User Manual

Product name : BLE-Button
Chip : nRF51802
Product type : Holyiot-17113

Holyiot-17113-nRF51802

Introductions

Holyiot-17113 BLE module which we produced that on 2017. The nRF51802 is an ultra-low power 2.4 GHz wireless System on Chip (SoC) integrating the nRF51 series 2.4 GHz transceiver, a 32 bit ARM® Cortex™-M0 CPU, flash memory, and analog and digital peripherals.

nRF51802 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 nRF51802 are implemented in the S100 series of SoftDevices. The S100 series of SoftDevices are available for free and can be downloaded and installed on nRF51802 independent of your own application code.

1. PCB antenna, NRF51802 QFAA

FEATURES

• 2.4 GHz transceiver

• -91 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 -35 dBm Whisper mode

• 13 mA peak RX, 10.5 mA peak TX (0 dBm)

• 10 mA peak RX, 8 mA peak TX (0 dBm) with DC/DC

• 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)

• S100 series SoftDevice ready

• Memory

• 256 kB embedded flash program memory

• 16 kB RAM

• On-air compatibility with nRF24L series

• Flexible Power Management

• Supply voltage range 1.8 V to 3.6 V

• 7.7 µs wake-up using 16 MHz RCOSC

• 0.6 µA at 3 V OFF mode

• 1.2 µA at 3 V in OFF mode + 1 region RAM retention

• 3 µA at 3 V ON mode, all blocks IDLE

• 8/9/10 bit ADC - 8 configurable channels

• 31 General Purpose I/O Pins

• One 32 bit and two 16 bit timers with counter mode
• SPI Master/Slave
• Low power comparator
• Temperature sensor
• Two-wire Master (I2C compatible)
• UART (CTS/RTS)
• CPU independent Programmable Peripheral Interconnect (PPI)
• Quadrature Decoder (QDEC)
• AES HW encryption
• Real Timer Counter (RTC)

APPLICATIONS

✓ Mobile phone accessories
✓ Wearables
✓ Beacons
✓ Rezence wireless charging monitoring
✓ PC peripherals
✓ Consumer Electronics (CE) remote controls
✓ Proximity/Alert sensors
✓ Smart Home
✓ Sports, fitness and healthcare sensors
✓ Smart RF tags
✓ Toys and electronic games
✓ Intelligent domestic appliances
✓ Industrial and commercial sensors
✓ Lighting

PCB layout
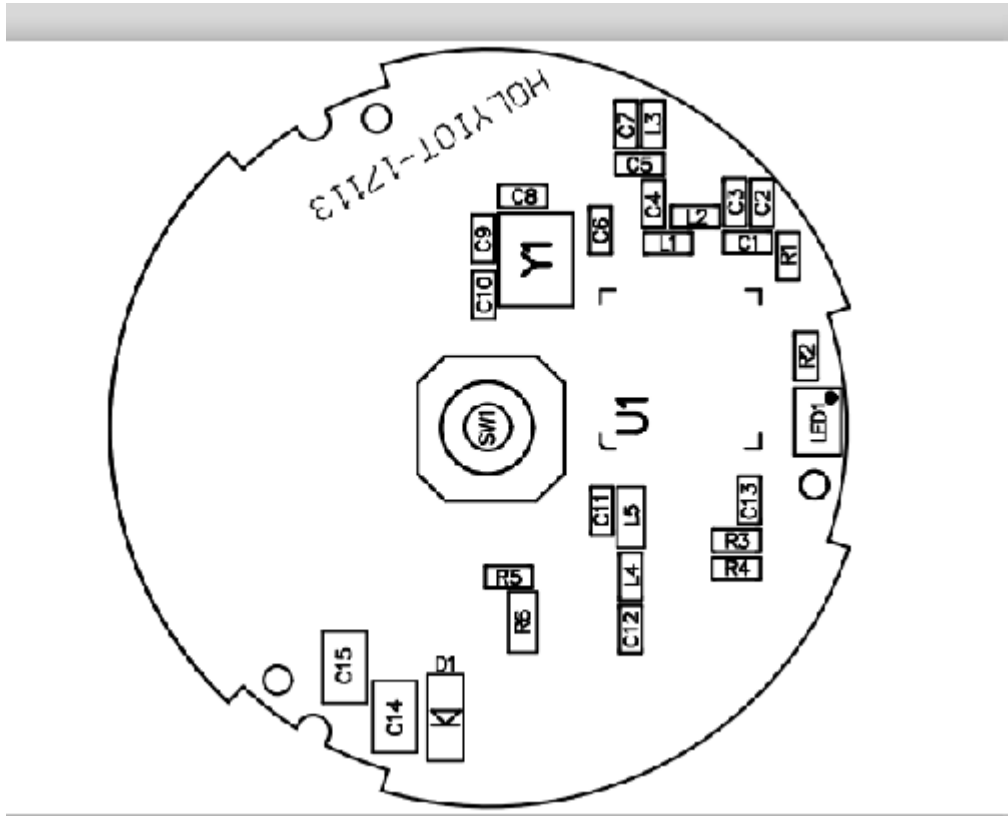
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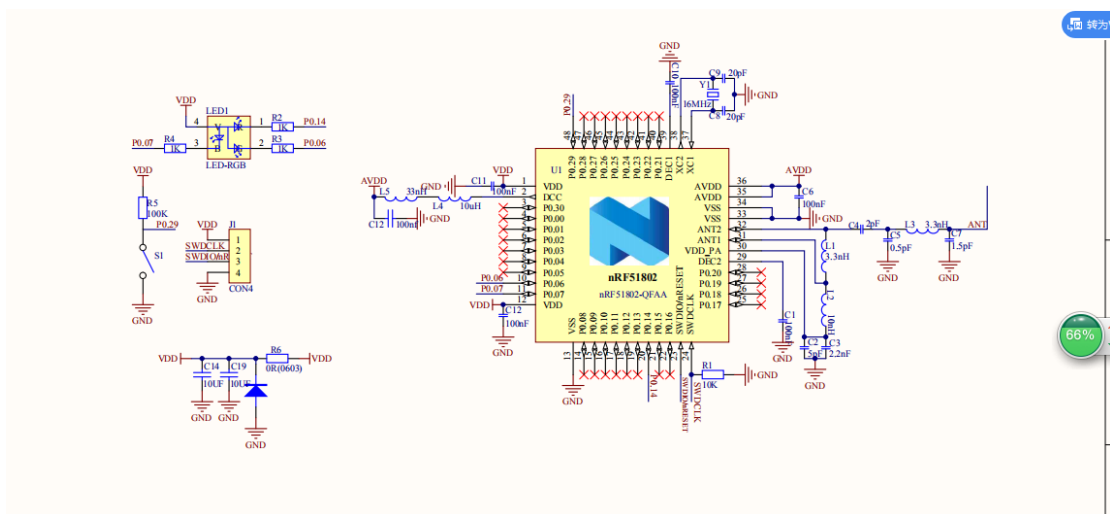
About us

We are a company who located in shenzhen ,China . we have already develop a lot of IOT products , such as   smart jump rope , smart pets training, pets fitness and health tracking   ,key finder for anti-lost . Smart bluetooth tag , smart sexy product .   We cooperation with a lot of customers . Like   south Korea , USA   , Germany , Greece , Israel . We help our partner to work with the   firmware code   via BLE solutions . Help them solve the distance range ,   and let the products   more low energy and battery will be last longer . We are focus on   iBeacon ,eddystone , BLE bluetooth 4.0 with   different sensor   like temperature sensor , humidity sensor , pressure sensor   , air quality sensor , accelerometer sensor (motion)   such as 3-axis accekerometer   6-axis accelerometer , 9- acceleromter   sensor (Gyroscope)   . Barometric pressure sensor   . And so on   . We provide   BLE solutions   ,RF solutions for our   customer .   We can customize different firmware for our   client . We provide one- stop service . Like PCB design ,PCBA layout ,PCBA produce, firmware and case   design . And work with the app developer to complete the   whole solutions . From app, web applications to compatible with our firmware .

Do you want fast prototype development   . Why not choose us?   Believe us   , we have 8 years experience for RF solutions

FCC Statement:

This device complies with part 15 of the FCC Rules.

Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) this device must accept any interference received,

including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

---Reorient or relocate the receiving antenna.

---Increase the separation between the equipment and receiver.

---Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

---Consult the dealer or an experienced radio/TV technician for help.

Warning: Changes or modifications to this unit not expressly approved by the part responsible for compliance could void the user's authority to operate the equipment.

LABEL OF THE END PRODUCT:

The final end product must be labeled in a visible area with the following "Contains TX FCC ID:" 2ALGY-17113", and the FCC part 15.19 statement has to be available on the label: This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. If the end product is so small or for such use that it is not practicable to place the statement specified, the statement shall be placed in a prominent location in the instruction manual or pamphlet supplied to the user or, alternatively, shall be placed on the container in which the device is marketed.

FCC Radiation Exposure Statement

The device has been evaluated to meet general RF exposure requirement. The device c an be used in portable exposure condition without restriction. This modular complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

IMPORTANT NOTE:

This module is intended for OEM integrator only and the OEM integrators and instructed to ensure that the end user has no manual instructions to remove or install the device. The OEM integrator is still responsible for the FCC compliance requirement of the end product, which integrates this module.

Integration is typically strictly restricted to Grantee himself or dedicated OEM integrators under control of the Grantee.

In the event that these conditions can not be met (for example certain laptop configurations or co-location with another transmitter. then the FCC authorization is no longer considered valid and the FCC ID can not be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

The module will be responsible to satisfy SAR/RF Exposure requirements, when the module integrated into any (portable, mobile, fixed) host device.

The module has no shielding cover; it is tested and approved as Limited modular approval.

The module must in the end-product be installed in such manner that the authorized antennas can be used, any change of the antenna will void the certification.