

WH-L100 Hardware Manual

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1. Product overview

1.1. Dimension

Module dimension diagram as follow:

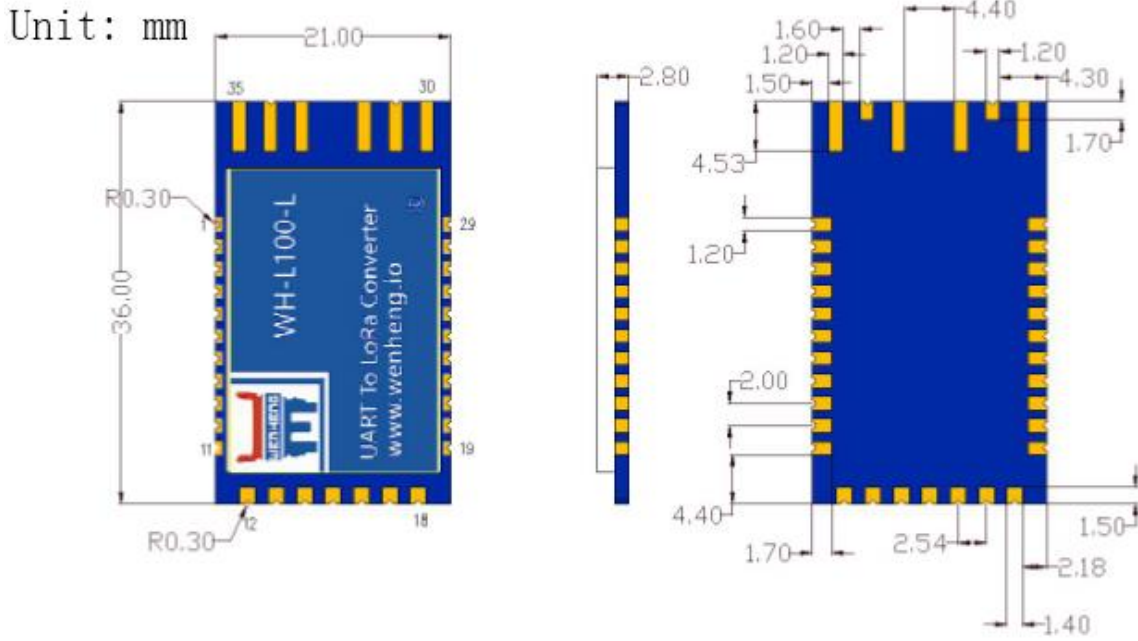


Figure 1 Dimension diagram

1.2. Encapsulation

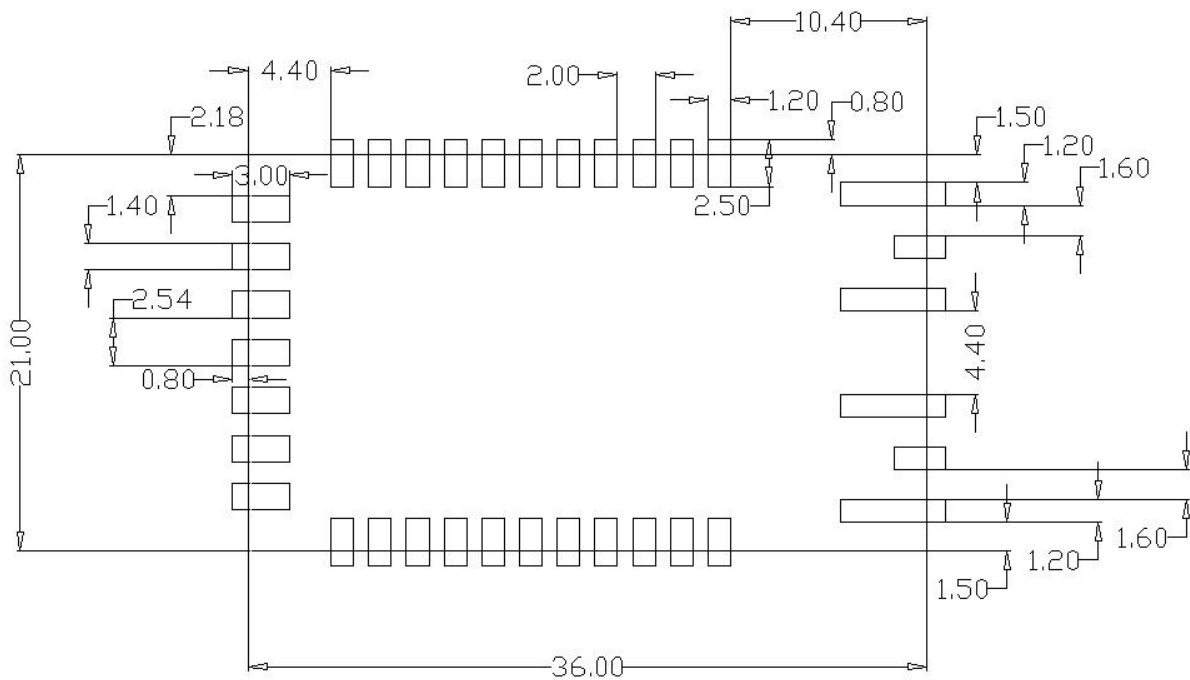
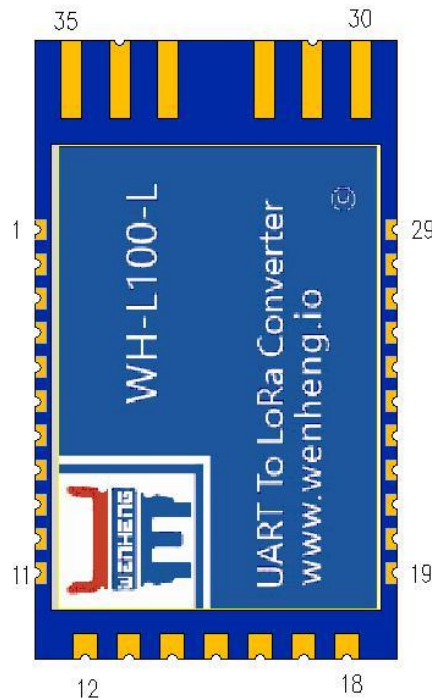


Figure 2 Encapsulation

1.3.Pin definition



PIN	Name	Signal Type	Definition
1	NC	NC	Not available
2	NC	NC	Not available
3	NC	NC	Not available
4	NC	NC	Not available
5	NC	NC	Not available
6	NC	NC	Not available
7	NC	NC	Not available
8	NC	NC	Not available
9	NC	NC	Not available
10	NC	NC	Not available
11	NC	NC	Not available
12	NC	NC	Not available
13	HOST_WAKE	O	1.Pull down 5ms before transmitting data by serial and pull up after finish transmitting 2.Pull down when module transmits data by wireless method to indicate transmitting is busy 3.In pulling up status, module can enter sleep mode
14	RXD	I	TTL serial port input and connects to external TXD output pin. Level refer to following module IO interface level table.
15	TXD	O	TTL serial port output and connects to external RXD input pin. Level refer to following module IO interface level table.

16	WAKE	I	External waking up pin. Pull down WAKE pin to wake up module when module is in sleep mode. In mode 2, pull up WAKE pin above idle time to make module into sleep mode. WAKE pin needs to connect to external 10K Ohm pull-up resistor.
17	VCC	P	Range from 1.8V to 3.6V
18	GND	P	Power Ground
19	NC	NC	Not available
20	NC	NC	Not available
21	NC	NC	Not available
22	NC	NC	Not available
23	NC	NC	Not available
24	NC	NC	Not available
25	NC	NC	Not available
26	NC	NC	Not available
27	NC	NC	Not available
28	NC	NC	Not available
29	NC	NC	Not available
30	NC	NC	Not available
31	NC	NC	Not available
32	NC	NC	Not available
33	GND	P	Power Ground
34	ANT	I/O	RF input/output pin
35	GND	P	Power Ground

Figure 3 Pin definition

Symbol	Parameter	Min	Typ	Max	Unit
V _{IH}	High-level input voltage	0.7*VCC	-	VCC	V
V _{IL}	Low-level input voltage	-0.3	-	0.3*VCC	V
V _{OH}	High-level output voltage	VCC-0.4V	-	-	V
V _{OL}	Low-level output voltage	-	-	0.4	V

Figure 4 Module IO interface level

2. Hardware design

2.1. Typical connection

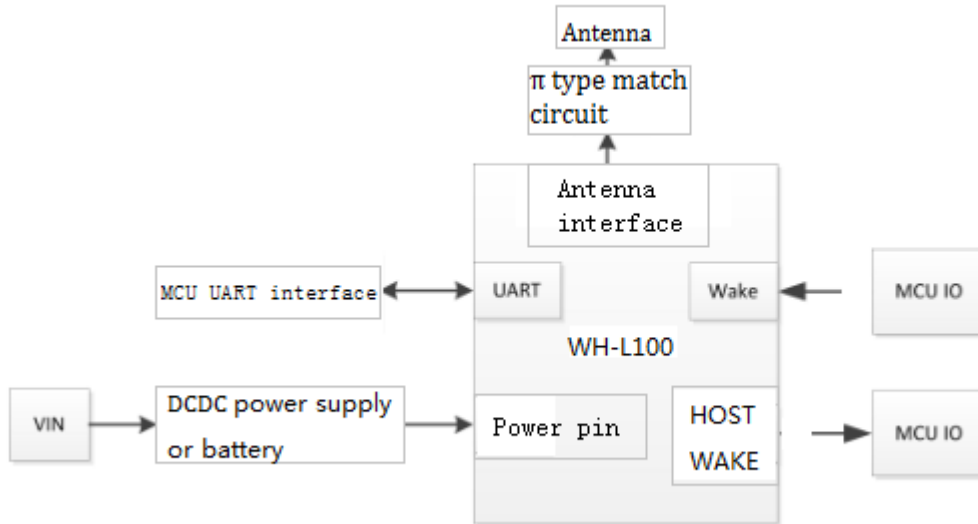


Figure 5 Typical connection

2.2. Power interface

Working voltage VCC range from 1.8V to 3.6V, 3.3V is recommended. Peak current is 130mA. Pin has reserved high frequency filter capacitance and 10uF+0.1 μ F+1nf+100pf is recommended. If the application environment is bad, module will often suffer ESD interfered or EMC requirement is high, series connection with magnetic bead or parallel connection with TVS is recommended to increase module stability.

When user designs the peripheral circuit for WH-L100, these should be ensured: 1. Provide adequate power supply. 2. Voltage range from 1.8V to 3.6V. 3. Peak power supply voltage is less than 300mV. 4. Place large capacitance after DC/DC or LDO to prevent external power supply voltage dropping during pulse current period.

2.3. UART Interface

If module adopts 3.3V power supply and communicates to MCU with 3.3V, user just needs to connect TXD of module to RXD of MCU and RXD of module to TXD of MCU. When communicates to MCU with unmatched level (such as 5V), switching circuit is necessary. Switching circuit diagram as follow:

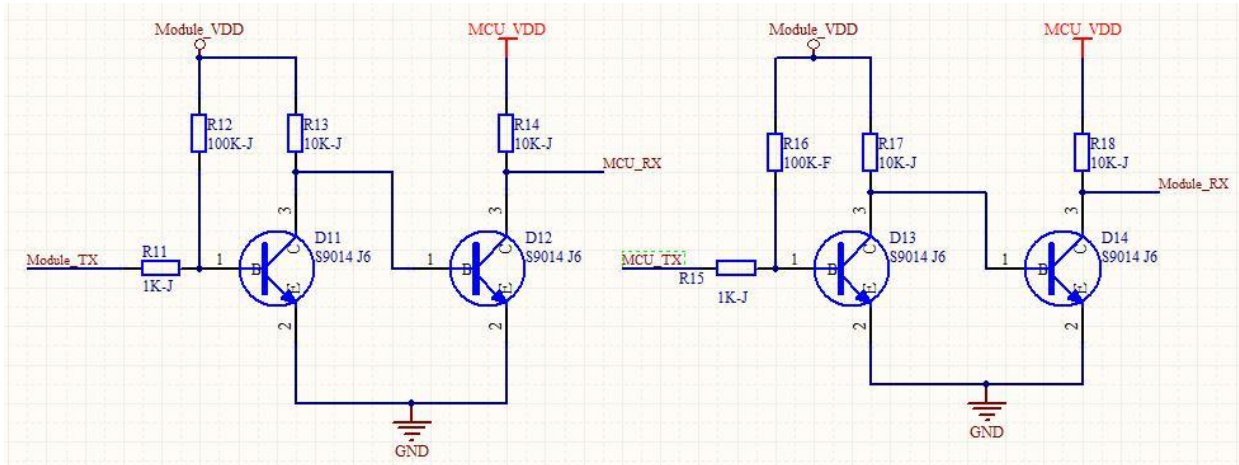


Figure 6 Switching circuit

This level switching circuit can support baud rate to 230400. If user adopts 460800 or above baud rate, user needs to use high speed optocoupler or specialized level switch chip to establish level switching circuit.

2.4.WAKE pin

16 pin of module is WAKE pin and user can pull it down to wake up module from sleep mode. WAKE pin needs to connect to external 10K Ohm pull-up resistor.

2.5.RF interface

RF interface adopts external bonding pad pin antenna. User needs reserved π type match circuit on PCB board. RF line need guarantee 50ohm impedance matching and try to be short to reduce attenuation of signal. User can refer to below reserved match circuit:

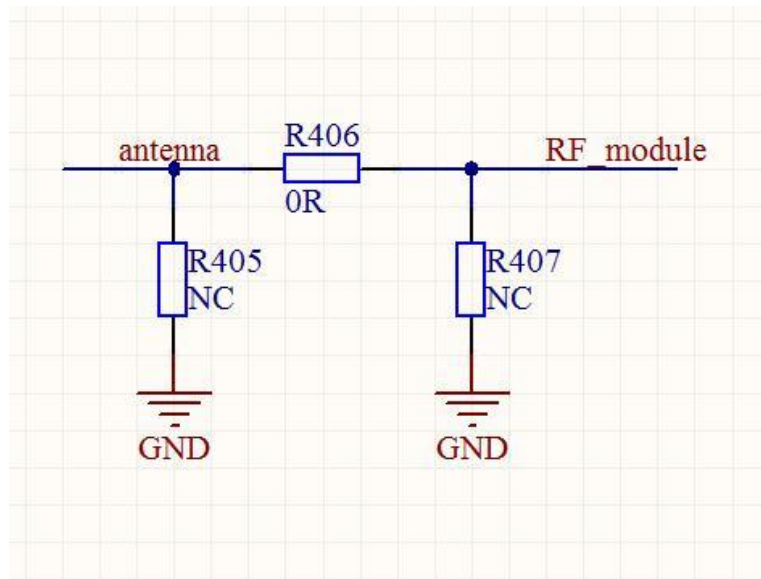


Figure 7 WH-L100 reserved match circuit

Note:

1. Module is recommended to be placed on edge of PCB board to shorten the distance to antenna and this can help to reduce attenuation of signal. RF line need guarantee 50ohm impedance matching to avoid lowering signal quality.
2. Keep RF line away from power supply, clock signal and other signal source which maybe cause interference.
3. When user places antenna, it is necessary to ensure antenna in exposed status and it would better be vertically upward. User can't place antenna in metal shell which can greatly reduce transmission distance.

3.Contact

Company: Jinan USR IOT Technology Limited

Address: Floor 11, Building No.1, No.1166, Xinluo Street, Gaoxin District, Jinan city, Shandong province, 250101 China

Tel: 86-531-88826739

Web: www.usriot.com

Support: h.usriot.com

Email: sales@usr.cn

4.Disclaimer

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5.Update History

2018-03-14 V1.0.1.01 established.