



Product brief

CoolSiC™ automotive Schottky diodes

Combining performance and robustness

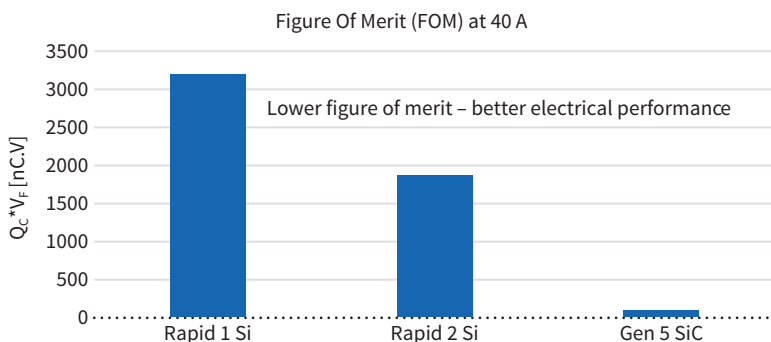
The 5th generation CoolSiC™ automotive Schottky discrete diode family has been developed for current and future on-board charger applications in hybrid and electric vehicles. It is specifically designed to meet the high requirements demanded by the automotive industry regarding reliability, quality and performance.

The 5th generation represents Infineon leading edge technology for SiC Schottky diodes. Thanks to a compact design and a technology based on thin wafers, this family of products shows improved efficiency over all load conditions resulting from both its thermal characteristics and low figure of merit ($Q_C \times V_F$). This product family has been designed to complement Infineon's IGBT and CoolMOS™ portfolio. This ensures meeting the most stringent automotive application requirements in the 650 V voltage class.

Key features

- > V_{BR} at 650 V
- > Excellent figure of merit ($Q_C \times V_F$)
- > No reverse recovery charge
- > Improved surge current capability
- > Temperature independent switching behavior
- > Operating temperature up to $T_{jmax} = 175^\circ\text{C}$
- > AEC-Q101 qualified

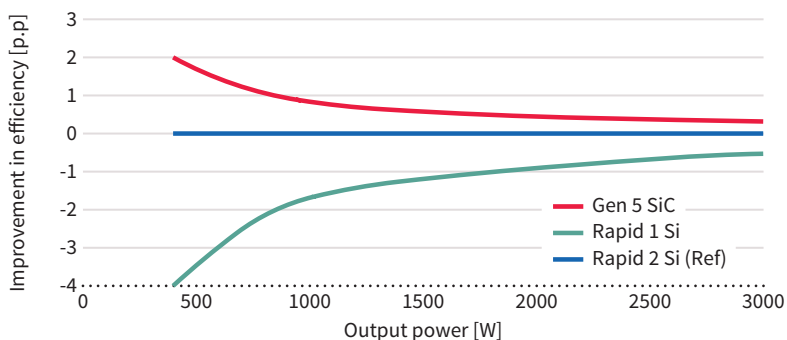
Comparison of figure of merit between Si and SiC diodes



Key benefits

- > Best match with CoolMOS™ and IGBT devices products
- > Improved efficiency over all load conditions
- > Highly stable switching performance
- > High reliability based on more than a decade field experience

Improvement in efficiency offered by SiC diodes w.r.t. Si diodes in a boost PFC stage at 65 kHz, CCM mode.



Key applications

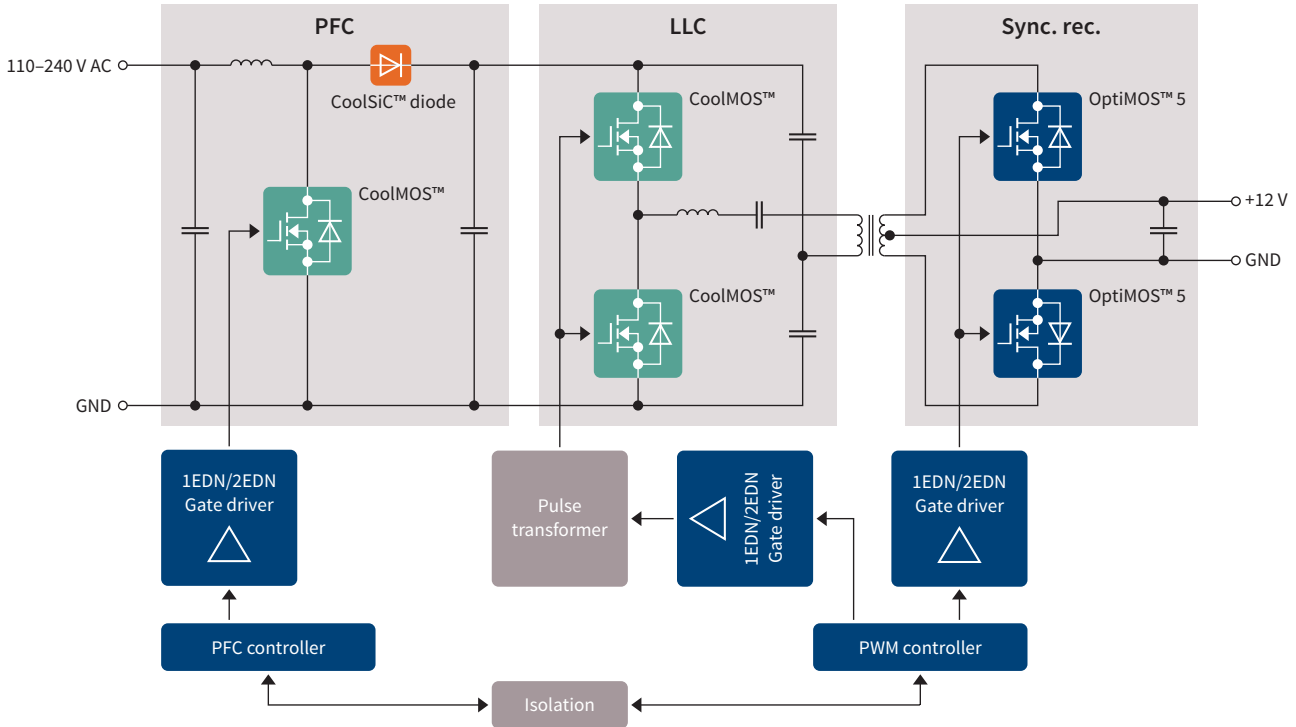
- > On-board chargers
- > DC-DC converters
- > Auxiliary inverters



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Application diagram



SiC diodes can be used in On-Board Charger (OBC) applications. They can be implemented, for example, in the power factor correction stage as a boost diode as shown above, or in parallel to n-IGBT in a totem pole topology.

Product table

Sales code	I_F [A]	V_{BR} [V]	Package
AIDW10S65C5	10	650	TO247-3-41
AIDW12S65C5	12	650	TO247-3-41
AIDW16S65C5	16	650	TO247-3-41
AIDW20S65C5	20	650	TO247-3-41
AIDW30S65C5	30	650	TO247-3-41
AIDW40S65C5	40	650	TO247-3-41

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