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Smart Mobility

High Performance 800V Silicon Carbide Inverters for Automotive Applications: The Next Step in Electrification?



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Abstract

McLaren Applied have been developing ground breaking solutions for electrification in both Automotive and Motorsport for over a decade. The culmination of these developments is its IPG5 800V Silicon Carbide Inverter, which represents the next step in Electrification – particularly in highly efficiency drivetrains, key for the next wave of electrification.

Biography

Dr Stephen Lambert received his Doctorate from the University of Warwick by looking at the applicability of hybrid and electric drivetrains in motorsport. Following this he worked at Lotus Engineering, developing hybrid and electric demonstrator vehicles for a number of OEMs. Through this role, he found himself working closely with battery manufacturers as a key partner for these projects. He has since worked in various roles around developing battery technology in areas such as Formula 1 and high performance road cars. He is now responsible for the electrification strategy for automotive customers with McLaren Applied technologies, where he is helping deliver advantage by empowering customer to introduce and protect new vehicle concepts and technologies and to drive differentiation in the market. He is also chairman of ASEIN, a dedicated UK initiative focused on the accelerated and advanced delivery of Electronic Systems (ES) into vehicles and infrastructure operated by the UK Trade Association – TechWorks.

Automotive Reliability – Contamination Management and Maturity of the Ecosystems



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Abstract

As we move into a more electrified and automated reality, the sustainability of functional safe and secure electronic systems is a major concern of automobile manufacturers. The complexity of high-performance systems is not possible without the application of the latest semiconductor technology nodes. Now more than ever, auto makers must dig even deeper into their supply chains to identify and eliminate the root causes of potential hazards, many of which are created during the manufacture of the semiconductors that build the systems upon which drivers rely.

To truly address functional safety, it is essential that the automotive industry and semiconductor manufacturers work together to create frameworks that improve functional safety for all stakeholders by exploring and optimizing the intersection of contamination control, inspection, and test.

Since SEMICON Europa 2018, Entegris has been spreading, with the support of SEMI and car makers, a New Collaborative Approach, a process to tackle defectivity with an improved contamination management strategy.

With this presentation we want to share our progress. Is there any meaningful trend that is worth to report in terms of defectivity management? What have we learnt in terms of maturity of the ecosystems? Any correlation with the major technology inflection points? Where should semiconductor manufacturers focus their efforts?

Biography

Antoine Amade joined Entegris in 1995 as an application engineer in its semiconductor business. Today, he is the president of the Europe and the Middle East (EMEA) region as well as the VP of sales for the Microcontamination Control division focused primarily on growing the semiconductor business in North America and EMEA through market strategies and the management of sales.

For more than 25 years, Mr. Amade has held leadership positions at Entegris in gas microcontamination market management, strategic account management, and regional sales management.

Mr. Amade has a degree in Chemical Engineering from ENS Chimie Lille and is a member of the SEMI Electronic Materials Group, the Global Automotive Advisory Council for Europe (GAAC) and the Platform for Automotive Semiconductor Requirements Along the Supply Chain (PASRASC).