

Infineon extends CoolSiC™ M1H technology portfolio with 1200 V SiC MOSFETs, using enhanced features for highest system efficiency

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Munich, Germany – 13 April 2022 – Infineon Technologies AG (FSE: IFX / OTCQX: IFNNY) introduces a new CoolSiC™ technology: the CoolSiC™ MOSFET 1200 V M1H. The advanced silicon carbide (SiC) chip will be implemented in a widely extended portfolio using the popular Easy module family, along with discrete packages using .XT interconnect technology. The M1H chip offers high flexibility and is suitable for [solar energy systems](#), such as inverters, that have to meet peak demand. The chip is also ideal for applications such as [fast EV charging](#), energy storage systems and [other industrial applications](#).

The latest advancements of the CoolSiC base technology enable a significantly larger gate operation window that improves the on-resistance for a given die size. Simultaneously, the larger gate operation window provides a high robustness against driver- and layout-related voltage peaks at the gate, without any restrictions even at higher switching frequencies. Along with the M1H chip technology also the related housings have been adopted in technology and package variants to enable higher power densities and more options for design engineers to improve on application performance.

Easy modules enable higher power density

The M1H will be integrated into the popular Easy family to further improve the Easy 1B and 2B modules. In addition, a new product which enhances the Easy 3B module with the new 1200 V CoolSiC MOSFET, will also be launched. The roll-out of new chip sizes maximizes flexibility and ensures the broadest industrial portfolio. With the M1H chip, the on-resistance of the modules can be significantly improved, making the devices more reliable and efficient.

Furthermore, with a maximum temporary junction temperature of 175°C, overload capability increases, enabling higher power density and coverage of failure events. Compared to its predecessor, the M1, the M1H has implemented a small adoption of the internal R_{G} , enabling the switching behavior to be easily optimized. The dynamic behavior is maintained with the M1H chip.

Discrete packages with ultra-low on-resistances

In addition to the Easy module family, the CoolSiC MOSFET 1200 V M1H portfolio includes new ultra-low on-resistances 7 mΩ, 14 mΩ and 20 mΩ in the [TO247-3](#) and [TO247-4](#) discrete packages. The new devices are easy to design-in, especially due to the gate voltage overshoots and undershoots with the new maximum gate-source voltage down to -10 V, and come with avalanche and short-circuit capability specifications.

Infineon's .XT interconnection technology, previously introduced in the D²PAK-7L package, is now also implemented in a TO-footprint. The thermal dissipation capabilities are enhanced by more than 30 percent compared to a standard interconnection. As a result, such thermal benefit can be used to increase the output power of up to 15 percent. Alternatively it can be used to increase the switching

frequency to further reduce the passive components in e.g. Electric vehicle (EV) charging, energy storage or photovoltaic systems for enhanced power density and reduced system cost. Without changing the system operating conditions, the .XT technology will lower the SiC MOSFET junction temperature, therefore significantly increasing the system lifetime and power cycling capabilities. This is a key requirement in applications like e.g. servo drives.

The new 1200 V CoolSiC MOSFET M1H additions further enhance the optimization potential for SiC-based applications, with fast implementation of clean energy and energy efficiency in a global world.