

# USR-GPRS232-7S3 Hardware Manual

File version: 1.0.0



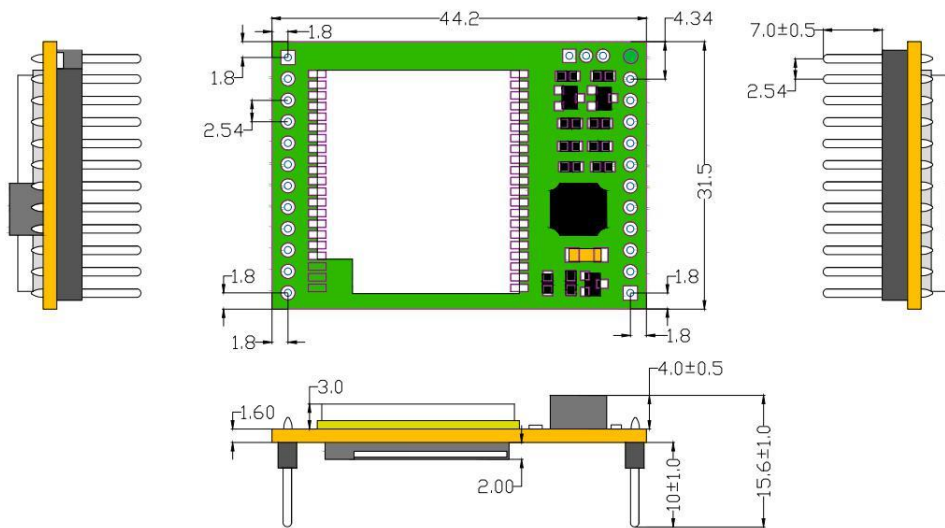
## Content

USR-GPRS232-7S3 Hardware Manual .....	1
1. Product Overview .....	3
1.1. Dimension .....	3
1.2. Pin Defination .....	3
2. Hardware Design .....	5
2.1. Power Interface .....	5
2.1.1.DC 5-16V .....	5
2.1.2.DC 3.6-4.4V .....	5
2.2. UART Interface .....	6
2.3. Shut down .....	6
2.4. Work/Link Indicator.....	7
2.5. Audio Interface .....	8
3. Contact .....	9
4. Disclaimer .....	9
5. Update History .....	9

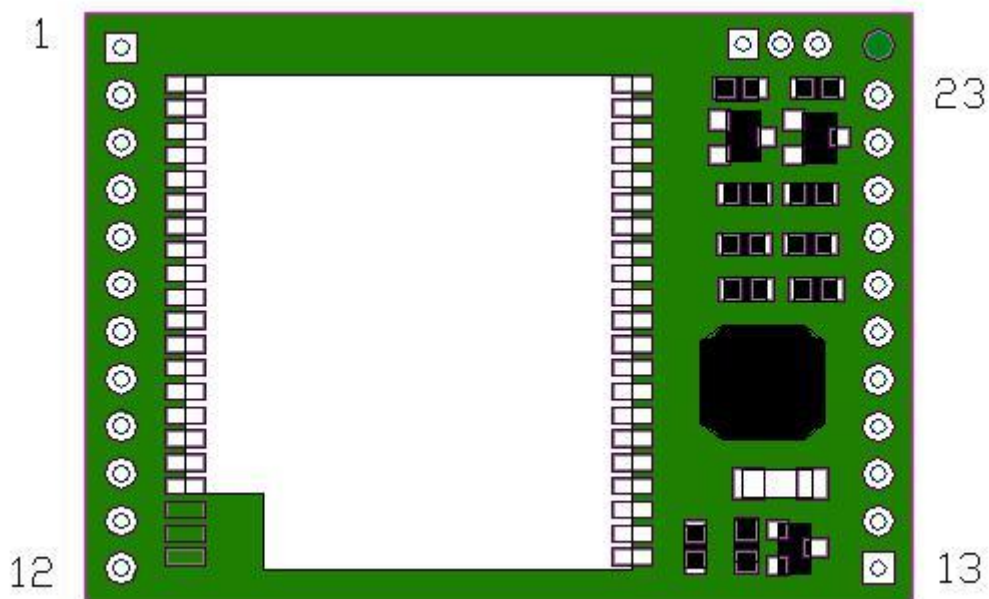
# 1. Product Overview

## 1.1. Dimension

Dimension figure as follows (Unit:mm) :



## 1.2. Pin Defination



PIN	Name	Defination
1	LINKA	Indicate whether network link A connect. Output high level: link connected. Output low level: link disconnected.
2	LINKB	Indicate whether network link A connect. Output high level: link connected. Output low level: link disconnected.
3	NC	Not connected
4	NC	Not connected
5	UTXD2	Not connected
6	UTXD1	UART transmit pin.(2.8V,can connect to 3.3V directly)
7	URXD1	UART receive pin.(2.8v,can connect to 3.3V directly)
8	URXD2	Not connected
9	WORK	Module work indicator pin. After module start properly,electrical level change status every second and work LED will in flicker status
10	POWKEY	Module turn on/off pin. Default disconnected.
11	GND	Power Ground
12	GND	Power Ground
13	DC5~16V	5-16V power,positive. If you use 4V power(connect to VCAP),don't use this pin.
14	DC5~16V	
15	GPRS	GPRS link indicator pin. Output high level when module connects to GPRS network. Output low level when module disconnects to GPRS network.
16	VCAP	DC 4V power pin.Connect 470 $\mu$ F bypass capacitor can power module directly.
17	RS485_EN	Enable RS485 function, used for switching transmit/receive. Pull up to transmit, pull down to receive.
18	RELOAD	Reload and take effect in low level.Pull down pin 1-3s restore to user default setting.Above 6s restore to factory default setting.
19	RESET	Reset module,take effect in low level. Pull down pin to restart the module.
20	MIC_P	Audio input P
21	MIC_N	Audio input N
22	RCV_P	Audio output P
23	RCV_N	Audio output N

## 2. Hardware Design

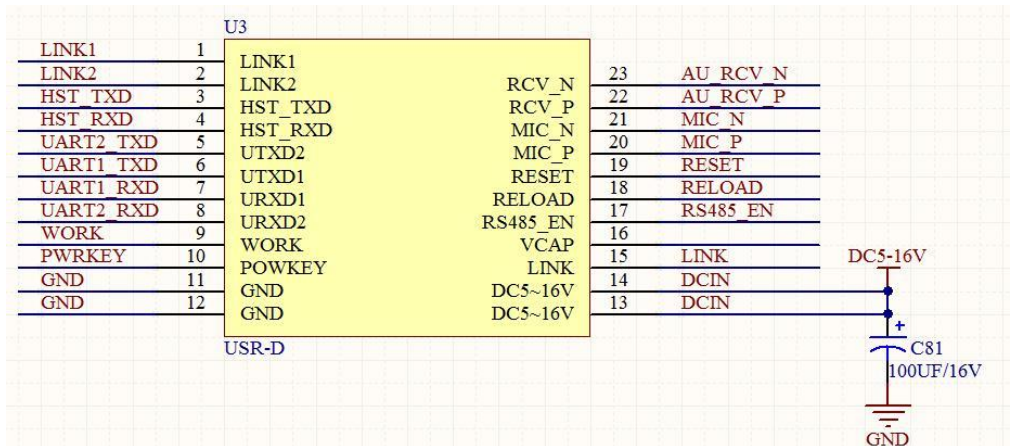
### 2.1. Power Interface

There are 2 way to power module: DC 5~16V or DC 4V. Do not use them simultaneously.

#### 2.1.1. DC 5-16V

When module adopts 5-16V power, pin 13 & pin 14 used to power the module. Connect 100 $\mu$ F/16V bypass capacitor to make module work stably.

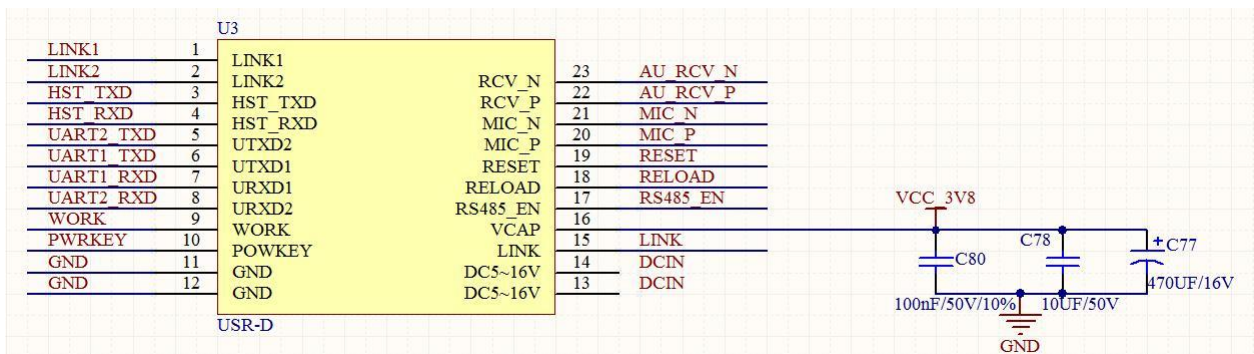
Circuit diagram as follows:



#### 2.1.2. DC 3.6-4.4V

When module adopts 4V power(at present, voltage input range from 3.6-4.4V, do not beyond this range), pin 16 is used to power module. Connect to bypass capacitor to make module work stably.

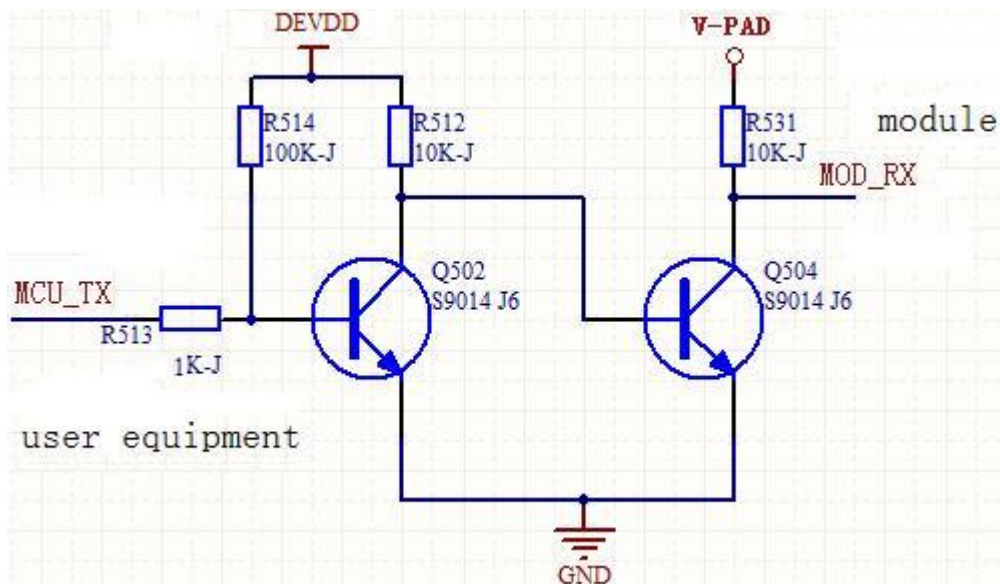
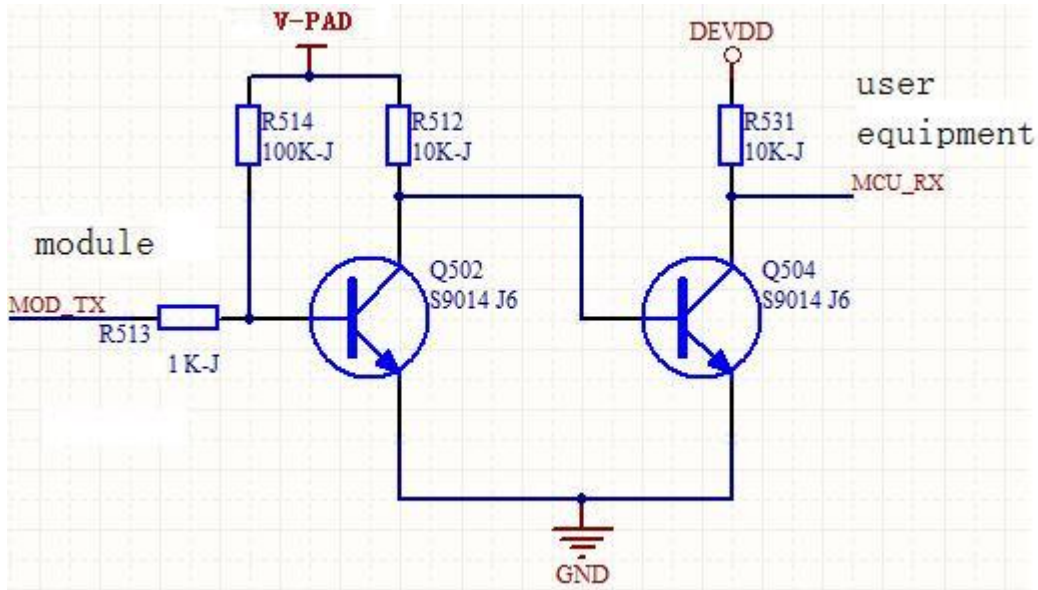
Circuit diagram as follows:



## 2.2. UART Interface

If the I/O level of user MCU is not 2.8V or 3.3V, Level Match is necessary. DEVDD is the I/O power of user MCU. V-PAD is the I/O power of module, user can use it to UART matching and pull-up power.

Converting circuit as follows:



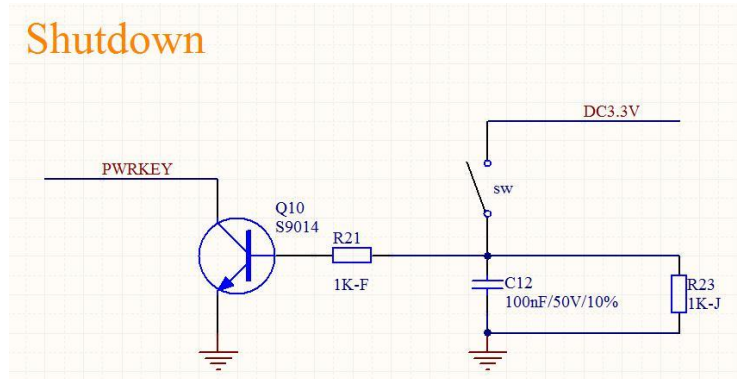
## 2.3. Shut down

This is an optional interface. If the user doesn't need to shut down the module in working status, this pin must be



disconnected. Pull down this pin will shut down the module when module in working status.

Circuit diagram as follows:



## 2.4. Work/Link Indicator

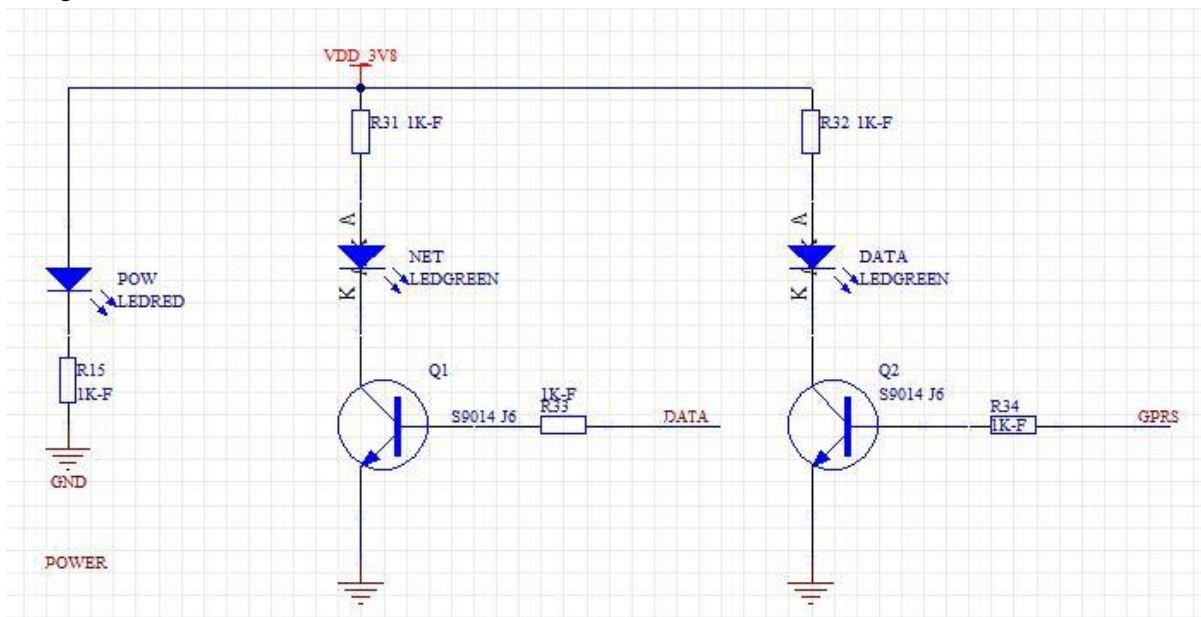
There are 3 LED (Power, GPRS, DATA ) on 7S3 board.

POW: Indicating module power supply status. Power the module, LED light up.

NET: Indicating GPRS status. High Level (LED: on): module connect to GPRS network; Low level (LED: off): Module disconnect to GPRS network.

DATA: Indicating data communication status. High Level (LED: on): Data is transmitting or receiving; Low level (LED: off): No data transmission.

Circuit diagram as follows:



## 2.5. Audio Interface

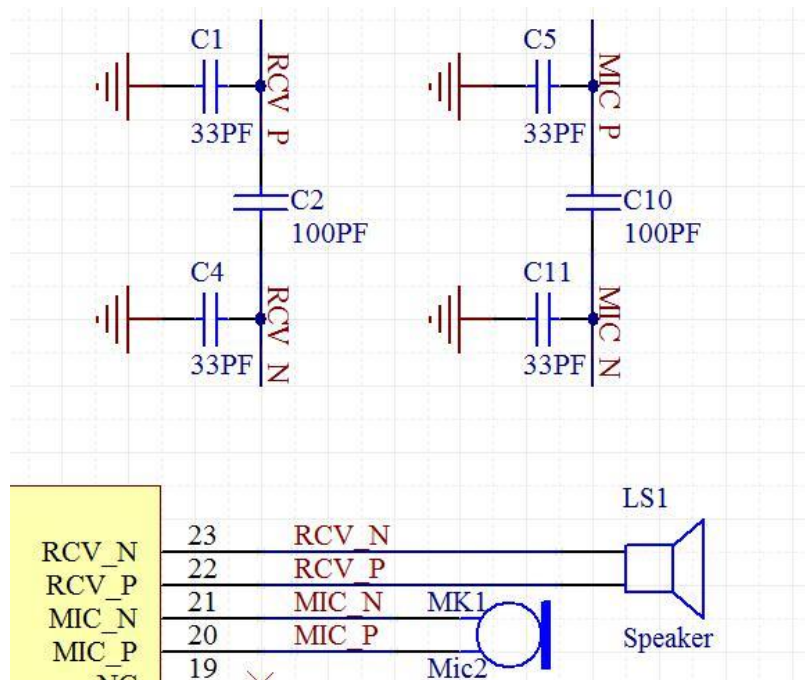
Audio interface support voice call/receive function. When module works in AT command mode, can launch voice calling by AT command, and receive the outside voice.

MIC\_P /MIC\_N are used for audio input, can connect with microphone directly or amplifying circuit to get subtler input.

RCV\_P/RCV\_N are used for audio output, can connect with loud-speaker directly or amplifying circuit to get larger volume voice output.

33pF, 100pF circuit is used for filtering audio noisy to get higher quality voice.

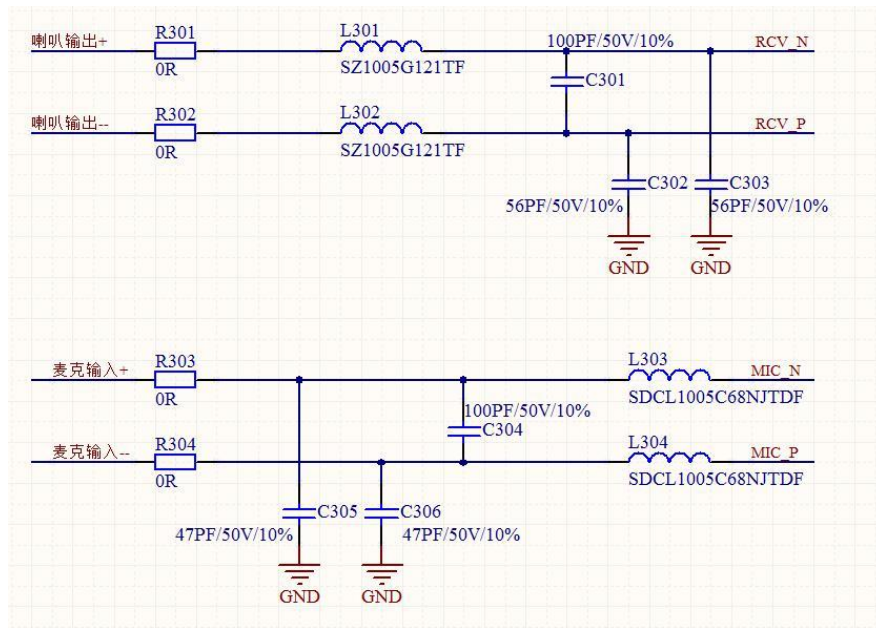
Circuit diagram as follows:



When input/output audio signal by microphone/loud-speaker, user can refer to related audio design materials to handle the audio signal by connecting amplifying circuit.

Circuit diagram as follows:





### 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](http://www.usriot.com)

Support: [h.usriot.com](http://h.usriot.com)

Email: [sales@usr.cn](mailto:sales@usr.cn)

### 4. Disclaimer

This document provide the information of USR-GPRS232-7S3 products, it hasn't been granted any intellectual property license by forbidding speak or other ways either explicitly or implicitly. Except the duty declared in sales terms and conditions, we don't take any other responsibilities. We don't warrant the products sales and use explicitly or implicitly, including particular purpose merchantability and marketability, the tort liability of any other patent right, copyright, intellectual property right. We may modify specification and description at any time without prior notice.

### 5. Update History

2017-07-10 V1.0.0 created.