

Is the inverter discharge high voltage





Overview

What is high-voltage active discharge?

High-voltage active discharge refers to the process in which the electrical energy stored in high-voltage capacitors is rapidly (typically within 1-2 seconds) released to a safe level (reducing the high voltage to below 60V) through a specialized discharge circuit and control strategy after the high-voltage system of the EV is powered off.

Do EV traction inverters need a DC link active discharge?

Every EV traction inverter requires a DC link active discharge as a safety-critical function. The discharge circuit is required to discharge the energy in the DC link capacitor under the following conditions and requirements: Power transistor on, off control using the TPSI3050-Q1.

Why do EV inverters need to be discharged?

Abstract: when an Electrical Vehicle (EV) encounters an accident or the vehicle is taken to a service station, the DC-link capacitor in the inverter must be discharged to ensure safety of both the passengers and the operator.

What is a passive discharge in a high-voltage system?

Application scenarios: Passive discharge ensures gradual voltage reduction within the high-voltage system when the vehicle is switched off and no other discharge mechanisms are active. It serves as a final safety barrier when active discharge paths fail. How quickly should a high-voltage system discharge to be considered safe?



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[What are the Low Voltage and High Voltage Protection of Inverters?](#)

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[Enabling Smarter DC Link Discharge in EV Traction Inverters](#)

May 25, 2025 · Image used courtesy of Adobe Stock DC Link Discharge Challenges in Inverter High-voltage DC links are central to a wide range of power electronic systems in electric and ...



[What is Partial Discharge in an Inverter-Driven Motor? , HIOKI](#)

High-voltage inverter-driven motors, such as those found in EVs, are more prone to partial discharge phenomena. In general, partial discharge occurs when a voltage greater than ...

[How to Reduce the Power Resistor for DC-Link ...](#)

Aug 16, 2024 · The DC-Link capacitor is a part of every traction inverter and is positioned in parallel with the high-voltage battery and the power stage (see Figure 1). The DC-Link ...



[Understanding high voltage battery packs and inverter discharge ...](#)

May 7, 2023 · High voltage inverters have a wide battery voltage range but a limited discharge current rating. Does that mean the battery pack must be sized based on the maximum output ...



[A DC-Link Hybrid Active Discharge Scheme for Traction Inverters](#)

Sep 6, 2024 · The paper includes a simulation comparison of winding-based discharge with the proposed Hybrid discharge technique. The proposed solution has a higher discharge rate and ...



[Active Discharge and Pre-charge of EV High Voltage ...](#)

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High-voltage discharge system of EV

Feb 15, 2025 · High-voltage active discharge refers to the process in which the electrical energy stored in high-voltage capacitors is rapidly (typically within 1-2 seconds) released to a safe ...

Next Generation Traction Inverter

Dec 19, 2023 · the high voltage bus is always maintained within a safe range. INSSA can also save additional space and cost by eliminating the need for large dissipation resis-tors. Its ...



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