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Pack lithium battery coefficient standard

Overview

What is an automotive lithium-ion battery pack?

An automotive lithium-ion battery pack is a device comprising electrochemical cells interconnected in series or parallel that provide energy to the electric vehicle. The battery pack embraces different systems of interrelated subsystems necessary to meet technical and life requirements according to the applications (Warner, 2015).

How is a lithium-ion battery based on a physics-based cell design?

The cell design was first modeled using a physics-based cell model of a lithium-ion battery sub-module with both charge and discharge events and porous positive and negative electrodes. We assume that the copper foil is used as an anode and an aluminum foil is used as a cathode.

What are the standards for a battery pack?

There are few standards addressing topics such as ISO7637_1 ; ISO7637_2 ; ISO7637_3 , but as mentioned, more work or regulations are needed. The battery pack, as an individual component with connectors and interfaces, including all cells and electronics, has an acceptable EMC behavior, as defined in relevant standards.

What is a LiFePO4 battery pack?

This reference design is a low standby and ship-mode current consumption and high cell voltage accuracy 10s–16s Lithium-ion (Li-ion), LiFePO4 battery pack design.

Why do lithium-ion batteries need heat rejection?

Lithium-ion battery development is conventionally driven by energy and power density targets, yet the performance of a lithium-ion battery pack is often restricted by its heat rejection capabilities.

Why is safety protection important in lithium ion battery pack design?

Safety protection systems represent critical components in lithium ion battery pack design. Multiple protection layers prevent catastrophic failures and ensure reliable operation throughout the battery service life.

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