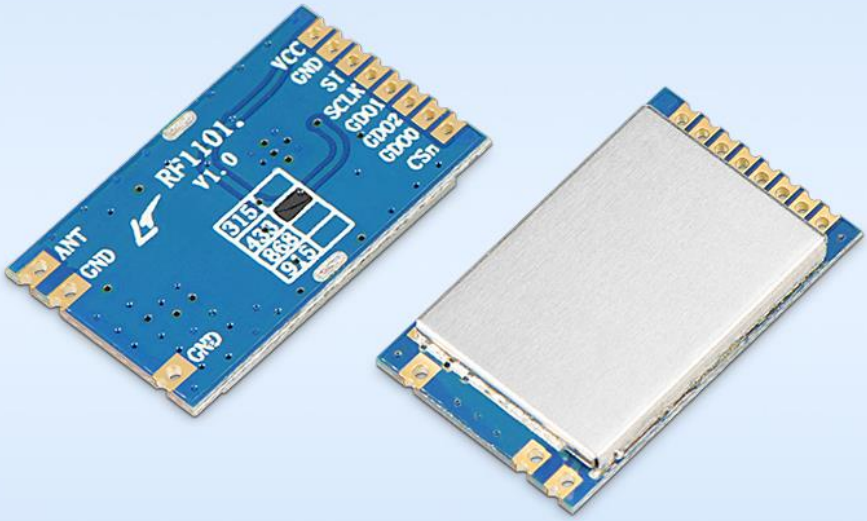
Product Specification



Catalog

Note: Revision History

Revision	Date	Comment
V1.0	2020.6	First release

1. Description

The company's RF1101 module uses TI's CC1101 device, which is a highly integrated wireless ISM band transceiver chip. This module is mainly aimed at smart home, industry, scientific research and medical, and short-range wireless communication equipment.

2. Features

- Frequency range: 315/433/868/915MHz
- Maximum output power: 11dBm
- 18mA@Receiving status
- Data transfer rate: 0.6-500kbps
- Support multiple modulation modes (OOK,ASK,GFSK,2-FSK,4-FSK and MSK)
- Ultra low power shutdown mode
- Support RSSI (Received Signal strength indicator) and LQI (link quality indicator)
- Low power detection
- Operating temperature range: -40 ~ +85° C
- Frequency hopping function

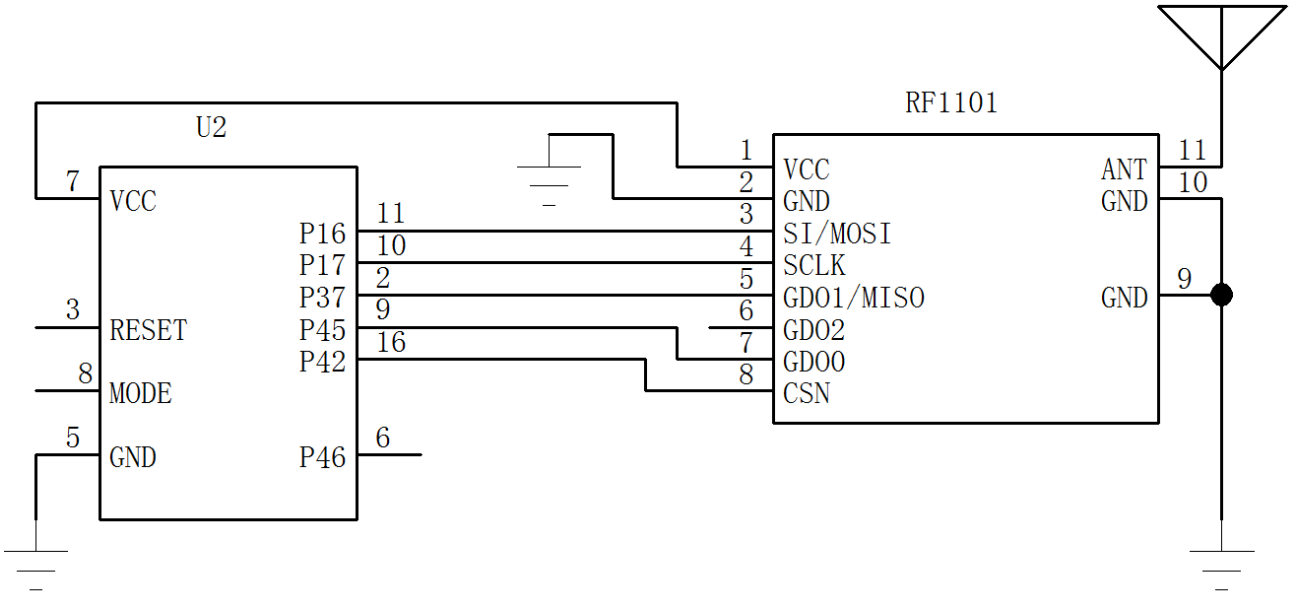
3. Application

- remote control
- Remote meter reading
- Home security alarm and remote keyless entry
- industrial control
- Home automation telemetry
- Personal data record
- Toy control
- Sensor Networks
- Tire pressure monitoring
- Health monitoring
- Wireless PC peripherals
- Tag reader

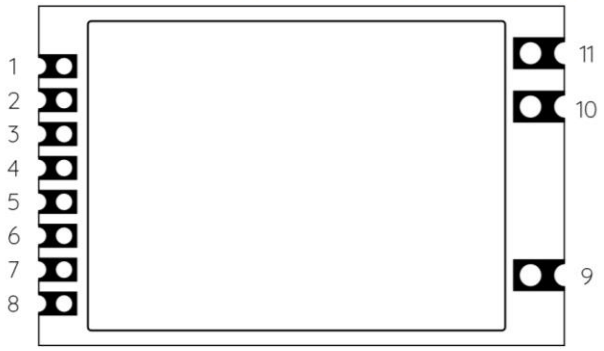
4. Electrical Specifications

Parameter	Min	Typ.	Max.	Unit	Condition
Working Condition					
Working Voltage Range	1.8	3.3	3.6	V	
Temperature Range	-40		85	℃	
Current Consumption					
Receiving Current		18		mA	
Transmitting Current		30		mA	@10dBm
Sleep Current		< 0.5		uA	
RF Parameter					
Frequency Range	425	433	463	MHZ	@433MHZ
Modulation Rate	0.6		500K		FSK
TX Power Range	-6		11	dBm	
Receiving Sensitivity		-116		dBm	@data=600bps

5. Typical application circuit



6. Pin definition



Pin No.	Pin definition	Description
1	VCC	Connect the power supply. (Enter 1.8-3.6v)
2	GND	Grounded
3	SI/MOSI	Module SPI data input pin
4	SCLK	Module SPI clock input pin
5	GD01/MISO	Module SPI data output pin
6	GDO2	Module information output pin
7	GDO0	Module information output pin
8	CSn	Module SPI enable pin
9, 10	GND	Connect to the antenna ground
11	ANT	Connect with 50 ohm coaxial antenna

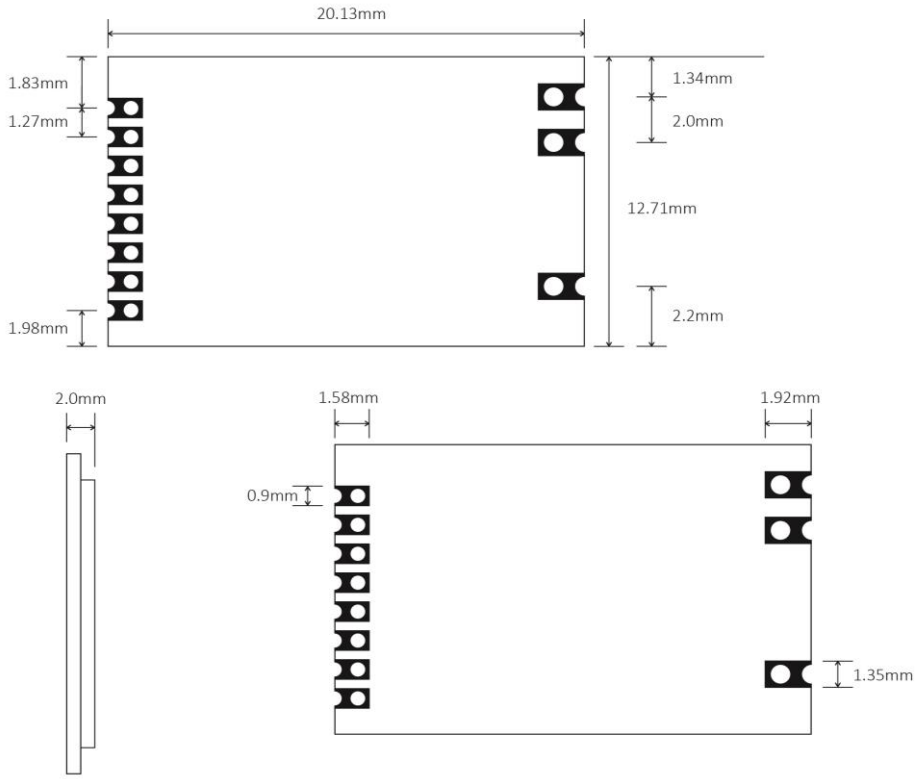
7. Accessories

The antenna is an important part of the communication system, and its performance directly affects the indicators of the communication system. The antenna impedance required by the module is 50 ohms. Common antennas are spring antennas, straight/elbow/folding rods, small suction cups, etc. can also be transferred through SMA. Users can choose antennas according to their own application environment. In order to keep the module in the best working condition, it is recommended to use this The antenna provided by the company.

★ The following principles should be followed during the use of the antenna to ensure the best communication distance of the module.

- The antenna should not be close to the ground surface as far as possible, and the surrounding area should be kept away from obstacles.
- If you purchase a suction cup antenna, straighten the lead as much as possible, and the suction cup base should be attached to a metal object.

8. Mechanical dimension



9. Order information

RF1101- 433

Indicates the module model　　Frequency

For example：RF1101-433.

Order model	product type
RF1101-433	The working center frequency band of the module is 433MHZ
RF1101-868	The working center frequency band of the module is 868MHZ

10. FAQ

a) Why can't the normal communication between the modules?

1) The power connection is wrong and the module is not working normally.

2) Check whether the frequency band of each module and other RF parameters are consistent.

3) Whether the module is damaged.

b) Why is the transmission distance not far?

1) The power ripple is too large.

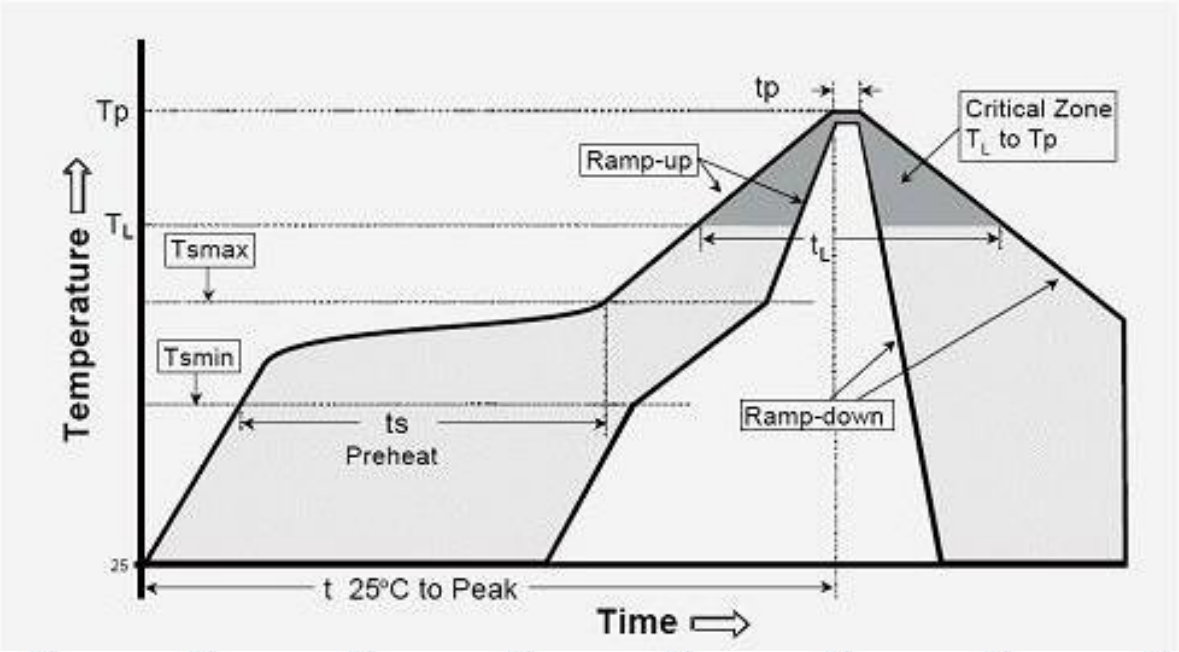
2) Antenna type is not matched or installed incorrectly.

3) Surrounding co-channel interference.

4) The surrounding environment is harsh and there are strong sources of interference.

Appendix 1: Furnace temperature curve

We recommend you should obey the IPC related standards in setting the reflow profile:

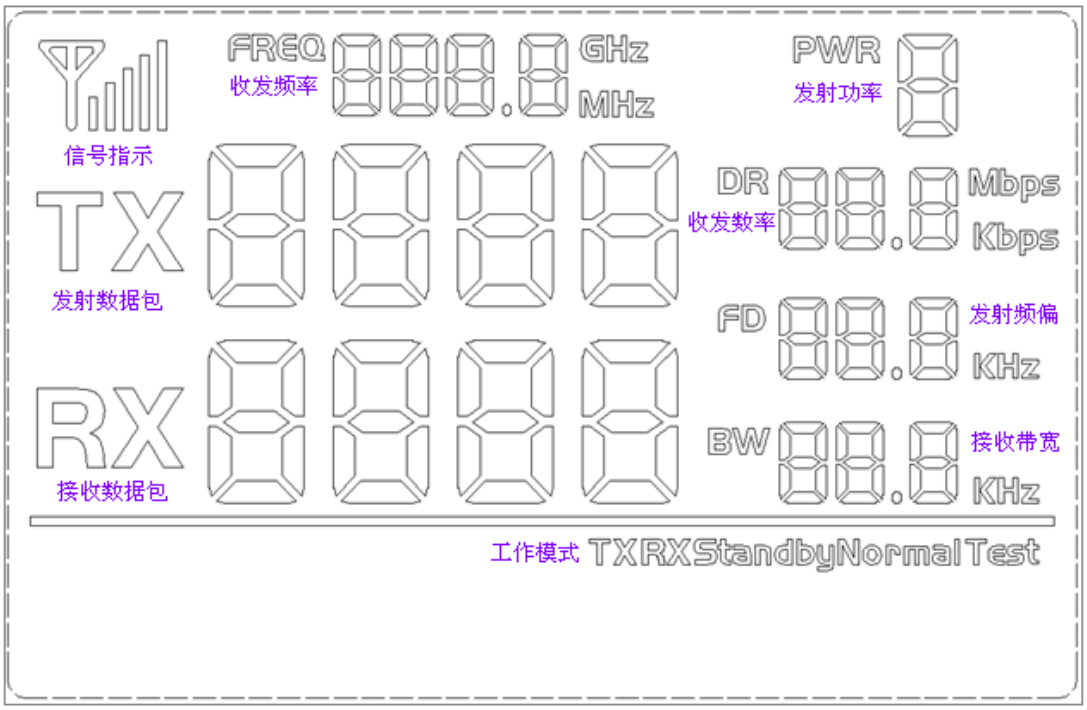


IPC/JEDEC J-STD-020B the condition for lead-free reflow soldering	big size components (thickness >=2.5mm)
The ramp-up rate (Tl to Tp)	3℃/s (max.)
preheat temperature - Temperature minimum (Tsmin) - Temperature maximum (Tsmax) - preheat time (ts)	 150℃ 200℃ 60~180s
Average ramp-up rate(Tsmax to Tp)	3℃/s (Max.)
- Liquidous temperature(TL)	217℃
- Time at liquidous(tL)	60~150 second
peak temperature(Tp)	245+/-5℃

Appendix 2: Function demo version

The module is equipped with a standard DEMO demo version for customers to debug programs and test distances. As shown below:Supply voltage range: 3.3V~6.0V

The LCD interface is as follows:



The user can set parameters such as frequency, power, and sending and receiving rate through the buttons.

➢ Operating mode：

1) Normal transmission mode: send data packets regularly (in the setting mode, data packets will not be sent temporarily).
2) Normal receiving mode: Power on and enter the receiving state, receive data packets, and then send out the correctly received data packets.
3) Normal transmission mode: the module is in the constant transmission state.
4) Frequently accepted mode: the module is in the frequently received state (not forwarding data).
5) Sleep mode: RF module is in standby state.

➢ Key operation：

1) SET button

Press the key to enter the setting mode. If the last parameter is set, the key will exit the setting mode.

2) UP /Down button

In the setting mode, press to modify the corresponding setting parameters.

Note: With FLASH inside, all set parameters can be saved after power off.