

RF transceiver redefines lowest power consumption for industrial applications

Atmel Corporation today announced a new RF transceiver for battery-operated wireless applications. The Atmel AT86RF233 transceiver is optimized for industrial and consumer products that comply with ZigBee/IEEE 802.15.4, IPv6 over low-power wireless personal area networks (6LoWPAN) and high data rate 2.4GHz industrial, scientific and medical (ISM) band applications.

The AT86RF233 transceiver offers 60 percent lower power consumption than its closest competitors. At the same time, the transceiver improves the superior RF performance for which Atmel's RF products are widely renowned, making it an ideal solution for products such as gas and water meters, monitoring and control systems, and energy-harvesting equipment.

Since target applications in these segments call for years of battery life without maintenance, a low-power, high-performance transceiver such as the AT86RF233 fits the bill. The AT86RF233 provides transceiver current consumption of 14mA, receiver current consumption of 6mA and sleep current consumption of 0.02uA. For a complete solution, design engineers can use a low-power, high-performance Atmel AVR® or an Atmel ARM® processor-based microcontroller (MCU)—two of the world's most popular MCU architectures—as a companion chip. Together, the AT86RF233 transceiver and an AVR XMEGA® MCU can deliver a low-power, cost-optimized solution to meet the operational requirements of applications that spend most of their time in low-power sleep mode and need fast wake-up times and short, active cycles.

As a highly integrated solution, the AT86RF233 requires minimal external components. Design engineers can, therefore, lower their bill of material (BOM) costs and also reduce system board space. With support for antenna diversity, the AT86RF233 enhances RF performance and link reliability. Onboard Advanced Encryption Standard (AES) ensures secure wireless end-to-end communication.

“With the 802.15.4-compliant market growing quickly towards half a billion units*, we're pleased to deliver a RF transceiver that meets a variety of industry standards while addressing our customers' requirements for increasingly lower power consumption,” said Magnus Pedersen, product marketing director for microcontroller wireless solutions at Atmel. “The AT86RF233 transceiver will enable our customers to create feature-rich wireless products that provide the long battery life that their customers demand.”

“Wireless applications continue to integrate more functions while demanding longer battery life and better scalability. By using Atmel's unique picoPower low-power technology, the latest AVR XMEGA devices have 20x lower sleep current than existing solutions in the market with similar memory and integration levels. AVR

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XMEGA devices and the AT86RF233 transceiver are the perfect companions for low-power wireless applications,” said Ingar Fredriksen, senior director, MCU marketing at Atmel.

Design environment

Supported by kits, tools and communication stacks, the AT86RF233 transceiver can be integrated into any design with efficiency. Designers who pair the transceiver with an AVR XMEGA MCU can further optimize their design environment with Atmel Studio 6, the newest integrated development environment. Supporting both AVR MCUs as well as Atmel ARM Cortex-M processor-based devices, Atmel Studio 6 comes with 1,000 project examples with source code that eliminate most of the low-level coding in a design.

Availability

The AT86RF233 transceiver is available with the REB233SMAD-EK evaluation kit, which includes two AT86RF233 radio evaluation boards paired with the AVR XMEGA ATxmega256A3 MCU. Atmel also provides, free of charge, a variety of network software and programming examples, including the BitCloud ZigBee PRO and the BitCloud Public Profile Suite.

www.atmel.com [1]

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