

HC 08 BLE Core Bluetooth Module



A Bluetooth module allows us to connect to a device wirelessly (bluetooth). These modules can behave as a slave or master, which are used to listen to connection requests and others to generate connection requests. If any device is connected, the module transmits to it all the data it receives from the Arduino and vice versa.

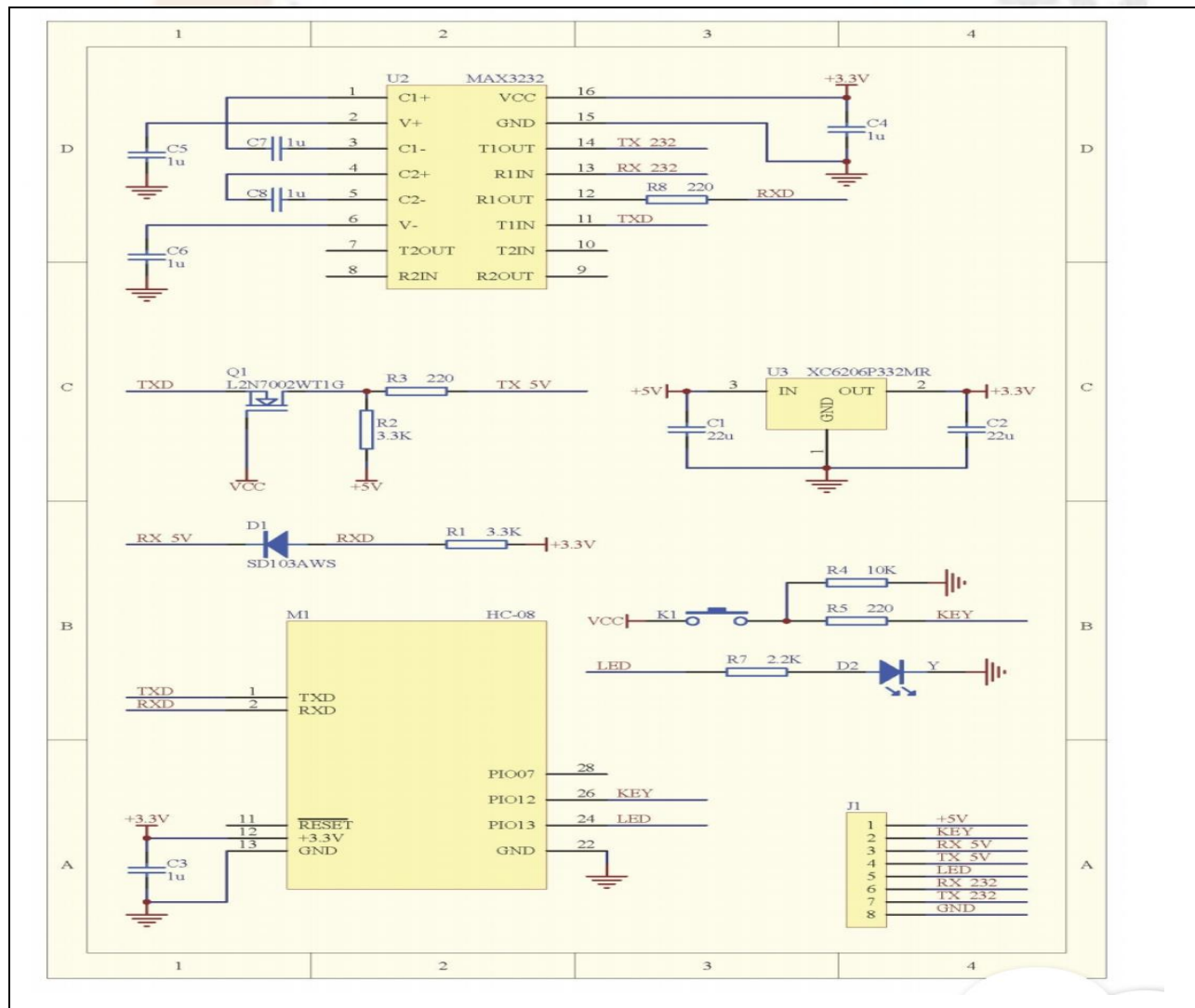
The HC-08 module allows to transmit and receive data through the serial port of the micro controller wirelessly. It belongs version 4.0 of Bluetooth devices, which has the same characteristics as its predecessors, but with the difference that this device is low energy consumption. It also adds the feature of being compatible with Apple brand products.

SPECIFICATIONS:

- Model: HC-08
- Chip: CC2540, V4.0 BLE
- Operating Voltage: 5V
- Consumption Current: 10 mA
- Power: 50 mW
- Operating Frequency: 2.4G
- Communication Interface: UART 3.3 VTTL
- Transmission Power: 4dBm (maximum)
- Transmission Distance: 80 meters
- Speed: 1 Mbps
- Antenna: Integrated in the PCB

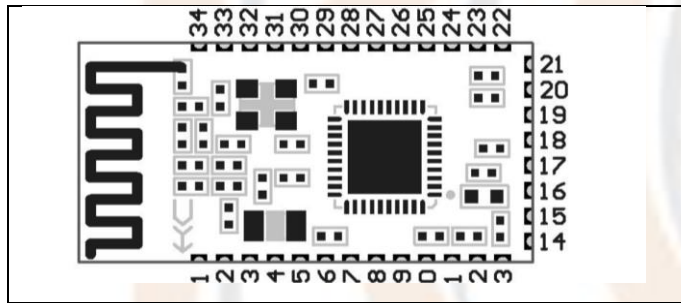
- Baudrate: 9600
- Modes: Slave / Master
- Receiver Sensitivity: -93dBm @ 1 Mbps
- Temperature: -40oC ~ +85oC
- Dimensions: 26.9 x 13 x 2.2 mm

SCHEMATIC DIAGRAM:



- HC-08 Bluetooth UART communication module is a new generation of Bluetooth specification V4.0 BLE Bluetooth protocol based on the transmission module. Wireless working frequency is 2.4GHz ISM, modulation is GFSK.
- The maximum transmit power module 4dBm, the receiving sensitivity is -93dBm, and iphone4s can achieve 80 meters of super long distance communication under open environment. The module uses the stamp hole encapsulation, can patch welding, module size is 26.9mm * 13mm * 2.2mm, very convenient to the customer within the embedded application system.
- The module uses the CC2540 chip, the configuration of the 256K Byte space, supports AT command, the user can according to need to change role and the serial baud rate, equipment name and other parameters, the use of flexible.

PIN FUNCTION:



Pin	Definition	I/O	Description
1	TXD	Output	URAT output, 3.3V TTL level
2	RXD	input, weak pull up	URAT input, 3.3V TTL level
3	NC	NC	-
4	NC	NC	-
5	NC	-	-
6	DC	Input	Debug clock
7	DD	Input/Output	Debug Data
8	PIO20	input, weak pull up	NC

9	PIO17	input,weak pull up	NC
10	PIO16	input,weak pull up	NC
11	RST	Input, pull up	Module reset pin, a low level of not less than 5ms rese
12	VCC	Input	Power pin, the requirements of 3.3V DC power supply, the supply current is not less than 100mA
13	GND	-	Ground
14	NC	-	-
15	USB_D-	NC	-
16	NC	-	-
17	NC	-	-
18	PIO15	input,weak pull up	NC
19	PIO14	input,weak pull up	NC
20	USB_D+	NC	-
21	GND	-	Ground
22	GND	-	Ground
23	NC	-	-
24	PIO13	Output	LED output (Note①)
25	PIO11	input,weak pull up	NC
26	PIO10	input,weak pull up	The master module clear memory (Note②)
27	PIO12	input,weak pull up	NC
28	PIO7	input,weak pull up	NC
29	NC		
30	NC		
31	PIO06	input,weak pull up	NC

32	PIO01	input,weak pull up	NC
33	NC	-	-
34	PIO00	input,weak pull up	NC

- Note1: Module indicating LED output pin, high level output, please use the resistance and LED connection.

The connection before,

From the slave module address the master module does not record, bright 100ms per second;

From the slave module address master module records, bright 900ms per second;

The slave module, LED light 1second very 2 seconds.

After connection, LED lights always.

- Note2: Input pin, internal pull-down. This pin is connected with the high level, the master module to clear the slave module address have been recorded.

ELECTRICAL CHARACTERISTICS:

Parameter	Test conditions		Representative Value
Working Voltage	-		DC 2.0~3.6V
working current (not LED)	Master	not connected / connection	21mA/9mA
	Slave	MODE0, not connected / connection	8.5mA/9mA
		MODE1, not connected / connection	340μA/1.6mA
		MODE2, not connected / connection	0.4μA/1.6mA
		MODE3, not connected / connection	1.2μA-160μA/1.6mA

COMMAND MODE:

- The AT command to setting module parameter. Connection before, module can operating AT command. Connection after entering serial transparent transmission mode.
- Module start is about 150ms, so the best after power on 200ms AT command operation. Unless otherwise indicated, the parameter setting of AT command is effective immediately. At the same time, parameters and functions of modification, the power down will not be lost.
- After the success of AT command modify unified returns OK ("AT+RX,AT+VERSION" and so on the view of information command class except), no success does not return any information.

	AT Command ("x"-parameter)	Function	Default	Role
1	AT	Test command	-	M/S
2	AT+RX	Check the basic parameters	-	M/S
3	AT+DEFAULT	Restore factory setting	-	M/S
4	AT+RESET	Reset the module	-	M/S
5	AT+VERSION	Check version and date	-	M/S
6	AT+ROLE=x	Change master/slave role	S	M/S
7	AT+NAME=xxxxxxxxxxxx	Revise name	HC-08	M/S
8	AT+ADDR=xxxxxxxxxxxx	Revise address	Hardware address	M/S
9	AT+RFPM=x	Revise RF power	0(4dBm)	M/S
10	AT+BAUD=x,y	Revise UART baud	9600,N	M/S
11	AT+CONT=x	Set connectability	0(Can be connected)	M/S
12	AT+MODE=x	Set working mode	0	S
13	AT+AVDA=xxxxxxxxxxxx	Change the broadcast data	-	S
14	AT+TIME=x	Mode 3 broadcast cycle	5(S)	S

Note:

1. The AT command behind no newline; if no special instructions, all AT commands are not transmitted using newline.

2. The last 4 senior commands, must be used in combination, can play its due role BLE Bluetooth low energy.

APPLICATIONS:

- Hobby projects
- Engineering applications
- Robotics
- Mobile Phone Accessories
- Servers
- Computer Peripherals
- Sports and Leisure Equipment
- USB Dongles

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