

Description

The Si4311 is a fully-integrated FSK CMOS RF receiver that operates in the unlicensed 315 and 433.92 MHz ultra high frequency (UHF) bands. It is designed for high-volume, cost-sensitive RF receiver applications. The chip operates at a carrier frequency of 315 or 433.92 MHz and supports FSK digital modulation with data rates of up to 10 kBaud.

The device leverages Silicon Labs' patented and proven digital low-IF architecture and offers superior sensitivity and interference rejection. The Si4311 can achieve superior sensitivity in the presence of large interference due to its high dynamic range ADCs and digital filters. The digital low-IF architecture also enables superior blocking ability and low intermodulation distortion for robust reception in the presence of wide-band interference.

Digital integration reduces the number of required external components compared to traditional offerings, resulting in a solution that only requires a 16 MHz crystal and passive components allowing a small and compact printed circuit board (PCB) implementation area. The high integration of the Si4311 improves the system manufacturing reliability, improves quality, eases design-in, and minimizes costs.

Features

- Single chip receiver with only six external components
- Selectable 315/433.92 MHz carrier frequency
- Supports FSK modulation
- High sensitivity (-104 dBm @ 5 kBaud)
- Excellent interference rejection
- Selectable IF bandwidths
- Automatic Frequency Centering (AFC)
- Data rates up to 10 kBaud
- Direct battery operation with on-chip low drop out (LDO) voltage regulator
- 16 MHz crystal oscillator support
- 3x3x0.85 mm 20L QFN package (RoHS compliant)
- -40 to +85 °C temperature range

Applications

- Satellite set-top box receivers
- Remote controls, IR replacement/extension
- Garage and gate door openers
- Home automation and security
- Remote keyless entry
- After market alarms
- Telemetry
- Wireless point of sale
- Toys



