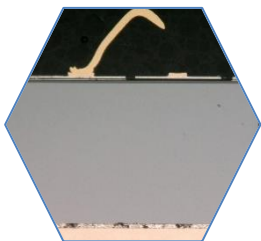
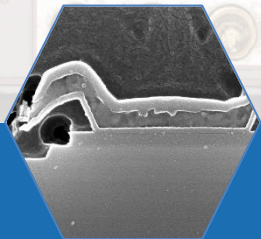


Innoscience's 650V GaN-on-Si Transistor

The first 100% Chinese GaN-on-Si power device found in Rock's fast charger, manufactured on an 8-inch platform.



Title: Innoscience's 650V GaN-on-Si Transistor

Pages: 78

Date: July 2020

Format:
PDF & Excel file

Price:
EUR 3,990

Reference:
SP20563

The Power GaN market is expected to reach \$700M in 2025, up from \$24M in 2019, driven by consumer applications, according to Yole Développement. Innoscience is a new entrant in the GaN-on-Silicon transistor market, with its world-first 8-inch wafer production line. Upgrading from the 6-inch to 8-inch platform has a direct effect on improving costs of GaN-on-Silicon device.

In this report, System Plus Consulting offers a complete reverse costing of a 650V GaN FET from Innoscience, which is found in the latest Rock 65W fast charger. For normally-off operation, Innoscience uses enhancement mode (E-mode) with a p-doped GaN cap layer under the gate. The device is assembled in a dual-flat no-leads 8x8 package for easy integration into power electronic systems.

System Plus Consulting presents a deep teardown analysis of the GaN device. Detailed optical and scanning electron microscope pictures and cross-sections with energy-dispersive X-ray analysis are

included to reveal Innoscience's technical choices from the device design to the packaging.

The report estimates the production costs of the GaN HEMT and the package, and the price of the component. Finally, the report includes a comparison with a 650V E-mode GaN-on-Silicon HEMT from Navitas. This comparison highlights the differences in power device designs and manufacturing costs.

COMPLETE TEARDOWN WITH

- Detailed optical and SEM photos
- Precise measurements
- Materials EDX analysis
- Supply chain evaluation
- Manufacturing cost analysis
- Estimated selling price
- Technology and cost comparisons with Navitas NV6115
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AUTHORS

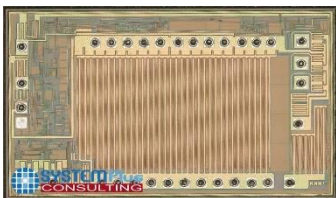


Taha Ayari, PhD is involved in analyzing compound semiconductor devices within Power Electronics and Compound Semiconductors team. Taha holds a PhD in Electrical and Computer Engineering from Georgia Tech Lorraine.



Peggy Gallois joined System Plus Consulting's laboratory of microelectronics team in July 2019. She has a deep knowledge of metallic materials. She previously worked in the laboratory of metallographic expertise for Dassault Aviation near Paris.

RELATED REPORTS



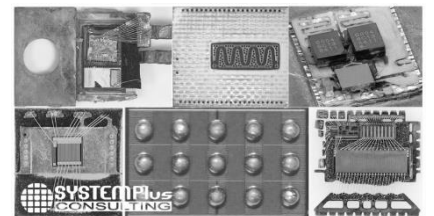
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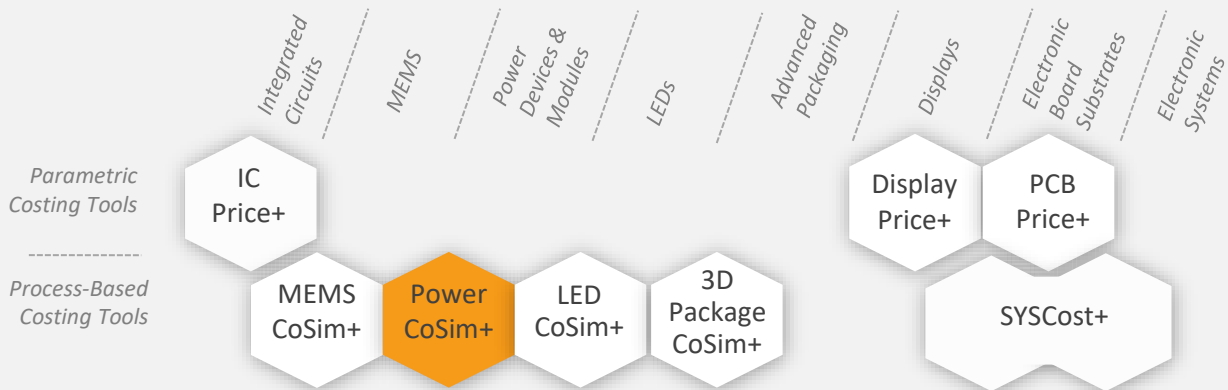
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Our analysis is performed with our costing tool Power CoSim+.

System Plus Consulting offers powerful costing tools to evaluate the production cost and selling price from single chip to complex structures.

Power CoSim+

Cost simulation tool to evaluate the cost of any Power Electronics process or device: from single chip to complex structures.

ABOUT SYSTEM PLUS CONSULTING

WHAT IS A REVERSE COSTING®?

Reverse Costing® is the process of disassembling a device (or a system) in order to identify its technology and calculate its manufacturing cost, using in-house models and tools.



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