CV

PERSONAL INFORMATION

Name: Kota Okada

Institution: Nagoya University

Department: Department of Electrical Engineering

Position: Master's Student (2nd year)

E-mail okada.kota.h7@s.mail.nagoya-u.ac.jp

Mobile +81-90-8076-5322

EDUCATION

Apr. 2022 – Mar. 2024 **Bachelor of Engineering**
Department of Electrical Engineering, Electronics, and Information Engineering
School of Engineering
Nagoya University, Japan

Apr. 2024 – Present **Master of Engineering**
Department of Electrical Engineering
Graduate School of Engineering
Nagoya University, Japan
Supervisor: Prof. Masayoshi Yamamoto

Paper ID: 460

Paper Title: Analysis Method for Turn-off Oscillation Considering Turn-off Voltage

Abstract: Wide-bandgap semiconductor devices enable high-speed switching but cause instability phenomena such as false turn-on and oscillation due to parasitic component effects. A negative voltage is applied to the gate during the off period to suppress these issues. This voltage is called turn-off voltage; however, conventional switching instability analysis methods do not consider the influence of turn-off voltage. This paper proposes an analytical method for turn-off instability focusing on turn-off voltage influence. Analysis was conducted on a double-pulse test circuit using the proposed method. The analysis clarifies the influence of the turn-off voltage on the circuit's operating regions. These findings form the basis of a design guideline to reduce both circuit loss and cost.

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