

# Datasheet

产品名称(Product): USB dongle

产品型号(Model No.): Holyiot-17017

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# 1. Description

Holyiot-17017 USB dongle module is based on Nordic nRF52832 Soc, the nRF52832 SoC is a powerful, highly flexible ultra-low power multiprotocol SoC ideally suited for Bluetooth® low energy (previously called Bluetooth Smart), ANT and 2.4GHz ultra low-power wireless applications. The nRF52832 SoC is built around a 32-bit ARM® Cortex™-M4F CPU with 512kB + 64kB RAM. The embedded 2.4GHz transceiver supports Bluetooth low energy, ANT and proprietary 2.4 GHz protocol stack. It is on air compatible with the nRF51 Series, nRF24L and nRF24AP Series products from Nordic Semiconductor.

Processing power

Multiprotocol radio(Bluetooth low energy,ANT,2.4G proprietary)

Power efficiency

USB UART ( CP2104 USB to UART chip )

## Hardware module :

SWD programmer (SWDIO,SWCLK,VDD,GND)

nRF52832 QFAA

Size :20mm\*9.6mm

BLE stack & RF 2.4Ghz

## Features :

Single chip, highly flexible, 2.4 GHz multi-protocol SoC

32-bit ARM Cortex-M4F Processor

1.7v to 3.6v operation

512kB flash + 64kB RAM

Supports concurrent Bluetooth low energy/ANT protocol operation

Up to +4dBm output power

-96dBm sensitivity, Bluetooth low energy

Thread safe and run-time protected

Event driven API

On air compatible with nRF24L and nRF24AP series

2 data rates (2Mbps/1Mbps)

PPI - maximum flexibility for power-efficient applications and code simplification

Automated power management system with automatic power management of each peripheral

Configurable I/O mapping for analog and digital I/O

3 x Master/Slave SPI

2 x Two-wire interface (I<sup>2</sup> C)

UART (RTS/CTS)

3 x PWM

AES HW encryption

Real Time Counter (RTC)

Digital microphone interface (PDM)

On-chip balun

## **Application:**

- Internet of Things (IoT)
- SmartHome sensors
- Computer peripherals
- A4WP 'Rezence' wireless charging
- Sports and fitness sensors and hubs
- Smart watches
- Interactive games
- Wearables
- Connected white goods
- Voice-command smart remotes
- Beacons
- Connected health products
- RC Toys
- Building automation and sensor networks

## 2. Introduction

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Processing power

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Power efficiency

USB UART ( CP2104 USB to UART chip )

### 2.1 Programmer

Holyiot-17017 module use the Serial Wire Debug(SWD port ), the module which layout the SWDIO,SWCLK,VDD,GND for debug and flash your own firmware,more info about the SWD, please visit[https://www.silabs.com/community/mcu/32-bit/knowledge-](https://www.silabs.com/community/mcu/32-bit/knowledge-base.entry.html/2014/10/21/serial_wire_debugs-qKCT)

[base.entry.html/2014/10/21/serial\\_wire\\_debugs-qKCT](https://www.silabs.com/community/mcu/32-bit/knowledge-base.entry.html/2014/10/21/serial_wire_debugs-qKCT)

You can using the Jlink or Jtag for programmer.

### 2.2 Software development Tool

It supports the standard Nordic Software Development Tool-chain using Segger Embedded Studio, Keil, IAR and GCC. More info please visit<https://www.nordicsemi.com/Software-and-Tools/Development-Tools>

### 2.3 Protocols

This module support Bluetooth 5, Bluetooth Low Energy,Bluetoothmesh,Thread,802.15.4,ANT, 2.4GHz proprietary. So we can use different protocols for different situations.

**Software Development Kit**

Nordic Semiconductor's Software Development Kits (SDK) are your starting point for software development on the nRF51 and nRF52 Series. It contains source code libraries and example applications covering wireless functions, libraries for all peripherals, bootloaders, wired and OTA FW upgrades, RTOS examples, serialization libraries.

More info please visit <https://www.nordicsemi.com/Software-and-Tools/Software/nRF5-SDK>

You can also download the SDK for coding development .

## 2.4 SoftDevices

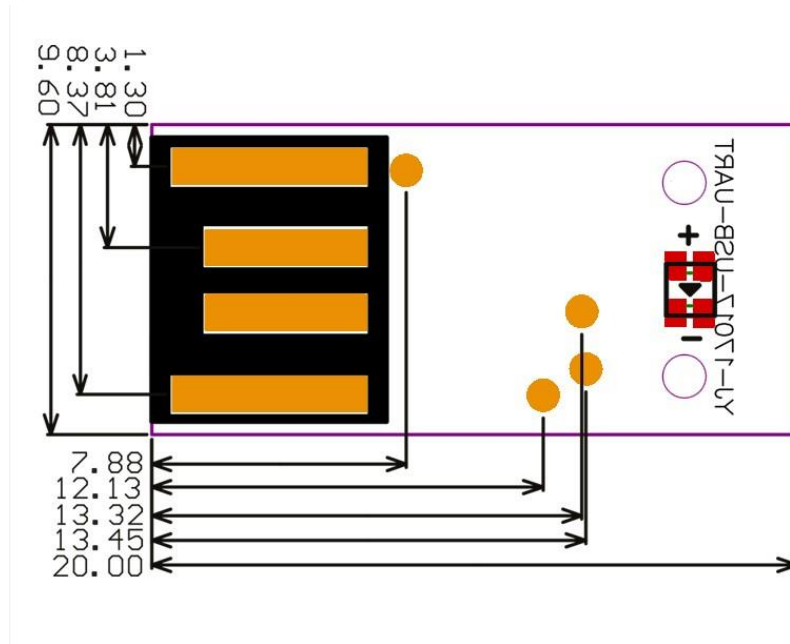
Nordic Semiconductor protocol stacks are known as SoftDevices. SoftDevices are pre-compiled, pre-linked binary files. SoftDevices can be programmed in nRF5 series devices, and are freely downloadable from the Nordic website. Please download that here: <https://www.nordicsemi.com/Software-and-Tools/Software/S132>

### Over-The-Air DFU

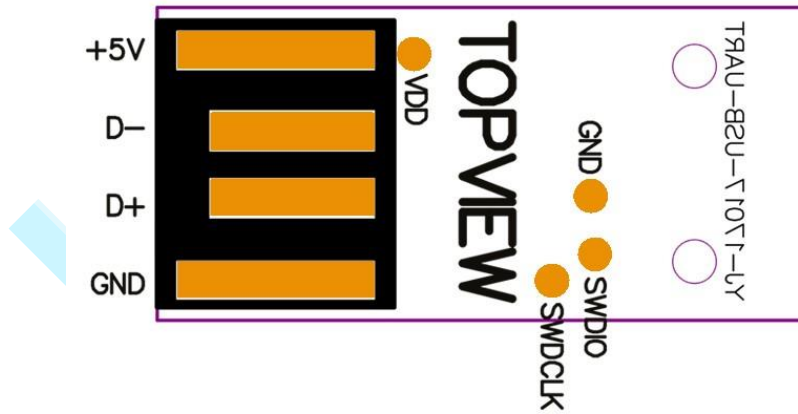
The SoC is supported by an Over-The-Air Device Firmware Upgrade (OTA DFU) feature. This allows for in the field updates of application software and SoftDevice.

## 3. Product Descriptions

### 3.1 Mechanical drawings



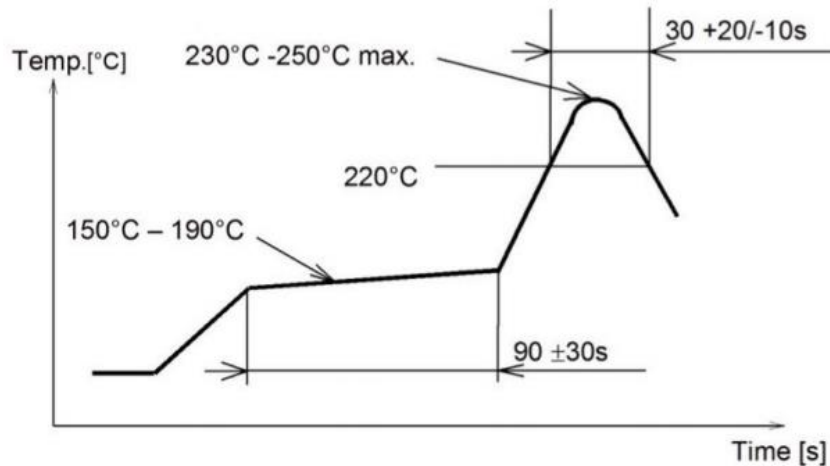
## 3.2 Pin assignments



PIN No.	PIN define	Functions
1	VDD	power
2	GND	Ground
3	SWDIO	Digital input(serial wire debug)
4	SWCLK	Digital I/O <sup>2</sup> (serial wire debug)

## 4. Miscellaneous

Soldering Temperature-Time Profile for Re-Flow Soldering. Maximum number of cycles for re-flow is 2. No opposite side re-flow is allowed due to module weight.



## 5. Absolute maximum ratings

Maximum ratings are the extreme limits to which the chip can be exposed for a limited amount of time without permanently damaging it. Exposure to absolute maximum ratings for prolonged periods of time may affect the reliability of the device.

Absolute maximum ratings:

	Min.	Max.	Unit
<b>Supply voltages</b>			
VDD	-0.3	+3.9	V
VSS		0	V
<b>I/O pin voltage</b>			
V <sub>IO</sub> , VDD ≤3.6 V	-0.3	VDD + 0.3 V	V
V <sub>IO</sub> , VDD >3.6 V	-0.3	3.9 V	V
<b>NFC antenna pin current</b>			
I <sub>NFCL/2</sub>		80	mA
<b>Radio</b>			
RF input level		10	dBm
<b>Environmental QFN48, 6×6 mm package</b>			
Storage temperature	-40	+125	°C
MSL (moisture sensitivity level)		2	
ESD HBM (human body model)		4	kV
ESD CDM (charged device model)		1000	V
<b>Environmental WLCSP, 3.0×3.2 mm package</b>			
Storage temperature	-40	+125	°C
MSL		1	
ESD HBM		2	kV
ESD CDM		500	V
<b>Flash memory</b>			
Endurance	10 000		Write/erase cycles
Retention	10 years at 40°C		



# ATTENTION

OBSERVE PRECAUTION FOR HANDLING  
ELECTROSTATIC SENSITIVE DEVICE

HBM (Human Body Model): Class 3A



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## 6. 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 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.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

### Radiation Exposure Statement

This device complies with 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.

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