



## **Toshiba releases 3<sup>rd</sup> generation silicon carbide (SiC) MOSFETs with reduced switching losses**

New devices in 4-pin package offer improved switching performance of MOSFET in industrial applications

**Düsseldorf, Germany, 31<sup>st</sup> August 2023** – Toshiba Electronics Europe GmbH (“Toshiba”) has launched the TWxxxZxxxC series of ten silicon carbide (SiC) MOSFETs based upon their third-generation technology. They are intended to reduce losses in a wide variety of industrial applications including switching power supplies for servers & data centres, electric vehicle (EV) charging stations, photovoltaic (PV) inverters and uninterruptible power supplies (UPS).

Devices in the TWxxxZxxxC series are the first Toshiba SiC products to be housed in a TO-247-4L(X) package with a fourth pin. This allows the provision of a Kelvin connection of the signal source terminal for the gate drive, thereby reducing the parasitic inductance effects of the internal source wire and improving high-speed switching performance. Comparing the TW045Z120C with Toshiba’s existing TW045N120C (3-pin TO-247) shows an improvement in turn-on loss of approximately 40% while the turn-off loss is improved by around 34%.

The new TWxxxZxxxC series includes five devices with a drain-source ( $V_{DS}$ ) rating of 650V and a further five devices rated at 1200V for higher voltage applications. The typical drain-source on-resistance ( $R_{DS(ON)}$ ) is ranging between 140m $\Omega$  and 15m $\Omega$ . Combined with low gate drain charge ( $Q_{GD}$ ) values, it will enable low losses even in high frequency applications.

The devices are capable of delivering continuous drain currents ( $I_D$ ) of up to 100A.

Visit the Toshiba website for more information:

<https://toshiba.semicon-storage.com/eu/semiconductor/product/mosfets/sic-mosfets.html>

Shipments of the new series of SiC MOSFETs start today.

Toshiba will continue to contribute to improving the efficiency and power density of industrial equipment by continuing to develop its product lineup.

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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](http://www.toshiba.semicon-storage.com), [www.scib.jp/en](http://www.scib.jp/en) and [www.toshiba-tmat.co.jp/en/](http://www.toshiba-tmat.co.jp/en/) for further company and product information.

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**August 2023**

**Ref. 7492(A)E**