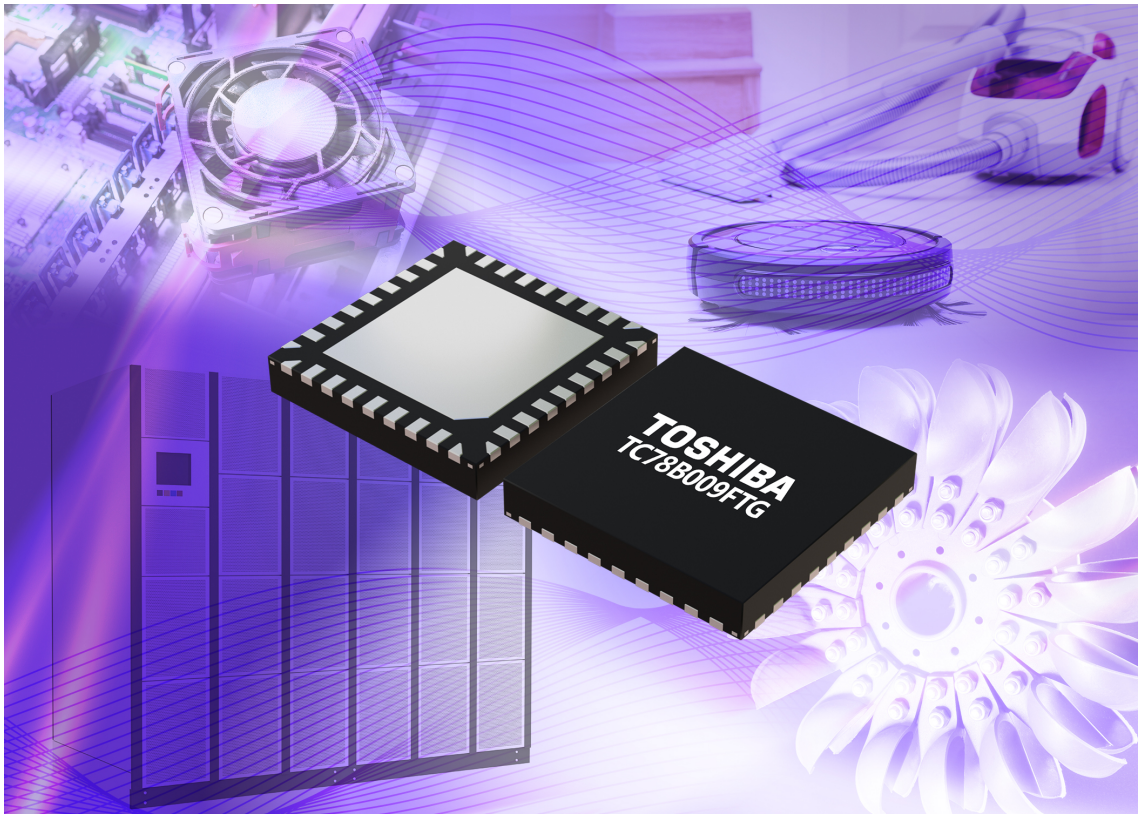

Toshiba announces new three-phase brushless motor controller with gate driver

New IC features sensorless control and closed loop speed control

Düsseldorf, Germany, 12th December 2019 – Toshiba Electronics Europe ("Toshiba") today announced a new three-phase brushless motor controller that features an integrated gate driver. The sensorless design of the TC78B009FTG does not require Hall effect sensors, making it ideal for applications involving high-velocity fans or impellers in servers, blowers, small pumps, cordless vacuums and robotic cleaners.

In recent years, increases in server capacity and performance have required larger and higher velocity fans for managing the excess heat generated by the equipment. Other devices including blowers, vacuum cleaners, and pumps also operate with high-speed impellers that consume significant amounts of power. As a result, a sensorless brushless motor controller with gate driver that can drive a wide range of external MOSFETs, such as the TC78B009FTG, is desirable for these applications.

With the new controller, high-speed rotation is realised by a 150° rectangular wave drive. The rotational position of the motor is detected by the induced voltage, eliminating the need for three Hall effect sensors which reduces the size of the controller as well as eliminating cost from the design.

The new TC78B009FTG can control eight levels of gate drive current for MOSFETs, thereby providing slew rate control. In addition, a closed loop speed control regulates and maintains the motor rotational speed during dynamic power fluctuations and load variations. Precise setting of a speed profile is performed by the built-in non-volatile memory (NVM), allowing the TC78B009FTG to eliminate the need for an analogue front end. There is also no need for an external MCU with a feedback algorithm for closed loop speed control. The new controller also features a current monitoring function with analog output, allowing the host to detect the motor drive level and make real-time adjustments in the application.

Suitable for star or delta-configured 3-phase brushless motors, and operating from a supply voltage in the range 5.5 to 27.0 V DC, the TC78B009FTG can operate with either closed loop or open loop speed control. Speed is controlled by either a PWM signal, analog voltage or via the I^2C interface. The I^2C interface can also be used to set and configure various operational parameters.

Despite the high levels of functionality, the new controller is housed in a tiny WQFN36 package measuring just 5 mm x 5 mm x 0.8 mm.

Mass production shipments of the new TC78B009FTG brushless motor controller start today.

Follow the link below for more information on Toshiba's motor controller IC line-up.
https://toshiba.semicon-storage.com/eu/product/linear/motordriver/detail.TC78B009FTG.html

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About Toshiba Electronics Europe

Toshiba Electronics Europe GmbH (TEE) is the European electronic components business of Toshiba Electronic 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. The company's broad portfolio encompasses integrated wireless ICs, power semiconductors, microcontrollers, optical semiconductors, ASSPs and discrete devices ranging from diodes to logic ICs.

TEE has headquarters in Düsseldorf, Germany, with branch offices in France, Italy, Spain, Sweden and the United Kingdom providing design, manufacturing, marketing and sales. Company president is Mr. Tomoaki Kumagai

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

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