RC-CC1310-915 User Manual V1.0

Features

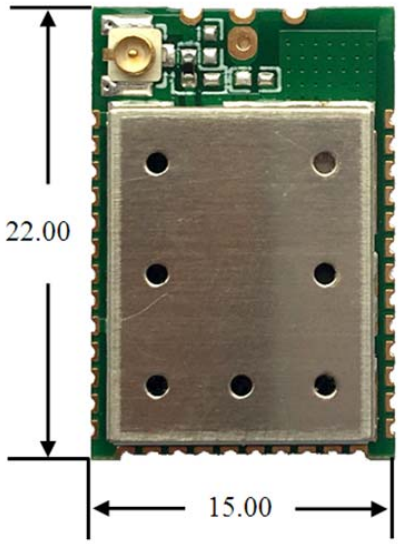
- Built in CC1310F128 Sub-1-GHz RF System-On-Chip (SOC)
- Size:15mm X 22mm
- Operating Voltage:1.8V to 3.8V
- Operating Temperature: -30℃~+85℃
- Storage Temperature: -40℃~+125℃
- Microcontroller
  - Powerful ARM Cortex –M3
  - Up to 48MHz Clock Speed
  - 128KB of In-System Programming Flash
  - 8KB of SRAM for Cache (or as General-Purpose RAM)
  - 20KB of Ultralow Leakage SRAM
  - 2-Pin cJTAG and JTAG Debugging
  - Supports Over-the-Air Upgrade (OTA)
- Ultralow Power Sensor Controller
  - Can Run Autonomous From the Rest of the System
  - 16-Bit Architecture
  - 2KB of Ultralow Leakage SRAM for Code and Data
- Efficient Code-Size Architecture, Placing TI-RTOS, Drivers and Bootloader in ROM
- Peripherals
  - All digital Peripheral Pins Can Be Routed to Any GPIO
  - Four General-Purpose Timer Modules (Eight 16-Bit or four 32-Bit Timers, PWM Each)
  - 12-Bit ADC, 200 ksamples/s, 8-Channel Analog MUX
  - Continuous Time Comparator
  - Ultralow Power Clocked Comparator
  - Programmable Current Source
  - UART
  - 2 x SSI (SPI, MICROWIRE, TI)
  - I2C
  - I2S
  - Real-Time Clock (RTC)
  - AES-128 Security Module
  - True Random Number Generator (TRNG)
  - Support for Eight Capacitive Sensing Buttons
  - Integrated Temperature Sensor
- Low Power
  - Active-Mode RX: 5.4mA
  - Active-Mode TX at +10 dBm: 13.4mA
  - Active-Mode MCU: 48MHz Running Coremark: 2.5mA (51µA/MHz)
  - Active-Mode MCU: 48.5 CoreMark/mA
  - Active-Mode Sensor Controller at 24 MHz: 0.4mA +8.2µA/MHz
  - Sensor Controller, One Wake Up Every Second Performing One 12-Bit ADC Sampling: 0.95µA
  - Standby: 0.7µA (RTC Running and RAM and CPU Retention)
  - Shutdown: 185nA (Wakeup on External Events)
- RF Section
  - Excellent Receiver Sensitivity -124 dBm Using Long-Range Mode, -110dBm at 50kbps
  - Excellent Selectivity: 56dB
  - Excellent Blocking Performance: 90 dB
  - Programmable Output Power up to +14 dBm

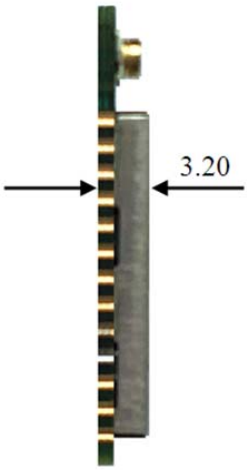
Applications

- 915- ISM and SRD Systems
- Low-Power Wireless Systems With 50-kHz to 5-MHz Channel Spacing
- SmartGrid and Automatic Meter Reading
- Home and Building Automation
- Wireless Alarm and Security Systems
- Industrial Monitoring and Control
- Wireless Healthcare Applications
- Wireless Sensor Networks
- Active RFID
- Energy Harvesting Applications
- ESL (Electronic Shelf Label)
- Long-Range Sensor Applications
- Heat Cost Allocato

Module Information

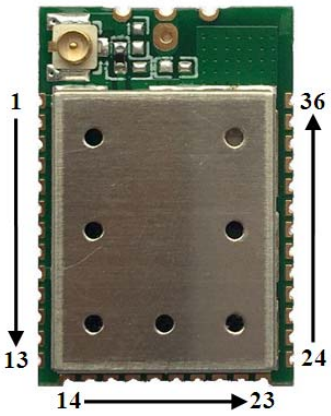
RC-CC1310-915:





Unit: mm
Tolerance: ±0.2

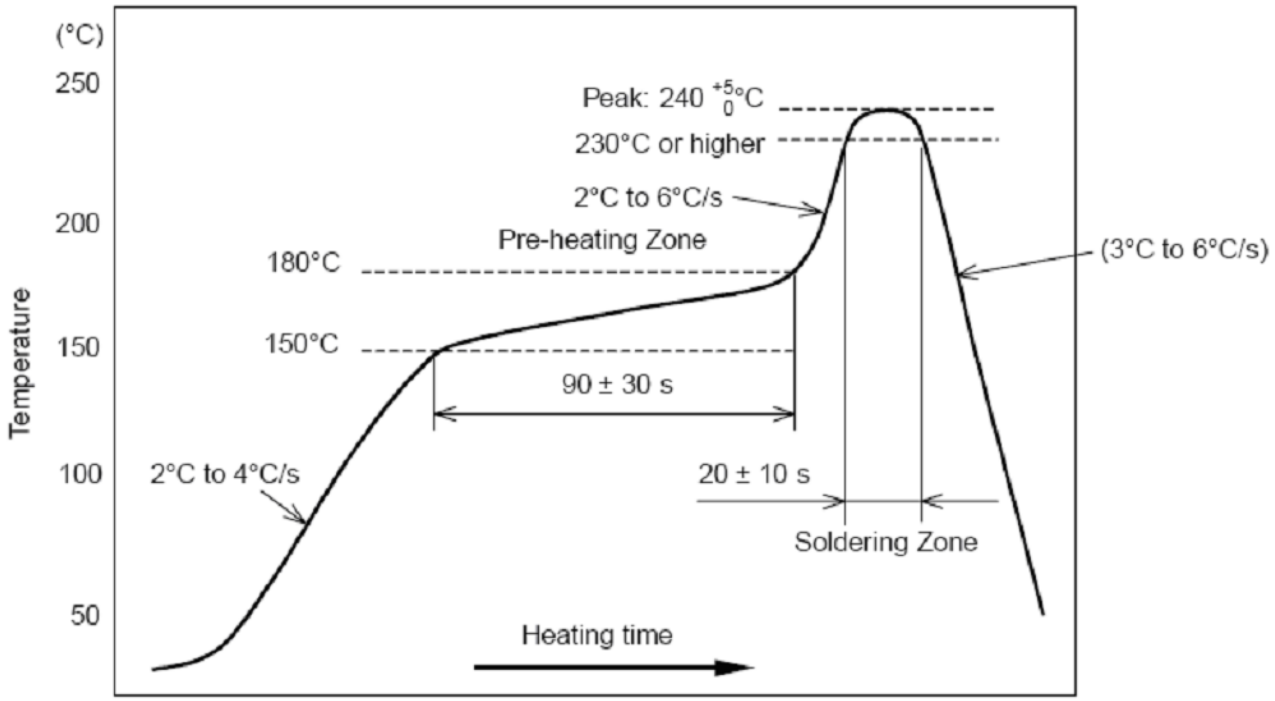
Terminal Description



Pad Number	Name	Pin Type	Description
1	GND	Ground Pin	Connect to GND
2	DIO_1	Digital I/O	GPIO, Sensor Controller
3	DIO_2	Digital I/O	GPIO, Sensor Controller
4	DIO_3	Digital I/O	GPIO, Sensor Controller
5	DIO_4	Digital I/O	GPIO, Sensor Controller
6	DIO_5	Digital I/O	GPIO, Sensor Controller, High drive capability
7	DIO_6	Digital I/O	GPIO, Sensor Controller, High drive capability

8	**DIO_7**	**Digital I/O**	**GPIO, Sensor Controller, High drive capability**
9	**GND**	**Ground Pin**	**Connect to GND**
10	**VDD**	**Power**	**1.8V to 3.8V main chip supply**
11	**DIO_8**	**Digital I/O**	**GPIO**
12	**DIO_9**	**Digital I/O**	**GPIO**
13	**DIO_10**	**Digital I/O**	**GPIO**
14	**DIO_11**	**Digital I/O**	**GPIO**
15	**DIO_12**	**Digital I/O**	**GPIO**
16	**DIO_13**	**Digital I/O**	**GPIO**
17	**DIO_14**	**Digital I/O**	**GPIO**
18	**DIO_15**	**Digital I/O**	**GPIO**
19	**JTAG_TMSC**	**Digital I/O**	**JTAG TMSC, High drive capability**
20	**JTAG_TCKC**	**Digital I/O**	**JTAG TCKC**
21	**DIO_16**	**Digital I/O**	**GPIO, JTAG_TDO, High drive capability**
22	**DIO_17**	**Digital I/O**	**GPIO, JTAG_TDI, High drive capability**
23	**DIO_18**	**Digital I/O**	**GPIO**
24	**DIO_19**	**Digital I/O**	**GPIO**
25	**DIO_20**	**Digital I/O**	**GPIO**
26	**DIO_21**	**Digital I/O**	**GPIO**
27	**DIO_22**	**Digital I/O**	**GPIO**
28	**RESET_N**	**Digital input**	**Reset, active-low, No internal pullup**
29	**DIO_23**	**Digital/Analog I/O**	**GPIO, Sensor Controller, Analog**
30	**DIO_24**	**Digital/Analog I/O**	**GPIO, Sensor Controller, Analog**
31	**DIO_25**	**Digital/Analog I/O**	**GPIO, Sensor Controller, Analog**
32	**DIO_26**	**Digital/Analog I/O**	**GPIO, Sensor Controller, Analog**
33	**DIO_27**	**Digital/Analog I/O**	**GPIO, Sensor Controller, Analog**
34	**DIO_28**	**Digital/Analog I/O**	**GPIO, Sensor Controller, Analog**
35	**DIO_29**	**Digital/Analog I/O**	**GPIO, Sensor Controller, Analog**
36	**DIO_30**	**Digital/Analog I/O**	**GPIO, Sensor Controller, Analog**

Recommended Reflow Profile for Lead Free Solder

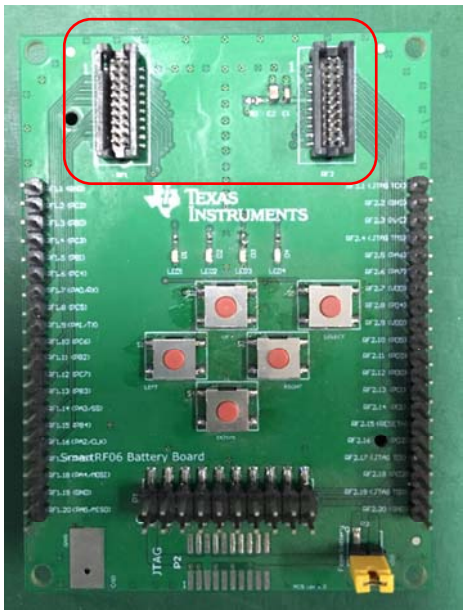


Antenna Information

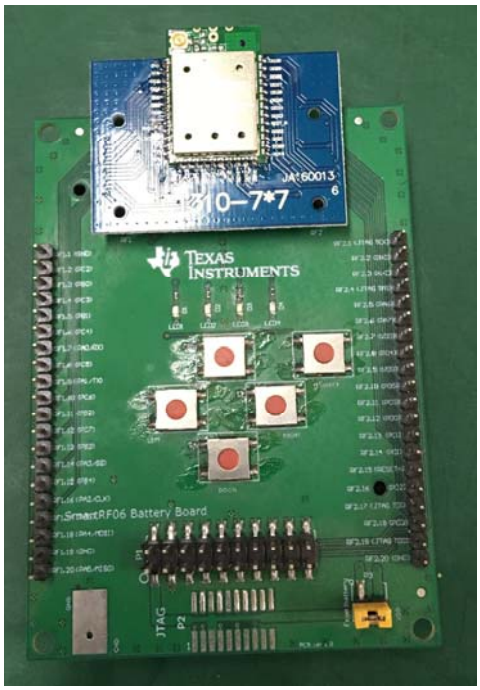
When OEG purchase the module, they can buy this antenna to match the modules. The max antenna gain of antenna is 2dBi. The following is an example of the module and antenna:

Precautions in hardware installation

Find the client mainboard's router interface: as shown in the following picture:



The module insert the mainboard according to the requirements of customers, pay attention to the position, the user inserts the needle should be vertical and gently, otherwise it may cause deformation of pin module.



FCC STATEMENT

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.
2. 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.

FCC Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body
The RC-CC1310-915 module is designed to comply with the FCC statement. FCC ID is 2ANH5-RC-CC1310-915 . The host system using RC-CC1310-915, should have label indicated it contain modular's FCC ID:2ANH5-RC-CC1310-915.
This radio module must not installed to co-locate and operating simultaneously with other radios in host system , additional testing and equipment authorization may be required to operating simultaneously with other radio.