



Toshiba releases gate driver ICs for three-phase brushless DC motors used in consumer and industrial equipment

Combined with a microcontroller for motor control and MOSFETs, Toshiba provides a complete system solution

Düsseldorf, Germany, 19th November 2024 – Toshiba Electronics Europe GmbH (“Toshiba”) introduces a new gate driver IC series for three-phase brushless DC (BLDC) motors used in consumer and industrial applications. The TB67Z83xxFTG (with 3.3V regulator output) and TB67Z85xxFTG (with 5.0V regulator output) series, both comprising four devices, can be combined with a motor control microcontroller and MOSFETs to create a complete system for a wide range of applications including pumps, fans, blowers, cordless power tools, gardening tools, and cleaners.

The new products feature a built-in circuit that can drive three phases of high-side and low-side N-channel MOSFETs. The MOSFET drive current can be set from 10mA to 1A (peak) for source current and from 20mA to 2A (peak) for sink current – though operating conditions, such as ambient temperature and power supply voltage, may limit the actual useful drive current. All devices support a supply voltage (V_M) operating range from 8V to 75V. This selection of different voltage and current combinations covers a wide range of applications.

The series is available with either an SPI or hardware control interface. In the TB67Z83xHFTG and TB67Z85xHFTG devices, internal functions are controlled directly by dedicated hardware pins, while in the TB67Z83xSFTG and TB67Z85xSFTG devices, an SPI interface is integrated to communicate with the devices and to control internal functions.

The standby current of the devices is as low as 1 μ A (max), minimising power consumption when not in use and maximising standby time for battery-driven applications. Built-in protection circuitries, such as undervoltage lockout and thermal shutdown, protect the devices themselves. Furthermore, gate drive abnormality detection and overcurrent protection functions protect the external MOSFETs, improving overall system reliability.

Housed in QFN40 packages measuring 6.0mm x 6.0mm, the TB67Z833SFTG, TB67Z833HFTG, TB67Z853SFTG, and TB67Z853HFTG devices integrate three channels of current sense amplifiers, which reduces the external component count of the system design. For applications that do not need current sense amplifiers, the TB67Z830SFTG, TB67Z830HFTG, TB67Z850SFTG, and TB67Z850HFTG devices come in even more compact QFN32 packages with a 5.0mm x 5.0mm footprint. All devices can operate reliably in temperatures ranging from -40°C to +125°C, making them suitable for use in industrial environments.

Toshiba will continue to develop products for a wide range of applications and provide solutions that contribute to design simplification, board area reduction and total cost reduction.

Follow the links to read more about the [TB67Z83xxFTG](#) and [TB67Z85xxFTG](#) series of gate driver IC.

Volume shipments of the new devices start today.

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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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