

High-Performance , Low-Current Sub-GHz RF System-on-Chip(SOC)

- Wireless System-on-Chip

- Core:32-bit ARM® Cortex™-M3 CPU
 - 40 MHz maximum frequency
- Memories
 - 256KB/512KB/1MB bytes Flash
 - 64K bytes SRAM
- Sub-GHz radio operation
- TX power up to +16dbm

- Max Output Power & Consumption

- Max output power: +16dbm(VDDPA=3.3V)
- Max output power: +10dbm(VDDPA=1.4V)
- RF active mode
 - 9mA RX (915MHz@500kbps GFSK)
 - 9mA RX (868MHz@2.4kbps GFSK)
 - 18mA TX @ 10dBm output power at 915MHz
- RF standby mode
 - Sleep mode: 3.0uA
 - Shutdown mode: 0.3uA with NFC Wake Up
 - 100 uA/MHz in Active Mode at 40 MHz, CPU running while loop from flash. All peripherals disabled@3V

High RF Sensitivity

- Adjacent channel selectivity
 - -50dB at 1channel separation
- Excellent blocking performance
 - -55dB at 1MHz offset
 - -60dB at 8MHz offset
- Best-in-class receive sensitivity
 - -122dBm at 1.25Kbps GFSK 915MHz
 - -112dBm at 12.5Kbps GFSK 868MHz
 - -103dBm at 100Kbps GFSK 915MHz
 - -103dBm at 100Kbps GFSK 868MHz

-RF Modulation Format

- Data rate: 625bps~1Mbps(h=0.5,1,2,4) GFSK/FSK
- Data rate: 625bps~1Mbps OOK
- GFSK with fully configurable shaping
- FEC enabled modem

-Multimode Wireless Protocols

- GFSK Proprietary
- Wireless M-BUS : Rx 32.768kbps, 88~112kbps
- NFC ISO/IEC 14443-3 standard (Type A)
(passive mode to access EFUSE only)

-RF Features

- Wake on RX (WOR)
- Automatic clear channel assessment for listen before talk system(LBT)
- CRC filtering
- Automatic frequency control (AFC)
- Auto gain control (AGC)
- 1 dB RSSI resolution

-Operating Condition

- Power supply voltage 1.8V to 3.6V
- Operating temperature range -40°C to 85°C

-Package

- QFN32(4mm x 4mm)
- QFN40(5mm x 5mm)

-MCU Peripherals

- Low Voltage Detector/ Voltage Comparator
- Clock management
- 2 * QSPI interface
- 3 * UART interface. Up to 460800 baudrate
- 1 * SAR ADC. 12bits 1Mps with digital filter and moving average
- 15 * GPIO. Flexible mapping from peripheral to GPIOx
- 2 * I2C. Master/Slave mode configurable
- 6 * PWM + 1 * PWM (always ON). Up to 6 channels of differential PWM
- Debug mode
 - Serial wire debug (SWD)
 - 2 watch points/4 break points
- 9 timers
 - 1*system tick timer
 - 3*32bit timer
 - 3*16bit timer
 - 1*sleep timer
 - 1*RTC calendar timer
- RTC clock counter(record the year, month, day, hour, minute and second)
- 8 DMA channel
- Built in 32.768kHz RC oscillator
- Built in 16.384kHz RC oscillator 600ppm temperature and voltage compensated
- On-chip DC-DC bulk converter

- Security Unit

- Hardware PUF/TRNG
- Hardware accelerated authentication (Private-key) : AES128/192/256
- Hardware accelerated Hash function : SHA-224/256
- 2 Stage Secure boot

-SDK

- Proprietary protocol
- NFC TAG mode and simple data link
- Application development

-Development Tool Kit

- EliteRadio Evaluation Bundle
 - EliteRadio PC UI
 - EliteRadio Evaluation Board
 - Test Fixture

-Applications

- Automated meter reader (AMR)
- Electronic shelf labels (ESL)
- Environmental monitoring devices
- Logistic tracking
- Industrial control
- Wireless sensor networks
- Building automation

Product Selections

IC Product	NFC Support
ER8130	No
ER8131	Yes