Toshiba launches stepper motor driver IC featuring next-generation Advanced Microstep Technology

40V/2.0A constant current driver delivers high-efficiency, low-vibration, and low-noise motor operation for a variety of consumer and industrial applications

Düsseldorf, Germany, 22nd January 2026 – Toshiba Electronics Europe GmbH ("Toshiba") has launched the TB67S579FTG, a next-generation stepper motor driver IC featuring Advanced Microstep Technology. This two-phase, bipolar stepper motor driver employs a constant current control method. With its advanced functions, it achieves high efficiency, low vibration, and low noise in motor operation. Target applications include office equipment, such as printers and scanners, as well as a wide range of commercial and industrial equipment, including surveillance cameras, projectors, ATMs, 3D printers, sewing machines, and many more.

The high-efficiency stepper motor driver IC is Toshiba's first product featuring the newly developed Advanced Microstep Technology, including three key functions: second-generation Active Gain Control (AGC2), the newly developed Automatic Wave Generation System (AWGS), and the newly developed Continuous Microstepping. Continuous Microstepping significantly reduces vibration and noise, especially during low-speed rotation, by creating a continuous, sinusoidal motor drive current waveform.

Typical microstep control methods require increasing the input clock (CLK) frequency in proportion to the number of microsteps. Automatic Wave Generation System (AWGS) is a function that enables driving a stepper motor in microstepping mode using a single CLK signal as required for full-step rotation control. Even in applications where a stepper motor is initially driven in full-step mode, to quickly generate torque and then switch to microstepping for lower vibration and noise, a smooth transition can be achieved without the need to adjust control signals. As a result, the processing load on control devices such as microcontrollers (MCUs) can be significantly reduced.

Generally, a stepper motor is continuously driven at the maximum current required under peak load conditions. Active Gain Control (AGC2) detects the induced voltage during motor operation to determine the load and automatically adjusts the required motor drive current. This mechanism enables the motor to operate with the minimum required current under light-load conditions, allowing for higher efficiency and, therefore, lower power consumption. AGC2 also improves the current waveform and torque by realising a 'full' full-step operation.

In addition to the conventional GPIO configuration interface, the TB67S579FTG offers a flexible serial configuration interface, enabling easy adjustment of advanced features such as microstepping, AGC2, and decay modes without increasing pin count or system complexity.

TB67S579FTG's output stage (covering the upper and lower transistors) has an $R_{DS(ON)}$ of just 0.6Ω (typ.). When in sleep mode, the device draws a maximum current of 1μA. To simplify system integration, the driver operates with a single motor power supply, ranging from 4.5V to 34V. The product also employs Toshiba's Advanced Current Detection System (ACDS), eliminating the need for external current sense resistors. The built-in charge pump circuit does not require an external capacitor. Eliminating the need for these external components enables substantial space savings in the mounting area and reduces the bill-of-materials (BoM) cost.

Additional features include Advanced Dynamic Mixed Decay (ADMD), which can achieve up to 30% higher rotation speed without increasing noise and vibration. The driver IC also implements comprehensive protection functions, including overcurrent detection, thermal shutdown, under-voltage lockout, error flag output, and open-load and stall detection. The integrated stall detection function reliably identifies motor lock conditions, enhancing operational safety and preventing potential damage to mechanical components and electronics.

The TB67S579FTG is housed in a small VQFN48 package, measuring just 7.0mm x 7.0mm.

Toshiba will continue to develop products for a wide range of applications, aiming to simplify user design, reduce board space, and offer comprehensive solutions.

Follow the link for more information on the new product: https://toshiba.semicon-storage.com/eu/semiconductor/product/motor-driver-ics/stepping-motor-driver-ics/detail.TB67S579FTG.html

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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 offers SCiB™ battery cells and modules with lithium titanium oxide (LTO) for heavy-duty applications.

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 and www.scib.jp/en for further company and product information.

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January 2026 Ref. 7651(A)E