



Product Brief

650V TRENCHSTOP™ 5 AUTO

Highest Efficiency for Fast Switching Applications

Energy Efficiency is the most important aspect for e-vehicles and hybrid vehicles. Therefore, Infineon has developed the brand new 650V TRENCHSTOP™ 5 AUTO technology to enable highest efficiency fast switching Automotive applications such as On-Board Charger, PFC, DC/DC and DC/AC.

TRENCHSTOP™ 5 technology enables lowest switching and lowest conduction losses. The resulting high efficiency enables either an increased cruising range or a downsizing of the batteries for e-vehicles. For hybrid vehicles it helps to reduce overall fuel consumption. Furthermore, the great performance of TRENCHSTOP™ 5 IGBTs allows replacement of state of the art MOSFETs by cost optimized IGBT solutions.

Due to a significant decrease of the gate charge Q_g by a factor of 2.5 the driver performance can be reduced. TRENCHSTOP™ 5 features an increased break-through voltage of 650V leading to increased application robustness.

Features

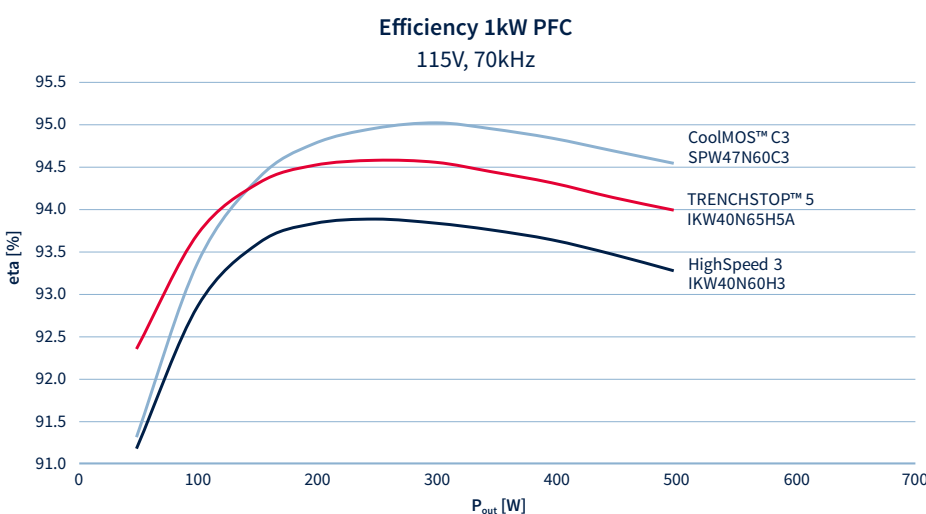
- 650V breakthrough voltage
- Improved performance compared to state of the art technologies:
 - Factor 2.5 lower Q_g
 - Factor 2 reduction in switching losses
 - 200mV reduction in $V_{CE(sat)}$
- Optionally co-packed with Infineon's new "Rapid" Si-diode technology
- Low C_{oss} / E_{oss}
- Positive temperature coefficient in $V_{CE(sat)}$

Benefits

- Best-in-Class efficiency, resulting in lower junction and case temperature leading to higher device reliability
- 50V increase in the bus voltage possible without compromising reliability
- Reduced system costs
- Replacement of MOSFET by IGBTs

Applications

- Fast switching Automotive applications
- On-Board Charger
- PFC
- DC/DC
- DC/AC



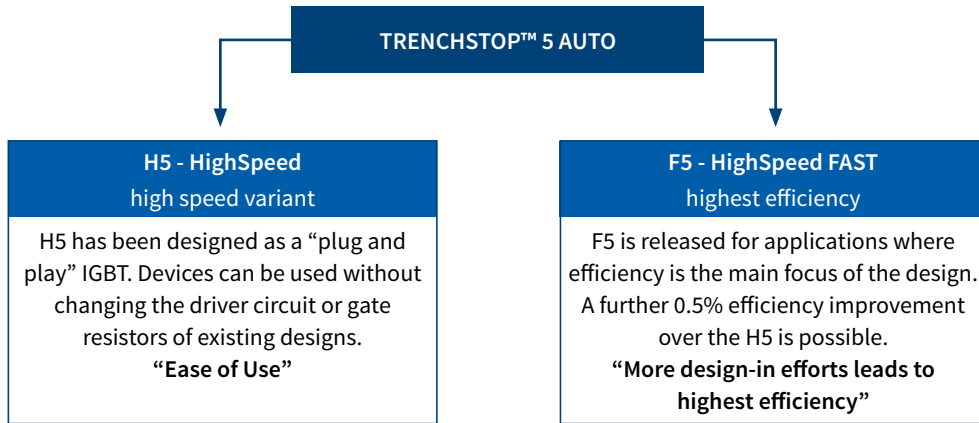
PFC Efficiency Comparison of TRENCHSTOP™ 5 vs. HighSpeed 3 and CoolMOS™ C3



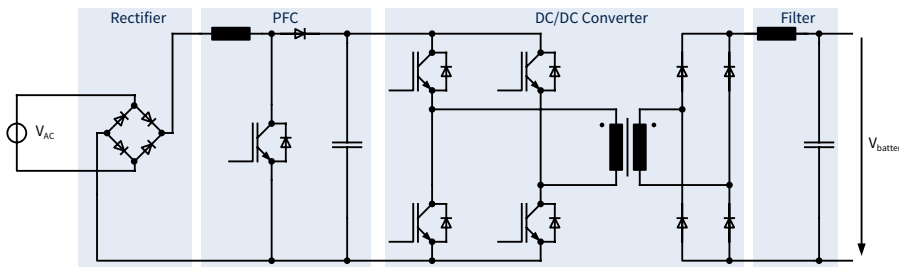
650V TRENCHSTOP™ 5 AUTO

Highest Efficiency for Fast Switching Applications

TRENCHSTOP™ 5 AUTO is Available in Two Variants



Application Example of an On-Board Charger



The example shows a unidirectional On-Board Charger. TRENCHSTOP™ 5 AUTO IGBTs can be used in the PFC- and the DC/DC converter block. TRENCHSTOP™ 5 AUTO IGBTs are offered with or without copackaged diode.

Product Portfolio TRENCHSTOP™ 5 AUTO

Technology Continuous collector current at $T_c=100^\circ\text{C}$	Current Rating	650V	
		H5 TO-247	F5 TO-247
Single IGBT	40A	IGW40N65H5A	IGW40N65F5A
	50A	IGW50N65H5A	IGW50N65F5A
DuoPack	40A	IKW40N65H5A	IKW40N65F5A
	50A	IKW50N65H5A	IKW50N65F5A

Published by
Infineon Technologies Austria AG
9500 Villach, Austria

© 2015 Infineon Technologies AG.
All Rights Reserved.

Visit us:
www.infineon.com

Order Number: B114-I0004-V1-7600-AP-EC
Date: 01/2015

Attention please!

The information given in this document shall in no event be regarded as a guarantee of conditions or characteristics (“Beschaffheitsgarantie”). With respect to any examples or hints given herein, any typical values stated herein and/or any information regarding the application of the device, Infineon Technologies hereby disclaims any and all warranties and liabilities of any kind, including without limitation warranties of non-infringement of intellectual property rights of any third party.

Information

For further information on technology, delivery terms and conditions and prices please contact your nearest Infineon Technologies Office (www.infineon.com).

Warnings

Due to technical requirements components may contain dangerous substances. For information on the types in question please contact your nearest Infineon Technologies Office. Infineon Technologies Components may only be used in life-support devices or systems with the express written approval of Infineon Technologies, if a failure of such components can reasonably be expected to cause the failure of that life-support device or system, or to affect the safety or effectiveness of that device or system. Life support devices or systems are intended to be implanted in the human body, or to support and/or maintain and sustain and/or protect human life. If they fail, it is reasonable to assume that the health of the user or other persons may be endangered.