SCAPE TO MARKET

Q4 2024 | GaN, SiC and the Road to Fair Competition

Welcome to the seventh edition of SCAPE to Market

a quarterly update on the latest developments in the EV power electronics industry. In this report, we study various trends such as advancements in power conversion, battery management, and the improvement of innovative modules based on **GaN and SiC for improved energy efficiency**. Also highlighting regulatory measures being implemented to ensure fair competition in the European EV market, safeguarding local industries from subsidized global imports. Stay alert and make sure your research and innovation matters!

MARKET

- **VisIC Technologies and AVL forge partnership achieving over 99.6% efficiency in GaN inverters for EVs:** A recent collaboration has achieved a major breakthrough in gallium nitride (GaN) inverter technology for electric vehicles, surpassing silicon carbide (SiC) alternatives in both efficiency and cost. In tests conducted in Germany, a GaN-on-Silicon inverter demonstrated exceptional performance, achieving 99.67% efficiency at 10kHz and over 99.8% at 5kHz, reducing energy losses by more than 60% compared to SiC. Unlike SiC, GaN-on-Silicon power devices require less energy and CO2 during chip production and can be manufactured in standard 200mm and 300mm silicon foundries, making mass production more scalable. This advancement offers automakers a cost-effective, high-performance solution for next-generation EV drive systems. -> READ MORE

  Source: VisIC Technologies / AVL collaboration announcement | visic-tech.com

- **Fluke EV Survey reveals OEM and technician confidence despite 68% noting an industry adoption gap:** A Fluke survey of over 400 EV charger OEMs and technicians across the UK, USA, Germany, and the Netherlands reveals that while 68% acknowledge an adoption gap, 92% remain confident that regulations and standards will ensure long-term success. Key concerns include charger maintenance (36%), inoperable chargers (44%), and software incompatibility (40%). Additionally, 88% recognise a critical skills gap

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in the EV workforce. To address these challenges, respondents emphasise predictive maintenance (32%), AI-driven performance optimisation (31%), and resilient infrastructure design as essential for a reliable EV charging network. -> READ MORE

Source: Fluke EV Industry Survey, 2024 | fluke.com

- **Infineon secures funding approval under the EU Chips Act – IPCEI support accelerates innovation projects across Europe:** The European Commission has approved funding under the European Chips Act for Infineon's Smart Power Fab in Dresden, with final approval from Germany's Federal Ministry for Economic Affairs and Climate Action (BMWK) expected in the coming months. The Dresden site, benefiting from both the Chips Act and the IPCEI ME/CT innovation programme, will receive approximately 1 billion EUR in funding. Infineon is investing 5 billion EUR in the expansion, set to create up to 1,000 direct jobs and significantly impact the broader ecosystem. The Smart Power Fab, opening in 2026, will focus on energy-efficient power solutions for AI applications, supporting Europe's decarbonisation and digitalisation goals. -> READ MORE

Source: Infineon Technologies Press Release | infineon.com

POLICY

This edition's market stories carry a strong policy dimension. The Infineon Chips Act funding reflects the EU's strategic commitment to semiconductor sovereignty, while the Fluke survey highlights the workforce and standards challenges that policymakers across Europe are beginning to address through initiatives such as the EU's Net Zero Industry Act and the ongoing revision of EV charging infrastructure standards. Both themes will be developed further in upcoming editions.

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