



## **Motor driver IC offers high resolution micro-stepping for high current applications**

**Driver delivers low vibration, high performance forward and reverse control**

Toshiba Electronics Europe (TEE) has launched a new two-phase stepper motor driver that delivers double the resolution to micro-stepping applications than previous devices. The TB6560A combines 1/16<sup>th</sup> step resolution with very high output current capability, making it ideal for high accuracy, microcontroller-free micro-stepping control in office automation and industrial applications. In more complex systems the TB6560A can be used to reduce the stepper control overhead on a host microcontroller, allowing a single microcontroller to control multiple motors.

Supplied in HZIP25 (TB6560AHQ) and HQFP64 (TB6560AFG) packaging, the new device is a single-chip, PWM chopper-type sinusoidal micro-step bipolar stepping motor driver delivering peak output currents of 3.5A. Incorporation of all PWM generation and encoding circuitry on-chip provides for the automatic generation of a smooth, sinusoidal micro-step waveform for the high

performance driving of bipolar type stepper motors from a single clock signal. The sinusoidal output enables the construction of low-vibration drives, while built in overtemperature protection circuitry further reduces the need for external components.

Providing both forward and reverse rotation control, Toshiba's new IC offers significant flexibility by allowing phase drive selection for 2-phase, 1-2-phase, 2W1-2-phase and 4W1-2 phase excitation. The ability to configure torque settings and a sophisticated Selectable Mixed Decay Mode (SMDM) provides significant design flexibility. SMDM allows the ratio of various decay settings to be adjusted so that coil discharge pattern can be modified according to motor load and speed. Choosing the best mix of decay modes allows PWM ripple to be minimised, reducing both audible noise and vibration.

The new driver incorporates output monitor, reset and enable pins and features built-in 100k $\Omega$  pull-down resistors. Excellent thermal performance is achieved through a combination of low total bridge on resistance (0.6 $\Omega$ ) and packages designed for high allowable losses.

Manufactured using a proprietary BiCD process, the TB6560A has a high output withstand voltage rating of 40V.

## **About Toshiba**

Toshiba Corporation is a leader in information and communications systems, electronic components, consumer products and power systems. The company's integration of these wide-ranging capabilities assures its position as an innovator in advanced components, products and systems. Toshiba has more than 172,000 employees worldwide and annual sales of over US\$54 billion (FY2005).

Toshiba Electronics Europe (TEE) is the European Headquarters for the electronic components business of Toshiba Corporation, which is the world's fourth largest semiconductor vendor according to estimates by Dataquest.

Providing design, manufacturing, marketing and sales, TEE was formed in 1973 in Neuss, Germany. The company now has headquarters in Düsseldorf, Germany and subsidiaries in France, Italy, Spain, Sweden and the United Kingdom. Company president is Mr Shikama and the total number of personnel in Europe is around 400.

Toshiba Electronics Europe offers one of the industry's broadest IC and discrete product lines including high-end memory, microcontrollers, ASICs, ASSPs and display products for automotive, multimedia, consumer, telecoms and networking applications. The company also has a wide range of power semiconductor solutions.

For more company information visit Toshiba's web site at [www.toshiba-components.com](http://www.toshiba-components.com)

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