

High frequency inverter using IGBT





Overview

In this study, an insulated gate bipolar transistor (IGBT) is modeled using datasheet and measurement data to analyze the high frequency characteristics of a high-power full-bridge inverter. Why is IGBT used in inverter applications?

Understanding why IGBT is used in inverter applications helps in proper implementation: High Voltage Handling – Supports hundreds to thousands of volts. Fast Switching – Reduces power loss in high-frequency circuits. Efficiency – Lower heat generation compared to older transistors. Reliability – Robust under heavy loads when used correctly.

How to analyze high frequency switching behavior of a high-power full-bridge inverter?

To analyze high frequency switching behavior of an inverter accurately, an accurate IGBT model is essential. In this study, an insulated gate bipolar transistor (IGBT) is modeled using datasheet and measurement data to analyze the high frequency characteristics of a high-power full-bridge inverter.

Which IGBT model is required to analyze EMI from a power inverter?

For this reason, an accurate high frequency IGBT model is required to analyze EMI from a power inverter. Conventional IGBT models which can be used in circuit simulations can be summarized by two categories .

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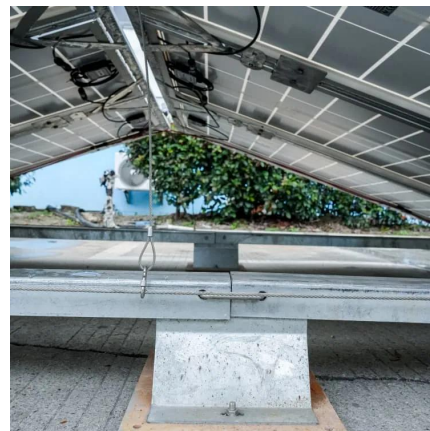


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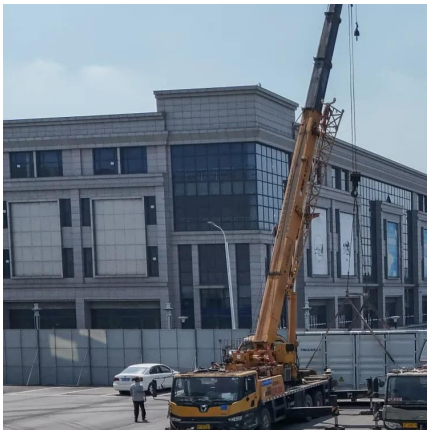
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