USR-GM3 Hardware Manual

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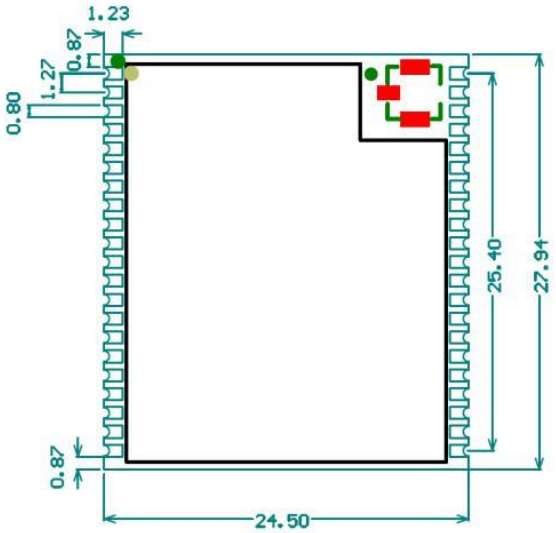
Content

USR-GM3 Hardware Manual 1
1. Product Overview 3
1.1. Dimension 3
1.2. Encapsulation Size 3
1.3. Pin Defination 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 device Interface 9
3. Contact 9
4. Disclaimer 10
5. Update History 10

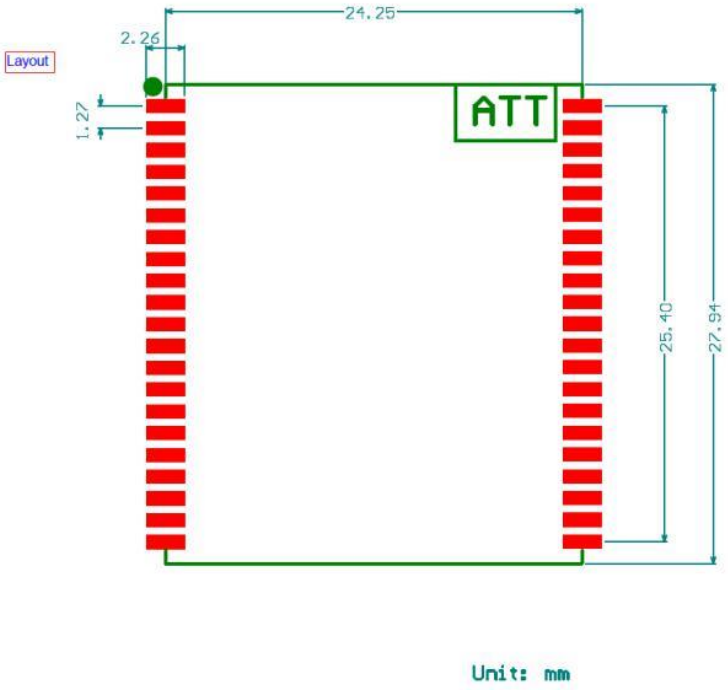
1. Product Overview

1.1. Dimension

Module size: 27.94*24.50*2.75mm, error ±0.2mm, pin size as follows:



1.2. Encapsulation Size



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

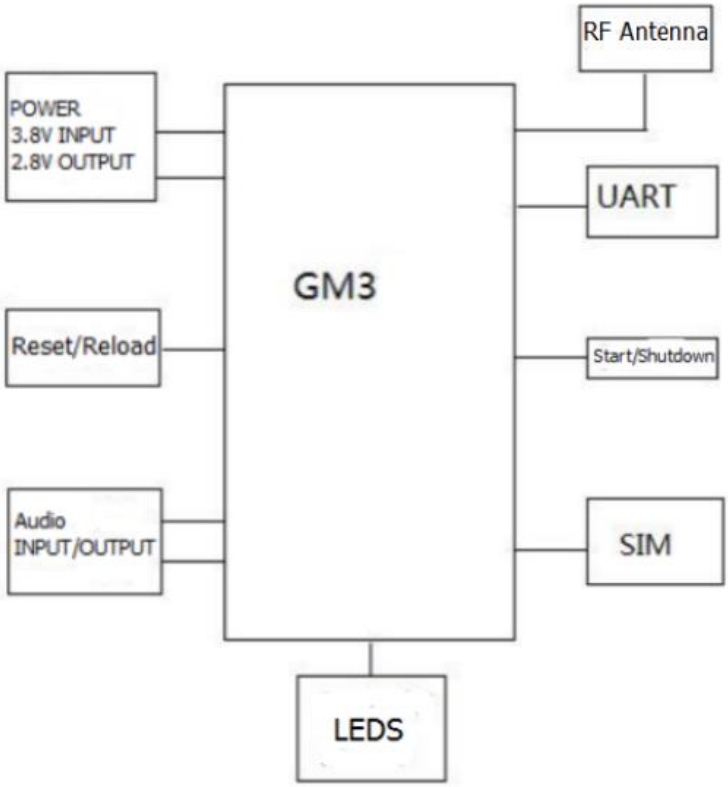
1.3. Pin Defination

PIN	Name	Signal Type	Defination
1	VCC	P	Power VCC, positive, range from 3.4v~4.2v
2	VCC	P	Power VCC, positive, range from 3.4v~4.2v
3	GND	P	Power Ground
4	GND	P	Power Ground
5	Reload	I（10K PU）	Press 1s to 3s to restore default settings Press over 6s to restore factory settings
6	Wake up	I（10K PU）	Wake up pin,take effect in low level
7	RS485	O	When start using RS485, used to change between receive/transmit
8	I2C_SCL	I/O	I2C clock pin
9	Reset	I（10K PU）	Reset pin,take effect in low level
10	GPRS	O	GPRS status,high level means connecting to network and low level means disconecting to network
11	LINKA	O	Socket A status,high level means connection and low level means disconnection
12	LINKB	O	Socket B status,high level means connection and low level means disconnection
13	DATA	O	Data transmission status,high level means having

			data and low level means no data
14	WORK	O	After module start properly,electrical level change status every second and work LED will in flicker status
15	POWER KEY	I	Start/Shutdown device.After device starting, can make pin into low level to shutdown;can also make pin into high level to start device.When you don't need this function, you 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 intput
21	MIC+	I	Microphone positive intput
22	VSIM	P	Power pin to 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 transmit pin
28	HST-RXD	I	Writing program receive pin
29	V-PAD	P	Module I/O power supply pin. 2.8v
30	RTS2	I	UART2 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）	UART1 TX signal
36	RXD1	I（10K PU）	UART1 RX signal
37	CTS1	O	UART1 CTS signal
38	RTS1	I	UART1 RTS signal
39	GND	P	Power Ground
40	GND	P	Power Ground
41	RF	N	Radio-frequency signal output
42	GND	P	Power Ground

2. Hardware Design

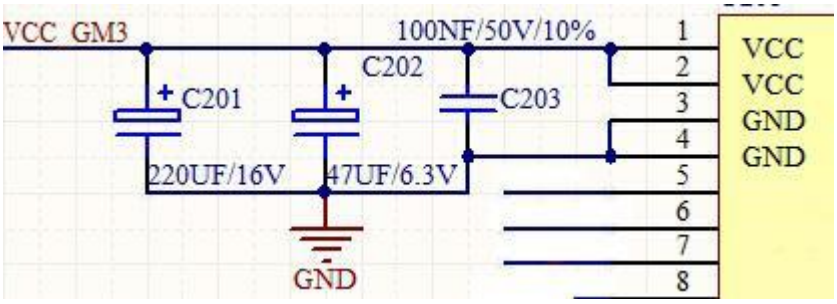
2.1. Typical Connection



2.2. Power Interface

Working voltage VCC range from 3.4V~4.2V, 3.8V is recommended.Power the module by main power pin, pin interface is in parallel with appropriate energy-storage capacitance and high frequency capacitance.

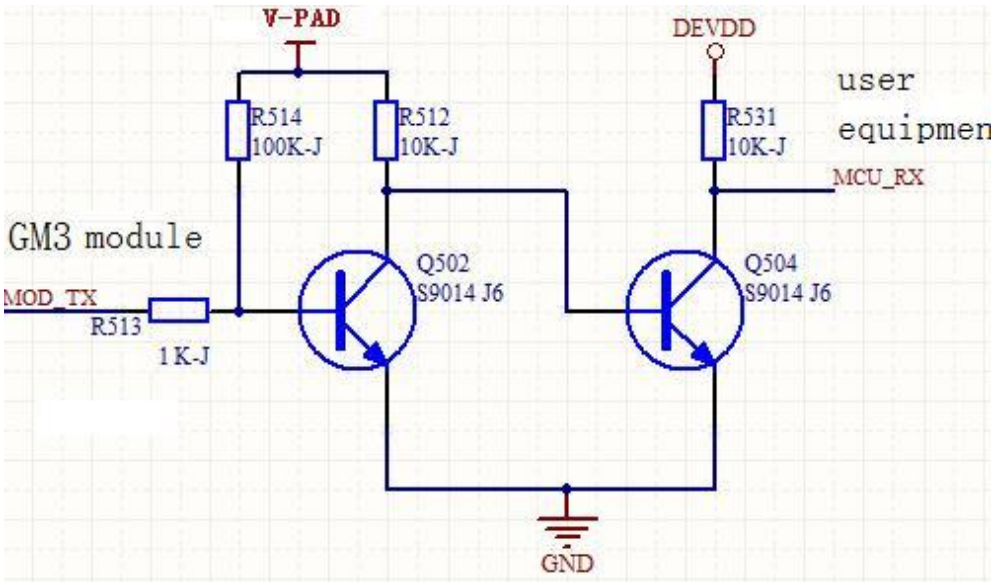
Circuit diagram as follows:

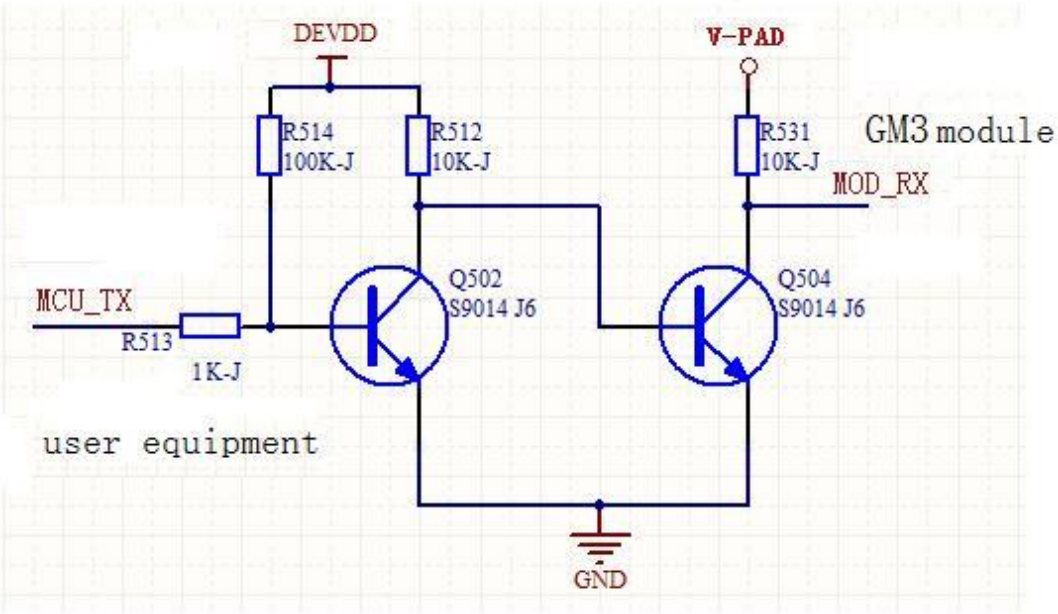


2.3. UART Interface

When the user MCU I/O level isn't 2.8V, it needs to make the level matching. DEVDD is the I/O power supply for customer MCU.V - PAD is the I/O power supply for GM3 module,users can use as UART matching and pull-up power.

Circuit diagram as follows:



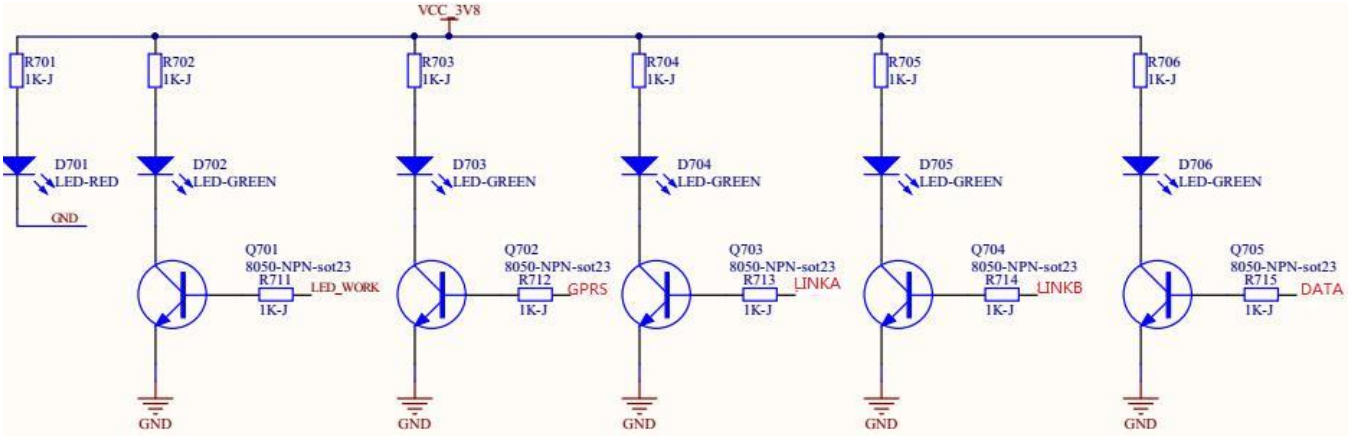


Note:When I/O power supply for customer MCU is 3.3v, MOD_RX pin of module don't have to level matching.

2.4. LED Output Control

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

Circuit diagram as follows:



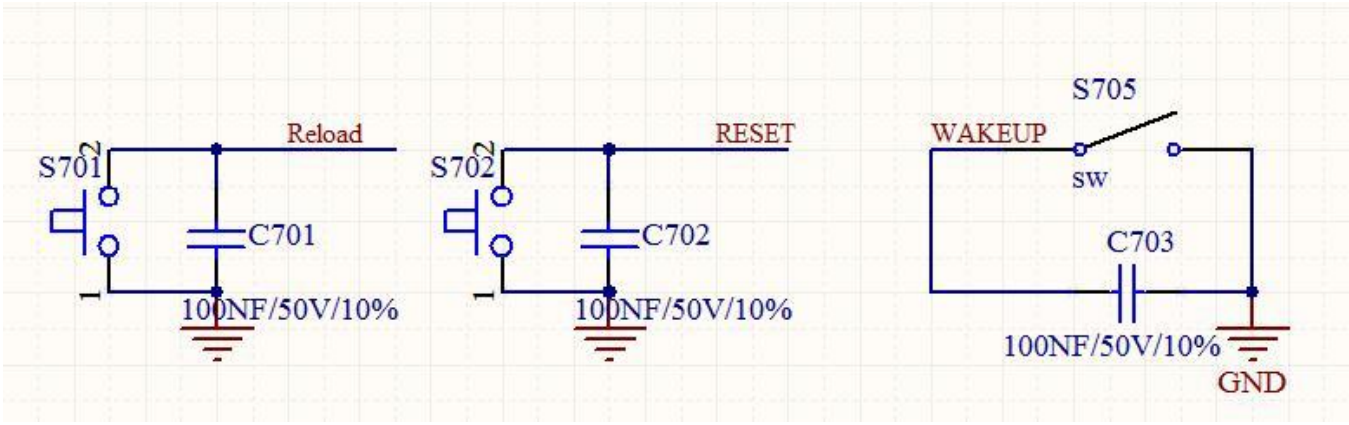
2.5. Reset, Reload and Wake up

Reload:Press 1s to 3s to restore user default settings,press over 6s to restore factory settings.

RESET:RESET pin connect to 10K pull-up resistor.Press over 0.5s and release to reset the device.

WAKEUP:WAKE_UP pin connect to 10K pull-up resistor.Take effect in low level.

Circuit diagram as follows:

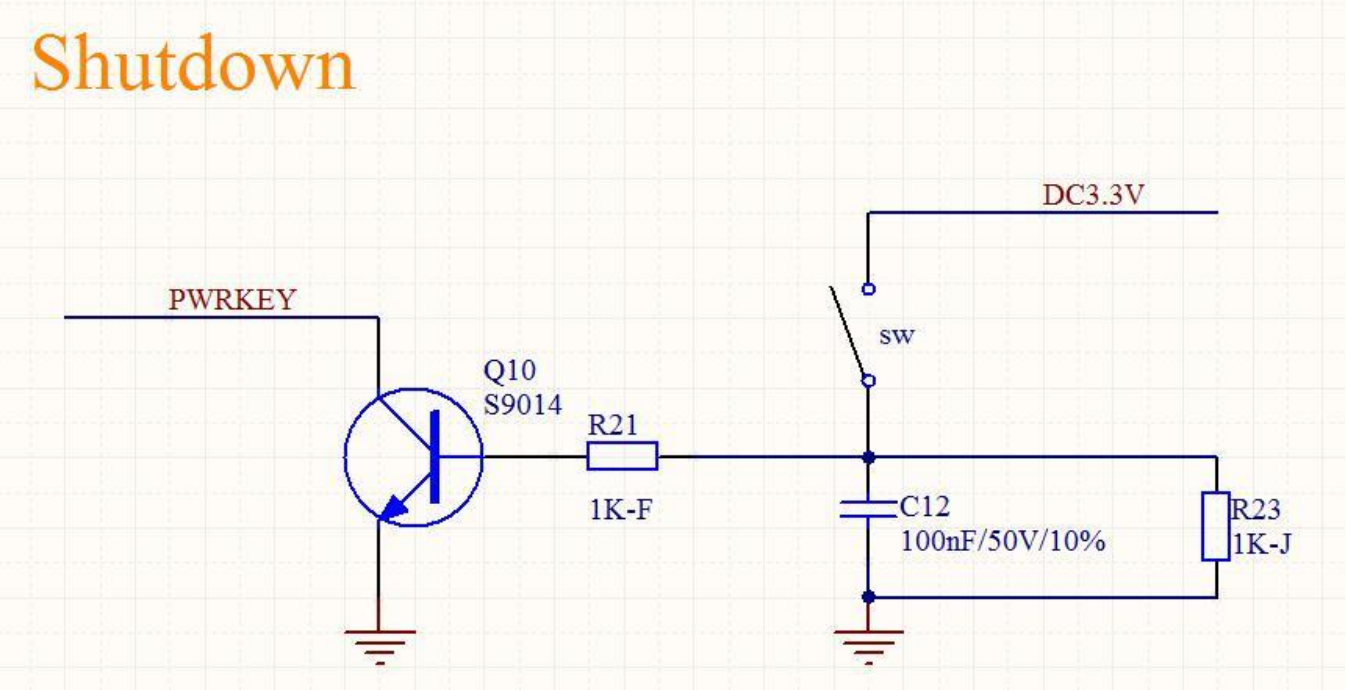


2.6. Start/Shutdown device Interface

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

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

Circuit diagram as follows:



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5. Update History

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