



Toshiba expands lineup of AEC-Q101 compliant 40V N-channel MOSFETs in small, thermally enhanced S-TOGL package

Enables compact, high-density mounting and enhanced heat dissipation, reducing the size of automotive equipment and improving system efficiency.

Düsseldorf, Germany, 21st July 2026 – Toshiba Electronics Europe GmbH ("Toshiba") has launched the XPJ1R504PB, an automotive-compliant 40V, 120A N-channel power MOSFET housed in the S-TOGL™ package, expanding its lineup for 12V systems. Target applications include inverters, semiconductor relays, load switches, and motor drives. By adding this 40V MOSFET to its existing lineup in the S-TOGL™ package, which includes the XPJR6604PB and XPJ1R004PB, Toshiba has expanded its product options to meet a range of applications and performance requirements.

In recent years, with the advancement of electrification in automotive equipment, the adoption of inverters and motor drives has been expanding, driving higher output and efficiency. To address these trends, MOSFETs must deliver both low power loss and high heat dissipation. The XPJ1R504PB, featuring the S-TOGL package, enables compact, high-density mounting and excellent thermal performance, thereby reducing the size of automotive equipment and improving efficiency.

As these types of automotive equipment operate in a wide range of temperature conditions, the reliability of the solder joints is critical. The S-TOGL package employs gull-wing leads that help relieve mounting stress, thereby improving the mechanical reliability of the soldered connections. In addition, the package features a post-less structure that integrates the chip's source-electrode connection and outer leads, thereby reducing parasitic resistance and achieving an on-resistance ($R_{DS(ON)}$) of 1.54mΩ (max.) at a gate-source voltage (V_{GS}) of 10V.

The use of a thick copper frame in the S-TOGL package lowers the transient thermal impedance between the channel and the case ($Z_{th(ch-c)}$) to 0.76°C/W, reducing conduction loss and suppressing heat generation, thereby improving overall system efficiency.

Furthermore, a multi-pin structure for the source leads enhances current distribution, enabling high current capability.

Toshiba will continue to develop automotive MOSFET products suited to various applications and system requirements, thereby contributing to higher efficiency.

Find out more about the XPJ1R504PB on Toshiba's website: [XPJ1R504PB | Toshiba Electronic Devices & Storage Corporation | Europe\(EMEA\)](#)

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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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