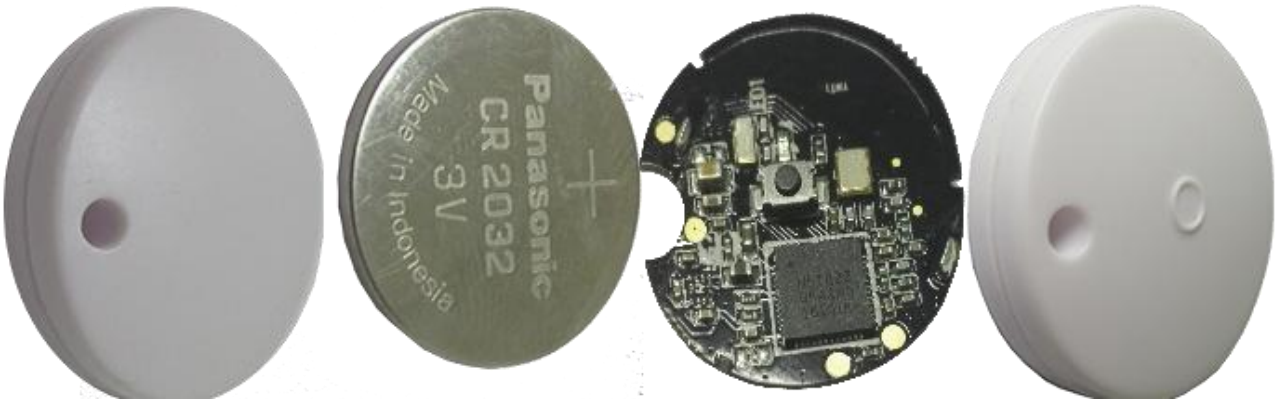
Bluetooth Smart Module

BLE4.0

NRF51822-Beacon Datasheet



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Overview

The NRF51822 beacon module is a portable iBeacon tag with ultra low power chipset NRF51822 and leverage BLE 4.0 technology.It has a portable case size, accurate hardware and robust firmware. It is designed for the commercial advertising and in-door location-based service. NRF51822 beacon broadcast 2.4GHz radio signals at regular and adjustable intervals when it is power on. It can be heard and interpreted by iOS and Android BLE devices that are equipped with many mobile apps.

Feature

- 2.4 GHz multiprotocol RF transceiver
- ARM® Cortex™-M0 32 bit processor
- 128 bit AES HW encryption
- 256kB flash & 32kB RAM
- Programmable Peripheral Interconnect (PPI)
- Digital interfaces: SPI, I2C, UART
- 10 bit ADC
- Programmable output power: -20 to +4 dBm
- Independent application development and protocol stack
- Pinout compatible with NRF51xxx series
- Global separate power management
- Operating voltage: 1.8 V ~ 3.6 V

Applications

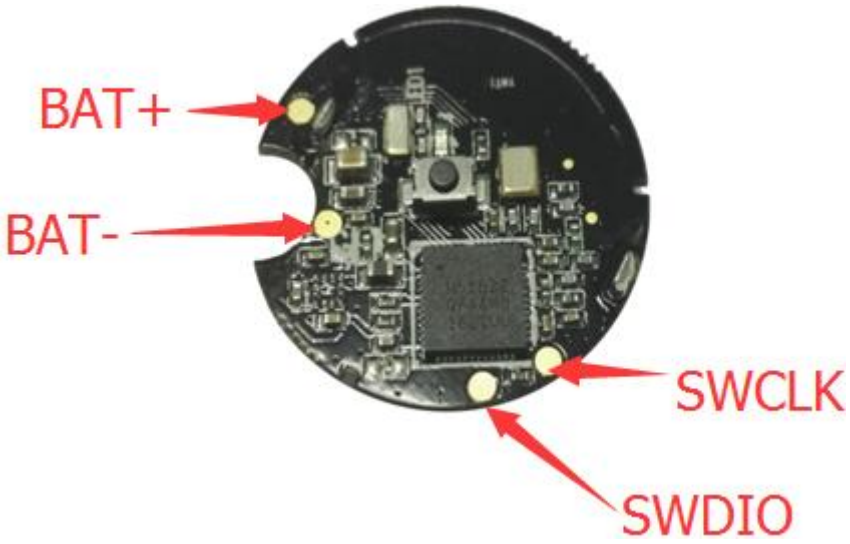
- Indoor navigation
- Mobile payment
- In-store promotions specialist
- flow analysis

Dimensions

Module diameter: 25mm

Module thickness: 4.6mm

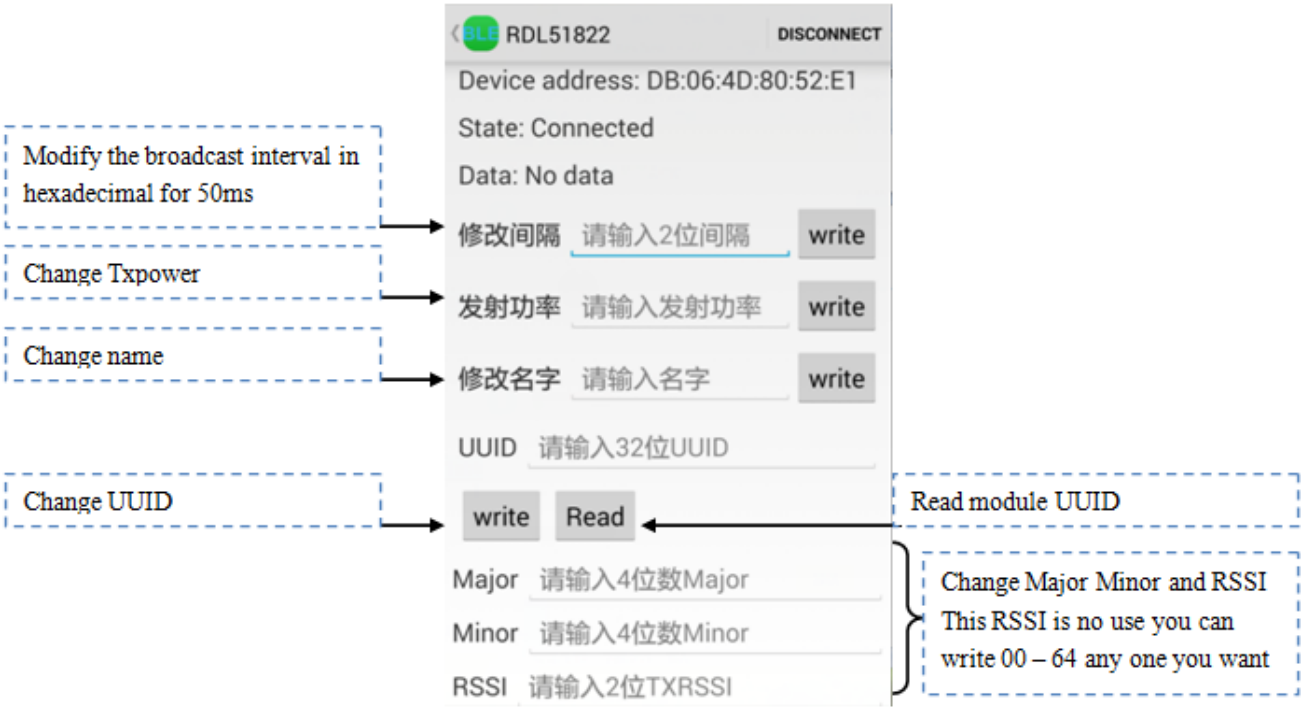
Pin Assignment



Pin Number	Pin Name	Pin Function
1	GND	Ground
2	VDD	3.3V
3	SWDIO	Digital pin module data
4	SWCLK	Digital pin module clock

App And Interface

You can through this app to change these paraments when this beacon is adversting.
Press and hold for 3 seconds. The indicator flashes three times to indicate that it is broadcasting.
Press and hold for 3 seconds again The indicator flashes one time to indicate that it is no broadcasting.



If you want to use your own app here is the interface

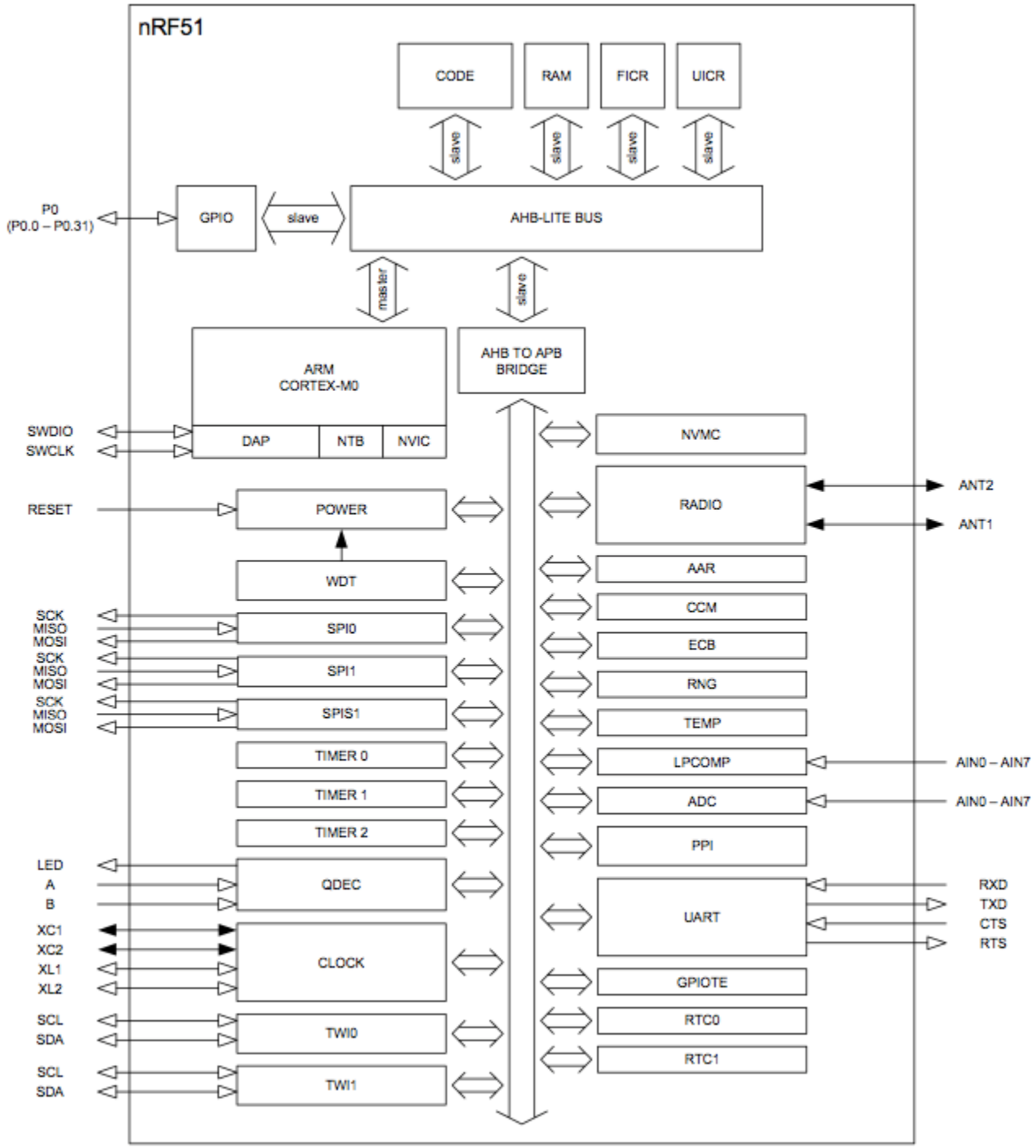
Service UUID：00001803-494c-4f47-4943-544543480000

Description	UUID	Attribute	Length
mobile->ibeacon	**00001805-494c-4f47-4943-544543480000**	**notify/read+notify**	**20(Max)**
ibeacon->mobile	**00001804-494c-4f47-4943-544543480000**	**write**	**20(Max)**

nRF51822 Power Comparison Table		
Power	Parament	1m RSSI reference value
0dBm	0x00	-54
4dBm	0x04	-50
-30dBm	0xD8	-89
-20dBm	0xEC	-77
-16dBm	0xF0	-72
-12dBm	0xF4	-65
-8dBm	0xF8	-62
-4dBm	0xFC	-58

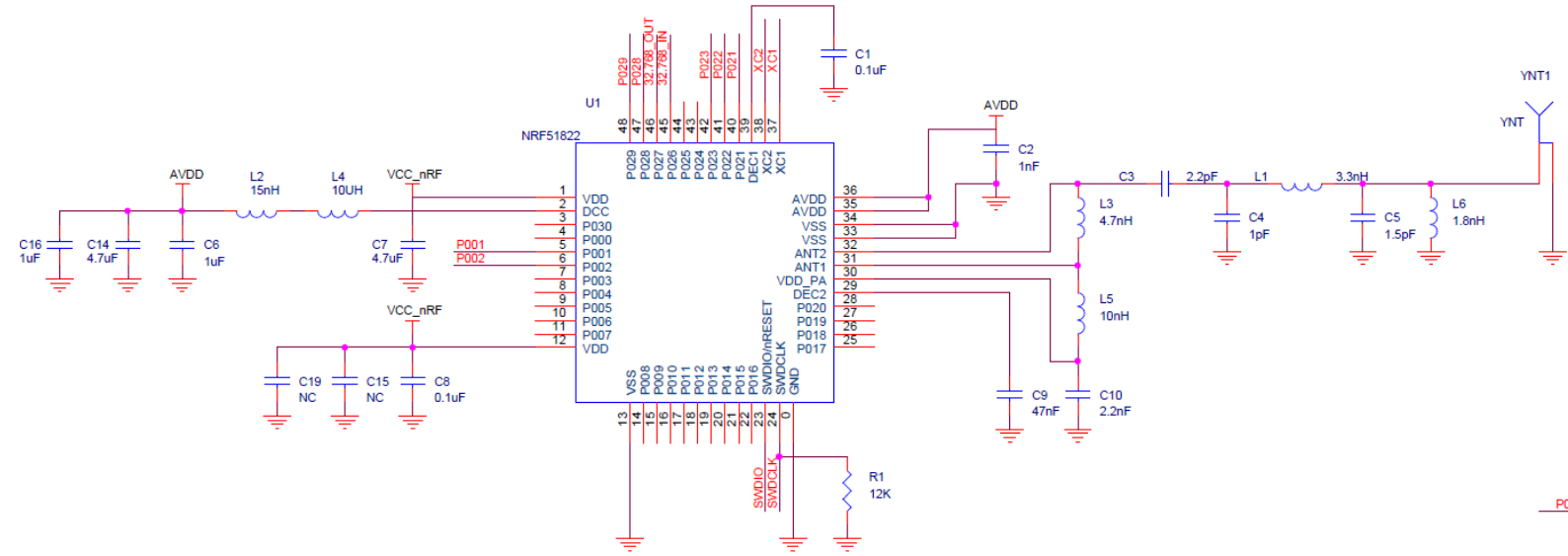
Num	APP Command	Return	Description
1	Change name： 0x11+name(length<=8)	0x11	The first connectable version reboot takes effect other versions take effect immediately all versions are saved
2	Change UUID： 0x12+16byte UUID	0x12+16byte UUID	Immediate effect, save power Eg： 0x12 0x11 0x11… 0x99 0x99 |<-- totle16 --> |
3	Read UUID： 0x13	0x13+16byte UUID	
4	Change Major,Minor battPower： 0x14+Major+Minor+BattPower	0x14+Major+Minor +BattPower	Immediate effect, save power Major： 2byte(eg:0x00 0x0a is10) Minor： 2byte(eg:0x00 0x0b is 11) BattPower: This position is the battery power, see note 1 for details 1byte(eg:0x01)
5	Find Major,Minor,BattPowe: 0x15	0x15+Major+Minor +BattPower	
6	Modify the broadcast interval： 0x16+1byte(0x00-0xC8)	0x16+4byte	Immediate effect (eg:0x02 is 100ms)
7	Modify the transmit power： 0x17+1byte	2byte	Immediate effect 2541 can write ： 0x01,0x02,0x03 51822 can write： 0x00,0x04,0xD8, 0xEC,0xF0,0xF4,0xF8,0xFC See note 2 for details

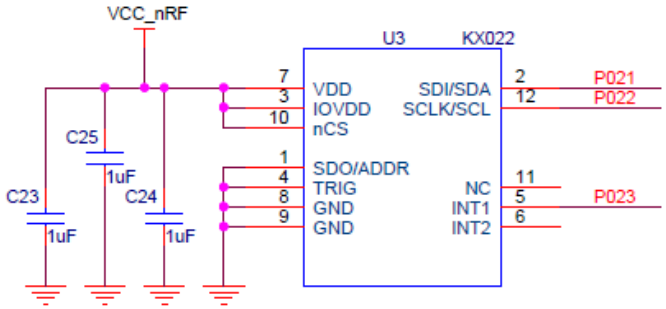
Block Diagram

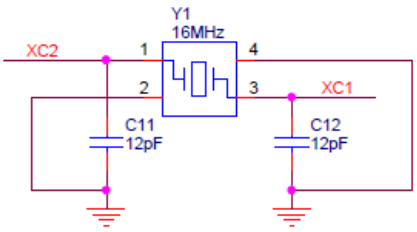


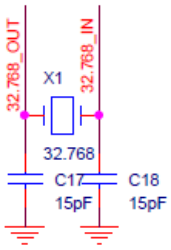
nRF51822 block diagram

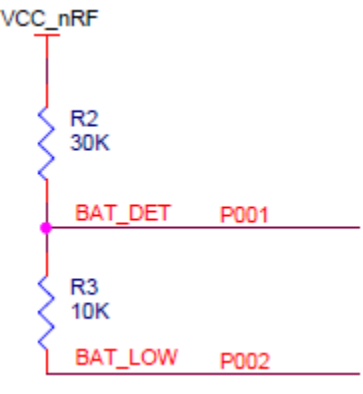
Circuit diagram

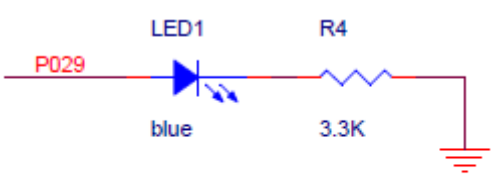


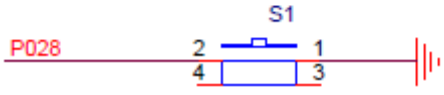


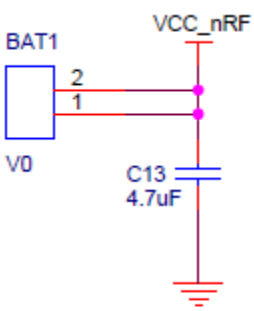


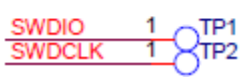
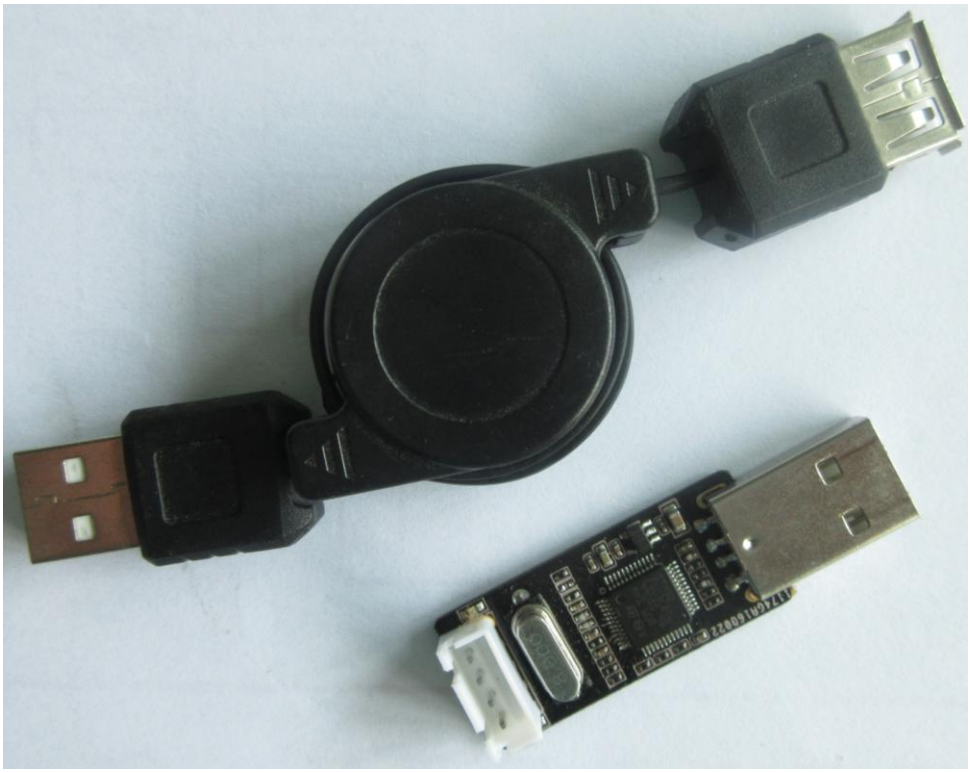












Development Tool