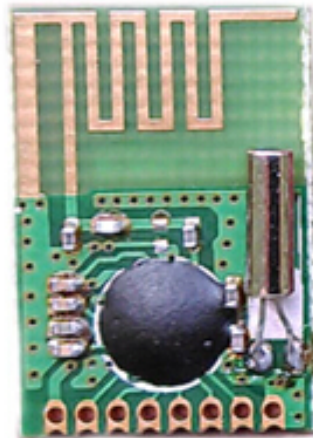


High-performance 2.4G Wireless Transceiver Module

SPECIFICATION

Model No.: DL-24BK25

Version: V1.1



Before using this module, please 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 is integrated with all RF related devices and has PCB onboard antenna, so excellent RF performance can be obtained without additional antenna configuration. Please do not use metal case above the antenna, otherwise it will lead to serious attenuation of radio frequency signals, which will affect the effective use of 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.

1. Module introduction

1.1 Brief introduction

This DL-24BK25 is a compact, low-cost, long-distance 2.4g wireless transceiver module, which was designed base on BEKEN's BK2425 wireless transceiver chip. This module is widely used in smart home, toy aeromodelling, close-range data transmission control. Sensitivity can reach -85dbm, maximum transmission rate can reach 2Mbps, and output power can range from -30dbm to +4dbm through register configuration.

The module is integrated with all RF related devices and has PCB onboard antenna, so excellent RF performance can be obtained without additional antenna configuration. You can easily develop wireless products with stable performance and high reliability directly, without in-depth understanding of RF circuit design, which will extremely shorten the development cycle.

There are 2 interface modes (SMD and DIP) been adopted, but manual welding is required due to different thermal expansion coefficient of the black glue and the binding wire inside. The small size of the module is convenient for portable products, and it can well meet the requirements of low-power system by combining with low-power MCU

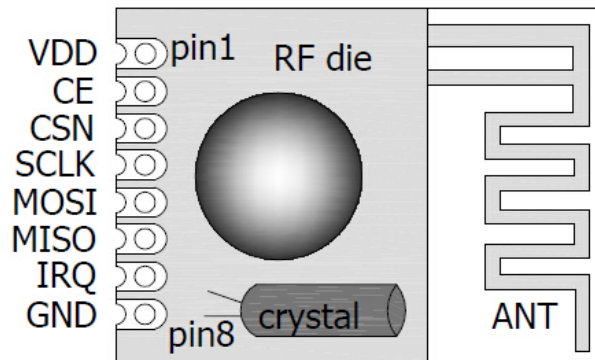
1.2 Features

- Working frequency: 2400-2483MHz
- Working voltage: 1.9~3.6V
- Transmission distance: 120m in open air (250KHz)
- Programmable Carrier Detection, Digital RSSI Output
- Excellent selectivity and out-of-band isolation
- Gold plating PCB binding process, quite cost-effective
- With 10ppm precision cylindrical crystal, excellent performance

1.3 Typical application

- Wireless game controllers, toys
- Wireless keyboard, mouse
- Consumer electronics and toy aeromodelling
- Wireless voice/audio transmission
- Data monitoring transmission
- Intelligent home control
- Remoter that support radio frequency (RF) technology

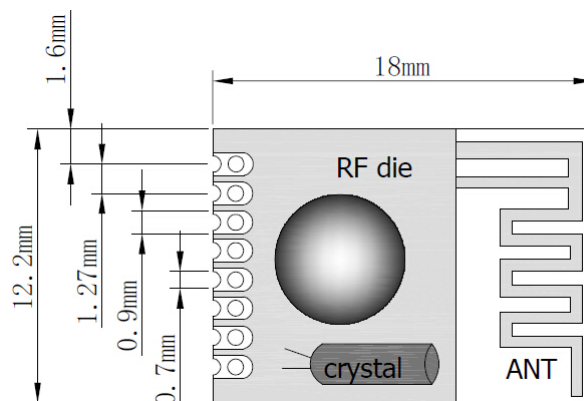
2. Pin Definitions

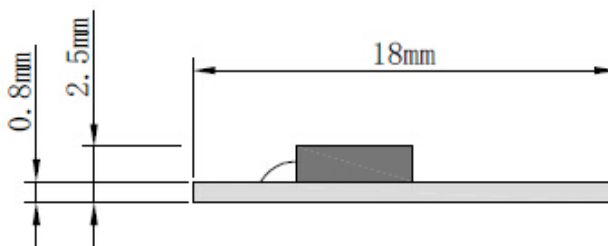


No	Pin's Name	Description
1	VDD	Power supply DC1.9~3.6V
2	CE	Chip selection enable port
3	CSN	CSN=0 is valid
4	SCLK	SPI clock
5	MOSI	SPI data input, MOSI
6	MISO	SPI data output, MISO
7	IRQ	Interrupt Request port
8	GND	Grounding
Antenna	PCB	PCB onboard antenna as defaulted

Table 1: Pins Description of Module DL-24BK25

3. Module size





4. Technical Parameter

DC characteristics

Description	Min.	Max.	Unit
Supply voltage	1.9	3.6	V
Working current	RX<16.5mA	TX=18mA@10dbm	mA
Standby current		<1uA	mA
IO port voltage	Vss-0.3	Vdd+0.3	V
Working temperature	-20	65	°C

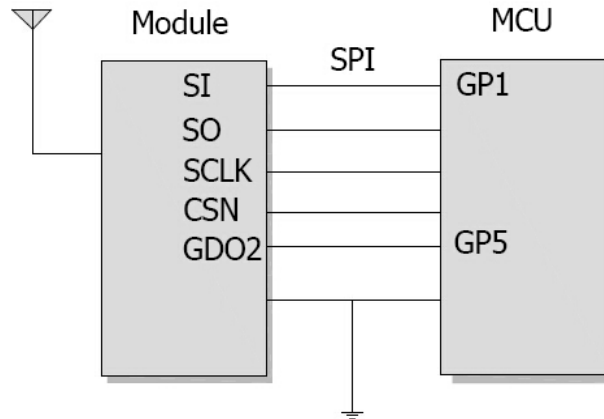
Table 2: DC characteristics of the Module

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

No	Characteristics	Technical Parameter			Unit
		Min.	Typi.	Max.	
1	Frequency range	2400		2483.5	MHz
2	Frequency interval		100K		Hz
3	Transmit power	-10		4	dBm
4	Receive sensitivity		-85		dBm
5	Modulation		GFSK		
6	Transmission rate	1.2		2000	Kbps
7	Harmonic power	-48	---	-45	dBm
8	Communication distance	80		120	M
9	Sensitivity in 2.4k		-95		dBm
10	Standby Power Consumption			3	uA
11	Crystal Precision *3225/ 2*6		10		PPM

Table 3: High frequency characteristic table of the module

5. Module connection diagram (TTL level)



6. Problems 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

Shenzhen DreamLnk Technology Co., Ltd

★ Data collection, Smart home, Internet of Things applications, Wireless remote control technology, Remote active RFID, Antennas ★

Office Add.: Room 603, Unit C, Zone A, Huameiju Business Center, Xihu Rd., Bao'an District, Shenzhen, Guangdong Province, China

Factory Add.: 5th Floor, Building B, Huazhi Innovation Valley, No. 7 Yuhua Street, 138 Industrial Zone, Tangxia Town, Dongguan, Guangdong Province, China

TEL.: +86-755-29369047

FAX: +86-755-27844601

Mobile: +86 13760215716

Wechat: wsj_james

E-mail: james@dreamlnk.com

Web: www.iot-rf.com