



Compact, low-noise LDO regulators provide fast load transient response from standby to stabilise DC power line

Compact products help enable high performance while maintaining battery life for mobile devices and wearables

Düsseldorf, Germany, 2nd December 2025 – Toshiba Electronics Europe GmbH ("Toshiba") introduces the TCR5FM series of 35 LDO regulators, which help stabilise the DC power line for small devices, such as smartphones and wearables. The LDO regulators help address the challenge engineers face when designing battery-powered devices to switch from low-power mode to high-speed processing, thereby maximising performance and battery life. This mode switching can inherently destabilise the DC power line, requiring LDO regulators with fast load transient response.

The new TCR5FM series improves load transient response from standby by approximately 80% compared to Toshiba's existing TCR3RM series. By quickly detecting fluctuations in output voltage and providing fast feedback, variations in output voltage are reduced, even during sudden load changes. In addition to fast transient response, the TCR5FM series enhances noise handling with a high ripple rejection ratio of 91dB (typ.), enabling low-noise voltage outputs. This high performance is accomplished by combining a bandgap circuit, a low-pass filter that permits only extremely low frequencies to pass, and a high-speed, low-noise operational amplifier. These combined features make the new LDO regulators suitable for noise-sensitive applications, such as CMOS sensors and power supplies for high-frequency circuits, thereby assisting DC power line stabilisation.

The TCR5FM series supports a maximum output current of 500mA and an operating temperature range that extends up to +125°C. The new series includes 35 products, offering output voltages that range from 0.9V to 5.0V, providing engineers with options suited to their specific end applications. Furthermore, the series is housed in a small

DFN4D package, measuring 1mm x 1mm, which is ideal for mobile and wearable devices that require high-density mounting.

To learn more about the new LDO regulator series, visit Toshiba's website [here](#).

Toshiba is committed to continuing the expansion of its LDO regulator series lineup and promoting product development to meet the diverse needs of engineers.

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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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