RFicient® ULP Wake-Up Receiver FH101RF

Key Parameters

- Continuous monitoring of the wireless channel
- Tri-band wake-up and data reception
- 433 MHz, 868 MHz or 915 MHz and 2.4 GHz SRD frequency bands
- Selective wake-up with 16-bit ID via built-in address decoder
- Recognition of two separate wake-up patterns
- Operates with micro-controller in deep sleep mode
- Very low operating current consumption < 3.5 µA
- Response time only 32 ms
- Receiver sensitivity typically -75 dBm
- Separate RF single-ended inputs
- Adjustable receiver data rate
- SPI slave interface to host
- Fault-tolerant data decoding
- Tolerates co-channel interferers with bit-error-rates up to 16 %
- Operating temperature range: T_A = -20 °C to 85 °C
- Very small package and footprint
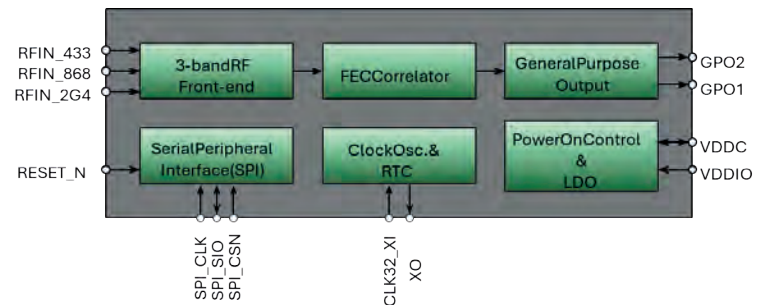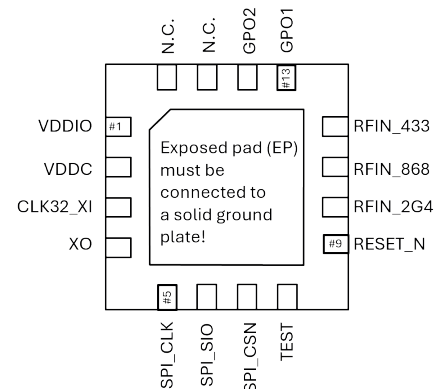
Pin configuration of the QFN-16L package (3mm × 3mm) and IP-Level Block Diagramm

General Description

The FH101RF RFicient® Ultra-low Power Wake-Up Receiver is a tri-band receiver for simultaneous reception of OOK modulated signals in the SRD frequency bands 433 MHz, 868 MHz or 915 MHz, and 2.4 GHz, with a sensitivity of typically -75 dBm. It allows continuous monitoring at microwatt power consumption and responds in milliseconds, enabling 24/7 connectivity and up to 10 years of battery life. The integrated ULP receiver operates without a microcontroller, recognizing two wake-up patterns and a 16-bit ID. It generates a control signal to activate application hardware like an MCU, allowing direct addressing of individual RF modules.

Data packets are stored in three built-in FIFO buffers, and data events can trigger an IRQ signal for external circuitry, supporting deep-sleep modes for peripherals.

RFicient® uses binary correlators to detect 31-bit preambles, tolerating bit-error rates up to 16 %.

Together with our distribution partner, we make our technology available to you. Please contact us to get further information.

Applications

- Smart home and building automation
- Remote keyless operations
- Industrial condition monitoring
- Remote wireless control
- Wireless sensor networks
- Body area networks
- Ambient assisted living
- Fitness monitoring
- Asset tracking / Indoor localization
- Telematics
- Vehicle monitoring