



Clicker 4 Inverter Shield 2 extension board allows gate driver evaluation in various BLDC motor applications

Latest addition to MIKROE Clicker 4 series of extension boards features new Toshiba gate driver

Düsseldorf, Germany, 8th April 2025 – Toshiba Electronics Europe GmbH (“Toshiba”) has collaborated with [MIKROE](#) to develop Clicker 4 Inverter Shield 2, the latest addition to the Clicker 4 series of extension boards. The enhanced inverter shield has been designed to allow convenient evaluation of Toshiba’s recently released [TB67Z833SFTG](#) gate driver for three-phase brushless DC (BLDC) motors in consumer and industrial applications.

Toshiba’s TB67Z833SFTG includes a built-in circuit with the ability to drive three phases of high-side and low-side N-channel MOSFETs. It also supports adjustable source (10mA to 1A peak) and sink current (20mA to 2A peak), depending on ambient temperature and power supply voltage. This gate driver has the ability to operate from supply voltages (VM) ranging from 8V to 75V. The combination of wide operating voltages and currents makes the TB67Z833SFTG suitable for a diverse range of use-cases.

The devices of this IC family feature either SPI or hardware control interface for quick and easy configuration, while its low standby current (1µA max) helps to extend the time duration between recharges for battery-driven applications. For safety, it includes integrated undervoltage lockout and thermal shutdown protection features, while gate drive abnormality detection and overcurrent protection functions improve overall system reliability by protecting the external MOSFETs.

Toshiba has also adapted the current measurement circuitry on Clicker 4 Inverter Shield 2 to deliver an improved signal-to-noise ratio (SNR), which can be optimised by reducing the maximum output current. Also featuring on this extension board is Toshiba’s TC75W58 dual comparator, which can operate from a single voltage source with low current consumption (20µA typ.). Clicker 4 Inverter Shield 2 is based on Toshiba’s 100V

SSM6K819R low $R_{DS(ON)}$ power MOSFETs, which address the growing demand for highly efficient MOSFETs in smaller package sizes.

A combination of the MIKROE Clicker 4 Inverter Shield 2 and the MIKROE Clicker 4 development board for Toshiba's [M4K microcontroller](#) (MCU) presents a convenient and cost-effective solution for experimenting with various consumer and industrial 3-phase brushless DC (BLDC) motor control applications.

The Clicker 4 Inverter Shield 2 is supported by the recently updated MCU Motor Studio software 4.0, now featuring a free-run digital storage oscilloscope for extensive real-time parameter logging and caters to all bare-metal configurations. Additionally, it introduces Shift-2 PWM support, enhancing precision in vector engine-based hardware control. MMS 4.0 is available for [download](#) from Toshiba's website.

More information on the new MIKROE Clicker 4 boards is available at:
<https://www.mikroe.com/clicker-4-inverter-shield-2>

Additional details on the Toshiba M4K MCUs for motor control can be found here:
<https://toshiba.semicon-storage.com/eu/semiconductor/product/microcontrollers/txz4aplus-series.html#M4K-Group>

###

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.

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, Publitek

Tel: +49 (0) 4181 968098-13

Web: www.publitek.com

E-mail: birgit.schoeniger@publitek.com

April 2025

Ref. 7592(A)E