

Topic: Development of High-Performance Powertrain Technology for Micro E-Mobility.

Abstract:

The rapid evolution of micro e-mobility—encompassing compact electric vehicles such as e-scooters, e-bikes, and last-mile delivery systems—demands innovative powertrain solutions that prioritize efficiency, compactness, and scalability. This presentation explores the development of high-performance powertrain technologies tailored for low-voltage (48V & 96V) micro e-mobility applications, emphasizing the critical role of Gallium Nitride (GaN)-based power modules in revolutionizing energy conversion systems. Unlike traditional silicon-based components, GaN technology enables higher switching frequencies, reduced energy losses, and superior thermal performance, significantly enhancing power density and extending vehicle range. By integrating GaN into low-voltage architectures, manufacturers can achieve lighter, smaller, and more cost-effective designs without compromising performance—a vital advancement for urban mobility ecosystems.

Furthermore, this discussion highlights the broader implications of GaN adoption beyond micro e-mobility, including synergies with AI servers, drones, and robotics, where efficiency and miniaturization are equally paramount. Case studies and future roadmaps will illustrate how GaN-driven powertrains align with global sustainability goals, regulatory standards, and emerging market demands. Attendees will gain actionable insights into optimizing next-generation micro e-mobility platforms while preparing for cross-industry electrification trends.

****Brief Summary****

This presentation delves into cutting-edge powertrain advancements for micro e-mobility, focusing on low-voltage (48V/96V) systems enhanced by GaN power modules. GaN's superior efficiency and compactness address key challenges in energy density, thermal management, and vehicle range, making it indispensable for urban electric transport. The session also explores GaN's cross-industry potential in AI, robotics, and drones, positioning it as a cornerstone of future electrification strategies. Attendees will learn how to leverage GaN technology for scalable, sustainable mobility solutions.