



Toshiba introduces 600V-rated intelligent power devices for BLDC motor drive

New devices will significantly contribute to miniaturization in space-critical applications

Düsseldorf, Germany, 7 September 2023 – Toshiba Electronics Europe GmbH (“Toshiba”) has launched two products for brushless DC (BLDC) motor drive applications including fan motors, ventilation fan, air conditioners, air cleaners, and pumps.

Each of the intelligent power devices (IPD) incorporate 600V-rated IGBTs and a matched gate driver as a one-chip solution in a single compact package. The output DC current (I_{OUT}) rating of the TPD4163F is 1A while the TPD4164F is rated at 2A.

The two devices (TPD4163F and TPD4164F) have an IGBT saturation voltage (V_{CEsat}) of 2.6V and 3.0V respectively, while the Diode forward voltage (V_F) is 2.0V and 2.5V.

Both devices are housed in a miniature surface mount HSSOP31 package. With dimensions of just 17.5mm x 11.93mm x 2.2mm, the PCB footprint is reduced by around 63% when compared with Toshiba’s existing DIP26 package products. This makes a significant contribution to reducing the space required for motor drive circuit boards.

In addition, in geographic regions where the power supply is unstable, the supply voltage may fluctuate significantly. Therefore, to improve reliability, the supply voltage rating (V_{BB}) has been increased from 500V to 600V to introduce more design margin.

To support the new devices, Toshiba has developed a [reference design](#) for BLDC sensorless brushless DC motor drive utilizing the new TPD4164F and a microcontroller TMPM374FWUG.

Toshiba will continue to expand their product lineup with various packages and improved characteristics, contributing to customers' design flexibility and carbon neutrality through energy-saving motor control.

Volume production shipments of both new devices (and the reference design board) start today.

Visit Toshiba's website for more information about TPD4163F and TPD4164F IPDs:
<https://toshiba.semicon-storage.com/eu/semiconductor/product/intelligent-power-ics/detail.TPD4163F.html>
<https://toshiba.semicon-storage.com/eu/semiconductor/product/intelligent-power-ics/detail.TPD4164F.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 also offers Toshiba's SCiB™ battery cells and modules with lithium titanium oxide (LTO) for heavy-duty applications and Silicon Nitride (SiN) ceramic substrates used in power semiconductor modules, inverters and converters for their heat dissipation characteristics and strength.

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, www.scib.jp/en and www.toshiba-tmat.co.jp/en/ for further company and product information.

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