



Toshiba's highly-compact automotive-grade BLDC motor gate driver is now in volume production

ASIL-D compliant device has capacity to address a broad range of safety-critical in-vehicle applications

Düsseldorf, Germany, 28th February 2023 – Toshiba Electronics Europe GmbH ("Toshiba") has confirmed that, following a very successful customer sampling period, its TB9083FTG MOSFET gate driver has now progressed to large-scale production. This IC will be available via the company's extensive network of distribution partners across the EMEA region.

Intended for use with the numerous brushless DC (BLDC) motors being featured in modern automotive designs, the TB9083FTG is designed in accordance with ISO 26262 (2nd edition) and supports up to ASIL-D level functional safety. Among its key applications are electric power steering systems (EPS), electric braking and shift-by-wire transmissions.

By implementing the AEC-Q100-qualified TB9083FTG, automotive design engineers will be able to control and drive the external N-channel power MOSFETs needed for three-phase BLDC motor driving. A built-in fail-safe safety relay pre-driver complements the three-phase pre-driver. In addition, a charge pump, motor current detector circuit and internal oscillator circuitry are also included, along with an SPI communication interface (featuring an integrated CRC check).

There are multiple error detection functions too - such as undervoltage (VB, VCC, VCC_OP), overvoltage (VCC, VCC_OP, VCPH, external MOSFET VGS), over-temperature and an external MOSFET V_{DS} detector. The trigger threshold, response action and other settings can all be conveniently configured via the SPI interface.

The high level of integration reduces the need for external components, thereby lowering the part count, as well as curbing system size and cost. This is particularly useful in motor drive applications where redundancy is required.

The TB9083FTG driver IC is housed in a small P-VQFN48-0707-0.50-005 package that measures just 7.0mm x 7.0mm (resulting in a 66% reduction in footprint compared Toshiba's previous generation product). The inclusion of a wettable flank structure enables visual inspection of solder joints using automatic optical inspection (AOI) equipment - thereby contributing to enhanced solder joint reliability.

Toshiba will continue to strengthen its line-up of gate-driver IC for automotive three-phase BLDC motors capable of meeting the requirements of ISO 26262 (2nd edition). In the future, Toshiba will contribute to the electrification and safety improvement of automotive equipment by steadily introducing products with enhanced functionality.

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About Toshiba Electronics Europe

[Devices and Storage Corporation](#). TEE offers European consumers and businesses a wide variety of innovative 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.

TEE has headquarters in Düsseldorf, Germany, with branch offices in France, Italy, Spain, Sweden and the United Kingdom providing marketing, sales and logistics services. The company president is Mr. Tomoaki Kumagai.

For more company information visit TEE's website at www.toshiba.semicon-storage.com.

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