

Veille NAE 29 03 2018

Evaluation of the Schottky Contact Degradation on the Temperature Transient Measurements in GaN HEMTs

18/03/2018 - ieeexplore.ieee.org

The temperature dependence of the Schottky voltage under a forward constant current was used as a means to measure the transient temperature characteristics of gallium nitride (GaN) high-electron-mobility transistors (HEMTs). However, the degradation of the Schottky diode leads to error in the calculated temperature measurement results, especially at a high forward Schottky current. In this paper, we characterized the degradation of GaN HEMT Schottky diodes under forward bias using pulsed current.

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Ultraviolet-A LED Based on Quantum-disks-in-AlGaN-nanowires - Optimization and Device Reliability

17/03/2018 - ieeexplore.ieee.org

Group-III nitride-based ultraviolet (UV) quantum-disks (Qdisks) nanowires (NWs) light-emitting diodes grown on silicon substrates offer a scalable, environment-friendly, compact, and low-cost solution for numerous applications such as solid-state lighting, spectroscopy, and biomedical. However, the internal quantum efficiency, injection efficiency, and extraction efficiency need to be further improved. The focus of this paper encompasses investigations based on structural optimization, device simulation,

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Electrical performance and reliability characterization of a SiC MOSFET power module with embedded decoupling capacitors

14/03/2018 - eprints.nottingham.ac.uk

il y a 5 jours - Integration of decoupling capacitors in SiC MOSFET modules is an advanced solution to mitigate the effect of parasitic inductance induced by module assembly interconnects. In this paper, the switching transient behavior is reported for a 1.2 kV SiC

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Survey of high-temperature reliability of power electronics packaging components

12/03/2018 - ieeexplore.ieee.org

In order to take the full advantage of the high-temperature SiC and GaN operating devices, package materials able to withstand high-temperature storage and large thermal cycles have been investigated. The temperature under consideration here are higher than 200° C.

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Etude de fiabilité des modules d'électronique de puissance à base de composant SiC pour applications hautes températures

12/03/2018 - tel.archives-ouvertes.fr

Page 1. Etude de fiabilité des modules d'électronique de puissance à base de composant SiC pour applications hautes températures Ludi Zhang To cite this version:

Ludi Zhang. *Etude de fiabilité des modules d'électronique ?*

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Comparing the performance of Si IGBT and SiC MOSFET switches in modular multilevel converters for medium voltage PMSM speed control

12/03/2018 - ieeexplore.ieee.org

Modular Multilevel Converters (MMCs) are shown to have a great potential in the area of medium voltage and high power drive applications. However, the foremost concern in such kind of applications is their reliability and controllability, which have not been thoroughly explored yet. This work primarily verifies the feasibility of MMC in a Permanent Magnet Synchronous Motor (PMSM) torque and speed control. MMCs with Si IGBT switches experience performance degradation when they are used in extreme

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On the Transient Thermal Characteristics of Silicon Carbide Power Electronics Modules

09/03/2018 - ieeexplore.ieee.org

The transient performance of power semiconductor devices relates directly to their available power rating, reliability, and operating life time. This paper examines the transient thermal performance of liquid-cooled, Silicon Carbide (SiC) power devices subjected to different unsteady electrical loads. The first part uses infrared thermography to examine an observed asymmetrical device thermal time constant when subjected to step-change increases and decreases in current. A theoretical analysis c

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The roadmap for development of piezoresistive micro mechanical sensors for harsh environment applications

01/03/2018 - ieeexplore.ieee.org

Piezoresistive mechanical sensors play a very important role in modern industries. MEMS pressure sensor market is one of the biggest markets among all MEMS components [1]. Global pressure sensor market is growing from \$6.4 billion in 2012 to \$8.8 billion in 2018. The main applications are automotive, medical, consumer electronics, industry and aerospace/defense. Today, there is a growing demand for cost effective high-temperature and harsh-environment semiconductor devices, capable of operating at

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