Product Brief

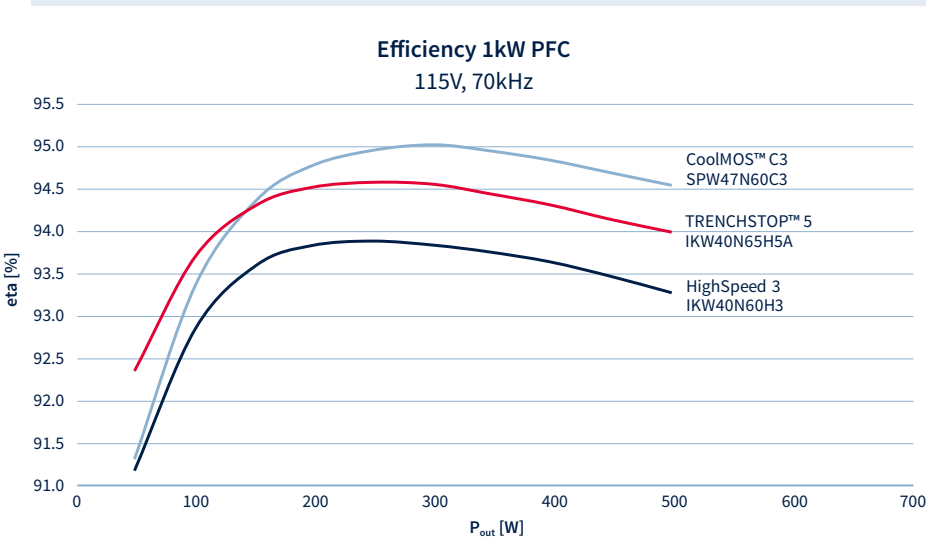
650V TRENCHSTOP™ 5 AUTO

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.



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

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

www.infineon.com/discrete-automotive-igbt

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TRENCHSTOP™ 5 AUTO is Available in Two Variants

TRENCHSTOP™ 5 AUTO

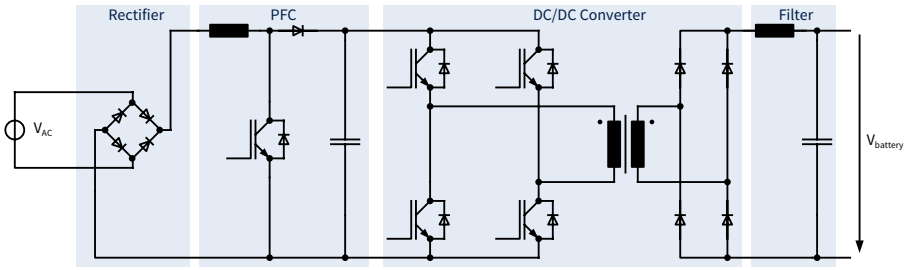
H5 - HighSpeed
high speed variant

H5 has been designed as a “plug and play” IGBT. Devices can be used without changing the driver circuit or gate resistors of existing designs.
“Ease of Use”

F5 - HighSpeed FAST
highest efficiency

F5 is released for applications where efficiency is the main focus of the design. A further 0.5% efficiency improvement over the H5 is possible.
“More design-in efforts leads to highest efficiency”

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 copacked diode.

Product Portfolio TRENCHSTOP™ 5 AUTO

Technology Continuous collector current at T_C=100°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

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