

SolarInnovate Energy Solutions

12v inverter high voltage power supply



Overview

What is a 12V power supply?

The higher voltage supplies large loads such as traction motor, air-conditioning, and starters. Lower-power components such as infotainment and safety systems will remain on 12V supplies. What does this EE do?

PMP7797 is a wide-input SEPIC converter designed for automotive applications.

How to choose a power supply architecture for traction inverters?

There are several isolated bias power supply architectures for traction inverters and some commonly-used architectures are shown in this paper. Based on the chosen architecture, the next step is to choose a topology (flyback, push-pull, LLC resonant, integrated DC/DC module, and so forth) and the associated devices.

Are LV and HV batteries used in a traction inverter?

Although, LV batteries are common as a power source for isolated bias power supplies, often both LV and HV batteries are used to provide redundancy in the system. A redundant power supply can lead to achieve higher functional safety of overall system. Figure 1-1 shows a traction inverter block diagram. Figure 1-1. Traction Inverter Block Diagram.

What is a traction inverter?

The automotive industry is transitioning from combustion engines to electric vehicles (EV) and hybrid electric vehicles (HEV). One of the key parts of an EV and HEV system is a Traction Inverter. The traction inverter takes the DC input power from the high-voltage (HV) battery and provides the controlled AC power to the e-motor.

What is a 12V LV battery pre-regulator?

With a 12V LV battery, the converters most commonly used as pre-regulators are single-ended primary-inductor converter (SEPIC), buck-boost converters, and flyback converters. These converters work for a wide input voltage range and provide a stable output voltage as an input to the isolated bias power supply devices.

Why is isolated bias power supply important for traction inverters?

Redundancy Only at the High Side in Fully-Distributed Architecture Isolated bias supply is an important part of every traction inverter system. There are several isolated bias power supply architectures for traction inverters and some commonly-used architectures are shown in this paper.

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High Voltage Inverter: Unlocking the Potential of High- Power ...

Aug 17, 2025 · Generally, a high voltage inverter is a type of inverter voltage that works by converting direct current (DC) into alternating current (AC) at high voltage. This high-voltage ...

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