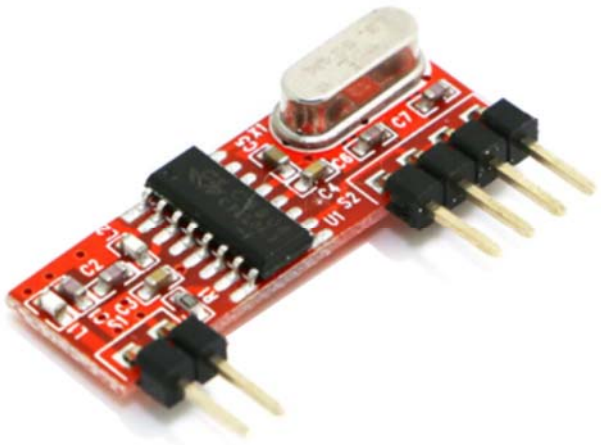
High Sensitivity ASK Wireless Receiving Module

SPECIFICATION

Model No.: DL-RXC808-3/4/9

Version: V1.0



Before using this module, please read this document carefully, and pay attention to the following important matters:

This module is an electrostatic sensitive product. Please operate it on an anti-static workbench during installation and testing.

The module uses an external antenna by default. The antenna can be a wire antenna or a standard UHF antenna. You can choose a specific antenna according to the actual situation. If the terminal product uses a metal shell, be sure to install the antenna outside the metal shell. Otherwise, the RF signal will be seriously attenuated, which will affect the effective distance.

Metal objects and wires should be kept away from the antenna as much as possible.

When installing the module, nearby objects should be kept at a sufficient safety distance from the module to prevent short circuit damage.

This module should be used in a dry environment. Please do not make any liquid substance come into this module.

Please use an independent voltage regulator circuit to supply power to this module, and avoid sharing with other circuits. The tolerance of the power supply should not be less than 5%.

Limitations:

This module is intended to be embedded in the customer's terminal product application, and does not provide a casing itself. It is not recommended that the customer directly resell this module as a final product without permission.

This series of modules are in accordance with commonly used international standards. If there is any special certification needed, we can adjust certain indicators according to your needs.

This module cannot be applied to life rescue, life-support systems, or any occasion where personal injury or life threatening may cause by equipment failure. Any organization or individual carrying out the above-mentioned applications shall bear all risks at their own.

We will not be responsible for any direct or indirect damage, injury or loss of profits caused by products that use this module.

DL-RXC808 is an ISM band high performance superheterodyne RF receiver module. This receiving module adopts industrial grade RF wireless data receiving chip imported from Europe, which has high receiving sensitivity, very strong anti-interference ability and image frequency suppression capability. It can realize wireless signal input to data signal output without any external circuit. The user only needs to add a simple data decoding circuit.

Different from the industry's usual noise output mode, the data output port of this RF receiving module is adopts a low-level mode, which is convenient for data decoding of the back-end MCU. It can be directly applied to your wireless products or a variety of embedded applications to avoid tedious high-frequency performance debugging and effectively shorten the development cycle.

The module uses a single chip architecture, without the need of peripheral IF filters. This RF receiving module has a digital signal output, the RF and IF tuning is automatically completed inside the chip. Therefore, the debugging process in the development is greatly saved, which can reduce your R&D cost, and enhanced competitiveness of your product.

1. Features:

- Receiving sensitivity: -112dbm
- Working frequency: 315M、433.92M (390M customizable)
- Data rate: 0.6~20Kbps
- Ultra-wide working voltage range 3V-5.5V
- Power consumption can be 50nA in power-on mode
- Transmission rate 10Kbps Manchester code
- With RSSI signal strength analog level output
- Good selectivity and stray radiation suppression
- Module size: 30*10*5.1mm

2. Applications:

- Wireless sensor;
- Home automation;
- Automatic data collection;
- Industrial remote control, telemetry;
- Data monitoring and transmission;
- Home Appliance Control;
- Security, alarm control;

3. Product Size & Pins Definition:

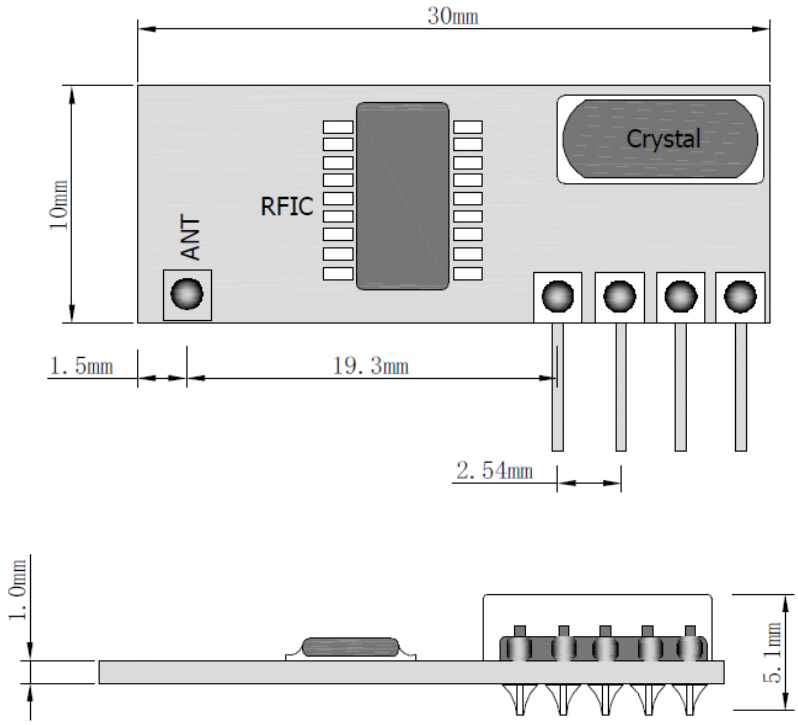


Figure 1: Module size

The DL-RXC808 module has 4 pins, which are defined in the following table

Pin	Name	Description	Remark
1	VDD	Power supply	
2	DATA	Data output	
3	DATA	Data output	
4	GND	Grounding, common ground with the system	
5	ANT	Antenna input, single core copper wire is recommended	＞0.8mmΦ

Table 1: Pins Definition of DL-RXC808 Module

4. Technical Parameter

DC characteristics

Description	Min.	Max.	Unit
Supply voltage	3.0	5.5	V
Working current	4.3mA@315M	6mA@433M	mA
Standby current		＜1uA	uA
I/O Port voltage	Vss-0.3	Vdd+0.3	V
Working temperature	-40	105	℃

Table 2: DC characteristics of the Module

RF characteristics (Unless otherwise stated, the temperature is 25 ℃, and VCC is 3.3V)

No	Characteristics	Technical Parameter			Unit
		Min.	Typi.	Max.	
1	Frequency range	250	315/433	500	MHz
2	Antenna signal input peak value	—		-25	dBm
3	Receive sensitivity	-107		-112	dBm
4	Data baud rate	0.6	1.2	20	Kbps
5	LNA Gain	10		12	dB
6	CE enable wake up time	7		9.1	mS
7	Noise figure (NF)	—	—	3.6	dB
8	PLL frequency range	220		550	MHz
9	IF bandwidth (RBW)		300		KHz
10	Standby power consumption		0.9		uA
11	Common use crystal frequency	9.8156	12.1544	13.5212	MHz
12	Crystal accuracy	20		10	PPM

Table 3: High frequency characteristic table of the module

5. Connection between module and terminal equipment (TTL electrical level)

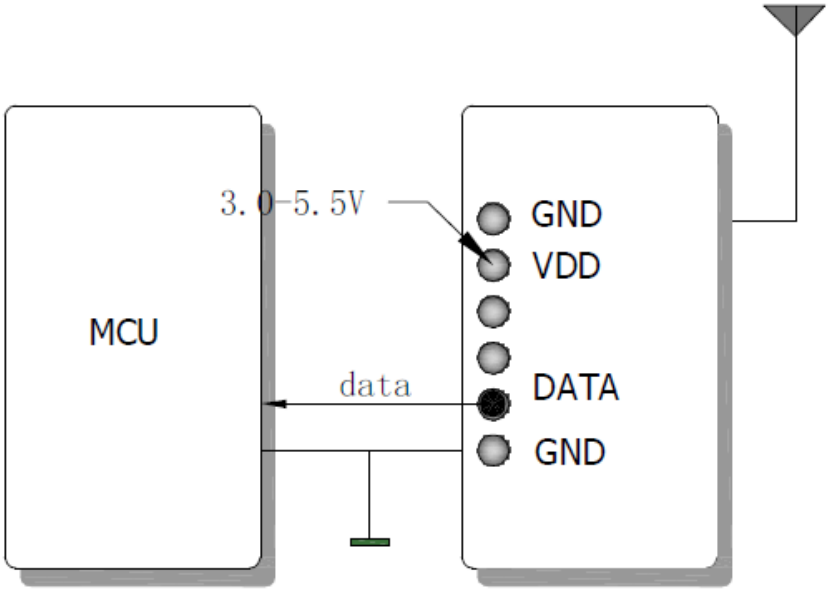


Figure 2: Wiring diagram for module application

6. Notices in module application

Considering the complexity of data transmission over the air, the radio frequency modulation method of the data, and some inherent characteristics of electromagnetic waves, the following issues should be considered during the application process.

1. The electromagnetic interference of the application environment will affect the actual distance of the remote control. Electromagnetic wave interference is divided into mainboard power supply interference, TFT screen data cable interference, Flash data exchange interference; and airborne carrier frequency interference, noise interference, high-power signal source interference, etc.
2. Factors such as product size, internal space, and coating of the shell will cause the attenuation of the wireless signal, which will affect the remote-control distance. Usually the narrow internal space of the product is not conducive to the extension of the antenna. The outer shell should avoid metal or metal plating as much as possible.
3. To choose a proper antenna is very important. The antenna is an important part of the communication system, and its performance directly affects the indicators of the communication system. We must pay attention to its performance (antenna type, antenna electrical performance) when selecting the antenna. Please feel free to contact us for consultation or recommendation, if you need.

7. Contact us

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