PBLN51822(m)

Bluetooth LOW ENERGY SYSTEM

PBLN51822(m) is an ultra-low power 2.4 GHz wireless System on Chip (SoC) module, a 32 bit ARM® Cortex™-M0 CPU, flash memory, and analog and digital peripherals.

PBLN51822(m) can support **Bluetooth® Low Energy** and a range of proprietary 2.4 GHz protocols, such as Gazell from Nordic Semiconductor.
Fully qualified Bluetooth Low Energy stacks for PBLN51822(m) are implemented in the S1x0 series of SoftDevice.
The S1x0 series of SoftDevice are available for free and can be downloaded and installed on PBLN51822(m) independent of your own application code.
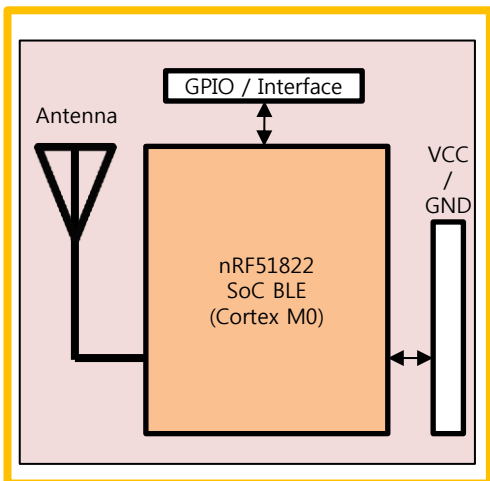
Application

- Computer peripherals and I/O devices
  - Mouse
  - Keyboard
  - Multi-touch trackpad

- Remote control toys

PBLN51822(m) Block Diagram

- Interactive entertainment devices
  - Remote control
  - 3D Glasses
  - Gaming controller

- Personal Area Networks
  - Health/fitness sensor and monitor devices
  - Medical devices
  - Key-fobs + wrist watch

Features

- 2.4 GHz transceiver
  - -93 dBm sensitivity in Bluetooth® low energy mode
  - 250 kbps, 1 Mbps, 2 Mbps supported data rates
  - TX Power -20 to +4 dBm in 4 dB steps
  - TX Power -30 dBm Whisper mode
  - 13 mA peak RX, 10.5 mA peak TX (0 dBm)
  - RSSI (1 dB resolution)

- ARM® Cortex™-M0 32 bit processor
  - 275 µA/MHz running from flash memory
  - 150 µA/MHz running from RAM
  - Serial Wire Debug (SWD)

- S1x0 series SoftDevice ready
- Memory
  - 128 / 256 kB flash Program memory
  - 16 kB RAM
- Support for non-concurrent multiprotocol operation
  - On-air compatibility with nRF24L series
- Flexible Power Management
  - Supply voltage range 1.8 V to 3.6 V
  - 2.5 µs wake-up using 16 MHz RCOSC
  - 0.4 µA @ 3 V OFF mode
  - 0.5 µA @ 3 V in OFF mode + 1 region RAM retention
  - 2.3 µA @ 3 V ON mode, all blocks IDLE

- Other
  - 8/9/10 bit ADC 8 channels
  - PBLN51822(m) is 31(6) GPIO Pins
  - One 32 bit and two 16 bit timers with counter mode
  - SPI Master
  - UART (CTS/RTS)
  - Two-wire Master (I2C)
  - CPU independent Programmable Peripheral Interconnect (PPI)
  - Quadrature Decoder (QDEC)
  - AES HW encryption
  - Real Timer Counter (RTC)

Radio	PBLN51822	PBLN51822m	Remarks
Performance			
RF Chip	nRF51822	nRF51822	NORDIC BLE SoC
Data Rate (MAX) [bps]	2 Mbps	2 Mbps	250 Kbps / 1 Mbps / 2 Mbps
Transmit Power [dBM]	< 4 dBm	< 4 dBm	4 dBm to -20 dBm (4dB Step)
Receiver Sensitivity [dBm]	-96 dBm	-96 dBm	-92.5 dBm @ BLE -96 dBm @ 2 50 kbps -90 dBm @ 1 Mbps -85 dBm @ 2Mbps
Features			
Frequency Band [MHz]	2400 ~ 2483.5 MHz	2400 ~ 2483.5 MHz	
Modulation Techniques	GFSK	GFSK	
GPIO	31 Pins	6 Pins	
Interface	SPI, UART, I2C	SPI, UART, I2C	
Operating Temperature	-25℃ to +75℃	-25℃ to +75℃	
Dimensions (unit : mm) **(L x W x H)**	(19.8 ± 0.3) x (14.6 ± 0.3) x (2.2 ± 0.3)	(17.9 ± 0.3) x (11.5 ± 0.3) x (2.2 ± 0.3)	
Programmability			
EEPROM Memory	-	-	
RAM Memory	16 kByte	16 kByte	
Flash Memory	256 kByte	256 kByte	
Networking and Security			
Encryption	AES	AES	
Regulatory Approvals			
FCC	○	○	North America
CE	○	○	Europe
KC	○	○	South Korea
TELEC	–	○	Japan