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On Board Integrated Charger and Battery Management System for E-Vehicle

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Abstract: *The transportation industry is experiencing a switch towards electrification. Availability of electric vehicle (EV) charging infrastructure is very critical for broader acceptance of EVs. The increasing use of OBCs, due to their cost-effectiveness and ease of installation, necessitates addressing key challenges. These include achieving high efficiency and power density to overcome space limitations and reduce charging times. Additionally, the growing interest in bidirectional power flow, allowing EVs to supply power back to the grid, highlights the importance of innovative OBC solutions. This review article provides a thorough analysis of the current advancements, challenges, and prospects in EV on-board charger technology. It aims to offer a comprehensive review of OBC architectures, components, technologies, and emerging trends, guiding future research and development. Addressing these challenges is essential to enhance the efficiency, reliability, and integration of OBCs within the broader EV ecosystem..*

Keywords: On-Board Integrated Charger, Battery Management System, E-Vehicle Battery, Embedded System

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