RF transmitter improves performance while reducing system cost and extending battery lifetime

Semtech Corporation today expanded its RFIC platform with the new SX1243 [1], a fully integrated, low cost FSK / OOK radio transmitter [1] designed to replace a surface acoustic wave (SAW)-based resonator transmitters in garage door openers, remote keyless entry (RKE) and other consumer remote control systems.

The SX1243 features a fractional-N phase lock loop (PLL), which delivers higher performance and more flexibility, while minimizing the BOM cost versus traditional SAW-based resonator designs. The part covers the frequency bands from 310 MHz to 450 MHz, 860 MHz to 870 MHz, as well as 902 MHz to 928 MHz which makes it ideally suited for worldwide operation and regulatory compliance for FCC 15.231/15.247, ARIB and European products under EN 300-220.

To extend battery life, the SX1243 has very low active current consumption of 11mA at +10dBm OOK or 15mA at +10dBm FSK making it ideal for applications requiring coincell batteries, which only support peak currents up to 20mA. The low active and sleep currents, combined with fast wake-up times from sleep to TX, make it a perfect fit for applications requiring fast wake-up and long battery lifetime.

The SX1243 features Semtech’s exclusive Power & Go technology that reduces cost dramatically by eliminating the need for a microcontroller (MCU) to configure the

part. In Power & Go mode, the part will automatically wake-up for transmission once data transitions are detected on the data pin and automatically return to sleep once the transitions cease. Default configurations for Power & Go are preprogrammed and can be modified for high-volume applications. In other applications where more flexibility to configure parameters is desired, an interface for use with an external MCU is available.

“Semtech is known as a leader in RF devices that deliver performance and low power, and the SX1243 builds on that position with added performance and cost advantages,” said Hardy Schmidbauer, Director of Wireless ISM Products for Semtech. “The ability to use the part without an MCU gives it an advantage in both flexibility and cost.”

While the SX1243 offers designers the benefit of significant board space savings, its small size and RoHS & WEEE compliance also contributes to energy conservation and hazardous waste reduction.

Key Features of the SX1243

· +10 dBm or 0 dBm configurable output power

· Low current consumption

§ 11mA TX current OOK mode

§ 15mA TX current FSK mode

§ 100nA sleep current

· Bit rates up to 100 kbps

· OOK and FSK modulation

· 1.8 to 3.7 V supply range

· Fractional-N PLL with 1.5 kHz typical step

· Frequency agility for FHSS modulation

· FCC Part 15.247 DTS mode compliant

· DFN8 package

Applications

· Garage door openers

· Low-cost consumer electronic applications

· Remote keyless entry (RKE)

· Remote control/security systems

Pricing and Availability

The SX1243 (order code: SX1243WS) is available immediately in production quantities and is priced at $0.55 each in 10,000-piece lots. Semtech offers comprehensive design assistance, including field- and factory-based support. Data sheets, volume pricing, and delivery quotes, as well as evaluation kits and samples, are available at www.semtech.com/info [2].

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Links:
[1] http://www.semtech.com/wireless-rf/rf-transmitters/sx1243/
[2] http://www.semtech.com/info