



New Toshiba 600V 24mΩ MOSFET improves power supply efficiency

TK024N60Z1 offers the lowest on-resistance in the DTMOSVI 600V series

Düsseldorf, Germany, 25th February 2025 – Toshiba Electronics Europe GmbH (“Toshiba”) has launched an N-channel power MOSFET to address the growing market demand for improved efficiency in power supply circuits. The new TK024N60Z1 uses the proven DTMOSVI 600V series process with a super junction structure to achieve low on-resistance and reduced conduction losses. Applications include servers in data centres, switched-mode power supplies for industrial equipment, and power conditioners for photovoltaic generators.

The TK024N60Z1 has a drain-source on-resistance $R_{DS(ON)}$ of 0.024Ω (max), which is the lowest in the DTMOSVI 600V series. It also improves power supply efficiency, which reduces heat generation. Combined with the TO-247 package, which delivers high heat dissipation, the TK024N60Z1 offers good heat management characteristics.

Like other MOSFETS in the DTMOSVI 600V series, the TK024N60Z1 benefits from an optimised gate design and process. This reduces the value of drain-source on-resistance per unit area by approximately 13%. More importantly, drain-source on-resistance × gate-drain charge is reduced by approximately 52% compared to Toshiba’s conventional generation DTMOSIV-H series products with the same drain-source voltage rating. This means the DTMOSVI series, including the TK024N60Z1, offers a better trade-off between conduction loss and switching loss, which helps improve the efficiency of switched-mode power supplies.

To further improve power supply efficiency, Toshiba offers tools that support circuit design for switched-mode power supplies. These include the G0 SPICE model, which quickly verifies circuit function, and the highly accurate G2 SPICE models that reproduce transient characteristics.

The TK024N60Z1 N-channel power MOSFET exemplifies Toshiba's commitment to continue expanding the DTMOSVI series and support energy conservation by reducing power loss in switched-mode power supplies.

Learn more about the new N-channel power MOSFET on Toshiba's website:

<https://toshiba.semicon-storage.com/eu/semiconductor/product/mosfets/400v-900v-mosfets/detail.TK024N60Z1.html>

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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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