
External discharge DC inverter

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.

What is an active discharge circuit for electric vehicle inverter?

1. An active discharge circuit (10) for electric vehicle inverter (1), the active discharge circuit intended to be connected in parallel with a DC link capacitor (5) connected between positive and negative lines (3,

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.

How do EV traction inverters work?

To control the voltage so that the voltage does not exceed 50 V (touch safe), the auxiliary power supply has to turn on and power up safety-relevant circuits that can discharge the DC link caps (active discharge) or actively short circuit the motor. Every EV traction inverter requires a DC link active discharge as a safety-critical function.

In order to eliminate the disadvantages and synthesize the advantages of the traditional machine winding-based and external bleeder-based discharge techniques, this ...

(54) SAFE ACTIVE DISCHARGER CIRCUIT FOR INVERTER IN VEHICLE (57) An active discharge circuit for electric vehicle inverter, the active discharge circuit intended to ...

Enabling Smarter DC Link Discharge in EV Traction Inverters By using an integrated gate driver for DC link discharging, you can shrink BOM costs, save PCB space, ...

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 ...

This paper proposes a hybrid DC-bus capacitor discharge strategy relying on both the machine windings and external bleeder circuits to achieve the five-second discharge in ...

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Tesla's V2L solution, such as the PowerShare F2 Discharge Box, is DC-based and relies on an external inverter, unlike other EVs with bidirectional onboard chargers that handle ...

TL;DR: This paper proposes a hybrid active discharge scheme for traction inverters, combining

winding-based and flyback converter methods to enhance redundancy, reduce discharge time, ...

During the emergency situations, key-OFFs, or maintenance, discharging the inverter dc-bus capacitor voltage within seconds is imperative due to safety concerns (inverter ...

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