

1. Bluetooth 5.0

Supports EDR BLE mode

Integrated AC6969D microprocessor

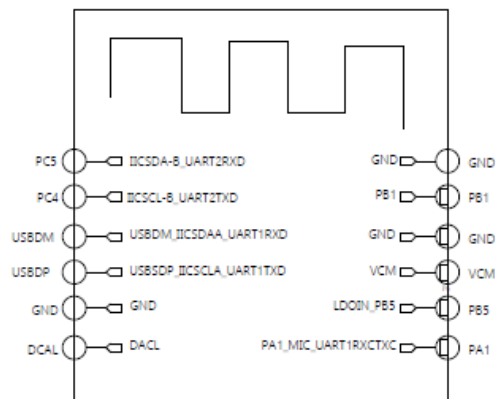
Power supply voltage range: 3.0V to 3.6V

24MHz crystal oscillator

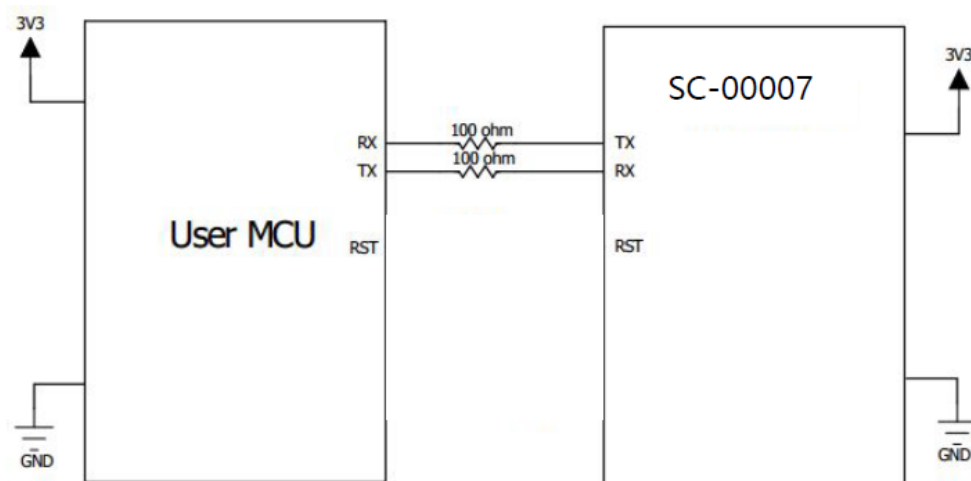
2. Appearance and Pin Functions



15.5*23.5*2mm



3. Wiring Reference Circuit:



4. Hardware requirements:

- Operating Voltage: 2.0~3.6V (3.3V recommended)
- Operating Temperature: -20°C~85°C
- Supports EDR BLE 1M 2M mode
- UART*2 Interfaces (Communication in default transparent transmission mode, using UART2 for communication with MCU, and UART1 for outputting debug information)

E. size: 15.5*23.5*3mm

F. The position for the design of the SMD (Surface Mount Device) module antenna needs to be clear of obstructions, and the corresponding position on the PCB should not be occupied by copper foil or components.

5. Serial Port Configuration Parameters:

A. Baud Rate: 9600

B. Data Bits: 8

C. Stop Bits: 1

D. Parity Bit: NC

E. Hardware Flow Control: NC

F. Maximum Data Bytes per Single Transmission: 128B

G. The Bluetooth module connects via a serial port, and data is transparently transmitted using standard ASCII codes.

6. Communication Commands:

MCU Communication with module			
Function	Data	Parameter Description	Example
Report Device Log Data	/SCD/Data Sequence Number / Data (16 Sets)\n	Data Sequence Number: From 1 to 6 Each command contains 16 sets of data, and 6 commands are replied to at one time.	For example: /SCD/1/XXXXXXXXXXXXXXXXX\n /SCD/2/XXXXXXXXXXXXXXXXX\n /SCD/3/XXXXXXXXXXXXXXXXX\n /SCD/4/XXXXXXXXXXXXXXXXX\n /SCD/5/XXXXXXXXXXXXXXXXX\n /SCD/6/XXXXXXXXXXXXXXXXX\n The data X in it is obtained by adding 48 to the actual recorded data A, and the resulting sum corresponds to a character in the ASCII code table. To convert it back, you need to subtract 48 from the ASCII code of the character to obtain the original data.
Request Bluetooth Module Flash ID	/SC0/U\n	No Parameters	/SC0/U\n Note: The Bluetooth flash ID is a 16-bit hexadecimal character. Upon receiving this command, the Bluetooth module will report the flash ID.

Actively send Bluetooth connection status to MCU	/SCO/1/Connection Status\n	Connection Status: 001 indicates disconnected, 000 indicates connected.	/SCO/1/000\n /SCO/1/001\n
MCU Inquires Bluetooth Module Name	/SCN/	No Parameters	/SCN/\n Note: The Bluetooth name is directly replied in the format of "/SCN/XXXXXXXXXX\n", where XXXXXXXXXX represents the Bluetooth name.
MCU Modifies Bluetooth Module Name	/SCN/	Bluetooth Name Characters XXXXXXXXXX	/SCN/XXXXXXXXXX\n
MCU Toggle Bluetooth Module Name Suffix	/SCM/	0-off, 1-on	/SCM/0\n
MCU Changes Bluetooth Name and Disables Bluetooth Module Name Suffix Simultaneously	/SCK/	Bluetooth Name Characters XXXXXXXXXX	/SCK/XXXXXXXXXX\n

7, Design notes:

A, In order to better SNR, please pay attention to the hardware design of PA, DC booster, DC/DC circuit and the module power circuit to avoid influencing module.

B, PCB Layout: The antenna part of the Bluetooth module is a PCB antenna. Since metals can weaken the antenna's functionality, when laying out the PCB, it is strictly prohibited to place grounding and routing underneath the module's antenna. If possible, hollowing out the area beneath the antenna would be better.

C, If there are batteries, metallic objects, LCD screens, speakers, etc., near the module's antenna, they should be kept at least 15mm away from the antenna.

D, When designing the layout, it is recommended to use star routing for power supply lines and ensure good power supply linearity for the Bluetooth module. Additionally, the ground (GND) of the Bluetooth module should be separated from the grounds of op-amps, power amplifiers, MCUs, etc., and there should be no other interfering grounds underneath the Bluetooth module.

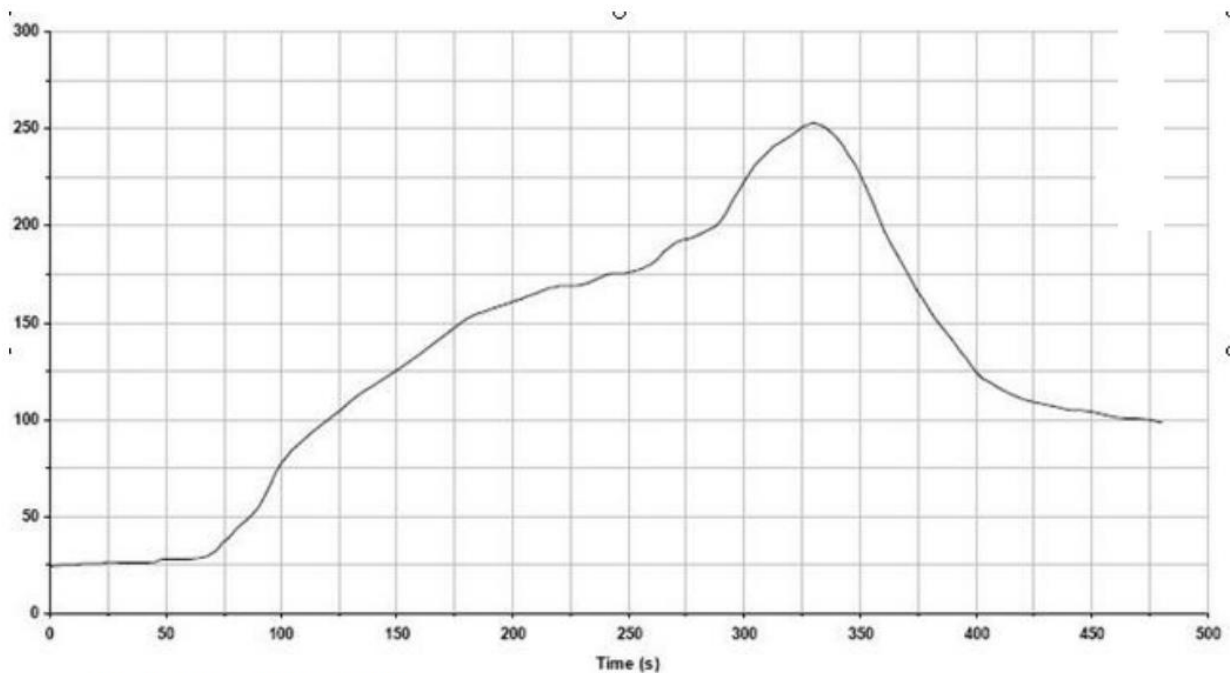
E, No control lines, power lines, audio lines, MICs, or other interfering lines should be routed around the antenna.

8, NOTE:

A. Regarding the usage environment of wireless Bluetooth, wireless signals, including Bluetooth applications, are greatly influenced by the surrounding environment. Obstacles such as trees and metals can absorb wireless signals to a certain extent, thereby affecting the data transmission distance in practical applications.

B. Since Bluetooth modules need to be integrated with existing systems and placed within enclosures, it is advisable not to install them in metal enclosures due to the shielding effect of metal on wireless RF signals.

9, Recommended reflow temperature:



Key features of the profile:

- Initial Ramp=1-2.5°C/sec to 175°C equilibrium
- Equilibrium time=60 to 80 seconds
- Ramp to Maximum temperature (250°C)=3°C/sec Max
- Time above liquidus temperature(217°C): 45 - 90 seconds
- Device absolute maximum reflow temperature: 250°C

9, FCC Warning

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 1: Any changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. End users must follow the specific operating instructions for satisfying RF exposure compliance.

Note 1: This module certified that complies with RF exposure requirement under 5mm RF distance.

Note 2: Any modifications made to the module will void the Grant of Certification, this module is limited to OEM installation only and must not be sold to end-users, end-user has no manual instructions to remove or install the device, only software or operating procedure shall be placed in the end-user operating manual of final products.

Note 3: Additional testing and certification may be necessary when multiple modules are used.

Refer to KDB 996369 D03 OEM Manual v01r01:

2.2 List of applicable FCC rules

FCC Part 15.247

2.6 RF exposure considerations

This module certified that complies with RF exposure requirement under 5mm RF distance.

2.8 Label and compliance information

FCC ID label on the final system must be labeled with "Contains FCC ID: 2BNRF-SC-00007" or "Contains transmitter module FCC ID: 2BNRF-SC-00007".

2.9 Information on test modes and additional testing requirements

Contact SUNTEK ELECTRONICS CO., LTD. will provide stand-alone modular transmitter test mode. Additional testing and certification may be necessary when multiple modules are used in a host.

2.10 Additional testing, Part 15 Subpart B disclaimer

To ensure compliance with all non-transmitter functions the host manufacturer is responsible for ensuring compliance with the module(s) installed and fully operational. For example, if a host was previously authorized as an unintentional

radiator under the Supplier' s Declaration of Conformity procedure without a transmitter certified module and a module is added, the host manufacturer is responsible for ensuring that the after the module is installed and operational the host continues to be compliant with the Part 15B unintentional radiator requirements. Since this may depend on the details of how the module is integrated with the host, SUNTEK ELECTRONICS CO., LTD. shall provide guidance to the host manufacturer for compliance with the Part 15B requirements.