



ZigBee Modules

RF-ZM-1338A/1738A

Specifications



INDEX

Chapter1 Introduction of Modules.....	3
Chapter2 Features of Modules.....	4
Chapter3 Module Sizes and Pin Definitions.....	6
Chapter4 Attention When Use.....	8
Chapter5 Contact Us.....	8



Chapter 1 Introduction of Modules

RF-ZM-1338A/1738A (previous part number as STR-CC2530-1338A/1738A) are high-performance and low-power ZigBee modules that incorporate Texas Instruments CC2530 transceiver SoC. RF-ZM-1738A is also powered with a CC2591 low-noise power amplifying chip. The modules can be widely used in short distance wireless network communication with the character of low power consumption, small volume, strong anti-interference ability and so on.

The modules can be equipped with a variety of RF output interfaces: high-performance serpentine antenna, IPEX seat, half hole welding plate RF output, and etc. It's convenient to use in different applications. The modules use RF-specific high dielectric constant and low losses plate, and four-layer board processing. Capacitance inductance components are from high-precision and high Q Murata (GRM) series. The modules also use on-board power supply filter circuit and RF optimization matching circuit that makes the module has better stability and longer transmission distance. To meet the requirements of industrial application better, the module also can be equipped with a shield on it, which increases the ability to resist the interference.

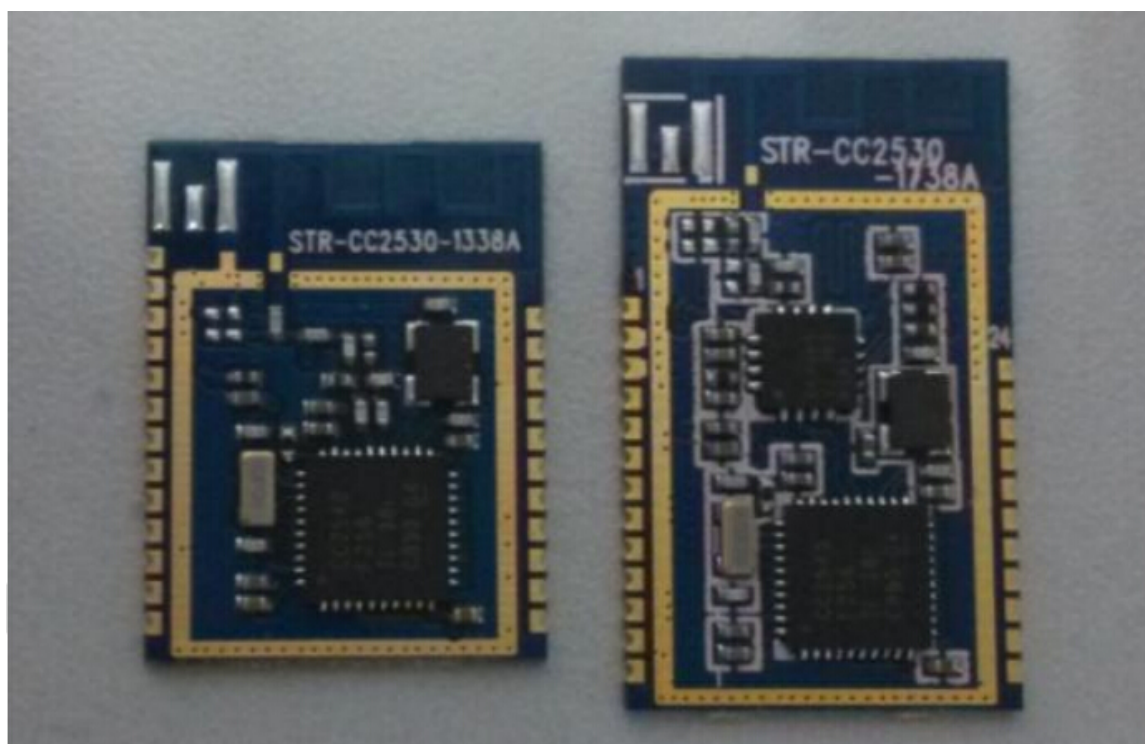


Figure 1. RF-ZM-1338A and RF-ZM-1738A



Chapter 2 Features of Modules

1. Small size with stamp-like half hole design of 1.27mm spacing, to reduce the space occupation and make connection and development easier.
2. Low power consumption, long distance transmission, proper filtering process, and more ferrite beads to control EMI effectively.
3. All chip I/O pinned out to be convenient for users' development
4. Various RF output interfaces, including coil antenna, IPEX, half hole and etc., offering users more choices as per actual situations.

Parameters:

Item	RF-ZM-1338A	RF-ZM-1738A
Working Voltage	2.0V—3.6V	2.0V—3.6V
Working frequency	2394MHz—2507MHz	2394MHz—2507MHz
Output power	>3dBm (Programmable)	>17dBm (Programmable)
Receiving sensitivity	-85dBm	-95dBm
Frequency error	±20KHz	±20KHz
Transmitting current	29mA	141mA
Receiving current	24mA	28mA
Standby current	PM1: <300μ A PM2: <2μ A PM3: <1μ A	PM1: <300μ A PM2: <2.3μ A PM3: <1.3μ A
Transmit distance	Under test,	Under test,
Operation temperature	-20℃ -- +60℃	-20℃ -- +60℃
Storage Temperature	-40℃ -- +125℃	-40℃ -- +125℃

Featuring:

- High efficiency and low power consumption 8051 MCU
- 256KB programmable flash
- 8KB RAM
- DMA-5
- IEEE 802.15.4 MAC timer; One 16bit, two 8bit general timers
- IR (infrared) circuit
- Voltage monitoring circuit and internal temperature sensor chip



- 8-way 12 ADC
- 2 serial interfaces (SPI)
- 21 normal IO ports
- Built-in watch-dog circuit

Application Fields:

- 2.4 GHz IEEE 802.15.4 system
- RF4CE remote control system
- ZigBee system
- Home/Building automation control
- Lighting control system
- Industrial control and monitoring
- Low power wireless sensor networks
- Consumer electronics
- Health care



Chapter 3 Module Sizes and Pin Definitions

Module Sizes

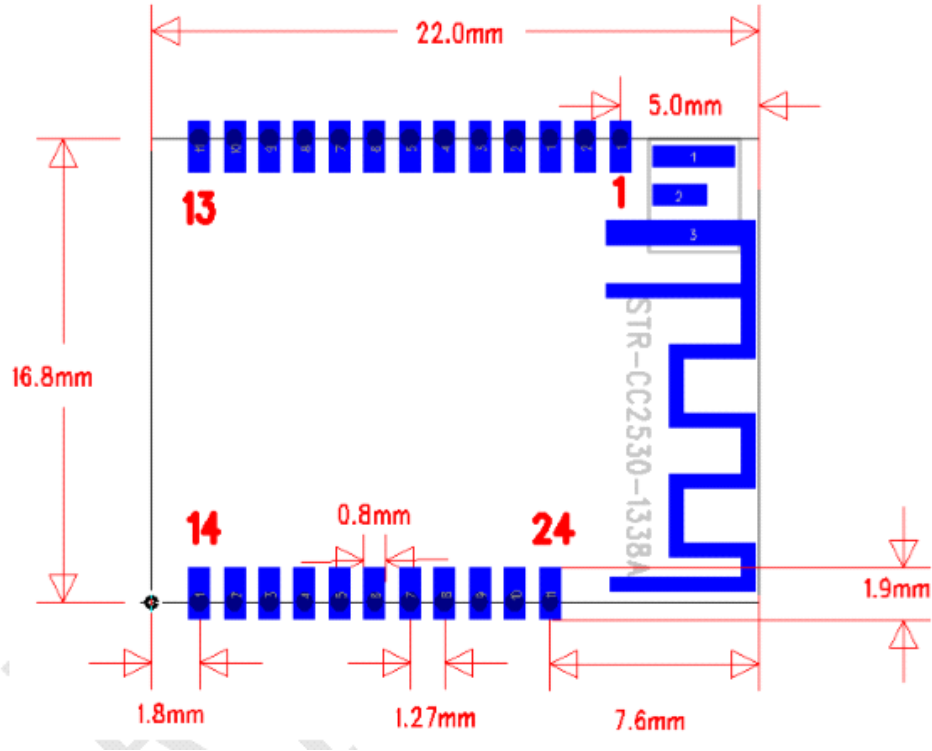
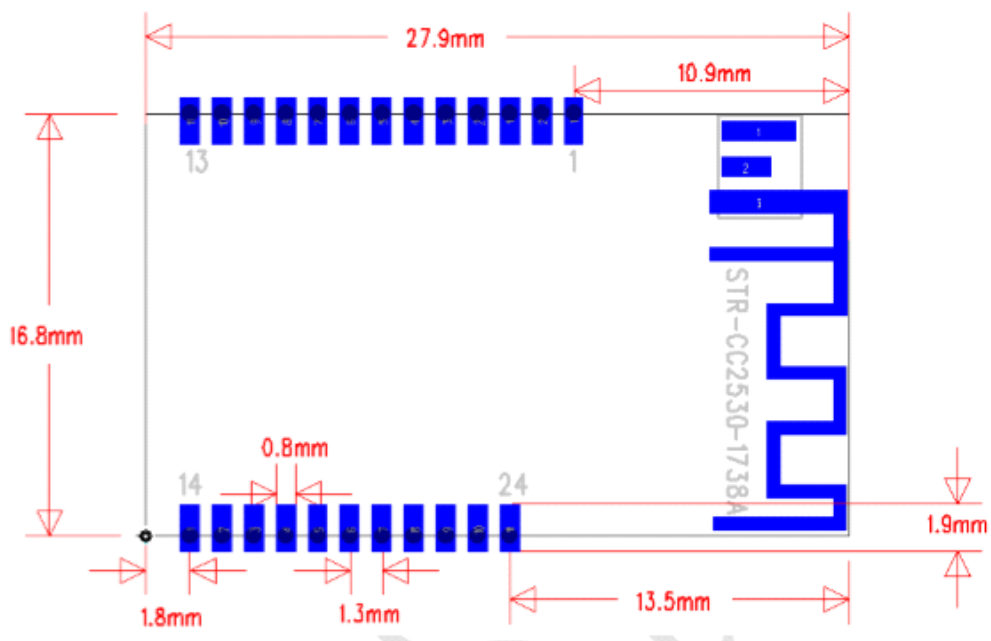


Figure 2 RF-ZM-1338A



**Figure 3. RF-ZM-1738A****Pin Definitions**

Pin No.	Chip Pin Name	Function	Description
1	-	ANT	RF output interface
2	GND	GND	Module to the ground
3	GND	GND	Module to the ground
4	VCC	2.0-3.3V	Power supply voltage of 2.0 V to 3.6 V
5	P2_2	DC	Debugging interface DC
6	P2_1	DD	Debugging interface DD
7	RESET	Reset	The reset pin of module, effective at low level
8	P2_0	I/O	
9	P1_7	I/O	
10	P1_6	I/O	
11	P1_5	I/O	
12	P1_4	I/O	RF-ZM-1738A module with PA/LNA. This pin is used to control the PA/LNA chip, so the 12 th pin of RF-ZM-1738A is NC pin
13	P1_3	I/O	
14	P1_2	I/O	
15	P1_1	I/O	RF-ZM-1738A with PA/LNA. This pin is used to control PA/LNA chip, so the 15 th pin of RF-ZM-1738A is NC pin
16	P1_0	I/O	
17	P0_7	I/O	RF-ZM-1738A with PA/LNA . This pin is used to control PA/LNA chip, so the 17 th pin of RF-ZM-1738A is NC pin
18	P0_6	I/O	

Notes:

1. The pins and size of RF-ZM-1338A module are completely compatible with RF-ZM-1738A (pin-to-pin). But because module P/N RF-ZM-1738A (with PA/LNA) needs to use pin P0_7、P1_1、P1_4 to control the PA/LNA chip, these three pins are not drawn out to the board. So the 12th, 15th and 17th pins of the module are NC pins.
2. In the application development of RF-ZM-1338A and RF-ZM-1738A, it is not suggested to use pins P0_7、P1_1、P1_4 if considering to replace RF-ZM-1738A with RF-ZM-1338A in the future.



Chapter 4 Attention When Use

1. Pay attention to prevent from the static electricity when using or during transportation, since there is CMOS in the module.
2. Device should be well connected to ground so as to reduce the parasitic inductance.
3. Please control the reflow temperature not to exceed 205 degrees when module in mounting.
4. Do not put copper below the antenna in the module. HOLLOWED OUT IS THE BEST IN ORDER TO PREVENT THE IMPEDANCE CHANGE AND INFLUENCE OF WIRELESS TRANSCIVER DISTANCE.
5. Antenna should be far away from other circuits, in order to prevent from lower efficiency and influencing normal use of other circuits.
6. Modules should be kept away from other low frequency circuits or digital circuits.

Chapter 5 Contact Us

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