Toshiba and MIKROE develop a safety-focused automotive gate driver board for brushless motors

Enables robust control of brushless DC motors in demanding automotive applications

Düsseldorf, Germany, 07th November 2024 – Toshiba Electronics Europe GmbH ("Toshiba") has partnered with MIKROE to integrate its robust TB9083FTG gate-driver IC into the Brushless 30 Click, a compact add-on board for precise and reliable control of brushless DC (BLDC) motors in automotive applications.

Toshiba's TB9083FTG has been designed in accordance with ISO 26262 (2nd edition) and integrates 9 gate drivers, including 6 for driving MOSFETs to control BLDC motors in the 1000 W range or below. Additionally, it includes 3 drivers for driving external MOSFETs which can be used either for system control or safety relays thus enabling the TB9083FTG to support ASIL-D, the highest level of functional safety for automotive applications. The TB9083FTG also incorporates a built-in charge pump, adjustable current sense amplifiers for each motor phase oscillator circuit and an SPI communication interface for configuration via a host microcontroller unit (MCU).

The Brushless 30 Click board is designed to operate from a wide range of external power supplies ranging from 4.5V to 28V and can deliver a peak output current of up to 10A. It also features a comprehensive suite of error detection capabilities including undervoltage, overvoltage, over-temperature and an external MOSFET V_{DS} detector making it ideal for demanding automotive applications such as electric power steering (EPS), powered brakes, and automotive pumps where precise motor control is essential.

The Brushless 30 Click board measures only 57.15 mm x 25.4 mm and is fully compatible with the mikroBUS™ socket. It can be used on any host system supporting the mikroBUS™ standard and comes with the mikroSDK open-source libraries to provide ultimate flexibility for system evaluation and customization. An innovative ClickID feature

enables a host system to automatically detect and identify the Brushless 30 Click board once it has been connected.

Additional information about the TB9083FTG gate driver IC can be found on Toshiba's website: https://toshiba.semicon-storage.com/eu/semiconductor/product/automotive-devices/detail.TB9083FTG.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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