



Toshiba launches two new ICs compliant with Bluetooth® Ver. 5.0

New devices realize high-performance, long range communication with low current consumption

Düsseldorf, Germany, 9th January 2018 – Toshiba Electronics Europe today announced two new additions, the TC35680FSG and TC35681FSG, to its line-up of ICs compliant with the Bluetooth® low energy Ver. 5.0 communications standard^[1].

The new ICs are compliant with the new high-speed features, 2M PHY and Coded PHY (500kbps and 125kbps) added to the Bluetooth Ver. 5.0 standard and support all of the required data rates. Receiver sensitivity is an industry leading^[2] -105dBm at 125kbps, and a built-in high efficiency power amplifier in the transmission block delivers up to +8dBm transmission power. All these features enable long range communication with low current consumption.

Based on an ARM® Cortex®-M0 processor, the new ICs incorporate a 256kB Mask ROM that supports the Bluetooth baseband process, and 144kB of RAM for processing Bluetooth application programs and data. They support both the HCI and GATT profiles, including server and client functions.

Additionally, 18-port GPIOs interfaces, which can be set to 2 channels each for SPI, I²C, and UART are also included, allowing full structuring of systems that connect to various peripheral devices. These GPIOs can be configured as a wakeup function, 4-channel PWM, 5-channel ADC interface and many others. They can optionally be configured as a control interface for an external amplifier for long range communication.

When transmitting the devices consume just 11.0mA. This decreases to 5.1mA when receiving and, in deep sleep mode, the current consumption is an extremely low 100nA. Both devices are housed in a 5mm x 5mm QFN40 package with a 0.4mm pin pitch.

The TC35680FSG incorporates 128kB of Flash ROM to use for storing user programs and associated data, making it suitable for diverse applications and removing the need for an external non-volatile memory in stand-alone operation. This reduces the external component count, reducing the required PCB area and BOM cost.

The TC35681FSG has no built-in Flash ROM and therefore is intended to operate in combination with an external non-volatile memory or host processor. A wide operating range of -40° to +125°C makes it suitable for applications where high temperatures may be experienced.

By adding the new products to its line-up, Toshiba Electronics Europe ensures that Bluetooth low energy technology can be easily integrated into IoT devices, supporting the growing demand for high throughput and long range communication. Delivering a line-up with a wide operating temperature range also allows application in industrial applications, and improves product value for users in many areas.

Sample shipments of both devices start at the end of this month.

Notes:

[1]: Low power consumption communication technology defined in Bluetooth® Ver.5.0.

[2]: As of January 9, 2018, in the Bluetooth IC industry. Toshiba Electronic Devices & Storage Corporation 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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January 2018

Ref. 7114/A