

Market News

CoolSiC™ MOSFET 650 V family offers best reliability and performance to even more applications

Munich, Germany – 17 February 2020 – Infineon Technologies AG (FSE: IFX / OTCQX: IFNNY) continues to expand its comprehensive silicon carbide (SiC) product portfolio with 650 V devices. With the newly launched CoolSiC™ MOSFETs Infineon is addressing the growing demand for energy efficiency, power density, and robustness in a wide range of applications. Amongst them are server, telecom and industrial [SMPS](#), [solar energy systems](#), energy storage and [battery formation](#), [UPS](#), [motor drives](#) as well as [EV-charging](#).

“With this launch, Infineon complements its broad silicon, silicon carbide, and gallium nitride-based power semiconductor portfolio in the 600 V / 650 V power domain,” said Steffen Metzger, Senior Director High Voltage Conversion at Infineon’s Power Management & Multimarket Division. “It underlines our unique position in the market being the only manufacturer with such a broad offering for all three power technologies. Additionally, the new CoolSiC family supports our claim to be the number 1 supplier of SiC MOSFET switches for industrial purposes.”

The CoolSiC MOSFET 650 V devices are rated from 27 mΩ to 107 mΩ. They are available in classic TO-247 3-pin as well as TO-247 4-pin packages, which allows for even lower switching losses. As for all previously launched CoolSiC MOSFET products, the new family of 650 V devices are based on Infineon’s state-of-the-art trench semiconductor technology. Maximizing the strong physical characteristics of SiC, this ensures that the devices offer superior reliability, best-in-class switching and conduction losses. Additionally, they feature highest transconductance level (gain), threshold voltage (V_{th}) of 4 V and short-circuit robustness. Thus, trench technology allows for lowest losses in the application and [highest reliability in operation](#) – without any compromise.

650 V CoolSiC MOSFETs offer attractive benefits in comparison to other silicon and silicon carbide solutions in the market such as switching efficiency at higher frequencies and an outstanding reliability. Thanks to the very low on-state resistance

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($R_{DS(on)}$) dependency on temperature they feature an excellent thermal behavior. The devices boast robust and stable body diodes retaining a very low level of reverse recovery charge (Q_{rr}), roughly 80 percent less compared to the best superjunction CoolMOS™ MOSFET. The commutation-robustness helps in achieving very easily an overall system efficiency of 98 percent, e.g. through the usage of continuous conduction mode totem-pole power factor correction (PFC).

To ease the application design using CoolSiC MOSFETs 650 V and to ensure high performance operation of the devices, Infineon offers dedicated 1-channel and 2-channel galvanically isolated EiceDRIVER™ gate-driver ICs. This solution – combining CoolSiC switches and dedicated gate-driver ICs – helps lowering system costs as well as total cost of ownership and enables energy efficiency gains. The CoolSiC MOSFETs also work seamlessly with other ICs from Infineon's EiceDRIVER gate-driver family.

Availability

The CoolSiC MOSFET 650 V family comprises eight variants housed in two through hole TO-247 packages. They can be ordered now. Three dedicated gate-driver ICs will be available starting March 2020. More information is available at www.infineon.com/coolsic-mosfet-discretes.

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