



Product Brief

CoolSiC™ Schottky diode 650 V G6

Unparalleled efficiency and price performance

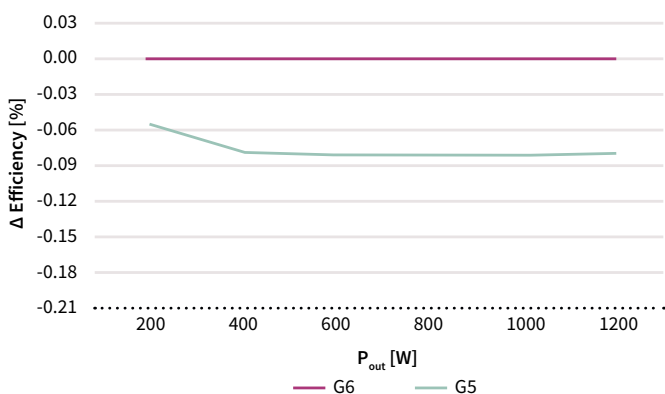
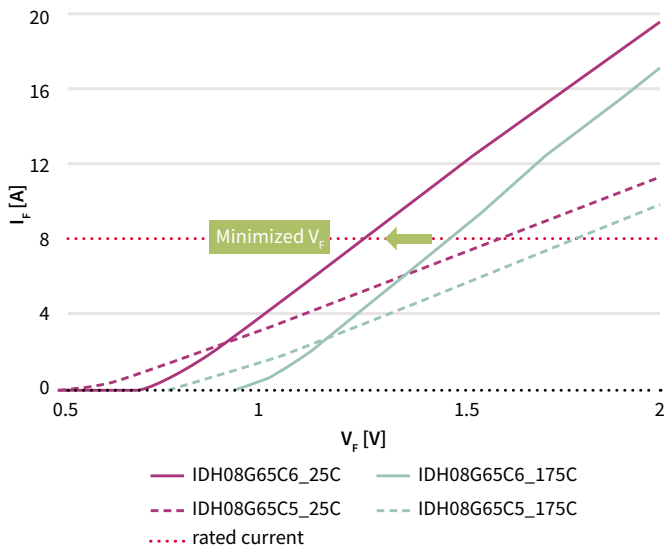
The CoolSiC™ Schottky diode 650 V G6 is the leading edge technology from Infineon for the SiC Schottky barrier diodes, fully leveraging all advantages of SiC over silicon. An Infineon proprietary innovative soldering process is combined with a more compact design, thin-wafer technology and a novel Schottky metal system. The result is a family of products with improved efficiency over all load conditions, resulting from a best-in-class figure of merit ($Q_c \times V_f$). The CoolSiC™ G6 diodes complement Infineon's 600 V and 650 V CoolMOS™ 7 families, meeting the most stringent application requirements in this voltage range.

Key features

- > The lowest V_f : 1.25 V
- > Best-in-class figure of merit ($Q_c \times V_f$)
- > No reverse recovery charge
- > Temperature independent switching behavior
- > High dv/dt ruggedness
- > Optimized thermal behavior

Key benefits

- > Improved system efficiency over all load conditions
- > Increased system power density
- > Reduced cooling requirements and increased system reliability
- > Enables extremely fast switching
- > Easy and effective match with CoolMOS™ 7 families
- > Optimal price performance



Experimental results

Comparison of PFC efficiency between G6 and G5 8 A CoolSiC™ Schottky diodes

$V_{in} = 230 V_{AC}$
 $f_{sw} = 130 \text{ kHz}$
 $T_{amb} = 25^\circ\text{C}$



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G6 is building on the achievements reached with G5, keeping G5 distinctive characteristics of lower Q_c , reliability and quality. For G6, Infineon developed new semiconductor technologies, re-designing the diode. G6 boasts a new layout, implantations, as well as cell structure and uses a novel and proprietary Schottky metal


system to lower the Schottky barrier and obtain a record breaking V_F (1.25 V), while keeping reverse losses marginal and attaining a higher efficiency. This leads to a unique $Q_c \times V_F$ figure of merit, 17 percent lower than the previous generation.

Consistently delivering the best price/performance

CoolSiC™ G6 diodes are the outcome of Infineon's continuous technological and process improvements, enabling the design and development of SiC Schottky diodes which get more price competitive and increase their performance across generations. As a result, G6 is Infineon's best price/performance CoolSiC™ Schottky diode generation, offering the best efficiency per dollar. In addition, Infineon offers the peace of mind of dealing with an

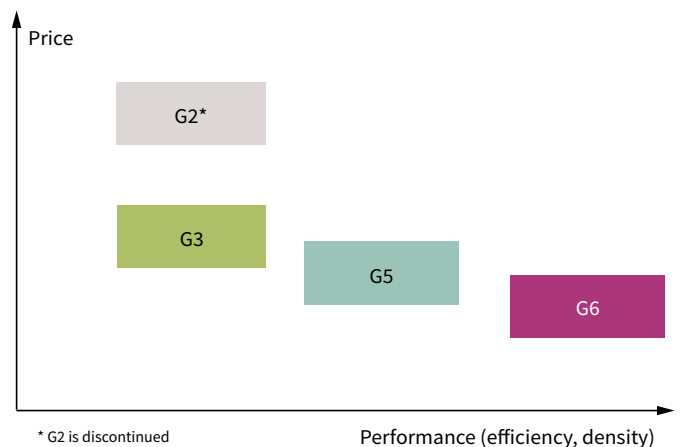
industry leader. Customers can leverage the Infineon acknowledged quality and proven supply chain reliability. They can benefit from "one-stop-shop" advantages and maximize system performance, combining CoolSiC™ Schottky diodes with the superjunction MOSFETs of the CoolMOS™ 7 family such as 600 V C7, 650 V C7, 600 V G7, 650 V G7 and 600 V P7.

Product portfolio*

I_F [A]	TO-220 real2pin
	
4	IDH04G65C6
6	IDH06G65C6
8	IDH08G65C6
10	IDH10G65C6
12	IDH12G65C6
16	IDH16G65C6
20	IDH20G65C6

* Further portfolio extension planned from Q1 2018

Price-performance positioning of CoolSiC™



Published by
Infineon Technologies Austria AG
9500 Villach, Austria

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