

Toshiba fast load transient response LDO regulators in SOT-25 package help stabilise power supply lines

Reduce voltage fluctuations and power supply noise in electronic systems with rapidly changing load conditions

Düsseldorf, Germany, 17th November 2026 – Toshiba Electronics Europe GmbH ("Toshiba") expands its portfolio of low-dropout (LDO) regulators with the introduction of the TCR5FF series. The new family comprises 35 devices designed to help maintain stable power supply rails in noise-sensitive consumer and industrial applications, including security cameras, industrial cameras, high-precision sensors and IoT equipment.

Electronic systems increasingly combine high-speed digital processing with sensitive analogue circuitry while frequently switching between low-power standby and active operating modes. These changing load conditions can introduce voltage fluctuations and power supply noise, making stable voltage regulation an important consideration in system design.

To address these requirements, the TCR5FF series combines the electrical characteristics of Toshiba's existing TCR5FM series with a compact SOT-25 package that simplifies PCB assembly and allows straightforward visual inspection after mounting.

Compared with the TCR3RM series, load transient response from standby has improved by approximately 80%. As a result, variations in output voltage are reduced even during sudden load changes. The series also features a typical ripple rejection ratio of 91dB at 1kHz, achieved by combining a bandgap circuit, a low-pass filter, and a high-speed, low-noise operational amplifier. This enhances the noise rejection capability of the devices and enables a stable output noise voltage of 5μVrms (typ.). With these features, the TCR5FF series is suitable for noise-sensitive analogue, RF and sensor circuits.

The TCR5FF series supports output currents of up to 500mA, operates across a temperature range of -40°C to +125°C, and is available with fixed output voltages from 0.9V to 5.0V, enabling designers to select the most appropriate device for their application.

Toshiba will continue to expand its portfolio of LDO regulators to support the evolving power management requirements of consumer and industrial electronic systems.

For more information on the new TCR5FF series, head to Toshiba's website: here

Supporting information

Product information

- Low-Dropout Regulators

Technical articles

- Noise reduction due to high ripple rejection ratio
- LDO Regulators: Fast load transient response performance
- LDO Regulators: Reduction of power consumption by low dropout voltage

Application notes

- Basics of Low-Dropout (LDO) Regulator ICs
- Concept of self-heating of LDOs and selection guide
- Load Transient Response of LDO and Methods to Improve it
- Simple Guide to Improving Ripple Rejection Ratio of LDO Regulators
- Application examples of LDO regulators with high ripple rejection and fast load transient response

Applications

- IoT Sensor
- Surveillance Camera
- Solid State Drive

FAQ

- Frequently Asked Questions (FAQs)

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About Toshiba Electronics Europe

Toshiba Electronics Europe GmbH (TEE) offers customers across Europe a broad portfolio of semiconductor, storage and battery solutions as well as security and automation systems. Its semiconductor products serve automotive, industrial, IoT, motion control, telecommunications, networking, financial, postal, consumer and white goods applications. The portfolio includes power semiconductors, diodes and other discrete devices, logic ICs, optical semiconductors, microcontrollers and application-specific standard products (ASSPs). TEE also provides hard disk drive (HDD) products, SCiB™ lithium-ion battery cells and modules for demanding heavy-duty applications, and security and automation systems for financial, postal and other social infrastructure applications.

TEE is headquartered in Düsseldorf, Germany, with branch offices in France, Italy, Spain, Sweden and the United Kingdom providing marketing, sales and logistics services. The company also operates the European Analytical Research and Planning Office, the Regenerative Innovation Centre and the New Business Hub, which identifies, incubates and commercialises new business opportunities across Europe.

For further company and product information visit Toshiba's websites at www.toshiba.semicon-storage.com, www.scib.jp/en, www.global.toshiba/ww/products-solutions/security-automation.html and www.toshiba.eu/regenerative-innovation-centre.

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