



Toshiba introduces Bluetooth® Smart ICs with class-leading low current performance

New ICs achieve a 46% current reduction over previous products and are ideally suited for use in high-grade coin battery powered devices

Düsseldorf, Germany, 14th July, 2016 – Toshiba Electronics Europe has announced three new ICs that support Bluetooth® Low Energy (BLE) version 4.1 communications^[1]. The TC35678FSG, TC35678FXG and TC35679FSG achieve class-leading^[2] low current consumption and are ideal for use in Bluetooth Smart devices. These include wearable technology, medical equipment, smartphone accessories, remote controls and a wide variety of emerging IoT solutions.

Adoption of a highly efficient DC-DC converter and a low-power circuit design permit a current reduction of nearly 46% when compared to previous products, such as the TC35667FTG. At a 3V voltage supply, the ICs achieve peak current consumption of 3.6mA, in transmitting mode and 3.3 mA in receiver mode. In deep sleep mode, this is reduced to 100nA.

Both the TC35678FXG and TC35678FSG incorporate 256 KB of built-in Flash ROM to store user programs and data in stand-alone operations without a need for an external host MCU. Dedicated memory capacity for user programs is now extended from 64 KB in previous products to 100KB in both ICs, contributing to greater expansion options for application

programs. This built-in Flash ROM eliminates any need for external EEPROM and contributes to reductions in both cost and mounting-area, by reducing the number of external parts.

The TC35678FXG is a repackaged version of the TC35678FSG, in a QFN60 package that extends the number of general purpose IO from 16 to 32. It is suitable for use in equipment such as keyboards and remote controls that require a large number of control pins. In comparison, the TC35679FSG has no built-in Flash ROM and can consequently achieve even lower current operation. It achieves long operating times for applications powered by small coin batteries. For example, using a CR2032 type coin battery, the new IC can carry out beacon operation for over a year^[3].

[1] Low power consumption communication technology defined in Bluetooth® version 4.1.

[2] Products with the same ratings (current consumption of 3.6mA at 3V in transmitting mode with 0dBm) are the lowest in the industry as of July 11, 2016. Toshiba survey.

[3] Calculated with a 220mAh battery and 2-second beacon interval time.

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About Toshiba Electronics Europe

[Toshiba Electronics Europe](#) (TEE) is the European electronic components business of [Toshiba Corporation](#), which is ranked among the world's largest semiconductor vendors. TEE offers one of the industry's broadest IC and discrete product lines including high-end memory, microcontrollers, ASICs and ASSPs for automotive, multimedia, industrial, telecoms and networking applications. The company also has a wide range of power semiconductor solutions as well as storage products including HDDs, SSDs, SD Cards and USB sticks.

TEE was formed in 1973 in Neuss, Germany, providing design, manufacturing, marketing and sales and now has headquarters in Düsseldorf, Germany, with branch offices in France, Italy, Spain, Sweden and the United Kingdom. TEE employs approximately 300 people in Europe. 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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