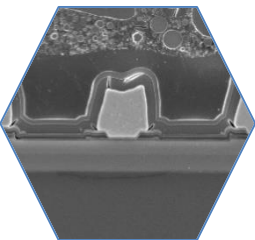
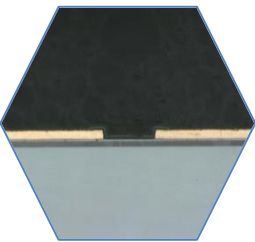


Infineon 600V CoolGaN Transistor Family

The first GaN-on-Si HEMT transistor from the world leader in power electronic components is today in mass production.



With the first applications in volume production, the GaN transistor market is becoming mature. Infineon, world leader in power electronics, has therefore stepped in. Infineon is a new entrant in the market for power GaN-on-Silicon transistors, with these components having been developed for industrial, telecom, datacenter switch-mode power supplies (SMPS). System Plus Consulting unveils this CoolGaN 600V technology from Infineon based on Panasonic's patent. The latest device's family is driving 600V and it is optimized for high frequency, high efficiency power conversion, which also reduces electromagnetic interference.

The IGOT60R070D1A from Infineon uses 600V GaN on Silicon E-mode High Electron Mobility Transistors (HEMTs) in a small outline (SO) package. The CoolGaN technology allows high switching frequency, which reduces energy loss. Moreover, the high frequency helps reduce the size and weight of the passive components.

CoolGaN technology allows the integration of an electrostatic discharge protection diode, produced using the same process as the HEMT transistor. The GaN and AlGaN layers are deposited by epitaxy on a silicon substrate.

The enhancement-mode power GaN transistor has a p-HEMT structure. An ingenious field plate structure is processed in the metal layer.

This complete teardown analysis includes optical and SEM pictures of metal layers, delayering of the GaN, cross-section of the HEMT part and the diode part of the die. The report also provides an estimation of the production cost of the epitaxy, HEMT and the package.

Finally, the report compares the device with others CoolGaN family's devices and with 600V GaN on Si HEMTs from Panasonic.

COMPLETE TEARDOWN WITH

- Detailed optical and SEM photos
- Precise measurements
- Materials EDX analysis
- Manufacturing process flow
- Supply chain evaluation
- Manufacturing cost analysis
- Estimated sales price
- Comparison with CoolGaN devices
- Comparison with 600V GaN HEMT from Panasonic

Title: Infineon 600V CoolGaN Transistor Family

Pages: 97

Date: June 2019

Format: PDF & Excel file

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AUTHORS

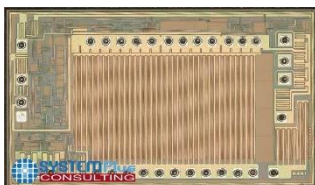


Sylvain Hallereau is in charge of costing analyses for IC, power and MEMS. He has more than 10 years of experience in power device manufacturing cost analysis and has studied a wide range of technologies.



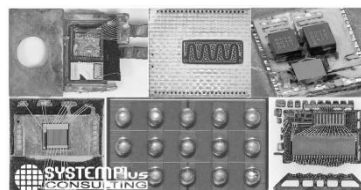
Guillaume Chevalier performs physical analyses. He holds a two-year university degree in technology of physical measurements and instrumentation technics.

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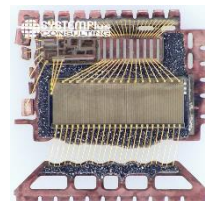
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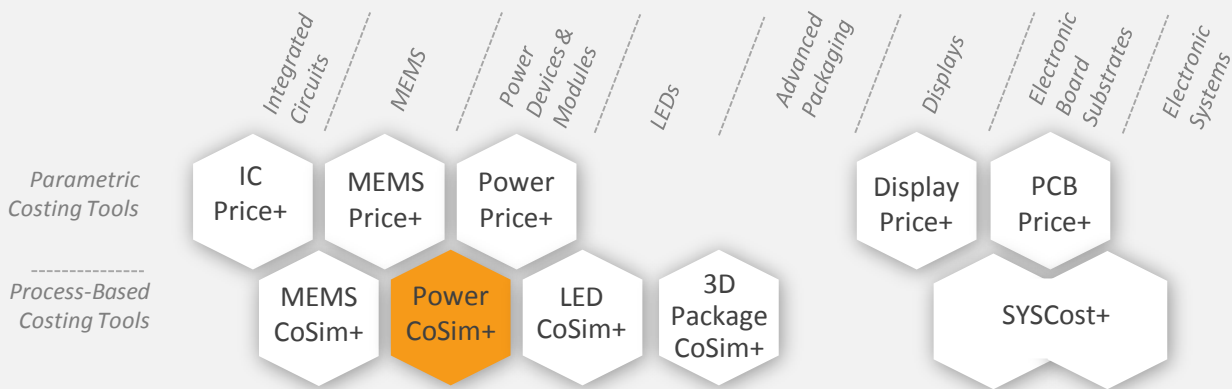
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Power CoSim+

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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.



CONTACTS

Headquarters

22, bd Benoni Goullin
Nantes Biotech
44200 Nantes
France
+33 2 40 18 09 16
sales@systemplus.fr

Europe Sales Office

Lizzie LEVENEZ
Frankfurt am Main
Germany
+49 151 23 54 41 82
llevenez@systemplus.fr

America Sales Office

Steven LAFERRIERE
Western USA & Canada
+1 310-600-8267
laferriere@yole.fr

Chris YOUMAN
Eastern USA & Canada
+1 919-607-9839
chris.youman@yole.fr

Asia Sales Office

Takashi ONOZAWA
Japan & Rest of Asia
+81 3 4405 9204
onozawa@yole.fr

Mavis WANG
Greater China
+886 979 336 809
wang@yole.fr

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