RF transceiver IC family features industry's lowest power consumption

Atmel announced the availability of a new family of low-power, high-performance microcontroller-based RF transceivers designed specifically for the automotive and smart RF markets.

With the industry's lowest power consumption, high sensitivity and high output power, the three new devices (ATA5831, ATA5832 and ATA5833) are ideal for automotive applications including remote keyless entry (RKE), passive entry go (PEG), remote start (RS) and tire pressure monitoring (TPMS) systems. This new RF family is also ideal for various smart RF applications including remote control systems such as garage door openers or telemetering applications.

Low power is a key requirement for both car access and smart RF systems, especially small, battery-powered applications. These new devices achieve low-power consumption through their superior blocking capabilities, which eliminate disturbances. With few disturbances, the digital logic is rarely awakened, resulting in a current consumption as low as 9.8mA typ. in receive mode (low-band, 310-318MHz, 418-477MHz, 1.2mA, 21ms cycle, 3-channel polling) and 9.4mA/13.8mA typ. in transmit mode (low-band, Pout = 6dBm/10dBm). As a result, end applications can use smaller batteries, enabling miniature end-application designs.

High sensitivity and high output power are also critical to achieving extended transmission distances for RF systems, along with proper operation at longer distances. The new RF transceiver family also provides outstanding sensitivity at -123dBm typ. (0.75Kbit/s, FSK, Manchester code, at 433.92MHz) and -109dBm typ. (at 20Kbit/s, ASK, Manchester code, at 433.92MHz), respectively. Combined with the high output power of up to 14.5dBm typ., excellent long-distance operation performance can be achieved.

The monolithic devices combine RF functionality with a proven Atmel AVRmicrocontroller core. Since the devices can be configured through an EEPROM, adaptation to the individual application's needs can be quick and be programmed via serial peripheral interface (SPI) - even on-the-fly during operation. If customer-specific adaptions are required, the existing firmware can be supplemented via Flash (ATA5831) or user ROM (ATA5832).

The new RF transceiver family includes the following:

• ATA5833: Ready-to-use RF transceiver integrated circuit (IC) with integrated firmware.
• ATA5831: Firmware is included in read-only memory (ROM). Additional Flash option for application-specific software needs.
• ATA5832: Cost-optimized version of ATA5831, where customer software is ROM masked.

To help further reduce development and production complexity and help accelerate time to market, Atmel's RF portfolio includes receiver and transceiver devices that are pin-, function- and RF-matching-compatible to ensure maximum development re-use for one- and two-way systems to minimize design effort. The same printed circuit board design can be used for uni-directional and bi-directional car access systems.

Availability

Samples of Atmel's ATA5831, ATA5832 and ATA5833 in 5mm x 5mm small QFN32 packages are available now starting at US$2.90 in 50,000-piece quantities. Car access kits (ATAK51002-V2) to support design-in and shorten time-to-market will be available in November 2012.

http://www.atmel.com [1]

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