

WIRELESS & SENSING PRODUCTS

Description

The SX1282 transceiver with embedded CoolRISC® MCU, dual 10 and 16-bit ADC and peripherals provides a highly-integrated single-chip acquisition processing and RF solution.

With a design which sets state-of-the-art standards in low receiver consumption, dual ISM-band transceiver blocks are combined with a sophisticated ultra low-power 8-bit RISC core plus extensive signal acquisition peripherals to provide a complete system on chip for ISM-band applications.

The SX1282 is manufactured in an ultra modern 0.18µm process, with the entire radio, CoolRISC MCU, ADCs, peripherals, inductors and filters all integrated on a single die. The circuit is capable of operating down to 1.0V, which makes operation from a single alkaline battery possible. The circuit is enclosed in a 60-pin QFN package of dimensions 7x7mm.

Features

- Operating voltage down to 1.0V
- Supply voltage range from 1.0V to 1.6V
 - Entire circuit can operate on a single AA battery
- Transceiver Chain
 - Dual-Band operation, 434 MHz and 868 MHz
 - Multi-channel, on-chip PLL, 12.5 kHz steps
 - FSK and OOK modulation
 - Data rate up to 80 kbit/s FSK
 - Sensitivity of -102 dBm @ 25 kbit/s, FSK, 10-3 BER
 - Receive current 2.5 mA
 - Autonomy up to four years from a single AA battery in wireless sensing
 - Transmit power +10 dBm differential (35 mA supply current)
 - Integrated RX-TX switch
 - Super heterodyne architecture
 - First conversion: IF @ 96 MHz for 868 MHz band
 - Second conversion: zero IF
 - HW support for symbol synchronization and clock recovery
- Power Management
 - High-current step-up for external EEPROM supply @ 2.7V
 - Low-current step-up for the supply of the data acquisition chains
 - POR and brown-out detector
 - Sophisticated Power Management
 - Unused blocks are powered down
 - Standby current down to 4.0uA typical (23µA maximum)
 - Oscillators

- Integrated programmable RC oscillator
 - Start-up and µC operation
- 12.8 MHz crystal oscillator:
 - Transceiver operation
- Low-power 32 kHz crystal oscillator
 - µA level Time-keeping operation
 - Analog watchdogs detect crystal oscillator failures
- Data Acquisition
 - Pyroelectric acquisition chain
 - 80 dB PSRR on the full chain
 - 10 µV/LSB
 - 16 bits ADC, 8 Hz bandwidth
 - Auxiliary 10 bits ADC
 - 10k samples/s
 - Multiple signal sources
 - Programmable input attenuation
 - Integrated thermometer function, 2°C accuracy
- Embedded Core
 - Ultra Low-power
 - 1.3 mA power consumption at 6.4 MIPS
 - CoolRISC technology
 - Energy-efficient RISC architecture
 - Integrated 8x8 multiplier
 - Program loads into and executes from RAM
 - Memory resources
 - 1 kbytes boot ROM
 - 22 kbytes Instruction RAM
 - 1 kbytes data RAM

Applications

- Alarm and security systems
- Wireless Sensor Networks
- Home Automation
- Wireless computer peripherals
- Telemetry
- Sports and Leisure Equipment
- Industrial Sensing

Ordering Information

| Part Number | Package |
|-------------|---------|
| SX12821075 | VQFN60 |