



Product Brief

1200 V CoolSiC™ Schottky diode generation 5

New level of system efficiency and reliability

1200 V SiC Schottky diodes offer great flexibility for system efficiency improvement and increased system reliability in industrial inverter applications like solar, UPS and energy storage. No real reverse recovery charge not only reduces diode turn-off loss close to zero, but also lowers Si IGBT's turn-on loss by at least 40 percent. In such a hybrid set-up of Si IGBT with SiC Schottky diode, the static losses often limit the optimization potential with respect to system cost. To overcome this limitation, the new 1200 V CoolSiC™ Schottky diode generation 5 technology was designed with dramatic reduction in static losses and its temperature dependency. Consistent innovation in device design and assembly techniques paved the way for improved diode performance, reliability and cost position. The result is a new degree of flexibility for the system designer to increase system efficiency, reliability and possibly squeezing system cost.

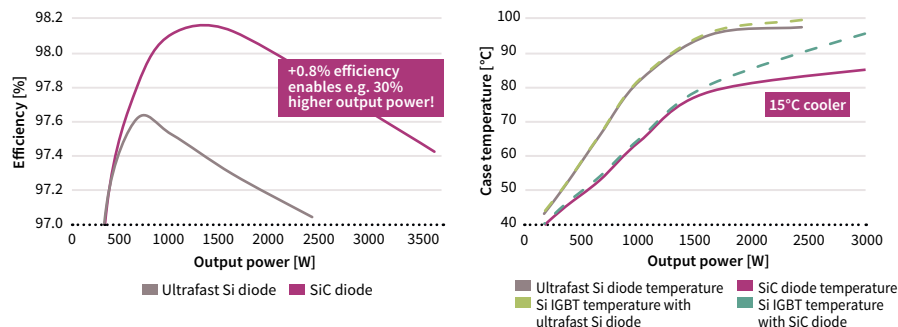
Key features

- > Zero diode turn-off loss and 40% lowered IGBT turn-on loss
- > Improved thermal performance and lowered static losses
- > Extended surge current capability
- > 2 A up to 40 A rated current

Key benefits

- > System efficiency improvement
- > 30% higher output power over Si diodes solution
- > Increased system reliability by lower device temperatures over entire load range
- > High system reliability by high surge current capability

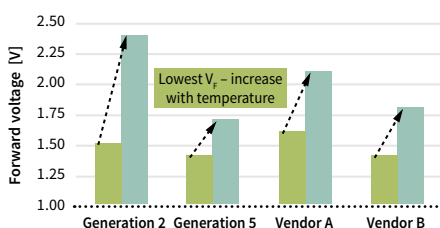
1200 V Si IGBT + SiC diode or ultrafast Si diode in a boost stage topology, $f_{sw} = 20$ kHz



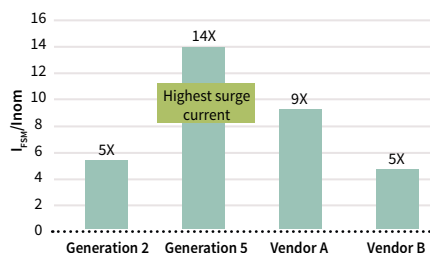
With generation 5, reduction of forward voltage and its temperature dependency ensures lowest static losses over entire load range during operation. Massively increased surge current capability provides high reliability during surge current events.

V_f at rated current

Ex: 30 A SiC diodes in TO-247



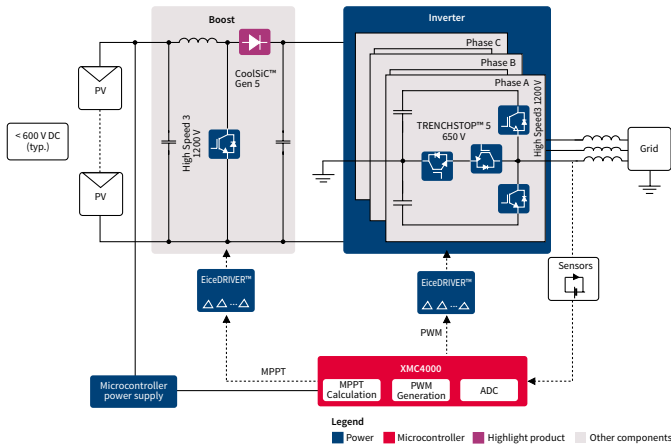
I_{FSM} vs. I_{nom} Ex: 10 A SiC diodes in TO-247



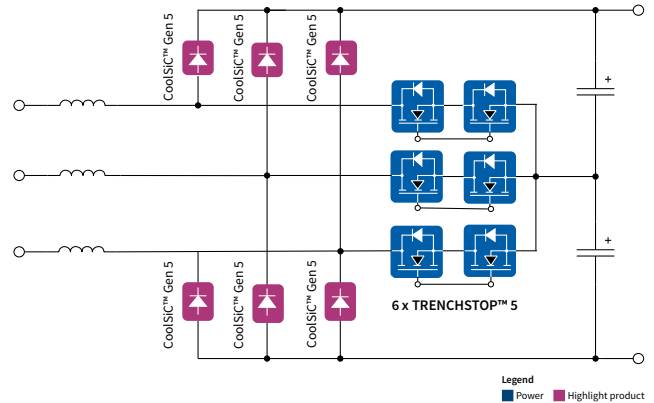
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New level of system efficiency and reliability

Application examples



String inverter three-phase, 1 kW – 30 kW: boost stage



UPS – Vienna Rectifier

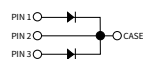
- > SiC diode: 1200 V CoolSiC™ Gen 5 in TO-220/TO-247
- > IGBT: 650 V TRENCHSTOP™ 5 in TO-247

Product portfolio

Forward currents up to 40 A in TO-247, 20 A in TO-220 and 10 A in DPAK target solar inverters, uninterruptible power supplies (UPS), three-phase SMPS, energy storage and motor drives applications.

Continuous forward current I_F [A]	TO-252 2pin (DPAK)	TO-220 2pin	TO-247
2	IDM02G120C5	IDH02G120C5	
5	IDM05G120C5	IDH05G120C5	
8	IDM08G120C5	IDH08G120C5	
10	IDM10G120C5	IDH10G120C5	IDW10G120C5B*
15-16		IDH16G120C5	IDW15G120C5B*
20		IDH20G120C5	IDW20G120C5B*
30			IDW30G120C5B*
40			IDW40G120C5B*

* „B“ refers to common-cathode configuration:



Published by
Infineon Technologies Austria AG
9500 Villach, Austria

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