



NXP Sets a New Efficiency Benchmark for RF Energy with GaN Transistor

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News Highlights:

- First GaN-on-SiC transistor for 2.45 GHz RF energy surpasses the efficiency of most magnetrons
- Solid-state enables smart control, low maintenance, and ease of use compared to magnetrons
- With GaN-on-SiC, NXP brings all the benefits of solid-state without any compromise on efficiency

BOSTON, June 04, 2019 (GLOBE NEWSWIRE) -- **(International Microwave Symposium 2019)** – NXP Semiconductors N.V. (NASDAQ:NXPI) today announced the first RF power transistor designed for RF energy using Gallium Nitride on Silicon-Carbide (GaN-on-SiC). Leveraging the high efficiency of GaN, the MRF24G300HS exceeds the efficiency of most magnetrons at 2.45 GHz, while the high thermal conductivity of SiC helps to ensure Continuous Wave (CW) operations.

For more than 50 years, 2.45 GHz magnetrons have been widely used in consumer and industrial applications ranging from microwave ovens to high power welding machines. Solid-state solutions appeared on the market several years ago, bringing advanced control, reliability, and ease of use. The capability to dynamically adjust the power, frequency, and phase helps optimize the energy transmitted to the material or food being heated. The long lifetime of transistors at full rated performance reduces the need for replacements. However, until the advent of GaN-on-SiC for RF Energy, solid-state devices lacked efficiency to meet the performance standards of the incumbent magnetrons.

The MRF24G300HS is a 330 W CW, 50 V GaN-on-SiC transistor, demonstrating 73 percent drain efficiency at 2.45 GHz, which is five points higher than the latest LDMOS technologies. The high power density of GaN enables the device to reach high output power in a small footprint. GaN technology has an inherently high output impedance that allows broadband matching compared to LDMOS. This reduces the design time and ensures consistency on the manufacturing line – no more hand tuning needed. The simplified gate biasing of the MRF24G300HS RF transistor removes another step of the otherwise complex power-up sequence typically seen on GaN devices.

“The smart control, low maintenance, and ease of use of solid-state open the door to new use cases, such as smart cooking and industry 4.0 heating machines,” said Paul Hart, senior vice president and general manager of NXP’s Radio Power Solutions. “By breaking the efficiency barrier of vacuum tubes, we enable our customers to unlock innovation without any compromise on performance.”

Availability

NXP’s MRF24G300HS RF transistor is sampling now and production is planned for Q3 2019. The 2400-2500 MHz reference circuit is available now, under order number MRF24G300HS-2450MHZ. As part of the NXP Partner Program, [Prescient Wireless, Inc.](#) designed a 2-up, 550 W power amplifier pallet with 45 dB of gain, that will be shown at IMS. To access the datasheet of the MRF24G300HS visit, www.nxp.com/MRF24G300HS.

NXP Showcase at IMS 2019: The Microwave Hub

Stop by the NXP booth where the company will showcase “The Microwave Hub.” Visit the NXP booth# 548 to explore the possibilities of integrating more functions into a single device.

About NXP Semiconductors

NXP Semiconductors N.V. (NASDAQ: NXPI) enables secure connections and infrastructure for a smarter world, advancing solutions that make lives easier, better, and safer. As the world leader in secure connectivity solutions for embedded applications, NXP is driving innovation in the secure connected vehicle, end-to-end security & privacy, and smart connected solutions markets. Built on more than 60 years of combined experience and expertise, the company has approximately 30,000 employees in more than 30 countries and posted revenue of \$9.41 billion in 2018. Find out more at www.nxp.com.

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