

# DC discharge inverter for new energy vehicles



## Overview

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These vehicles require specialised DC V2L discharge inverters for external power supply. Discharging high-voltage DC link capacitors in automotive inverters typically requires bulky, costly external components impacting significantly the bill of materials (BOM) cost (estimated \$4–\$6 per inverter), consuming valuable PCB space, and complicating the design—particularly in compact and. 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 capacitor has several functions, such as to help smooth voltage ripples, filtering unwanted harmonics and reducing noise. To provide. External power output from new energy vehicles is categorised as AC (alternating current) or DC (direct current) external discharge. Practical application types primarily include V2L (Vehicle-to-Load), V2V (Vehicle-to-Vehicle), V2H (Vehicle-to-Home), and V2G (Vehicle-to-Grid). Here, “V” denotes. Increasing vehicle electrification has opened a niche for power supplies, such as DC-DC converters and inverter modules, which are not required in most internal combustion engine vehicles. NXP enables efficiency, safety, and reliability with multicore lockstep MCUs for motor control, system basis chips for power. DC to AC EV discharge adapter, also known as an electric vehicle (EV) inverter, is a crucial component in the field of electric vehicle charging infrastructure.

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### DC-DC Converters and Inverter Modules for Electric Vehicles

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### A technical review of modern traction inverter systems used in electric

In this context, multilevel inverters (MLIs) have taken on the role as a promising substitute of traditional two-level traction inverters, and using suitable control and modulation techniques ...



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### V2L, V2V, V2H, V2G? A Guide to Four External Power Supply ...

V2G enables new energy vehicles to supply electricity back to the grid, also termed vehicle-to-grid energy transfer. Beyond requiring compatible new energy vehicles, this technology ...

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## How to Reduce the Power Resistor for DC-Link Discharge in ...

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## Revolutionizing Electric Vehicle Charging: The Ultimate Guide to DC

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The DC to AC EV discharge adapter is an electronic device that converts the direct current (DC) power stored in the battery of an electric vehicle into alternating current (AC) power.

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## Electric Vehicle (EV) Traction Inverter , NXP Semiconductors

The traction inverter converts DC battery power to precise AC for EV motors, delivering between 80 to over 300 kW power under extreme thermal conditions in a compact design.

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## A DC-Link Hybrid Active Discharge Scheme for Traction Inverters

This paper examines the limitations of traditional discharge techniques and



proposes a novel hybrid discharge solution that combines the existing winding-based discharge method with a flyback converter.

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## Enabling Smarter DC Link Discharge in EV Traction Inverters

Explore the live demonstration of the GD3162's DC Link discharge feature and discover how NXP is enabling smarter, safer and more efficient EV systems through its latest portfolio of high ...

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## Design Priorities in EV Traction Inverter With Optimum Performance

This reference design demonstrates control of the HEV or EV traction inverter and bidirectional DC-DC converter with a single TMS320F28388D real-time C2000 MCU.

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