Sintegration
旭和科技股份有限公司

# SIN06NMU
# SPECIFICATION

Product Name ：SIN06NMU

Version：A

Author：Bill Huang

Date：Apr. 21st, 2022

# Document History

| Date | Revised Contents | Revised By | Version |
|---|---|---|---|
| Apr. 21th, 2022 | Initial Release | Bill Huang | A |

# 1. General Description

SIN06NMU included ARM 32-bit Cortex®-M0+ MCU and NBIoT module. In addition to the SDK provided by the STM, you can also use the Arduino IDE to program, which is suitable for most programmers.

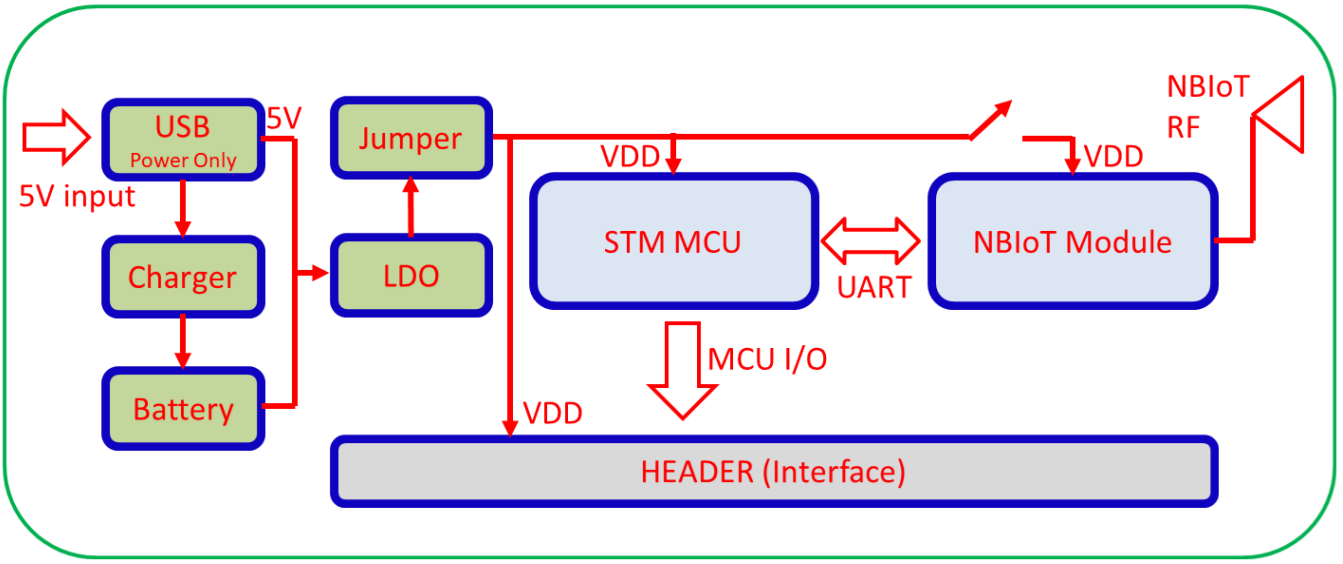
With NBIoT module, it has high receiving sensitivity and can achieve long-distance transmission. It can transmit data with various sensors through various interfaces to achieve long-distance data transmission.

## ➢ Feature

- Support 3GPP Rel14 NB-IoT air interfaces and protocols
- Support Band: B1, B3, B5, B8, B20, B28
- Output power: 23 dBm±2dB@ Class 3
- Sensitivity: -115dBm±1dBm @ QPSK
- 64 Kbytes of Flash memory with protection and securable area
- 8 Kbytes of SRAM with HW parity check
- Two I2C-bus interfaces supporting Fast mode Plus (1 Mbit/s) with extra current sink, one supporting SMBus/PMBus and wakeup from Stop mode
- Two USARTs with master/slave synchronous SPI; one supporting ISO7816 interface, LIN, IrDA capability, auto baud rate detection and wakeup feature
- Two SPIs (32 Mbit/s) with 4 to 16-bit programmable bitframe, one multiplexed with I2S interface
- Arduino IDE supported

## 1-1 Block Diagram

A simplified block diagram of the module is depicted in the figure below.




## 1-2 Specification

| | |
|---|---|
| **Model Name** | SIN06NMU |
| **Product Description** | NB-IoT Wireless Communication Board |
| **Host Interface** | MCU I/O |
| **Operation Conditions** | |
| **Temperature** | ■ Storage：-50℃~+125℃<br>■ Operating：-40℃ ~ +85℃ |
| **Humidity** | ■ Operating：10 ~ 95%(Non-Condensing)<br>■ Storage：5 ~ 95%(Non-Condensing) |
| **Dimension** | 28.0 mm x 52.0 mm |

# 2. Electrical Characteristics

## 2-1 Absolute Maximum Ratings

| Symbol | Parameter | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|
| VDD | Standard operating voltage | -0.3 | | 3.9 | V |
| $V_{IN}$ | Input voltage on digital pins | -0.3 | | 3.9 | V |

## 2-2 Recommended Operating Range

| Symbol | Parameter | Condition | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| VDD | Standard operating voltage | | 3.0 | 3.3 | 3.6 | V |

## 2-3 RF Characteristics

### 2-3-1 Receive Mode Specifications

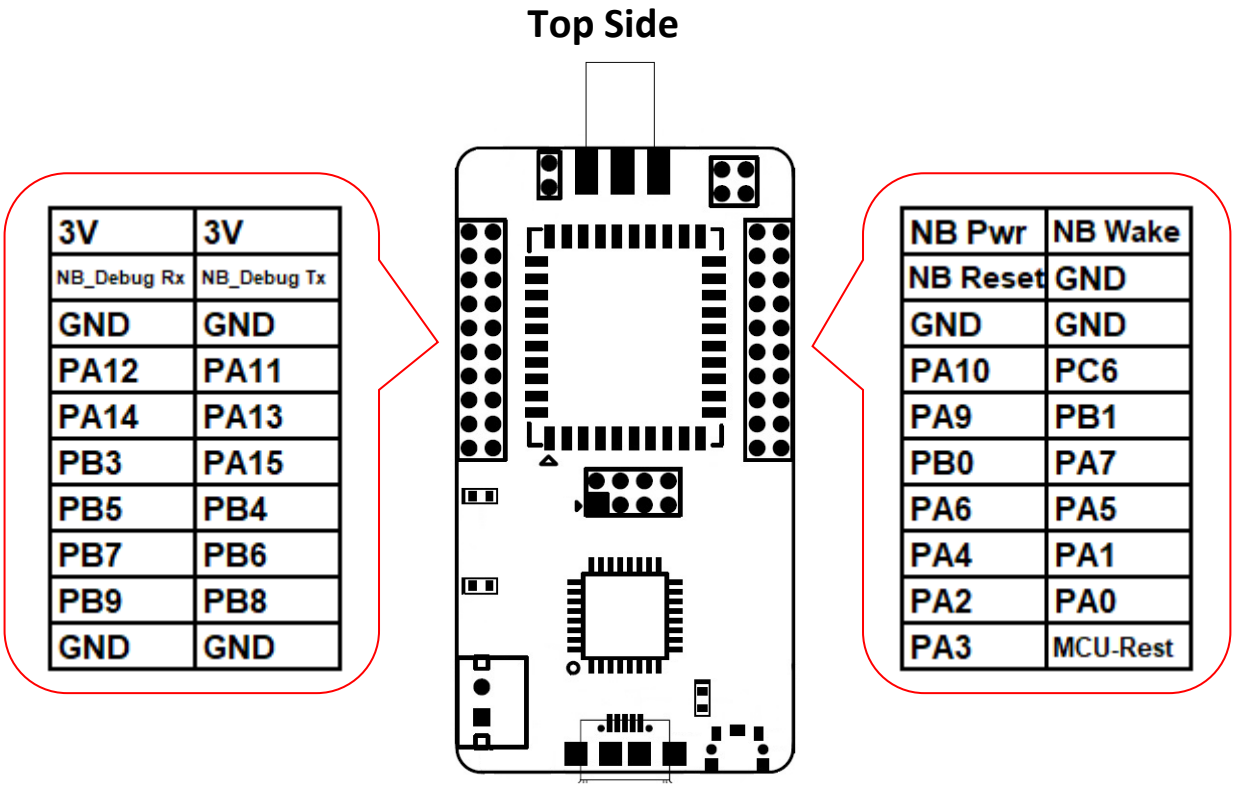
| Band | Operation frequency | 3GPP Ref. | Typ. Receiving Sensitivity |
|---|---|---|---|
| Band 1 | Receive: 2110~2170 MHz | -108.2 dBm | -115dBm ±1dB |
| Band 3 | Receive: 1805~1880 MHz | -108.2 dBm | -115dBm ±1dB |
| Band 5 | Receive: 869~894 MHz | -108.2 dBm | -115dBm ±1dB |
| Band 8 | Receive: 925~960 MHz | -108.2 dBm | -115dBm ±1dB |
| Band 20 | Receive: 791~821 MHz | -108.2 dBm | -115dBm ±1dB |
| Band 28 | Receive: 758~803 MHz | -108.2 dBm | -115dBm ±1dB |

### 2-3-2 Transmit Mode Specification

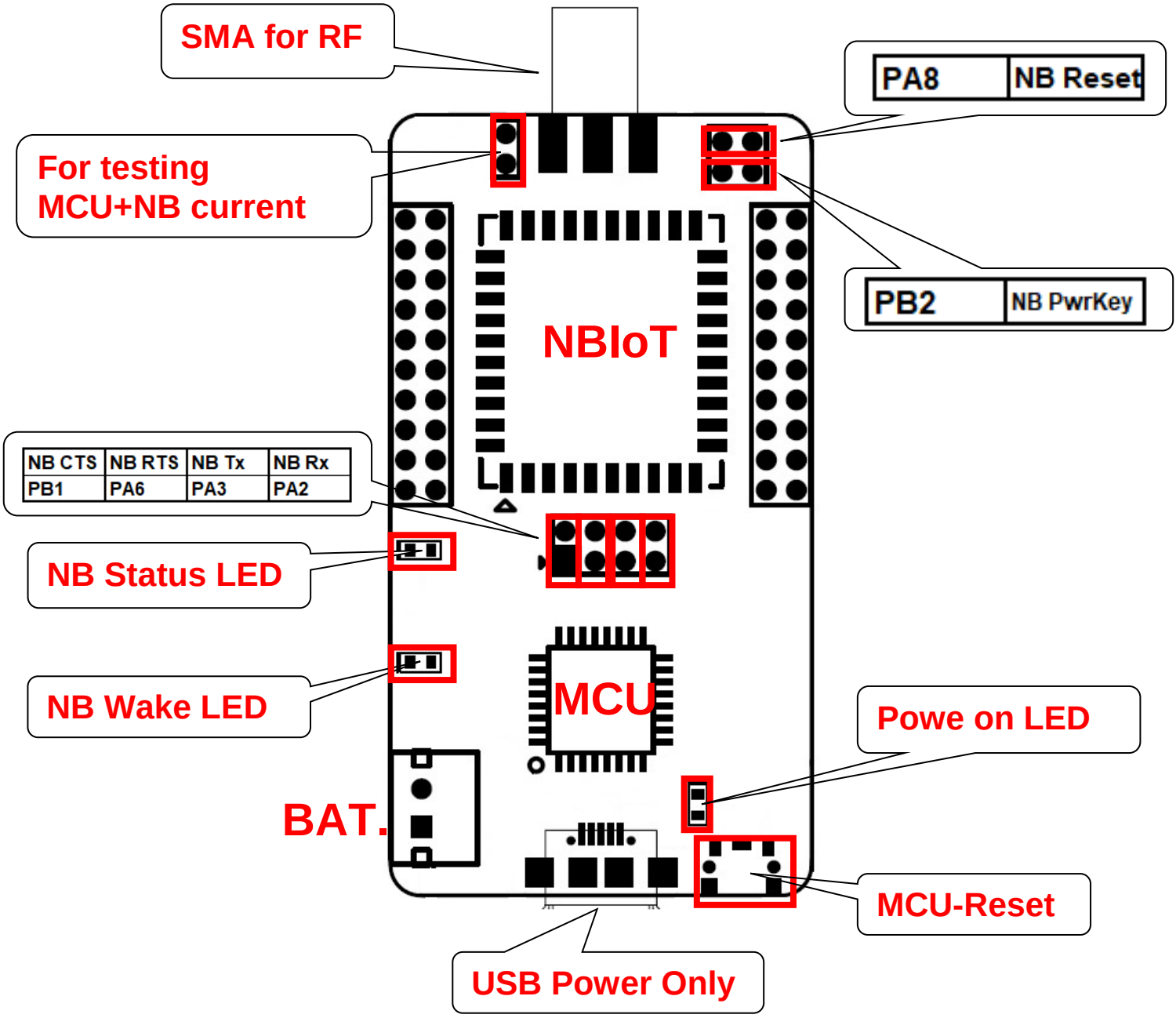
| Band | Tx Operation frequency | Max. | Min. |
|---|---|---|---|
| Band 1 | Transmit: 1920~1980 MHz | 23dBm ±2dB | < -40dBm |
| Band 3 | Transmit: 1710~1785 MHz | 23dBm ±2dB | < -40dBm |
| Band 5 | Transmit: 824~849 MHz | 23dBm ±2dB | < -40dBm |
| Band 8 | Transmit: 880~915 MHz | 23dBm ±2dB | < -40dBm |
| Band 20 | Transmit: 832~862 MHz | 23dBm ±2dB | < -40dBm |
| Band 28 | Transmit: 703~748 MHz | 23dBm ±2dB | < -40dBm |

# 3. PIN Connection

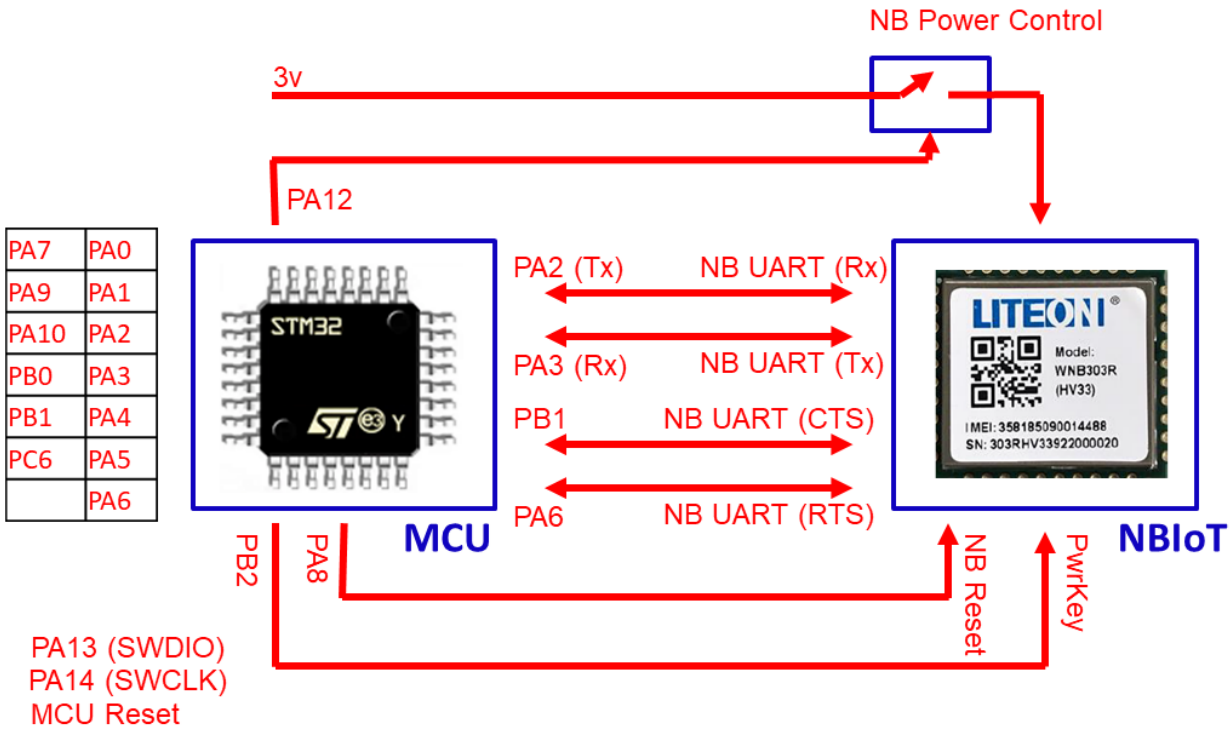
## 3-1 SIN06NMU 2x10 HEADER Connection



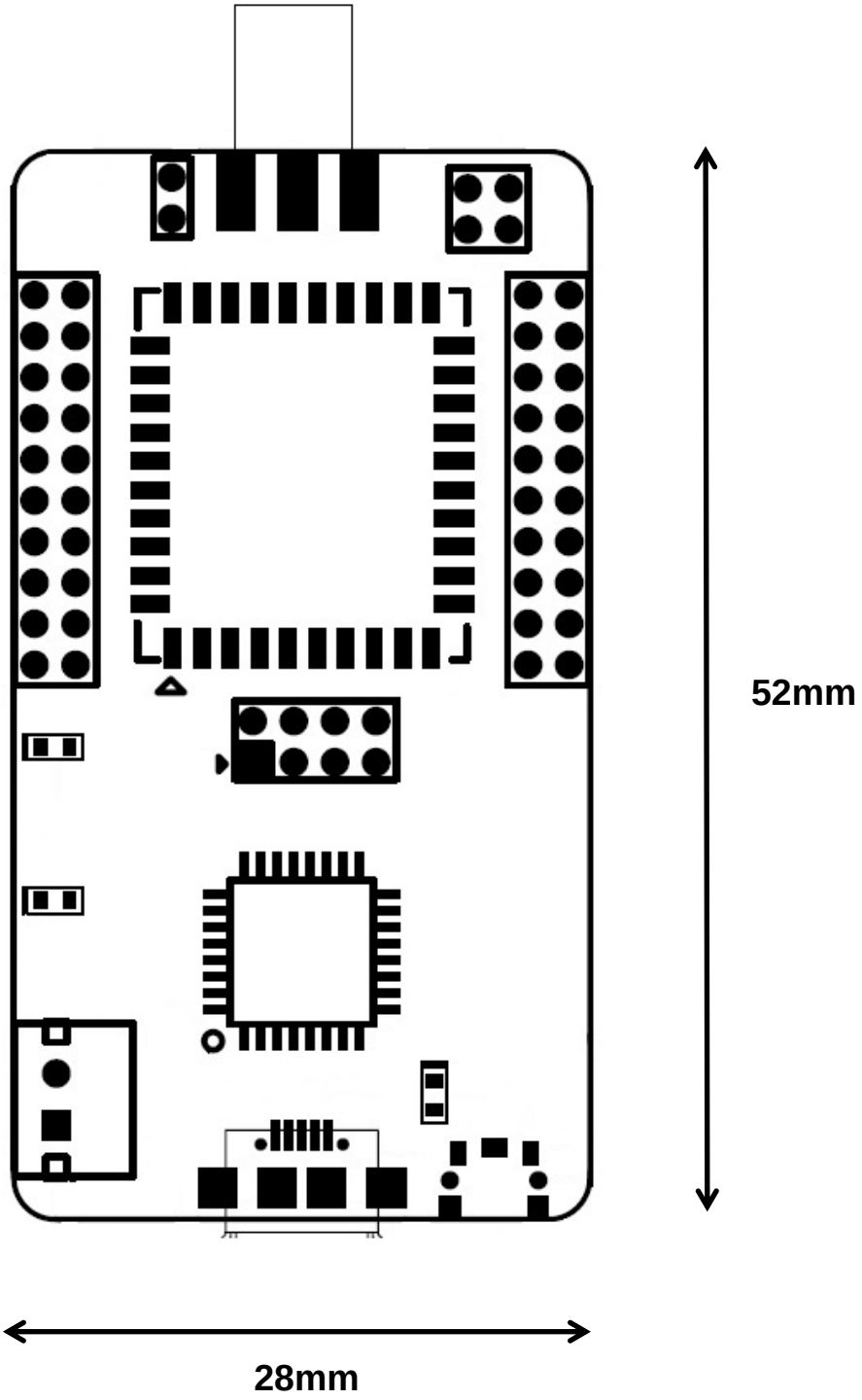
### 3-2 SIN06NMU Function Key



## 3-3 Pin Mapping



## 4. Mechanical Dimension (Typ.)　Unit：mm



## 5. Tray Dimension

TBD

## 6. Packing Information

TBD