# Article information:

A Normalized Quantitative Method for GaN HEMT Turn-ON Overvoltage Modeling and Suppressing | IEEE Journals & Magazine | IEEE Xplore  
<https://ieeexplore.ieee.org/document/8375121>

# Article summary:

1. This paper proposes a reliable circuit model based on a quantitative way to analyze the cause of overvoltage and finds optimized parameters to suppress it.

2. A normalized method is adopted to make the analysis more general, and the voltage and current stress determined safe operation area during the switching on process under the constraint of maximum overvoltage is detailed.

3. An accurate turn-on loss calculation method is proposed in favor to choose the best appropriate switch speed with guaranteed overvoltage and reasonable turn-on losses.

# Article rating:

Appears well balanced: The article presents the information in a reliable and balanced way, without biases and prejudices. The claims made in the article are well supported and, where applicable, all sides of the argument are given opportunity to present their point of view. The article appears trustworthy and reliable.

# Article analysis:

The article “A Normalized Quantitative Method for GaN HEMT Turn-ON Overvoltage Modeling and Suppressing” provides an overview of a reliable circuit model for analyzing and suppressing GaN HEMT turn-on overvoltage. The article is well written, providing clear explanations of the proposed methods as well as supporting evidence from experiments conducted by the authors. The article also presents a normalized method for making the analysis more general, which allows for easier comparison between different scenarios. Furthermore, an accurate turn-on loss calculation method is proposed in order to choose an appropriate switch speed with guaranteed overvoltage and reasonable turn-on losses.

In terms of trustworthiness and reliability, this article appears to be unbiased in its presentation of information, presenting both sides equally without any promotional content or partiality towards one side or another. The authors provide evidence from experiments conducted by them in order to support their claims, which adds credibility to their work. Additionally, possible risks are noted throughout the article, such as high voltage and current stress that can arise from fast switching speeds.

The only potential issue with this article is that it does not explore any counterarguments or missing points of consideration that could be relevant to this topic. However, given that this paper focuses on proposing a new method rather than debating existing ones, this lack of exploration does not detract from its overall quality or trustworthiness.

# Topics for further research:

* GaN HEMT turn-on overvoltage suppression
* GaN HEMT turn-on overvoltage modeling
* GaN HEMT switch speed optimization
* GaN HEMT high voltage and current stress
* GaN HEMT turn-on loss calculation
* GaN HEMT circuit model analysis

# Report location:

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