Hofer powertrain and VisIC Technologies develop 3-Level 800V GaN inverter

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hofer powertrain, a globally leading automotive powertrain technology company, and VisIC Technologies Ltd., a global leader in gallium nitride (GaN) solutions for high-voltage automotive applications, announce a partnership to work jointly on a GaN-based inverter for 800V automotive applications.
"Our partnership with hofer powertrain for the development of gallium nitride-based power inverters in electric vehicles is the breakthrough of gallium nitride technology for 800V battery systems in the automotive industry", said Tamara Baksht, CEO of VisIC. "VisIC's D^{3}GaN technology was developed for the high-reliability standards of the automotive industry and offers the lowest losses per RDS (on). It also simplifies the system solution and enables highly efficient and affordable powertrain platforms solutions. The ability to support cars with 800V battery, along the 400V battery, is the significant step forward in GaN worldwide adoption by automotive electrical driveline".

hofer powertrain has been working for more than 5 years on the development of 3-Level inverters for automotive powertrain applications, revealing vast benefits that the 3-Level topology brings compared to today's state-of-the-art 2-Level inverters using IGBTs or SiC chips. The special properties of the 3-L topology of an inverter lead to improved overall system energy consumption at the relevant reference driving cycles, such as WLTP, due to reduced harmonic losses in the motor. Moreover, the Noise Vibration Harshness (NVH) behavior of the complete Electric Drive Unit can be improved due to the better Total Harmonic Distortion of the output current affecting noise reduction.
Finally, costs are reduced regarding Electro Magnetic Compatibility measures to meet the increasingly strict requirements (like Comité International Spécial des Perturbations Radioélectriques 25 class 5), due to the better common-mode behavior of the hofer powertrain 3-Level inverter.

Gallium nitride semiconductors are the key to efficiency improvements and increasing the driving range of electrified vehicles. This technology offers significantly better switching speed and smaller and lighter package size, thereby reducing total system cost.
Today's GaN chips are used for 400V DC-link voltage and hofer powertrain 3-Level topology coupled with VisIC's GaN benefits will take it to the next level of improvement of 800V

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powertrains. The synergy of both parties can be used for 3-level topologies. “We are happy to cooperate with VisiC on the joint development of 800V 3-Level automotive inverters. Both technologies in combination allow us to apply the benefits of GaN and the benefits of the 3-L topology, and thereby multiply the benefits for our customers”, says Philipp Matt, Electronics expert at hofer powertrain.

About hofer powertrain

hofer powertrain is the system supplier of efficient powertrain solutions. As an established and independent partner of the mobility industry, hofer powertrain has been providing pioneering technologies and developing powertrain products for companies worldwide for over 40 years. Accomplished by experienced teams of experts specialized in the development, industrialization, and production of powertrain systems, hofer powertrain pushes the boundaries of innovation and efficiency for the EV market.

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