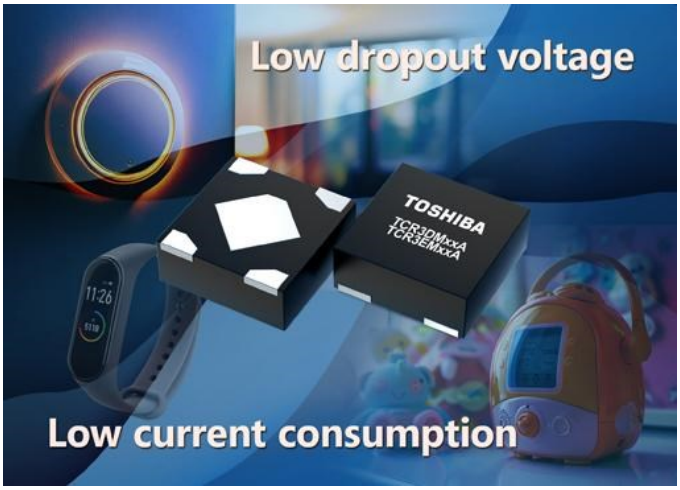

Toshiba introduces the TCR3DMxxA and TCR3EMxxA series of 300mA LDO voltage regulators

Devices allow low power consumption and high efficiency of battery-powered devices

Düsseldorf, Germany, 13th February 2025 – Toshiba Electronics Europe GmbH ("Toshiba") announces the introduction of the TCR3DMxxA and TCR3EMxxA series of general-purpose, single-output voltage regulators with an on/off control input, featuring a low dropout voltage and fast transient response. Both series are housed in the ultra-small DFN4D package (1.0mm x 1.0mm x 0.37mm), which enables the use of small ceramic input and output capacitors (≥1.0µF). This makes them suitable for industrial applications or battery-powered systems requiring high-density board assembly. Moreover, the devices provide a control pin threshold voltage (V_{CTH}) of 0.8V (min) and support 1.2V I/Os, helping to extend the device's battery life.

The TCR3DMxxA series operates over a wide input voltage of 1.5V to 5.5V. The devices are available in fixed output voltages between 1.0V and 4.5V (±1%) and can drive up to 300mA. Within the series, the dropout voltage is 216mV (typ.) with a low output noise voltage of 38µV_{RMS}, and the ripple rejection ratio is 72dB (typ.). This enables the devices to maintain the output voltage even when the battery voltage drops. In addition, since a large current output is possible at a low input voltage, devices in the TCR3DMxxA series achieve low power consumption and high power supply efficiency. The quiescent current is 86µA (typ.) and the standby current is 0.1µA, both maximise battery life.

The TCR3EMxxA series of LDO regulators operate over a wide 1.3 to 5.5V input voltage range. The devices have fixed output voltages between 0.8V and 5.0V (±1%) and can drive up to 300mA. Compared to the TCR3DMxxA series, the typical dropout voltage is much lower at 160mV (2.5V/150mA) with a low output noise voltage of 50µV_{RMS}, and the ripple rejection ratio is 68dB (typ.). The ultra-low quiescent current is 35µA (typ.) and the standby current is 0.1µA for even longer battery life.

Both the TCR3DMxxA and TCR3EMxxA series feature overcurrent protection, thermal shutdown, an inrush current protection circuit, and an auto-discharge function to protect the power supply circuit. A reference design is available using the TCR3DMxxA and TCR3EMxxA series LDO regulators for a power supply circuit application.

For more information about new LDO regulators, please visit Toshiba's website: https://toshiba.semicon-storage.com/eu/semiconductor/product/power-management-ics/low-dropout-regulators-ldo-regulators.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.
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