



SiC 650V Schottky barrier diodes with forward voltage of 1.2V released by Toshiba

New devices use 3rd generation process technology to enhance efficiency in industrial applications

Düsseldorf, Germany, 13th July 2023 – Toshiba Electronics Europe GmbH (“Toshiba”) announces the launch of twelve 650V silicon carbide (SiC) Schottky barrier diode (SBDs) based upon their latest 3rd generation technology. The new devices are specifically intended for use in efficiency-critical industrial equipment applications including switching power supplies, electric vehicle (EV) charging stations and photovoltaic (PV) inverters.

Known as the TRSxxx65H series, the new devices use new Schottky metal. The 3rd generation SiC SBDs chip optimizes the junction barrier Schottky (JBS) structure of the 2nd generation products, thereby lowering the electric field at the Schottky interface and reducing leakage current – delivering enhanced efficiency.

The 3rd generation devices achieve excellent low forward voltage (V_F) of 1.2V (typ.). This represents a 17% reduction when compared to 2nd generation products. The new 3rd generation products have improved the trade-offs between V_F and total capacitive charge (Q_C) which is typically 17nC for the TRS6E65H.

Also, the V_F and reverse current (I_R) ratio is improved compared to 2nd generation products with the TRS6E65H achieving a typical I_R value of 1.1 μ A. All of these improvements reduce power dissipation and contribute to higher levels of efficiency within end equipment.

Devices within the TRSxxx65H series are capable of forward DC currents ($I_{F(DC)}$) up to 12A and square wave non-repetitive surge currents I_{FSM} up to 640A. Seven of the new devices

are housed in TO-220-2L packages while the remaining five are provided in compact and flat DFN8×8 SMD packages.

Volume shipments of the new devices start today.

Visit [Toshiba's website](#) to learn more about the new TRSxxx65H series.

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About Toshiba Electronics Europe

[Toshiba Electronics Europe GmbH](#) (TEE) offers European consumers and businesses a wide variety of hard disk drive (HDD) products plus semiconductor solutions for automotive, industrial, IoT, motion control, telecoms, networking, consumer and white goods applications. Next to HDDs, the company's broad portfolio encompasses power semiconductors and other discrete devices ranging from diodes to logic ICs, optical semiconductors as well as microcontrollers and application specific standard products (ASSPs) amongst others.

In addition, TEE also offers Toshiba's SCiB™ battery cells and modules with lithium titanium oxide (LTO) for heavy-duty applications and Silicon Nitride (SiN) ceramic substrates used in power semiconductor modules, inverters and converters for their heat dissipation characteristics and strength.

TEE has its headquarters in Düsseldorf, Germany, with branch offices in France, Italy, Spain, Sweden and the United Kingdom providing marketing, sales and logistics services.

Visit Toshiba's websites at www.toshiba.semicon-storage.com, www.scib.jp/en and www.toshiba-tmat.co.jp/en/ for further company and product information.

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July 2023

Ref. 7478(A1)E