Market News

Infineon's CoolSiC™ XHP™ 2 high-power modules enable energy-efficient electrified trains to drive decarbonization

Munich, Germany – 8 May, 2023 – To meet global climate targets, transportation must shift to more environmentally friendly vehicles such as energy-efficient electrified trains. Trains, however, have demanding operating profiles with frequent acceleration and braking, while being expected to operate reliably over a long service life. Consequently, energy-efficient traction applications with high-power density, reliability, and quality are required for implementation.

Infineon Technologies AG (FSE: IFX / OTCQX: IFNNY) is addressing these requirements by adding two new products to its CoolSiC™ power module portfolio: the FF2000UXTR33T2M1 and the FF2600UXTR33T2M1. The power modules use newly developed 3.3 kV CoolSiC MOSFETs and Infineon's interconnection technology .XT. The modules come in XHP™2 package and have been specifically tailored for traction applications.

Designed for demanding applications such as traction, these devices will be presented at this year's PCIM conference in Nuremberg, Germany. "For environmentally friendly mobility, rail technology requires innovative semiconductor solutions designed specifically for these applications," said Dr. Peter Wawer, division president of Infineon's Green Industrial Power Division. "With low switching losses and the ability to enable higher switching frequencies, Infineon's new silicon carbide products contribute to greener and quieter trains, which are extremely important features for tomorrow's train traffic."

In addition to an efficient and robust silicon carbide (SiC) chip, power modules for traction drives require packaging that allow fast switching, along with interconnection technologies that enable a long service life time. Infineon's new power modules offer these exact features: The CoolSiC MOSFET chips with integrated body diodes in Infineon's XHP 2 packaging enable low switching losses while maintaining high reliability and power density.

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Fabian Schiffer (Headquarters)	Tel.: +49 89 234 25869	fabian.schiffer@infineon.com	**Investor Relations:**
Agnes Toan (Americas)	Tel.: +1 408 250 1814	agnes.toan@infineon.com	Tel: +49 89 234 26655
Chi Kang David Ong (Asia-Pacific)	Tel.: +65 6876 3070	david.ong@infineon.com	investor.relations@infineon.com
Penny Yang (Greater China)	Tel.: +86 21 6101 9276	penny.yang@infineon.com	
Yasuyuki Kamiseki (Japan)	Tel.: +81 3 4595 7079	media-relations.jp@infineon.com	

The XHP 2 packaging also features low stray inductance, a symmetrical and scalable design, and high current carrying capability. The FF2000UXTR33T2M1 module offers a drain-source-on-state resistance of 2.0 mΩ, while the FF2600UXTR33T2M1 features a drain-source-on-state resistance of 2.6 mΩ. Despite the demanding operating profiles of trains, Infineon's .XT interconnect technology improves power cycling capabilities.

Compared to conventional solutions, Infineon's CoolSiC power modules enable overall energy consumption in the motor and converter of the train to be reduced by ten percent. Additionally, train operators benefit from a more compact, lighter converter, along with a simplified cooling systems. While this is paying into the decarbonization efforts of Infineon, traction manufacturers and railway service operators, citizens also benefit from lower noise levels when trains go through a neighborhood. An Infineon SiC-based XHP 2 power module has been proven in a joint field test with streetcars conducted by Siemens Mobility and Stadtwerke München (SWM) in 2022. The test has shown that power semiconductors based on SiC significantly reduce engine noise during operation.

Availability

The CoolSiC XHP 2 3,3 kV high-power modules are available as samples for selected customers.

Infineon at PCIM 2023

At the PCIM Europe 2023 tradeshow, Infineon is showcasing innovative product-to-system solutions for applications that will power the world and shape the future. Company representatives will also be giving several presentations at the accompanying PCIM Conference and Industry & E-Mobility Forum with live and on-demand video presentations, followed by discussions with the speakers. "Driving decarbonization and digitalization. Together." at the Infineon booth #412 in hall 7, 9-11 May, 2023 in Nuremberg/Germany. Information about the PCIM Europe 2023 show highlights is available at www.infineon.com/pcim.

More information about Infineon's contribution to energy efficiency: www.infineon.com/green-energy

Fabian Schiffer (Headquarters)	Tel.: +49 89 234 25869	fabian.schiffer@infineon.com	**Investor Relations:**
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Penny Yang (Greater China)	Tel.: +86 21 6101 9276	penny.yang@infineon.com media-	
Yasuyuki Kamiseki (Japan)	Tel.: +81-3 4595 7079	relations.jp@infineon.com	