

Fiabilité électronique

Solid-state power amplifier for RF and microwave uses like military communications introduced by Comtech PST - Intelligent Aerospace

2021-04-08 - www.intelligent-aerospace.com

The class AB amplifier uses gallium nitride (GaN), and operates from 7.125 to 7.725 GHz frequency while maintaining linearity performance at rated power.

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Development of SiC merged reverse conductive devices

2021-04-05 - onlinelibrary.wiley.com

SiC merged reverse conductive (MRC) power devices composed of both unipolar devices and bipolar devices have been developed to achieve a smaller chip size, a lower power loss, and a

developed double buffer device structure and novel standard cells with pilot IGBT.

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Lifetime Prediction for a Cell-on-Board (COB) Light Source Based on the Adaptive Neuro-Fuzzy Inference System (ANFIS)

2021-03-31 - www.hindawi.com

Predicting the lifetime of a LED lighting system is important for the implementation of design specifications and comparative analysis of the financial competition of various illuminating systems. Most lifetime information published by LED manufacturers and standardization organizations is limited to certain temperature and current values. However, as a result of different working and ambient conditions throughout the whole operating period, significant differences in lifetimes can be observed. In this article, an advanced method of lifetime prediction is proposed considering the initial task areas and the statistical characteristics of the study values obtained in the accelerated fragmentation test. This study proposes a new method to predict the lifetime of COB LED using an artificial intelligence approach and LM-80 data. Accordingly, a database with 6000 hours of LM-80 data was created using the Neuro-Fuzzy (ANFIS) algorithm, and a highly accurate lifetime prediction method was developed. This method reveals an approximate similarity of 99.8506% with the benchmark lifetime. The proposed methodology may provide a useful guideline to lifetime predictions of LED-related products which can also be adapted to different operating conditions in a shorter time compared to conventional methods. At the same time, this method can be used in the life prediction of nanosensors and can be produced with the 3D technique.

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[tel-03186705] Elaboration et caractérisation de contacts électriques à base de phases MAX sur SiC pour l'électronique haute température

2021-03-31 - tel.archives-ouvertes.fr

Les applications de puissance dans lesquelles la température ambiante est élevée, provoquent l'augmentation de la température dans les dispositifs électroniques. De ce fait, il est important de développer les dispositifs électroniques pour pouvoir supporter des densités de courant et de puissance plus élevées. Dans cette thèse, nous avons pour objectif de jeter les bases d'une technologie en totale rupture avec celles existantes pour la fabrication d'une

nouvelle génération de contacts électriques à base de Ti_3SiC_2 , stables, fiables et reproductibles sur le Carbure de Silicium pour les applications à très hautes températures (300 – 600°C). Deux méthodes d'élaborations seront étudiées, dans cette thèse, pour synthétiser le Ti_3SiC_2 . La première est par voie réactionnelle, et la deuxième approche consistera à utiliser la technique Pulsed Laser Deposition (PLD), en utilisant une cible de Ti_3SiC_2 . Le but est de développer des contacts ohmiques de bonne qualité. Des caractérisations physico-chimiques, électriques (TLM) et mécaniques (W-H et RSM) ont été effectuées sur les contacts de Ti_3SiC_2 . Ces échantillons ont subi un vieillissement, à 600°C pendant 1500h sous Argon, dans le but d'étudier la stabilité et la fiabilité des contacts électriques aux hautes températures. Les résultats des caractérisations ont montré que la fiabilité et la stabilité chimique entre Ti_3SiC_2 et SiC ont permis aux contacts de garder le comportement ohmique avec une faible résistivité électrique et un bon [...]

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Failure Analysis of Static Analysis Software Module Based on Big Data Tendency Prediction

2021-03-26 - www.hindawi.com

With the continuous development of software, it is inevitable that there will be various unpredictable problems in computer software or programs that will damage the normal operation of the software. In the paper, static analysis software is taken as the research object, the errors or failures caused by the potential defects of the software modules are analyzed, and a software analysis method based on big data tendency prediction is proposed to use the software defects of the stacked noise reduction sparse analyzer to predict. This method can learn features from original defect data, directly and efficiently extract required features of all levels from software defect data by setting different number of hidden layers, sparse regularization parameters, and noise ratio, and then classify and predict the extracted features by combining with big data. Through experimental tests, the performance of the presented method is better than that of the comparison method in correct rate, accuracy rate, recall rate, F1-measurement, AUC value, and running time, which proves that the research results in this paper have more accurate failure prediction effect and can timely eliminate software failures.

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Utilizing GaN with High-Performance Gate Driving

2021-03-22 - eepower.com

[...] GaN technology is a true enabler for power stages, today providing performance that was unthinkable in the previous decade. The maximum performance and benefits from GaN are obtained only when the gate driver matches the same degree of performance and innovation a [...]

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Understanding Thermal Management of Chip-Scale GaN Devices

2021-03-15 - eepower.com

[...] Wide bandgap (WBG) power semiconductors are being adopted into mainstream designs due to order-of-magnitude improvements in electrical figures-of-merit (FOMs). These huge performance improvements require revisiting many design assumptions, including thermal management [...]

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