



Toshiba launches three-phase brushless motor controller ICs with sine wave drive

New controllers offer high efficiency over a wide rotation range without phase adjustment

Düsseldorf, Germany, 24th June 2019 – Toshiba Electronics Europe GmbH today released two new three-phase brushless motor controller ICs based upon InPAC, Toshiba's original automatic phase adjustment function. This eliminates the need for phase adjustment and achieves high levels of efficiency at a wide range of motor rotation speeds. As a result, the new devices can be used with motor drivers that have various voltages and current capacities as well as being used in combination with intelligent power devices at the output stages. The new controllers (TC78B041FNG and TC78B042FTG) are intended for use in home appliances such as air-conditioners and air purifiers, and industrial equipment.

Manufacturers of home appliances and industrial equipment are increasingly using inverters to control fan motors, to meet market demand for improved energy efficiency and lower audible noise.

To obtain high-level efficiency in conventional systems, it is necessary to adjust the phase of the motor voltage and motor current for individual fan motors. Realizing high

efficiency over a wide range of rotational speeds — from almost zero rotations per minute (RPM) at start-up to high speeds of several thousand RPM — requires a large component count for phase adjustment. It also introduces the need for an MCU control system, which is complex and time-consuming to develop.

With the introduction of InPAC, Toshiba's original new control technology, which automatically adjusts the phase of the Hall signal and motor current, the new products drive motors with an efficiency equivalent to that of an MCU control system, over a wide range of rotation speeds. InPAC delivers a high efficiency fan motor system with sine wave drive that reduces audible noise.

In addition, as the phase adjustment is performed automatically via simple settings, the lengthy development time for software and MCU adjustment is eliminated, thereby streamlining the development process.

The new controllers include a forward / reverse detection switch and motor lock detection. The number of pulses in the rotation pulse signal is selectable. The TC78B041FNG is housed in a 7.6mm x 10.2mm x 1.6mm SSOP30 package and includes an error detection positive input. The TC78B042FTG is in a 5mm x 5mm x 1mm VQFN32 package and includes error detection on the positive and negative inputs.

Mass production of both devices starts today.

Follow the link below for more information on the new products please visit:
<https://toshiba.semicon-storage.com/eu/product/linear/motordriver/detail.TC78B041FNG.html>
<https://toshiba.semicon-storage.com/eu/product/linear/motordriver/detail.TC78B042FTG.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, ASICs, 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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