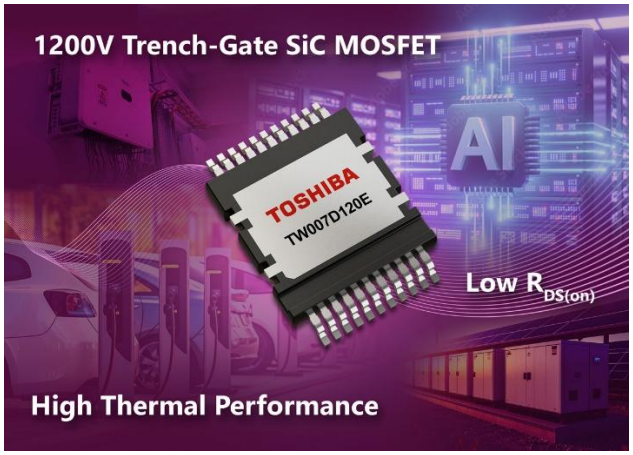


Toshiba starts test-sample shipments of 1200V trench-gate SiC MOSFET for next-generation AI data centers

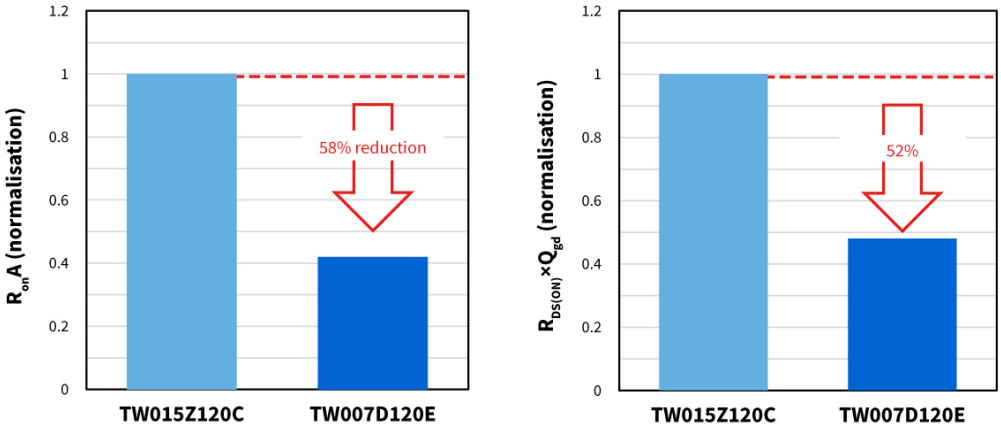
QDPAK top-side cooled package supports high power density and low power loss in 800V HVDC architectures

Düsseldorf, Germany, 21st May 2026 – Toshiba Electronics Europe GmbH ("Toshiba") has today started test-sample shipments of the TW007D120E, 1200V trench-gate SiC MOSFET primarily intended for power supply systems in AI data centers. Housed in a QDPAK top-side cooled package, the surface mount device delivers high current capability, improved heat dissipation, and higher power density in the power stage, which is essential for power conversion in AI data centers. The product is also suitable for renewable energy-related equipment, including photovoltaic inverters, uninterruptible power supplies (UPS), EV charging stations, and energy storage systems.

With the rapid expansion of generative AI, increasing power consumption has become a pressing issue for data centers. In particular, the widespread adoption of high-power AI servers and the growing deployment of 800V HVDC (high voltage direct current) architectures are driving demand for power supply systems with higher power conversion efficiency and power density. The TW007D120E addresses these requirements, combining low conduction loss, low switching loss, and enhanced thermal performance to support more efficient and compact power system designs.

The new MOSFET features Toshiba's proprietary trench-gate structure, which achieves a remarkably low On-resistance per unit area ($R_{DS(on)}A$). The typical $R_{DS(on)}$ of the device is 7.0mΩ with 33nC gate-drain charge (Q_{gd}) and 172A DC drain current (I_D). Compared with Toshiba's 3rd-generation 1200V SiC MOSFET (TW015Z120C), the TW007D120E reduces $R_{DS(on)}A$ by approximately 58% and improves the figure of merit ($R_{DS(on)} \times Q_{gd}$), which represents the trade-off between conduction loss and switching loss, by approximately 52%. The device also supports low gate drive voltage ($V_{gs\text{-}on}$) operation of 15V to 18V. These features enable highly efficient operation and reduced heat generation in data center power supply systems, contributing to improved overall system performance.

Toshiba plans to prepare for mass production of the TW007D120E during fiscal year 2026 and will continue to expand its lineup, including development for automotive applications. Through its trench-gate SiC MOSFET technology, Toshiba aims to contribute to improved power efficiency and reduced CO_2 emissions across data centers and industrial equipment, thereby supporting the realisation of a decarbonised society.



Test conditions: V_{GS}=18V (TW015Z120C), V_{GS}=15V (TW007D120E), T_{vj}=25°C. Based on Toshiba research, May 2026.

Figure 1: Comparison of $R_{DS(on)}A$ and $R_{DS(on)} \times Q_{gd}$ for new product TW007D120E and existing product TW015Z120C.

Follow the link below for more on Toshiba's SiC Power Devices.
SiC Power Devices

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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 offers SCiB™ battery cells and modules with lithium titanium oxide (LTO) for heavy-duty applications.

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 and www.scib.jp/en for further company and product information.

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