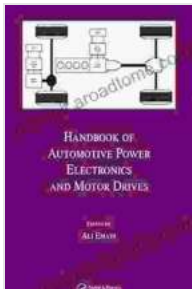


Handbook of Automotive Power Electronics and Motor Drives: Empowering Electrical Engineering

In the rapidly evolving landscape of automotive engineering, power electronics and motor drives play a pivotal role in enhancing vehicle performance, efficiency, and sustainability. To meet the ever-increasing demands of this dynamic industry, the Handbook of Automotive Power Electronics and Motor Drives emerges as an invaluable resource.

A Comprehensive Compendium for Electrical Engineers

Authored by renowned experts in the field, this comprehensive handbook is a treasure trove of knowledge for electrical engineers. It encompasses a vast array of topics, including:



Handbook of Automotive Power Electronics and Motor Drives (Electrical and Computer Engineering 125)

★★★★☆ 4.7 out of 5

Language : English

File size : 24534 KB

Print length : 736 pages



- Power semiconductors and their characterization
- Topologies and control strategies for power converters
- Motor drives and their control techniques

- Thermal management and cooling strategies
- System design and integration

In-Depth Analysis and Real-World Applications

Beyond theoretical foundations, the handbook delves into practical applications, providing readers with a thorough understanding of how power electronics and motor drives are employed in the automotive industry. Case studies and design examples illustrate the implementation of these technologies in:

- Electric and hybrid vehicles
- Electric power steering
- Traction drives
- Active suspension systems

Cutting-Edge Research and Future Trends

The handbook also serves as a conduit for exploring cutting-edge research and future trends. It highlights emerging technologies, such as wide bandgap semiconductors, silicon carbide, and gallium nitride, which are revolutionizing the field. Additionally, it examines the interplay between power electronics and other automotive systems, including battery management, vehicle dynamics control, and autonomous driving.

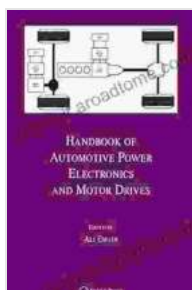
An Indispensable Guide for Researchers and Practitioners

The Handbook of Automotive Power Electronics and Motor Drives is an essential reference for researchers and practitioners seeking to advance their knowledge and skills in this rapidly growing field. It offers an

unparalleled depth of information, practical insights, and cutting-edge research, making it an invaluable resource for anyone involved in the design, development, and application of automotive power electronics and motor drives.

Image Alt Attribute Descriptions

* **Electric Car:** An image depicting an electric car with a sleek and futuristic design, showcasing the role of power electronics and motor drives in electric vehicle propulsion. * **Hybrid Vehicle:** An image of a hybrid vehicle, highlighting the integration of traditional combustion engines and electric powertrains, enabled by advanced power electronics. * **Power Semiconductor Chip:** A close-up image of a power semiconductor chip used in automotive power converters, emphasizing the importance of semiconductor technology in efficient power conversion. * **Motor Drive Control Board:** An image of a motor drive control board, showcasing the intricate circuitry and microcontrollers responsible for controlling electric motors in automotive applications. * **Thermal Management System:** An image of a thermal management system used to dissipate heat generated by power electronics and motor drives, ensuring their reliability and longevity.



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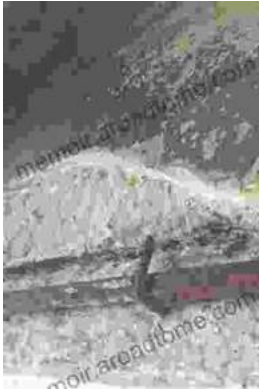
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