



Toshiba launches small LDO regulator ICs suitable for IoT applications

New devices combine low quiescent bias current, high ripple rejection and fast transient response

Düsseldorf, Germany, 22 January 2018 – Toshiba Electronics Europe released the TCR3UG series of small package, low-dropout (LDO) regulators with an output current of 300mA, that are suitable for power management of IoT modules, wearable devices and smartphones.

Design engineers always need to consider the trade-off between the quiescent bias current, the ripple rejection ratio and load transient response of an LDO. While focussing on lowest quiescent current the TCR3UG series regulators offer the industry's best trade-offs between these characteristics^[1] by supporting excellent ripple rejection and transient response. They also deliver various protection features, including thermal shutdown, overcurrent protection and inrush current suppression.

Housed in the industry-leading small WCSP4F package, which measures 0.645mm x 0.645mm and a maximum thickness of only 0.33mm, the TCR3UG series helps to reduce the size and especially the thickness of mobile devices which is essential in some applications such as smart cards.

The devices have an input voltage range of 1.5 to 5.5V DC and exhibit a quiescent current of typically just 340nA. With this ultra-low quiescent current, they still offer an excellent ripple rejection ratio of 70dB and a load transient response of $\pm 60\text{mV}$.

The new LDO regulators are suitable for use as part of the power supply in applications that require long battery life, as well as applications that are susceptible to noise or fluctuations of the supply voltage. The TCR3UG-series is available with 31 output voltages, ranging from 0.8V to 5.0V. Additionally, variants with and without automatic output discharge are available, allowing designers to easily select the device that best meets the application's requirements.

Shipment of the first products in the series has commenced.

Notes:

[1] As of September 26, 2017 for LDO regulator ICs with an output current of 300mA - TDSC survey.

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About Toshiba Electronics Europe

[Toshiba Electronics Europe GmbH](#) (TEE) is the European electronic components business of [Toshiba Electronic Devices and Storage Corporation](#). TEE offers European consumers and businesses a wide variety of innovative hard disk drive (HDD) products plus semiconductor solutions for automotive, industrial, IoT, motion control, telecoms, networking, consumer and white goods applications. The company's broad portfolio encompasses integrated wireless ICs, power semiconductors, microcontrollers, optical semiconductors, ASICs, ASSPs and discrete devices ranging from diodes to logic ICs.

Formed in 1973 in Neuss, Germany, TEE has headquarters in Düsseldorf, Germany, with branch offices in Germany, France, Italy, Spain, Sweden and the United Kingdom providing design, manufacturing, marketing and sales. Company president is Mr. Akira Morinaga.

For more company information visit TEE's web site at www.toshiba.semicon-storage.com.

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