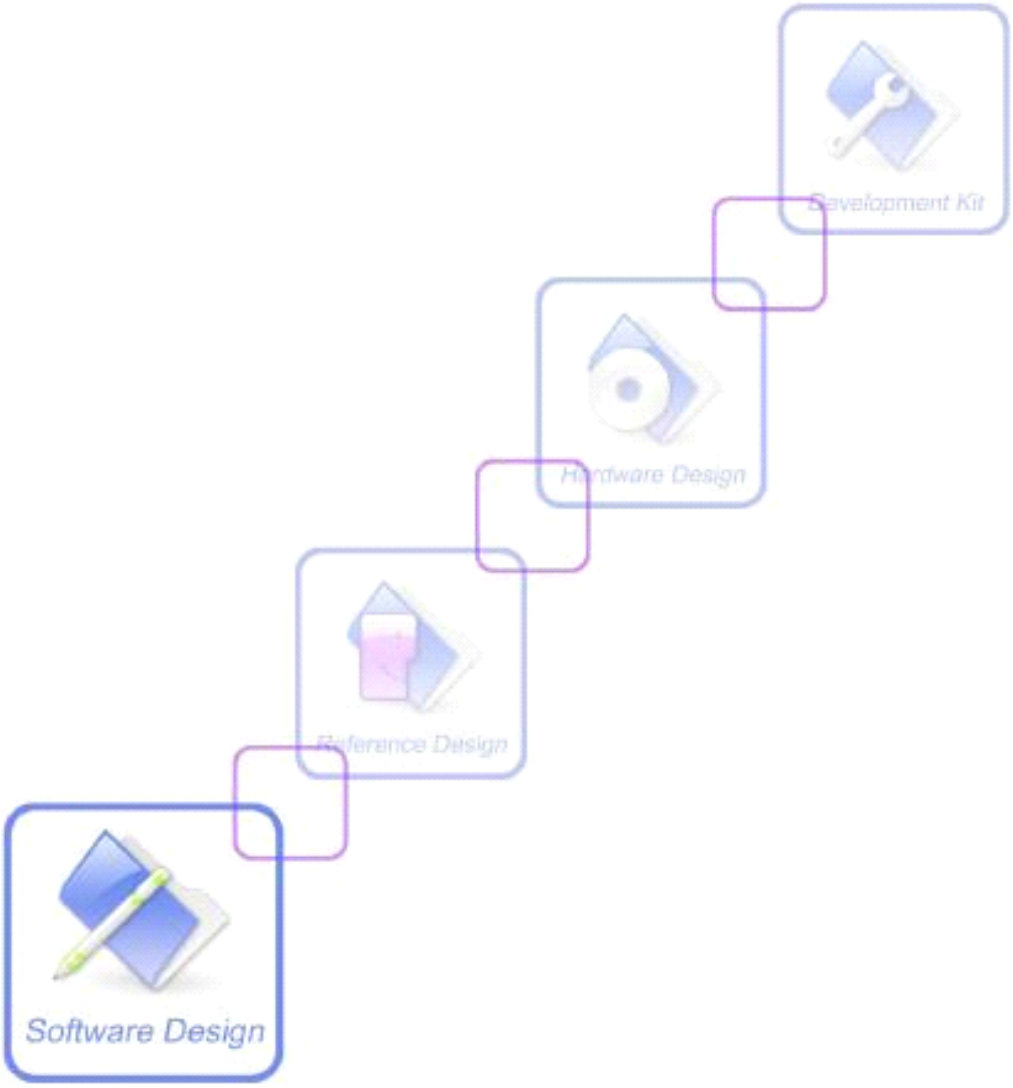
SIMCOM_FAQ 1.01 (EN)



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1 About Product

1.1 How many types of modules do SIMCOM have?

Please inquire this information from our website www.sim.com
or our local distributors.

1.2 How to get the relevant technical documents?

Please inquire this information from our local distributors listed in our website.

1.3 How to find out the software version?

Using ATI, you will get the information as following:
SIMCOM_Ltd
SIMCOM_SIM300
Revision:1008B12SIM300M32_SPANSION

1.4 Can I update the firmware of module?

Yes, you can get a special download tool and relative firmware from our local distributors.

1.5 Does the module support TCP/IP embedded?

Most of modules support TCP/IP embedded except some EDGE and 3G modules. For detail information, please refer to the modules' SPEC.

1.6 What is the module normal temperature range?

Different module has different temperature range. For details, you can refer to the module's SPEC.
For normal temperature range, we have performed a lot of tests to ensure the module quality performance.

1.7 Does the module support sleep mode?

Yes, if you want to use sleep mode, you need to set AT+CSCLK=1first, and then keep DTR pin open or high, the module will enter the sleep mode automatically when the module waiting several seconds in idle mode. The

module consumes current about 3mA in sleep mode. If you want to exit sleep mode, you can pull the DTR pin low and wait 50ms, the module will enter the normal mode.

1.8 Does the module support auto-bauding?

Yes, the module can support auto-bauding from 1200-115200bps. When module powers on, MCU needs to wait 2~3s and then send the AT to module. After receiving the response OK, the module baud rate will auto change to fit the MCU port. The customer can use AT+IPR=X;&W to save the baud rate into the module, when module powers on next time, the module can work in saving baud rate and the URC "RDY" will be displayed.

1.9 Some AT commands respond error code. How can I get more information about error code?

You can use AT+CMEE=2, or you can inquire the error code table by AT command document.

2 About Power on/off

2.1 Can I pull down the PWRKEY PIN to GND directly?

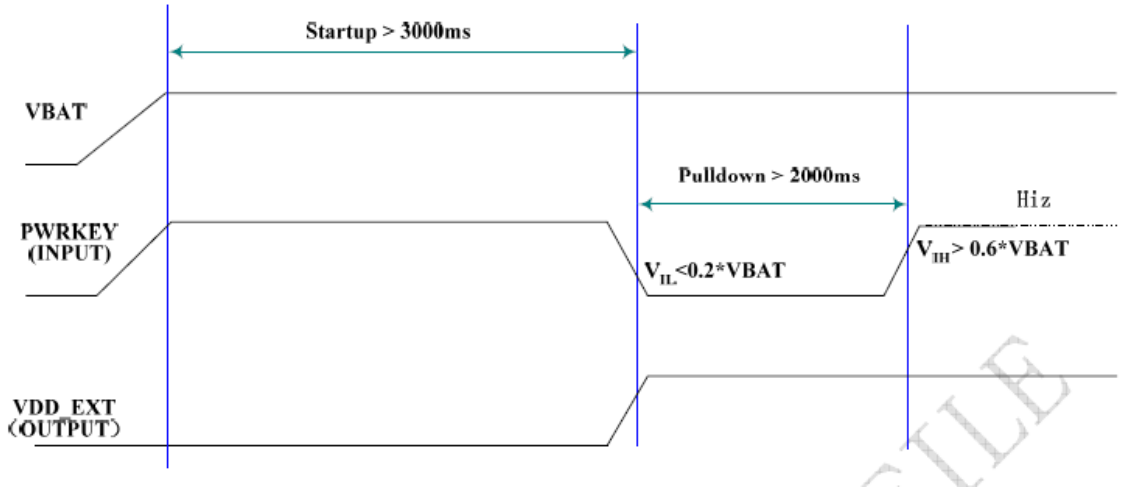
You can't. If you pull down PWRKEY PIN to GND directly, the module will
power on and power off automatically when the module's working voltage below 3.3V. This will damage the module.

2.2 If the module doesn't respond the AT command after working some time, how to handle it?

We suggest you to try two times power on/off sequence by PRWKEY pin, if it still doesn't work, you must switch off the power supply of module by VBAT pin, wait 3S, and then switch on again.

2.3 How to know the module has powered on by hardware?

If the module has STATUS pin, you can conclude it by STATUS pin. When powering on, STATUS pin is a high level output. When powering off, STATUS pin is a low level output.
If the module has not STATUS pin, you can conclude it by VDD_EXT pin as following:



2.4 The module resets again and again, why?

You should check your power supply first. The peak current of module is 2A at most, and our module will power off automatically when the voltage is below 3.3V, so if your power supply can not provide 2A current, the module maybe resets when transmitting.

2.5 Why can I not get RDY from module when powers on?

You should check the module's baud rate by AT+IPR?. Only when you set fixed baud rate, the module will give URC such as +CPIN,+CFUN and RDY etc.

3 About Audio Issue

3.1 How to know the module has registered in the network?

When the module completes the login, the STATUS_LED will flash slow (64ms ON/3s OFF), and also you can use AT+CREG to check. If this AT command responds +CREG:0,1 or +CREG:0,5, that means the module has registered in the network.

3.2 How to know the module login in to which service provider's network?

Use AT+COPS to inquire. For example, if you insert a SIM card of China mobile, when you check using AT+COPS, it will respond +cops:0,0,"china mobile". Details please refer to the AT command document.

3.3 How to know the receiving signal strength?

Use AT+CSQ to inquire, and for details please refer to the AT command document.

3.4 Why no voice when receive a voice call?

Check the handset or earphone connection is loose or not. Check if you have set the mute mode by AT+CMUT. Check if select the right audio channel by AT+CHFA.

3.5 How to adjust the gain of audio?

Use AT+CMIC to adjust the MIC gain, AT+CLVL to adjust the SPK gain, and for details please refer to the AT command document.

3.6 Does the module support the echo suppression?

Yes, you can use AT+ECHO to adjust the echo, and for details please refer to the AT command document.

3.7 Does the module support the side tone control?

Yes, you can use AT+SIDET to adjust the side tone, and for details please refer to the AT command document.

3.8 How to make a voice call?

First, you must ensure the module has completed the login. Then you can use ATD***;
to make a voice call (notice you must add the semicolon).

3.9 How to answer a voice call?

Use ATA command to answer the call, and for details please refer to the AT command document.

3.10 How to hang up a voice call?

Use ATH command to hang up the call, and for details please refer to the AT command document.

3.11 How to display the incoming call number?

Before ATD, you can set AT+CLIP=1. Then when receiving a incoming call, the call number can be display. Or

you can also use AT+CLCC to inquire all incoming call.

3.12 Why does module answer OK right after type ATD? Can I respond OK when the other side answers the call?

Of course. Before ATD, please set the AT+COLP=1 first, then the module doesn't respond OK unless the other side answers the call. But notice please, in old firmware (before 1008SIM300_build10), before the other side answers, you can not type any AT command in this situation. Otherwise it will lead to the module hangs up.

3.13 What should be notice in audio design?

In general, SIMCOM modules provide two audio channels. Main audio (MIC1,SPK1) is differential terminal, and aux audio(MIC2,SPK2) is single terminal. For PCB layout, you'd better follow the below rules:
The power routing should be short and thick, recommend 30mil.
The ground layout is very important. You should keep a full ground on top layer, and most of wires should be layout on the bottom layer, especially the audio wires, keep a whole GROUND under the module shield.
The audio line (mic&spk) must be protected (means must lay bronze around the MIC&SPK line) with ground.
The ground layer (top and bottom) must be connected with many small holes, especially around the audio line and under the module's shield.
The DGND and AGND can not be shorted in your PCB, because they have been shorted in the module.
The width of MIC wires should be 8-10mil. The width of SPK wires should be 12-14mil.
The audio wires had better use difference connection and keep parallel.

3.14 How to switch the audio channel?

Use AT+CHFA=1, change to the main audio channel.
Use AT+CHFA=0, change to the aux audio channel.

3.15 If somebody quit from a multiparty call, how do I know it?

Please use AT+CLCC to inquire the status of all calls. For details, you can refer to the AT command document.

4 About SMS

4.1 What is the definition of CMS ERROR 513?

There are some unread short messages stored in SIM card.

4.2 What is the definition of CMS ERROR 322?

The storage of short message in SIM card is full.

4.3 Can short message be sent as soon as the module is on?

No. There should be some margin time for the SIM card authorization after the module is on. It is better, therefore, to wait 30 seconds. Otherwise, it is probably supposed to get ERROR 512 return. The URC, that is CALL READY, is accessible with the firmware version build10 or even higher versions for SIM300 series module products. The URC can be enabled or disabled by AT+CIURC command. When it is enabled and only if there is CALL READY return after module turns on, the process of call or SMS will be a success.

4.4 How to distinguish data of short message and data of transmission from remote server?

It can be distinguished by the data header. Short message has its own header while it is also recommended to have a header for data from remoter server by setting AT+CIPHEAD=1. In this case, the data from remote server have the header as +IPD.

4.5 How to send short message?

Our product supports PDU and TEXT mode to send short message. For detail information, please refer to our SMS application notes.

4.6 How to get the status report of short message?

The status report of short message can be achieved in both PDU and TEXT mode. The configuration for each is something different. For detail information, please refer to our SMS application notes.

5 About Data Transmission

5.1 How to know if module has attached GPRS network?

AT+CGATT? is to inquire the status of GPRS network attaching. If it is attached, +CGATT:1 returns. For detail information, please refer to AT command set document.

5.2 Is there any AT command to inquire the number of channels for sending or retrieving in GPRS mode?

No.

5.3 Is SIM300 supposed to picture transmission and how large is the data buffer of SIM300?

The default data buffer is 1KB. For picture transmission application, it is advised to adopt UDP socket.

5.4 Is there any necessary configuration before the implementation of AT command for TCP/IP stack?

Not necessary. The command about GPRS is helpful only to the customer who implements the PPP or TCP/IP stack himself. When SIMCom's TCP/IP stack is in use, the only thing you do is to inquire the status of GPRS network attaching. Please refer to the TCP/IP application notes.

5.5 Does module support FTP or SMTP?

Some module products support FTP and SMTP. For detail information, please refer to the spec of module or you may ask our local distributor.

5.6 Is it possible for data transmission with 3-wired mode, RXD, TXT and GND?

Yes. However, the overflow of data buffer may occur with transmission of great deal of data.

5.7 How to realize DNS with internal TCP/IP stack?

Please refer to TCP/IP application notes.

5.8 In data mode, how to detect some incoming call or short message?

The level changing of RI output indicates the incoming call or short message. When there is an incoming call, the RI outputs 50ms low level. When there is a short message coming, the RI outputs a 120ms low level.

5.9 How to switch between data transparent mode and command mode?

'+++' is for exit of data transparent mode. Pay attention to the 500ms idle before and after '+++' sequence and the interval between each '+' should be less than 20ms. Or set AT&D1 so that module return command mode if DTR is driven low for 1s and then pulled high. ATO can drive the module back to data transparent mode.

5.10 How to maintain TCP or UDP connection?

Most TCP or UDP connections does not maintains for a long time idle due to the limitation of network resource by operator. In this case, the connection will be closed by network if there is not any data flow. It is suggested to send a data package with several bytes to maintain the idle connection. The interval varies from city to city.

5.11 What is the maximum data sending package of TCP?

So far the firmware supports the maximum as 1460KB.

5.12 When restart the TCP connection, will the allocated IP change or be occupied after the former TCP socket is closed by AT+CIPCLOSE?

No, it will not change or be occupied, but the local listening port may change.

5.13 Can module get DNS IP address automatically?

The latest firmware supports to get DNS IP address automatically.

6 About Serial Port

6.1 The function of RI

RI is an output pin and high level by default. When there is some incoming call or short message received, RI will be driven low.
In command mode: when there is some incoming call, RI will be driven low and will not back to high level until the call is disconnected by the originating side or the network or the call is refused by called party. When there is some short message received, RI will output a 120ms low level. In data mode: when there is some incoming call, RI will output a 50ms low level. When there is some short message received, RI will output a 120ms low level.

6.2 What is the function of DCD?

Set AT&C1 to enable the DCD as the hardware indication that whether module is in data mode or not. DCD is an output pin and high level by default. When module is in data mode, DCD outputs low.

6.3 What is so-called data mode?

The so-called data mode occurs after a successful CSD call or a successful TCP or UDP transparent socket connection or the period of sending/receiving data during command mode.

6.4 What is the function of DTR?

1) to wake the module up from sleep mode
2) to drive the module exit data mode and back to command mode. A 1s low level of DTR can drive the module back to command mode during transparent date transmission.

6.5 Is it possible to realize the communication with only TXD and RXD? If yes, how to?

Yes, the simplest serial port communication is achieved with only TXD, RXD and GND. In addition, there is no hardware flow control in this way and the module's RTS should be shorted to GND directly.

6.6 Why there is some unexpected character appearing?

Please check the working baud rate of DTE-DCE communication.

6.7 What is the standard level of module's serial port? Is there any need of level-shifting chipset if the MCU works at 3V3.

The standard level of module's serial port is around 2.97V. If the MCU works at 3V3, there also needs a level matching. Some 100 to 200ohm resistors can be placed in series between each module and MCU. Furthermore, we suggest the isolation by some level-shifting chipset, such as TI SN74L OD buffer/driver.

6.8 Can module open two serial ports to customer? What is the function of Debug Port?

So far module supports only one serial port for customer. The Debug Port is reserved for catching internal protocol signals.

6.9 Can the received DTMF tone be output via module's serial port?

No. Module can not decode the received DTMF from analog input so there's a need for external DTMF decoding chipset.

7 About SIM Card

7.1 Why does ERROR return with AT+CPIN?

Set AT+CMEE=2 to check the ERROR in details. It is probably due to the inexistence of SIM card or some trouble in communicating with SIM card. Follow the procedure: set AT+CMEE=2, then AT+CPIN? will return ERROR in details.

7.2 How to lock SIM card?

Configure AT+CLCK command. Please refer to AT command document provided by SIMCOM.

7.3 The procedure of reading out own subscriber number using AT command.

When trying to read out the subscriber number by AT+CNUM, it may be a success or failure. The reason of failure is that the subscriber number has not been written into the corresponding phonebook storage.
The procedure of reading out subscriber number using AT command:
1) Confirm the subscriber number
2) set AT+CPBS=”ON” to activate the OWN NUMBER memory
3) set AT+CPBW=1,”subscriber number”<CR> If it is successful, OK will return.
4) Read out subscriber number by AT+CNUM

8 About Others Hardware Interfaces

8.1 How to deal with VRTC pin if it is not in use?

It is suggested not to leave VRTC pin floating. It is better to connect to a capacitor or a 1V8 backup battery.

8.2 How to use KBR0~KBR4, KBC0~KBC4, DISP_DATA, DISP_CLK, DISP_RST, DISP_C/S?

It is not open to customer with standard firmware. Leave it floating if not in use.

8.3 How to select DC-DC and LDO in power designing?

We advise to use LDO if the input voltage ranging from 5~12V. Use DC-DC if the input voltage is over 12V.

8.4 What is the power consumption in normal working mode? If the power has only 1A driving capability, can module work properly?

The current consumption may be up to 2A when there is a transmitting burst, but the normal working current is only in hundred mV. If the power is not so strong, some larger capacitors can be taken into consideration to put in parallel to VBAT.

8.5 What is the range of working voltage?

It ranges from 3V4 to 4V5.

8.6 How to send and retrieve FAX via module/modem?

Our module/modem supports data fax service. Try WinFAX and refer to the application notes of FAX.

9 About SIM508 GPS Module

9.1 What is the data format and baud rate of two serial ports of GPS part respectively?

By default, GPS_COMA works at 57600 SirF data format while GPS_COMB works at 4800 NMEA format.

9.2 Will the antenna of GSM and GPS interfere to each other? If yes, is there any way to improve it?

No, they do not interfere to each other.

9.3 How to use the PTF function of SIM508 series product?

Please refer to SIM508_AN01.pdf.