

RF_WakeUp_Rx

Ultra-low power RF receiver / WakeUp receiver

Key Parameters

- Supply current: < 3 μA @ 1.8 V (1 kbit/s)
- Response time: < 30 ms (1 kbit/s)
- Sensitivity: -80 dBm
- Frequency bands: 433 MHz, 868 MHz, 2.4 GHz
- Core size about 1 mm²
- Permanent accessibility
- Operation without microcontroller
- Detection of two independent wake-up events
- FEC coded data reception
- Selective wake-up with 16 Bit ID
- Silicon proven 130 nm CMOS-IP

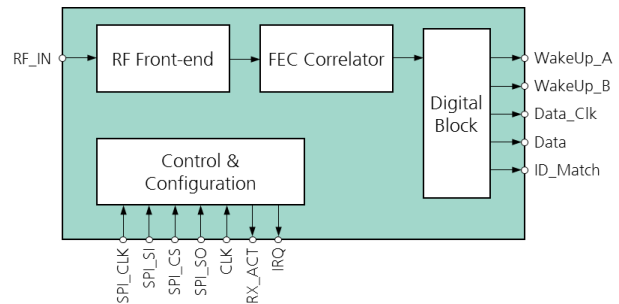


Fig. 1: IP-Level Block Diagram

General Description

The integrated ultra-low power receiver technology RFicient® was developed for ISM frequency bands and built in standard CMOS technology. The receiver operates Multi-band sub-1-GHz, at 433 MHz, 868 MHz and 2.4 GHz and achieves a receiver sensitivity of -80 dBm. When operating in the standard configuration at a data rate of 1 kbit/s, the current consumption is reduced below 3 μA at 1.8 V with a response time of only 30 ms.

The integrated ultra-low power receiver RFicient® 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.

Apart from the pure wake-up mode of operation, a selective activation using a 16-bit wide address range and reception of coded data streams is possible. Furthermore, basic functions, frequency bands and additional functionality can be modified to fit the customers' needs.

The Fraunhofer Institute for Integrated Circuits IIS provides **detailed documentation** and **support** for the IP integration. **Modifications, extensions and technology ports** of the IP are available on request.

Benefits

- Low design risk due to silicon proven design
- Customer specific flexible design

Deliverables

- GDSII data
- Documentation
- Silicon validation report
- Integration and customizing support

CONTACT

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