



NIU C22K Bluetooth Module Instructions

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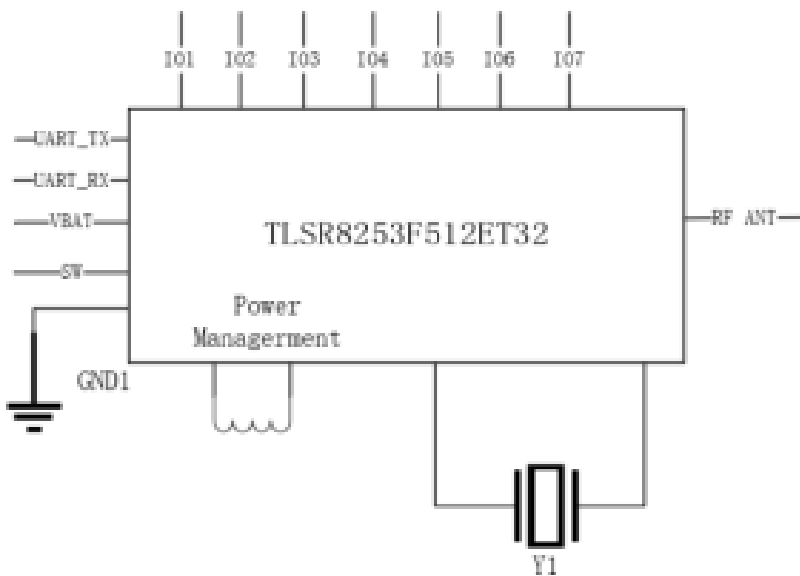


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Product features

The C22K module is designed to offer high integration, ultra-low power application capabilities. The system's block diagram is as follow.



It embeds Flash, LDO and DCDC, crystal, RF match network and etc. With the high integration level of the module, few external components are needed to satisfy customers' ultra-low cost requirements.

Its typical applications include, but are not limited to the following:

- Smartphone and tablet accessories
- RF Remote Control
- Sports and fitness tracking
- Wireless toys
- Smart Lighting, Smart Home devices

Key features

General features

- Up to 7 GPIOs.
- UART with hardware flow control and 7816 protocol support.
- Swire debug Interface.
- Operating temperature range: -40°C~+85°C
- Supports BLE, BLE Mesh, RF4CE and 2.4GHz proprietary technologies into a single SoC without the requirement for an external DSP

Flash features

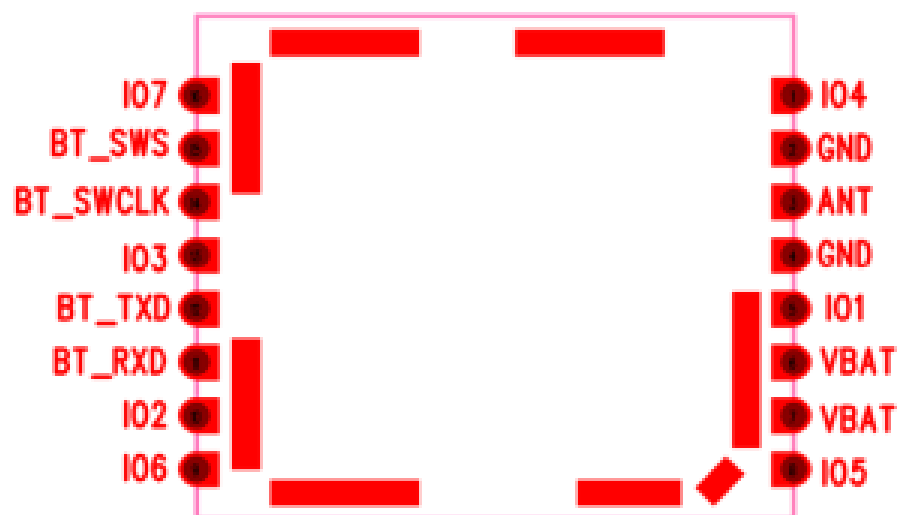
C22K module embeds Flash with features below:

1. Total 512kB (4Mbits).
2. Flexible architecture: 4kB per Sector, 64kB/32kB per block
3. Up to 256 Bytes per programmable page.
4. Write protect all or portions of memory.
5. Sector erase (4kB).
6. Block erase (32kB/64kB).
7. Cycle Endurance: 100,000 program/erases.
8. Data Retention: typical 20-year retention.
9. Multi firmware encryption methods for anti-cloning protection.

RF features

1. BLE/802.15.4/2.4GHz RF transceiver embedded, working in worldwide 2.4GHz ISM band.
2. Bluetooth 5.0 Compliant, 1Mbps and 2Mbps, Long Range 125kbps and 500kbps.
3. IEEE802.15.4 compliant, 250kbps.
4. 2.4GHz proprietary 1Mbps/2Mbps/250kbps/500kbps mode with Adaptive Frequency Hopping feature support.
5. Rx Sensitivity: -96dBm@BLE 1Mbps, -99.5dBm@ IEEE802.15.4 250kbps, 93dBm @ BLE 2Mbps mode, -99dBm @ BLE 500kbps mode, -101dBm @ BLE 125kbps mode .
6. Tx output power: up to +10dBm.
7. Single-pin antenna interface.
8. RSSI monitoring with +/-1dB resolution.
9. Auto acknowledgement, retransmission and flow control.
10. Support full-function BLE location features.

Pin layout

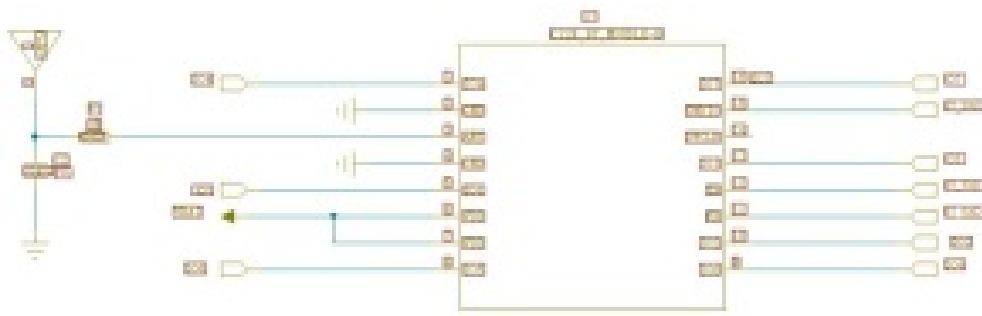


TOP view

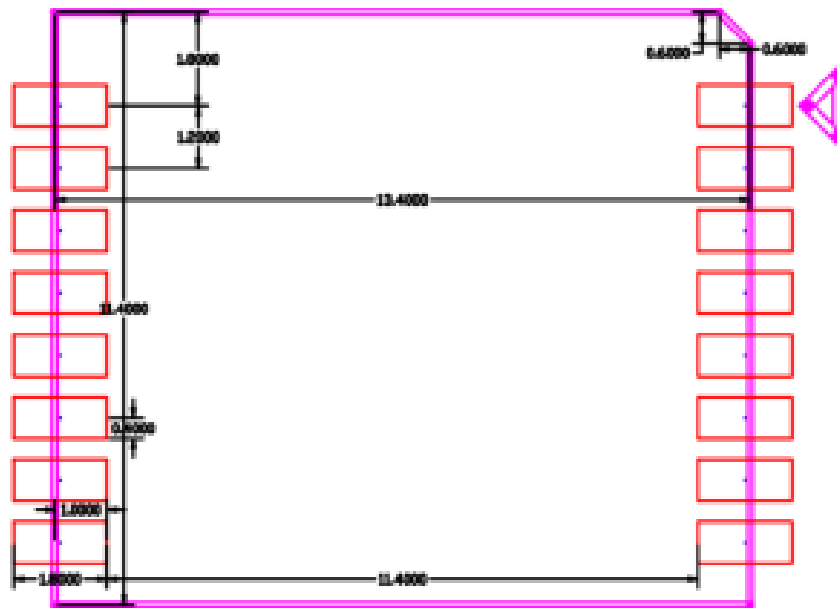
Pin functions

No	Pin Name	Type	Description
1	104	Digital I/O	General input/output
2	GND	GND	GND
3	ANT	Analog	RF signal
4	GND	GND	GND
5	101	Digital I/O	General input/output
6	VBAT	PWR	Power, 3.6V max power
7	VBAT	PWR	Power, 3.6V max power
8	105	Digital I/O	General Input/output
9	106	Digital I/O	General Input/output
10	102	Digital I/O	General input/output
11	BT_RXD	Digital I	UART RX
12	BT_TXD	Digital O	UART TX
13	103	Digital I/O	General input/output
14	BT_SWCLK	NC	No connected
15	BT_SWS	Digital I/O	Single wire master, for downloading firmware
16	107	Digital I/O	General Input/output

Schematic



Package



Top view

Size

13.4(mm)*11.4(mm)*2.8(mm)

FCC Statement

FCC standards: FCC CFR Title 47 Part 15 Subpart C Section 15.247
PCB antenna with antenna gain -1dBi

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

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

We will retain control over the final installation of the modular such that compliance of the end product is assured. In such cases, an operating condition on the limit modular approval for the module must be only approved for use when installed in devices produced by a specific manufacturer. If any hardware modify or RF control software modify will be made by host manufacturer, C2PC or new certificate should be apply to get approval, if those change and modification made by host manufacturer not expressly approved by the party responsible for compliance, then it is illegal.

FCC Radiation Exposure Statement

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.

If the FCC identification number is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording such as the following: "Contains Transmitter Module FCC ID: 2AQ95-C22K Or Contains FCC ID: 2AQ95 C22K" When the module is installed inside another device, the user manual of the host must contain below warning statements;

1. 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.
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:

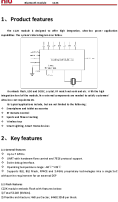
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

2. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. The devices must be installed and used in strict accordance with the manufacturer's instructions as described in the user documentation that comes with the product.

Any company of the host device which install this modular with modular approval should perform the test of radiated & conducted emission and spurious emission, etc. according to FCC part 15C : 15.247 and 15.209 & 15.207, 15B Class B requirement, Only if the test result comply with FCC part 15C : 15.247 and 15.209 & 15.207, 15B Class B requirement then the host can be sold legally.



Documents / Resources

	<p>NIU C22K Bluetooth Module [pdf] Instructions C22K, 2AQ95-C22K, 2AQ95C22K, C22K Bluetooth Module, Bluetooth Module</p>
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[Manuals+](#)