



Automotive surge-protection Zener diodes in compact SOD-523 package

Miniaturised size supports high-density mounting in space-constrained systems and prevents malfunctions caused by noise and switching surges

Düsseldorf, Germany, 9th October 2025 – Toshiba Electronics Europe GmbH ("Toshiba") expands its automotive-grade surge-protection Zener diode lineup with the launch of the [XCEZ series](#). These new diodes are housed in a small and versatile SOD-523 package, making them particularly suitable for space-constrained applications such as in-vehicle Infotainment (IVI), advanced driver-assistance systems (ADAS) and battery management systems (BMS).

With the electrification in the automotive industry, there is a growing necessity for effective measures to prevent malfunctions caused by electrical noise. This includes protection against electrostatic discharge (ESD) in the nanosecond range and switching surges that can occur in the microsecond to millisecond range. The XCEZ series is engineered to suppress system malfunctions stemming from such noise, which can ingress power supply lines and connectors of various electronic control units (ECUs) in the car.

To facilitate high-density mounting in modern automotive designs, the XCEZ series is housed in an industry-standard, general-purpose SOD-523 package, measuring 1.6mm x 0.8mm. This compact size reduces the mounting area by approximately 59%, compared to the SOD-323 package (2.5mm x 1.25mm) used for its existing XCUZ series. This miniaturisation is a particular advantage for space-constrained systems.

The XCEZ series, like its predecessor, the XCUZ series, leverages Toshiba's proprietary Zener process to achieve exceptionally low dynamic resistance. A low dynamic resistance allows surge current to flow more easily to the Zener diode. This enables high absorption of the surge voltage to prevent damage and malfunction of the system and enhances

protection of devices and circuits. For instance, the XCEZ5V6 product features a dynamic resistance (R_{DYN}) of just 0.16Ω (typ.).

Furthermore, the new products can provide surge protection for long pulse durations in the millisecond range, achieving a high maximum allowable Zener surge power of 6W with a 10ms pulse width, which safeguards semiconductor devices against high switching surges and overvoltages close to DC.

The XCEZ series offers a comprehensive lineup of 20 products with standard Zener voltages ranging from 5.6V to 36V, making them suitable for major power supply lines. Importantly, the series is AEC-Q101 compliant, which is the reliability testing standard for automotive electronic components.

For more information about the XCEZ series automotive-grade surge-protection Zener diodes, please visit the [Toshiba website](#).

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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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