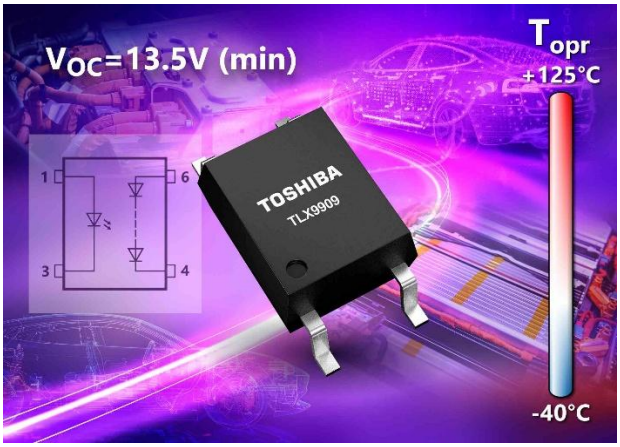


Toshiba introduces automotive photocoupler with adjustable MOSFET turn-off time

New photovoltaic-output device supports flexible gate control and simplifies solid-state relay designs for automotive applications

Düsseldorf, 19th November 2026 – Toshiba Electronics Europe GmbH ("Toshiba") has introduced the TLX9909, a photovoltaic-output photocoupler that enables engineers to adjust the turn-off time of external high-voltage power MOSFETs. Designed for automotive solid-state relay (SSR) applications, including battery management systems (BMS), on-board chargers (OBC) and inverter units, the new device offers greater flexibility in gate control circuit design.

As automotive manufacturers increasingly replace mechanical relays with semiconductor-based switching solutions, SSRs offer an alternative that eliminates moving contacts and the associated risk of mechanical wear. However, achieving the required switching characteristics while minimising circuit complexity remains an important design consideration.

The TLX9909 uses a photodiode array to generate the voltage required to drive an external MOSFET gate from light emitted by its input-side LED. This eliminates the need for a separate secondary-side power supply or charge-pump circuit, helping reduce component count and system size.

Unlike Toshiba's existing TLX9910, which incorporates a gate discharge control circuit, the TLX9909 allows engineers to configure an external discharge circuit and adjust the MOSFET turn-off time to suit the application. This provides additional design flexibility where switching characteristics need to be tailored to the connected MOSFET and system requirements.

The device offers a minimum open-circuit output voltage (V_{OC}) of 13.5V at an input forward current of 10mA and an ambient temperature of 25°C, matching that of the TLX9910. This is higher than the 7V minimum offered by Toshiba's TLX9905 and TLX9906, extending the range of high-voltage power MOSFETs that can be driven. The TLX9909 also provides a minimum short-circuit output current of 8µA under the same conditions.

When paired with an external high-voltage power MOSFET, the photocoupler enables high-voltage, high-current switching circuits that can be difficult to implement using photorelays with integrated MOSFETs. Designers can therefore choose between the TLX9909's externally configurable discharge circuit and the TLX9910's integrated solution according to their requirements for switching control and component count.

The AEC-Q101-compliant TLX9909 operates over a temperature range of -40°C to +125°C (absolute maximum ratings) and provides a minimum isolation voltage of 3750Vrms. It is housed in a compact 4-pin SO6 package measuring 3.7 × 7.0 × 2.1mm (typical).

Volume shipments of the TLX9909 start today.

For further information on the new photocoupler, please visit: https://toshiba.semicon-storage.com/eu/semiconductor/product/isolators-solid-state-relays/detail.TLX9910.html

About Toshiba Electronics Europe
Toshiba Electronics Europe GmbH (TEE) offers customers across Europe a broad portfolio of semiconductor, storage and battery solutions as well as security and automation systems. Its semiconductor products serve automotive, industrial, IoT, motion control, telecommunications, networking, financial, postal, consumer and white goods applications. The portfolio includes power semiconductors, diodes and other discrete devices, logic ICs, optical semiconductors, microcontrollers and application-specific standard products (ASSPs). TEE also provides hard disk drive (HDD) products, SCiB™ lithium-ion battery cells and modules for demanding heavy-duty applications, and security and automation systems for financial, postal and other social infrastructure applications.

TEE is headquartered in Düsseldorf, Germany, with branch offices in France, Italy, Spain, Sweden and the United Kingdom providing marketing, sales and logistics services. The company also operates the European Analytical Research and Planning Office, the Regenerative Innovation Centre and the New Business Hub, which identifies, incubates and commercialises new business opportunities across Europe.

For further company and product information visit Toshiba's websites at www.toshiba.semicon-storage.com, www.scib.jp/en, www.global.toshiba/ww/products-solutions/security-automation.html and www.toshiba.eu/regenerative-innovation-centre.

Contact details for publication:
Toshiba Electronics Europe GmbH, Hansaallee 181, D-40549 Düsseldorf, Germany
Tel: +49 (0) 211 5296 0
Web: www.toshiba.semicon-storage.com/eu/company/news.html

Contact details for editorial enquiries:
Michelle Shrimpton, Toshiba Electronics Europe GmbH

Tel: +44 (0)7464 493526
E-mail: MShrimpton@teu.toshiba.de

Issued by:
Birgit Schöniger, Pretzl Group Ltd.
Tel: +49 (0) 172 617 8431
Web: www.pretzl.com
E-mail: birgit.schoeniger@pretzl.com

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