High Sensitivity Superheterodyne RF Receiving Module

SPECIFICATION

Model No.: DL-RXC2016BH

Version: V2.0

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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.

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DL-RXC2016BH is a micro-power, highly sensitive, superheterodyne RF receiving module. It is a high performance, cost-effective receiving module with simple peripheral circuit. It has high stability, and strong anti-interference capability. The typical frequencies of applications ranging from 315 to 440 MHz, and the peripheral components are the least of the similar superheterodyne reception schemes.

This RF receiving module is compliance with European and American radio security regulations, can be directly applied to your wireless products, and a variety of embedded applications, to avoid tedious high-frequency performance debugging, effectively shorten the development cycle.

DL-RXC2016BH is a real "high frequency antenna AM signal input, digital signal output" receiving module. All RF and IF tuning is done automatically on the chip, which eliminates the manual adjustment process in the development and production, will reduce your R&D costs and enhance the product competitiveness.

1．Features:

● Standard COMS interface control and decoding data output
● Complete monolithic UHF receiver, frequency range 425-525 MHz
● Working frequency: 433.92 MHz, 315 MHz
● Receive sensitivity: -112dBm
● Transmission rate: 1.0~5 kbps
● Ultra-wide working voltage range: 2.0V-5.5V

2．Applications:

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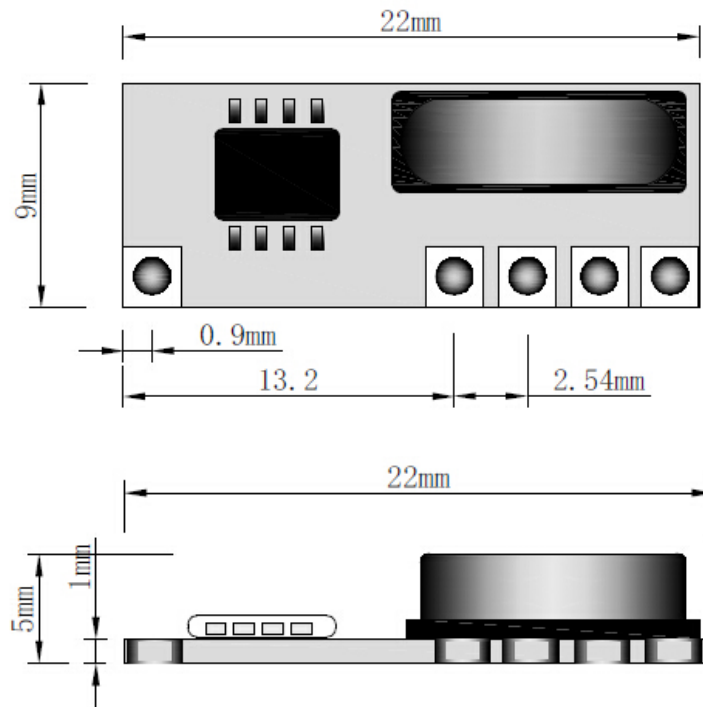● Security, alarm control;

3．Product Size

Figure 1: Module size

4．Pins Definition:

The DL-RXC2016BH module has 5 pins, which are defined in the following table

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

Table 1: Pins Definition of DL-RXC2016BH

5．Technical Parameter

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DC characteristics

Description	Min.	Max.	Unit
Supply voltage	2.0	5.5	V
Working current	3.3	4.5	mA
I/O Port voltage	Vss-0.3	Vdd+0.3	V
Working temperature	-20	70	℃

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	425	433.92	525	MHz
2	Antenna signal input peak value	—		-25	dBm
3	Receive sensitivity	-110		-112	dBm
4	Data baud rate	1.0	1.2	5	Kbps
5	LNA Gain	10		12	dB
6	Noise figure (NF)	—	—	3.6	dB
7	Frequency range of PLL (Phase Locking Loop)	220		550	MHz
8	IF bandwidth (RBW)		280		KHz
9	Crystal accuracy	20		10	PPM

Table 3: High frequency characteristic table of the module

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

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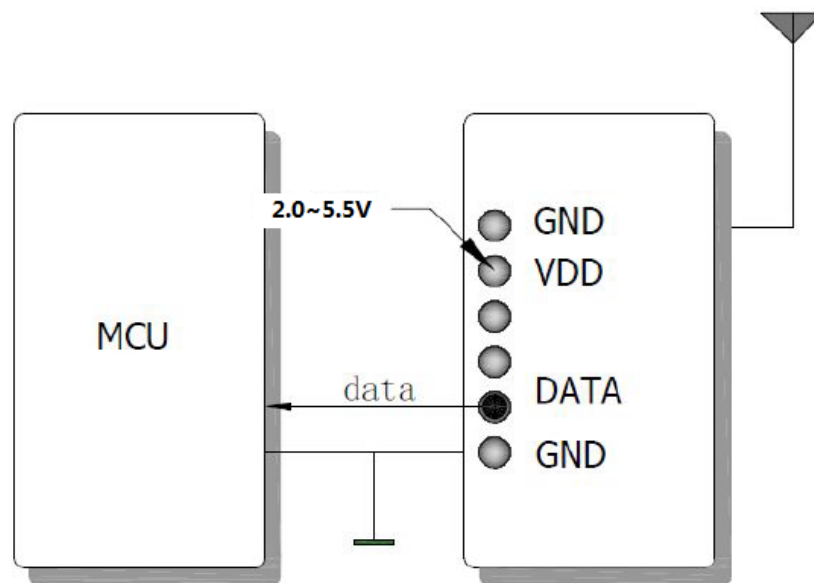
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Figure 2:   Wiring diagram for module application

7．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.

8. Contact us

Shenzhen DreamLnk Technology Co., Ltd
★ Data collection, Smart home, Internet of Things applications, Wireless remote-control technology, Remote active RFID, Antennas ★

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