
Turn-on/off time	~20 ns	~10 ns

Generation-II delivers substantially higher noise immunity, lower gate-drive loss, true zero-volt turn-off capability and approximately twice the switching speed of the previous generation. The wafer area of the IC occupies 1.5% total wafer making the technology highly cost efficient as global GaN/Silicon price continuously drops.

Executive Statement

“For many years, GaN has demonstrated superior switching performance over IGBTs, yet widespread adoption in high-power applications has depended on improving system robustness while maintaining GaN's intrinsic speed advantages.

As manufacturing costs continue to decline, we believe 750 V GaN is approaching the point where it can become the mainstream replacement for IGBTs across many applications.

Our second-generation P2P™ technology addresses one of the industry's remaining challenges by dramatically increasing the effective gate turn-on voltage while simultaneously improving switching speed and reducing gate leakage. We believe Gen-2 P2P™ now delivers a GaN switch that outperforms conventional IGBTs in virtually every important performance category—including efficiency, switching speed, power density and gate-drive reliability.”

*— Simon Li
Chief Executive Officer
GaNPower International*

Availability

Engineering samples of Generation-II P2P™ GaN devices will be available shortly in bare-die form for module manufacturers and advanced packaging partners, followed by packaged discrete products. The technology is targeted at electric vehicles, industrial motor drives, renewable-energy systems, AI power supplies and other high-performance power conversion applications.

About GaNPower

GaNPower International develops advanced gallium nitride power semiconductor technologies for high-efficiency power conversion. Its proprietary P2P™ architecture combines the compatibility of conventional MOSFET gate driving with the speed, efficiency and power-density advantages of monolithic enhancement-mode GaN.