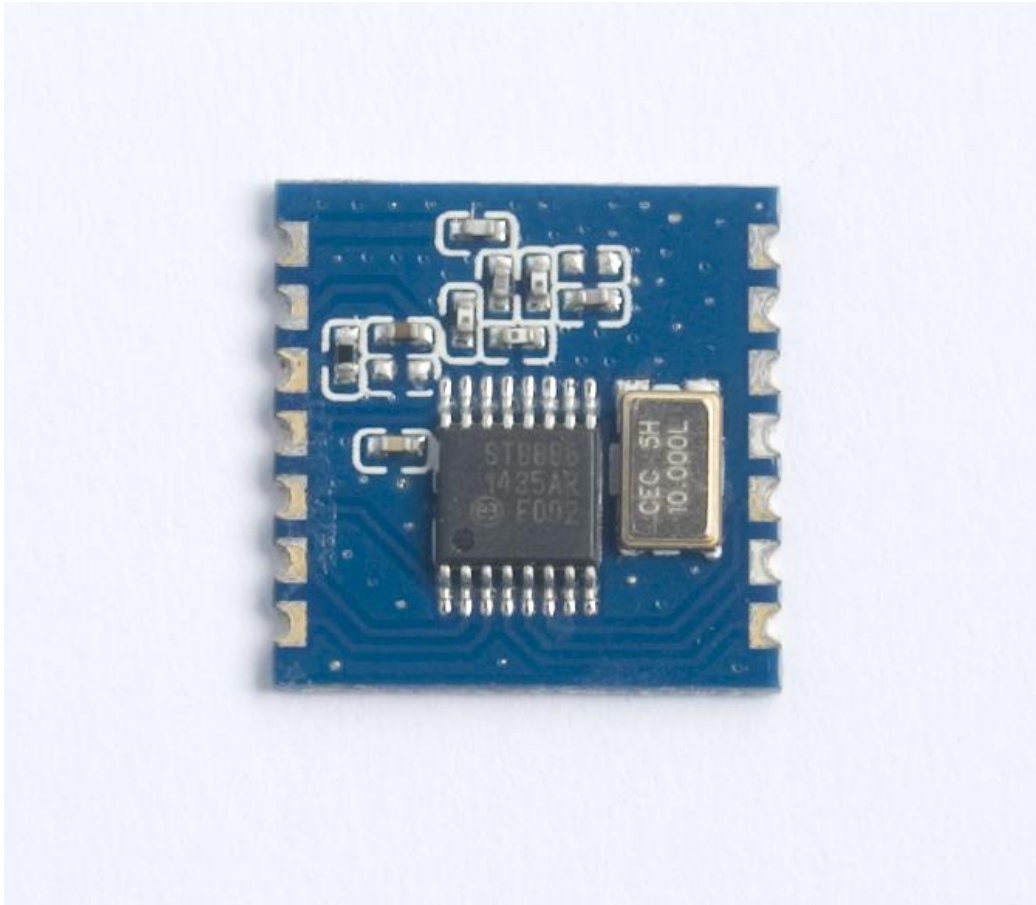


SPECIFICATION



WRF4421-433/868/915

Low power consumption, long distance, high performance
RF transceiver module

Detailed specification

By July 2014

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WINCOM RF TECH. Co., Ltd

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2. Disclaimer

Because of the difference of the working environment and other factors, we try to make the document description is accurate, but it is still difficult to rule out the individual is not accurate or not detailed description. Therefore, this document is only for the purposes of the user's reference, We do not do any legal commitments and guarantees, if there is any objection, please contact us.

3. General Description

WRF4421-433/868/915 is a Hybrid transceiver module. It is widely used in consumer electronics, industrial control products, remote control, wireless home and car alarm system operating at either 433 or 868 / 915MHz.

The IC driver used is Si4421, all other components are high quality, especially the quartz crystal used is imported directly from Taiwan and industrial grade -40 ~ 85°C.

4. Key Features

Fully integrated (easy design-in) No alignment required in production

High output power: 7dbm

Low operation voltage: 2.2 ~3.8 V

Frequency: 433 / 868 / 915MHz

Range can be up to 300-500 meters

Operating temperature: -40°C - +85°C

Size of PCB: 16 * 16 mm

Bit rate: <115.2 Kbps in digital mode and 256 kbps in analog mode

Direct differential antenna input/output Integrated power amplifier

Programmable TX frequency deviation (15 to 240 kHz) Programmable RX baseband bandwidth (67 to 400 kHz) Analog and digital RSSI outputs

Automatic frequency control (AFC) Data quality detection (DQD)

Internal data filtering and clock recovery RX synchron pattern recognition

SPI compatible serial control interface

Clock and reset signals for microcontroller 16-bit RX Data FIFO

Two 8-bit TX data registers Low power duty cycle mode

Standard 10 MHz crystal reference with on-chip tuning Wake-up timer

2.2 to 3.8 V supply voltage Low power consumption

Low standby current (0.3 A)

Supports very short packets (down to 3 bytes)

Excellent temperature stability of the RF parameters Good adjacent channel rejection/blocking

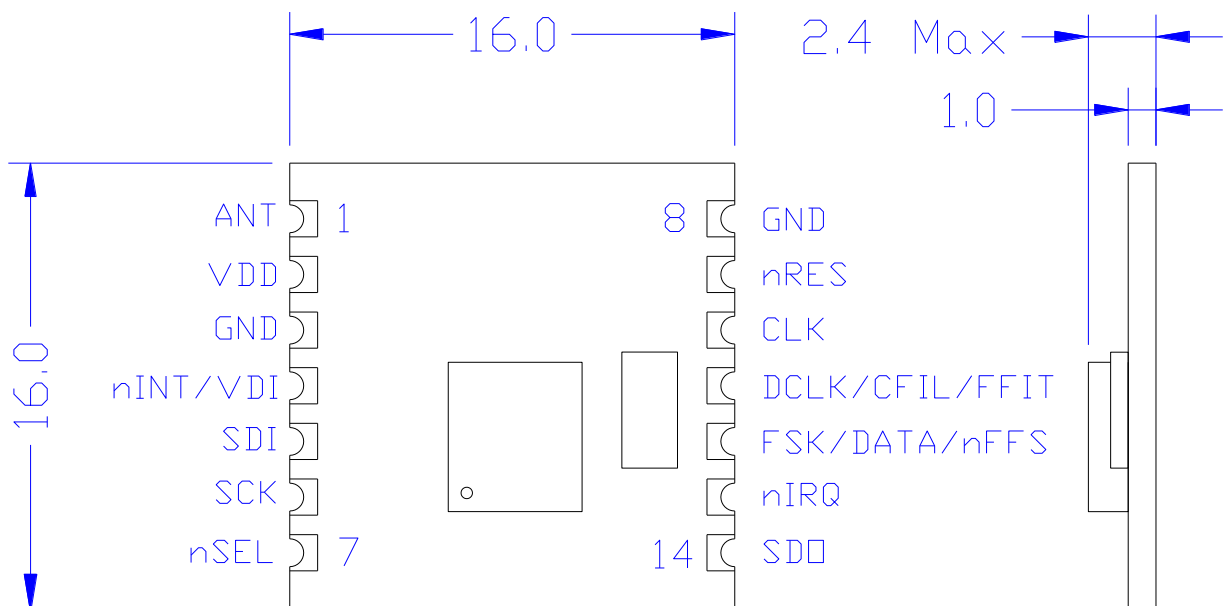
5. Typical Applications

- Home security and alarm
- Remote control, keyless entry,
- Wireless Keyboard/Mouse and other PC peripherals
- Toy Controls
- Tire pressure monitoring
- Telemetry
- Personal data logging
- Remote automatic meter reading

6. Pin Definition

No.	Definition	Type	Function
1	nINT/VDI	DI/DO	Interrupt input (active low)/Valid data indicator
2	VDD	S	Positive power supply
3	SDI	DI	SPI data input
4	SCK	DI	SPI clock input
5	nSEL	DI	Chip select (active low)
6	SDO	DO	Serial Data output with bus hold
7	nIRQ	DO	Interrupt request output (active low)
8	FSK/DATA/nFFS	DI/DO/DI	Transmit FSK data input/received data output (FIFO not used)/FIFO select
9	DCLK/CFIL/FFIT	DO/AIO/DO	Clock output (noFIFO)/external filter capacitor (analog mode)/ FIFO interrupts (active high) when FIFO level set to 1, FIFO empty interruption can be achieved
10	CLK	DO	Clock output for external microcontroller
11	nRES	DIO	Reset output (active low)
12	GND	S	Power ground

7. Outline



8. Absolute Maximum Ratings (non-operating)

Symbol	Parameter	Min	Max	Units
V_{dd}	Positive supply voltage	-0.5	6	V
V_{in}	Voltage on any pin (except RF1 and RF2)	-0.5	$V_{dd}+0.5$	V
V_{cc}	Voltage on open collector outputs (RF1, RF2)	-0.5	$V_{dd}+1.5$ (note 1)	V
I_{in}	Input current into any pin except VDD and VSS	-25	25	mA
ESD	Electrostatic discharge		1000	V
T_{st}	Storage temperature	-55	125	°C
T_{ld}	Soldering temperature (soldering, max 10 s)		260	°C

9. Recommended Operating Range

Symbol	Parameter	Min	Max	Units
V_{dd}	Positive supply voltage	2.2	3.8	V
V_{cc}	Voltage range on open collector outputs (RF1 and RF2)	$V_{dd}-1.5$ (Note 2)	$V_{dd}+1.5$	V
T_{op}	Ambient operating temperature	-40	85	°C

Note 1: The voltage on RF1 and RF2 pins can be higher than the actual V_{dd} but can not exceed 7V.

Note 2: The actual voltage on RF1 and RF2 pins can be lower than the current V_{dd} but never go below 1.2V

10. Field testing range

Band	Test condition	Distance
868 MHz band	Receiver Bandwidth=67KHz, data rate=1.2kbps, transceiver frequency deviation =45KHZ (matches with WRF4421) in free open area	> 300M

11. Contact

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