RFicient®Basic,
Ultra-Low-Power WakeUp Receiver

Key Parameters

- Supply current: < 3 µA (1 kbit/s)
- Response time: < 32 ms (1 kbit/s)
- Sensitivity: -80 dBm
- Frequency bands:
  433 MHz, 868/915 MHz, 2.4 GHz
- Permanent accessibility
- Operation with microcontroller in deep sleep
- Detection of two independent wake-up events
- FEC coded data reception
- Selective wake-up with 16 Bit ID
- 32 kHz real time clock crystal oscillator
  - Timer up to 1 year
  - 16 bit cyclic timer up to 2 seconds
- Single Supply Voltage: 1.8 V – 3.3 V
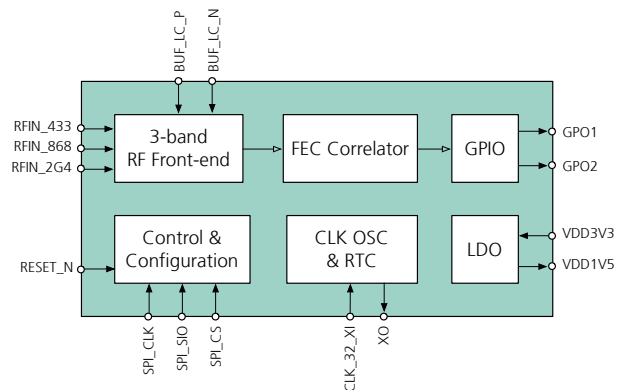- Silicon evaluated in 130 nm CMOS

Fig. 1: IP-Level Block Diagram

General Description

RFicient®Basic, Ultra-Low-Power WakeUp Receiver – this IC solution will allow customers to optimize the power consumption for i.e. IoT applications. Thereby battery lifetime could be increased dramatically. The integrated receiver continuously monitors a radio channel while boasting a very low current consumption of 2.5 µA with a response time of only 32 ms.

RFicient®Basic provides single or simultaneous multiband operation in the frequency bands 433 MHz, 868/915 MHz and 2.4 GHz for global and reliable wireless connection. The integrated ULP receiver was developed in standard CMOS technology and achieves a receiver sensitivity of -80 dBm.

The receiver operates without the use of a microcontroller and recognizes two separate wake-up patterns. After receiving a specific wake-up pattern, a digital control signal is generated to activate any application hardware like a MCU.

The possibility of selective addressing allows single nodes, entire sensor networks or dedicated groups to be addressed individually. The receiver has an on-chip LDO and can therefore be operated directly on a single 3V power supply.

An integrated 32 kHz real time clock crystal oscillator allows independent operation and provides long-term timers up to 1 year as well as 16 bit cyclic timers up to 2 seconds.

This allows the microcontroller to be operated in deep sleep mode to save power.

CONTACT

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