

USR-GM3P Hardware Manual

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Content

USR-GM3P Hardware Manual	1
1. Product Overview	3
1.1. Dimension	3
1.2. Encapsulation Size	3
1.3. Pin Definition	4
2. Hardware Design	6
2.1. Typical Connection	6
2.2. Power Interface	6
2.3. UART Interface	7
2.4. LED Output Control	8
2.5. Reset, Reload and Wake up	8
2.6. Start/Shutdown module Interface	9
3. Contact	10
4. Disclaimer	10
5. Update History	10

1. Product Overview

1.1. Dimension

Module size: 27.94*24.50*2.95mm, error ± 0.3 mm, pin size as follow:

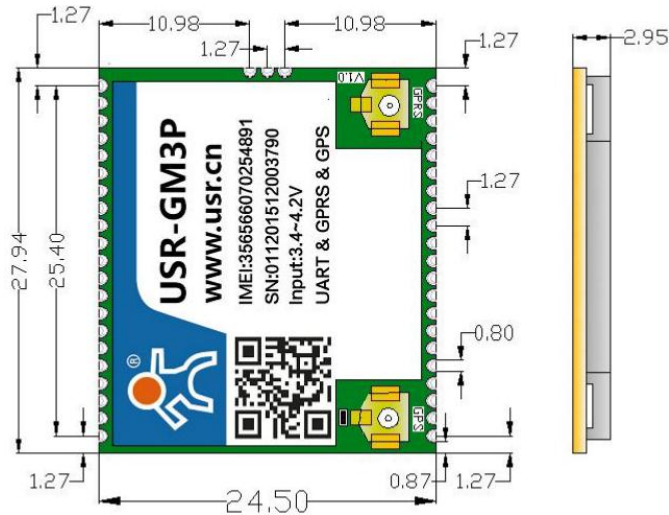


Figure 1 Dimension diagram

1.2. Encapsulation Size

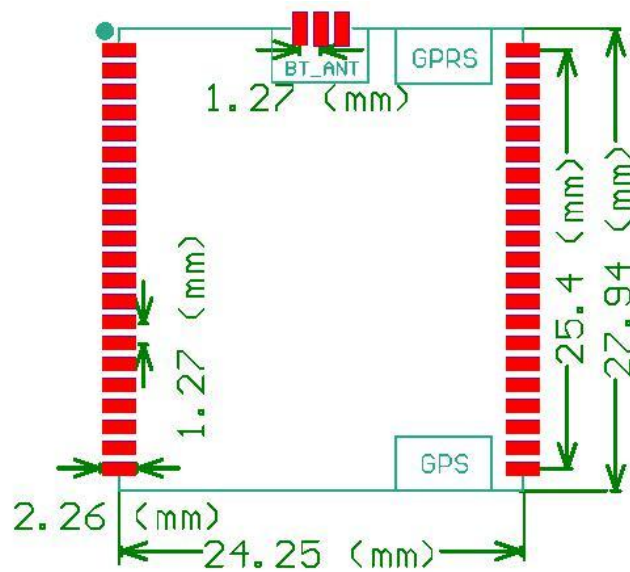
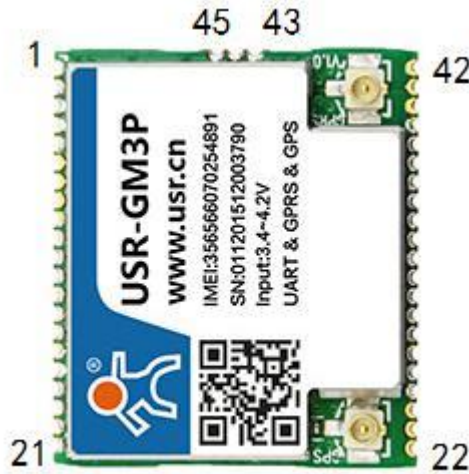


Figure 2 Encapsulation

You can download PCB library from <http://www.usriot.com/usr-gm3-pcb-library-file/>.

1.3. Pin Definition



PIN	Name	Signal Type	Definition
1	VCC	P	VCC, range from 3.4v~4.2v
2	VCC	P	VCC, range from 3.4v~4.2v
3	GND	P	Power Ground
4	GND	P	Power Ground
5	Reload	I(10K PU)	Pressing 1s to 3s to restore default settings Pressing over 6s to restore factory settings
6	Wake up	I(10K PU)	Wake up pin, taking effect in low level
7	RS485	O	When starting using RS485, can be used to switch between receive/transmit
8	I2C_SCL	I/O	I2C clock pin
9	Reset	I(10K PU)	Resetting module, taking effect in low level
10	GPRS	O	Indicating GPRS status, high level means connecting to network and low level means disconnecting to network
11	LINKA	O	Indicating socket A status, high level means connecting and low level means disconnecting
12	LINKB	O	Indicating socket B status, high level means connecting and low level means disconnecting
13	DATA	O	Indicating data transmission status, high level means having data transmission and low level means no data transmission
14	WORK	O	After module starting properly, level will change status every second and work LED will in blinking status
15	POWER KEY	I	Start/Shutdown module. After module starting, user can pull down pin to low level to shutdown module;

			user can also pull up pin to high level to start module. When user doesn't need this function, user should set this pin disconnecting
16	NC	N	Not available
17	GND	P	Power Ground
18	SPEAKER-	O	Loudspeaker negative output
19	SPEAKER+	O	Loudspeaker positive output
20	MIC-	I	Microphone negative input
21	MIC+	I	Microphone positive input
22	VSIM	P	Power supply pin for SIM card
23	SIM_CLK	O	SIM card Clock signal pin
24	SIM_DAT	I/O	SIM card Data signal pin
25	SIM_RST	O	SIM card Reset pin
26	NC	N	Not available
27	HST-TXD	O	Writing program transmitting pin
28	HST-RXD	I	Writing program receiving pin
29	V-PAD	P	Module I/O power supply pin. 2.8v
30	RTS2	I	Serial port 2 RTS signal
31	NC	N	Not available
32	NC	N	Not available
33	NC	N	Not available
34	NC	N	Not available
35	TXD1	O(20K PU)	Serial port 1 TX
36	RXD1	I(10K PU)	Serial port 1 RX
37	CTS1	O	Serial port 1 CTS
38	RTS1	I	Serial port 1 RTS
39	GND	P	Power Ground
40	GND	P	Power Ground
41	RF	N	Radio-frequency signal output
42	GND	P	Power Ground
43	GND	P	Power Ground
44	NC	N	Not available
45	GND	P	Power Ground

Figure 3 Pin definition

2. Hardware Design

2.1. Typical Connection

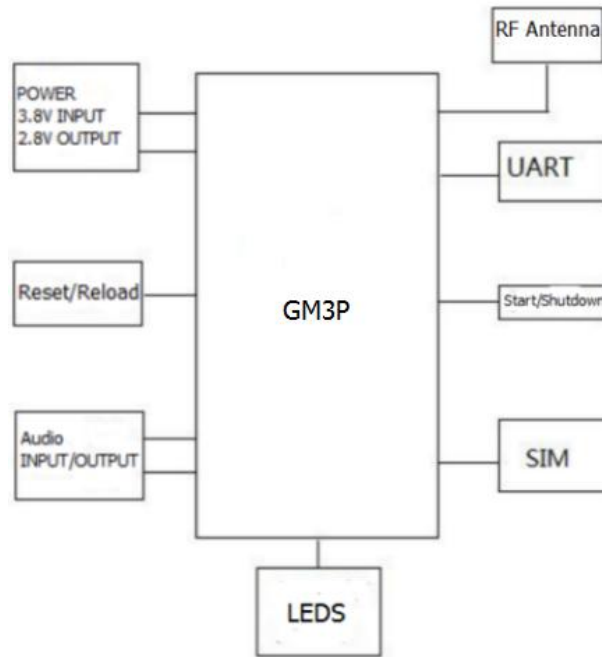


Figure 4 Typical connection

2.2. Power Interface

Switching power supply is recommended and Max.working current is 750mA. Working voltage VCC range from 3.4V~4.2V, 3.8V is recommended. Powering the module by main power pin, pin interface is in parallel with appropriate energy-storage capacitance and high frequency capacitance.

Circuit diagram as follow:

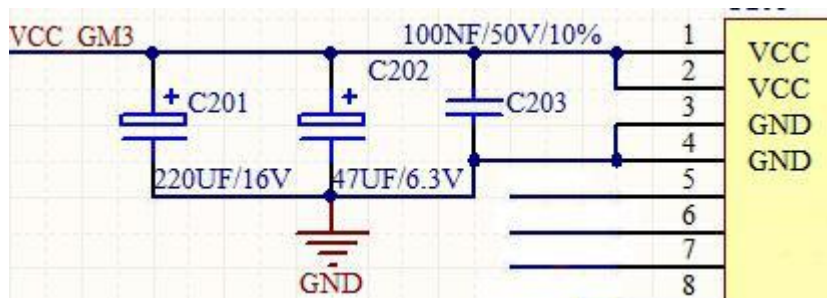


Figure 5 Power interface

2.3. UART Interface

When the user's MCU I/O level isn't 2.8V, it needs to make the level matching(3.3V doesn't need level matching). DEVDD is the I/O power supply for user's MCU. V-PAD is the I/O power supply for GM3P module, user can use it as serial port matching and pull-up power.

Circuit diagram as follows:

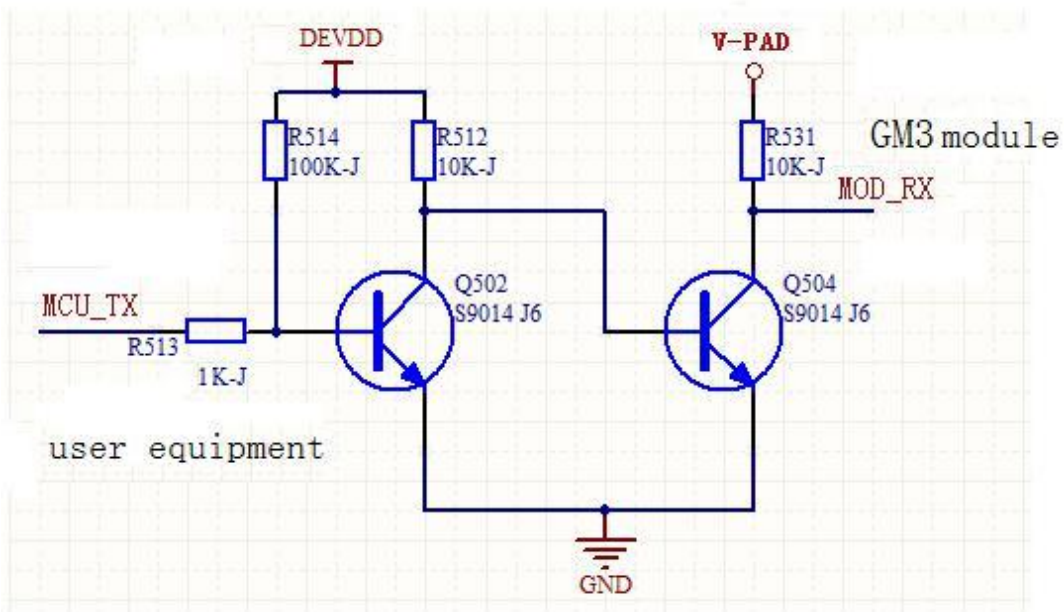
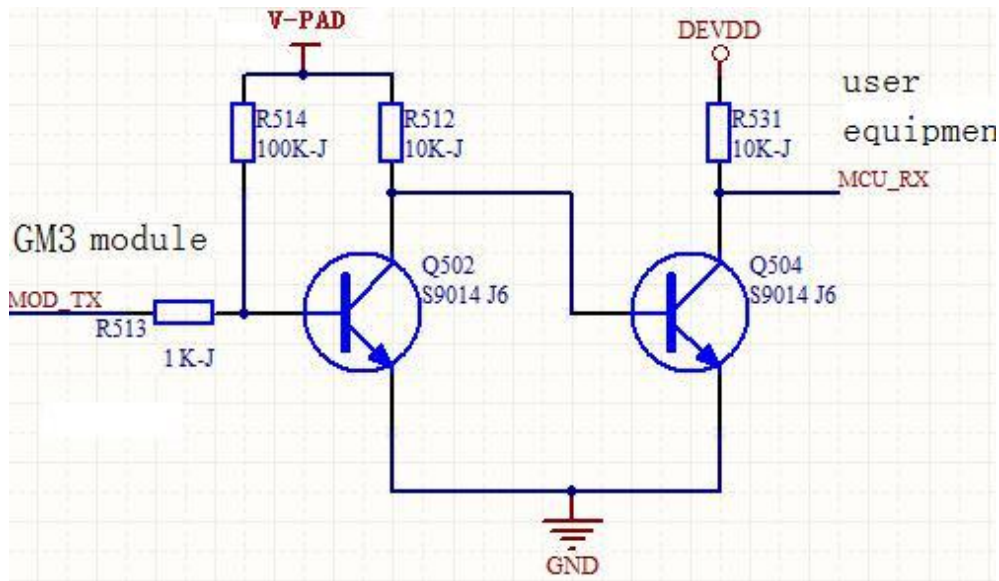


Figure 6 UART interface

Note: When I/O power supply for user's MCU is 3.3v, MOD_RX pin of module doesn't have to do level matching.

2.4. LED Output Control

The module provides LED output control and the module work status can be displayed by the LED status. Adding power indicator is recommended.

Circuit diagram as follow:

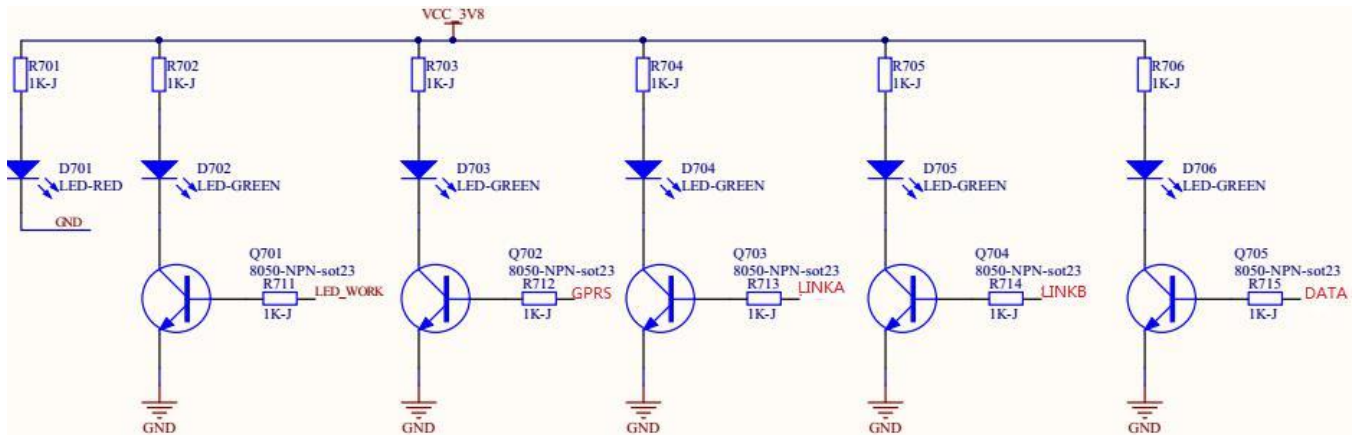


Figure 7 LED

2.5. Reset, Reload and Wake up

Reload pin: Pressing 1s to 3s to restore user default settings, pressing over 6s to restore factory settings.

RESET pin: RESET pin connects to 10K pull-up resistor. Pressing over 0.5s and releasing to reset the module.

WAKEUP: WAKE_UP pin connects to internal 10K pull-up resistor and takes effect in low level.

Circuit diagram as follows:

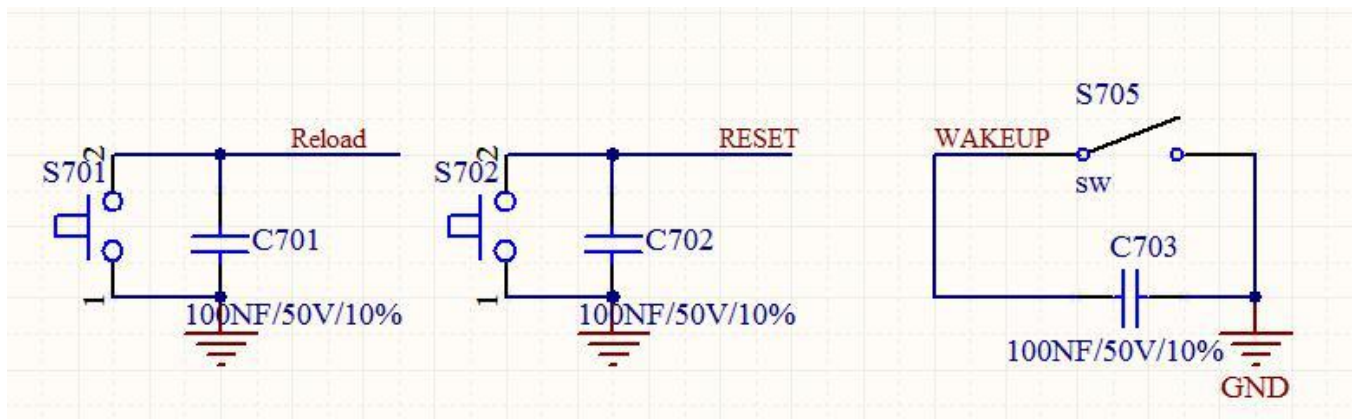


Figure 8 Reset, Reload and Wake up interface

2.6. Start/Shutdown module Interface

After module starting, closing switch to shutdown module and disconnecting switch can start module.

If user doesn't need this function, this pin should be set to disconnected status.

Circuit diagram as follow:

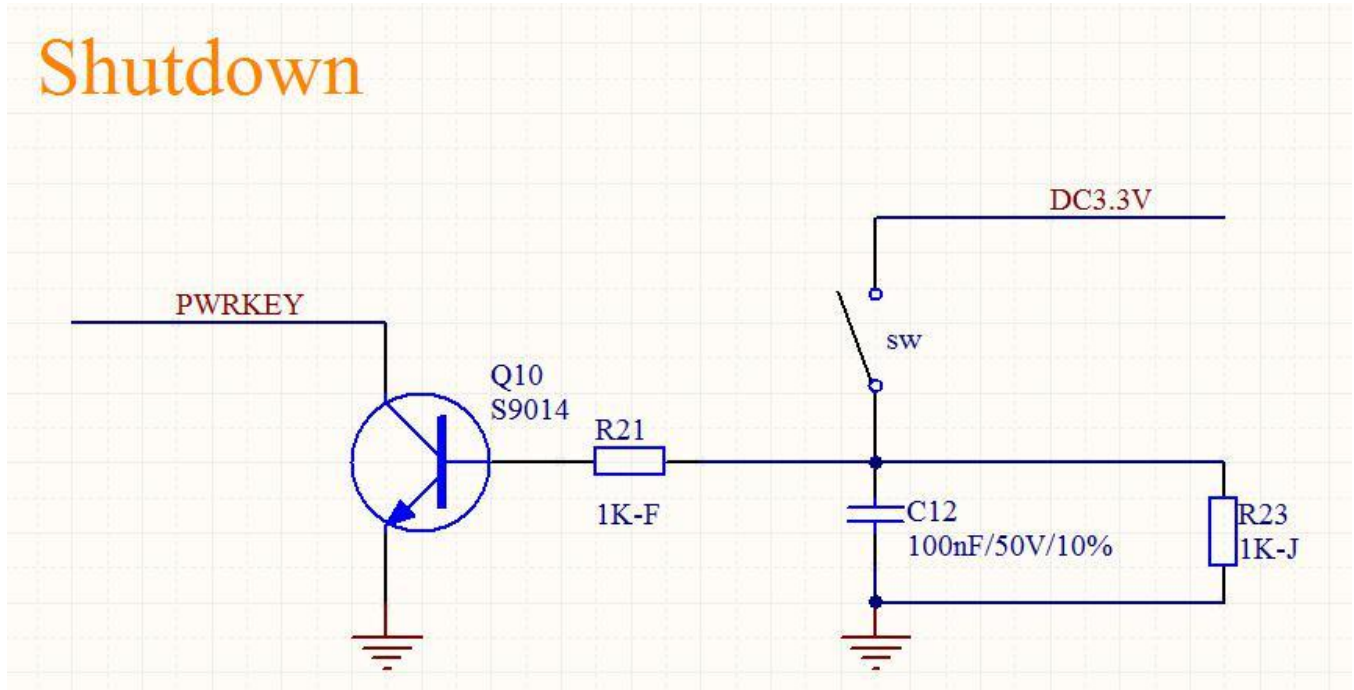


Figure 9 Start/Shutdown interface

3. Contact

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4. Disclaimer

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5. Update History

2017-10-25 V1.8.01 created based on Chinese version V1.8.