ADH8212 **GSM GPRS Modem User's Manual**

Content

1. Introduction

This document defines the ADH8212 module series and describes the hardware interface of the ADH8212 module that connects to the customer application.

This document can help customer quickly understand module interface specifications, electrical and mechanical details. With the help of this document, associated application notes and user guide, customer can use ADH8212 module to design and set up mobile applications quickly.

2. Product key features

Table 1 ADH8212 key features

Feature	Implementation
Power supply	Single supply voltage 6.0V – 24.0V (5.0V Customize)
Key features	•Quad-band 850/900/1800/1900MHz •GPRS multi-slot class 12/10 •GPRS mobile station class B •Compliant to GSM phase 2/2+ –Class 4 (2 W @ 850/900MHz) –Class 1 (1 W @ 1800/1900MHz) •Control via AT commands (3GPP TS 27.007, 27.005 and SIM Com enhanced AT Commands) • Power enables control, MPS DC-DC power converter. •Operation temperature:-40℃ ~85℃ Specifications for GPRS Data •GPRS class 12: max. 85.6 kbps (downlink/uplink) •PBCCH support •Coding schemes CS 1, 2, 3, 4 •PPP-stack •USSD Specifications for SMS via GSM/GPRS •Point to point MO and MT •SMS cell broadcast •Text and PDU mode Software features •0710 MUX protocol •Embedded TCP/UDP protocol •FTP/HTTP, MMS, POP3/SMTP, SSL, DTMF, Jamming Detection,

	•Bluetooth 3.0(optional) •Port SIM card: 1.8V, 3V, Protected against ESD with a TVS diode array.
Serial interface	● Support from 4800 bps to 115200 bps, default auto baud rate ●UART default 3.3V TTL level, optional 5V TTL level
•Dimensions	58*35*12mm

3. Application interface

3.1 Pin Description

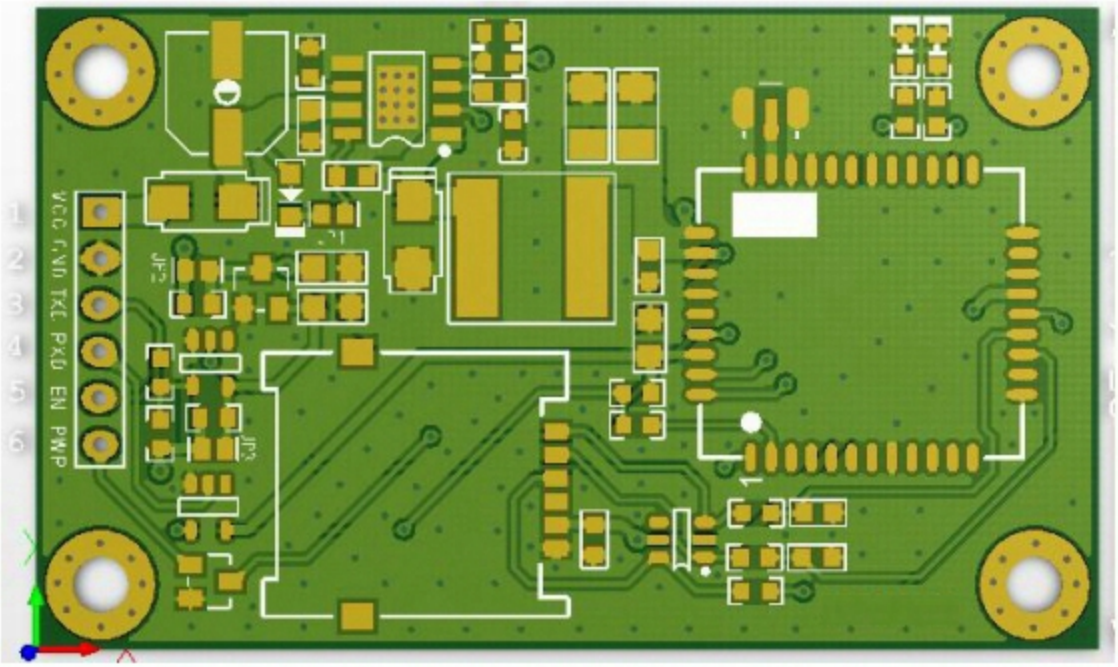


Figure 1 Pin distribution

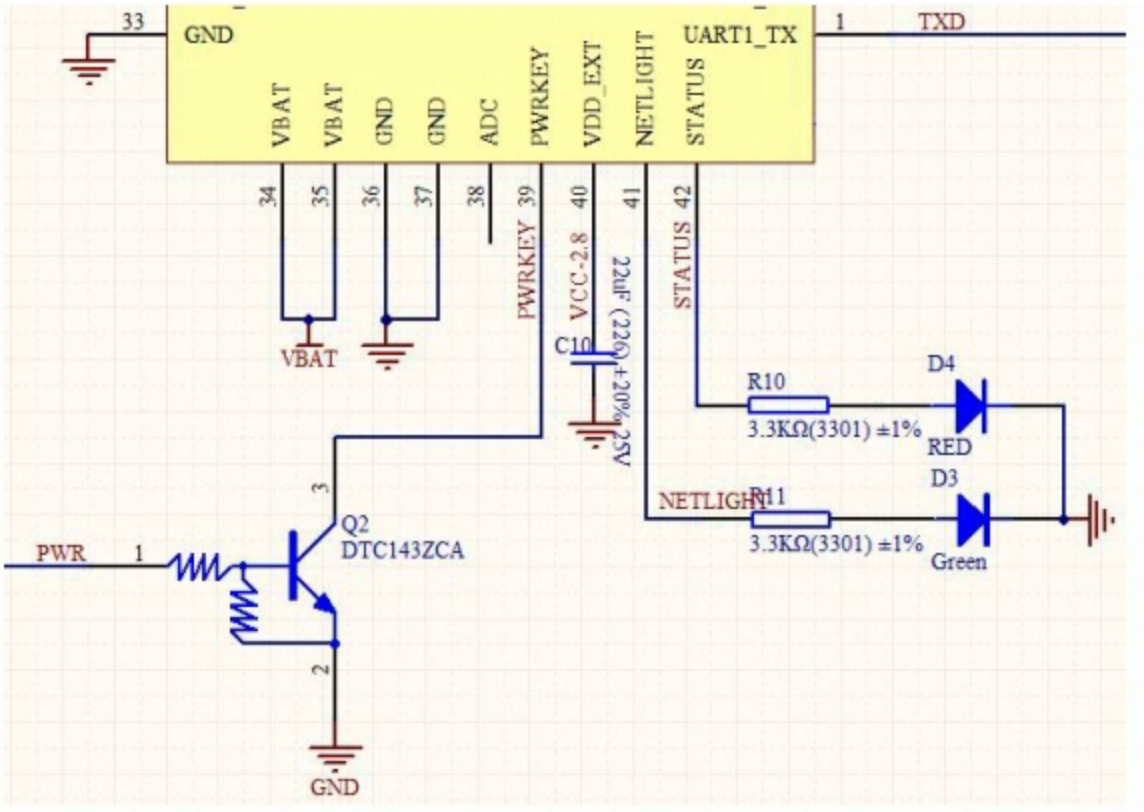
Table 2 Pin description

NAME	PIN	I/O	DESCRIPTION	COMMENT
VCC	1	P	Power	6.0V – 24.0V(5.0V Customize)
GND	2	P	Power and signal ground	
TXD	3	O	TTL level: ADH8212 Transmitting data.	Default 3.3V TTL (5.0V TTL Optional)
RXD	4	I	TTL level:	3.3V and 5.0V TTL Compatible

			ADH8212 Receiving data.	
EN	5	I	TTL level: Modem power enable control	3.3V and 5.0V TTL Compatible Enable Input. Pulling this pin below 1.35V shuts the ADH8212 down and the power consumption is about 12uA. Pulling it up above 1.35V or leaving it floating enables the ADH8212 power.
PWR	6	I	TTL level: Power on/off SIM800C control input	3.3V and 5.0V TTL Compatible

3.2 Power on and power off SIM800C

ADH8212 PWR pin with SIM800C PWRKEY pin connection schematic shown:



3.2.1 Power On

Application can power on the SIM800C by driving the pin of PWR to a high level voltage more than 1second. Software could send AT command "AT" and check the modem if have response, it response "OK" it means powered on.

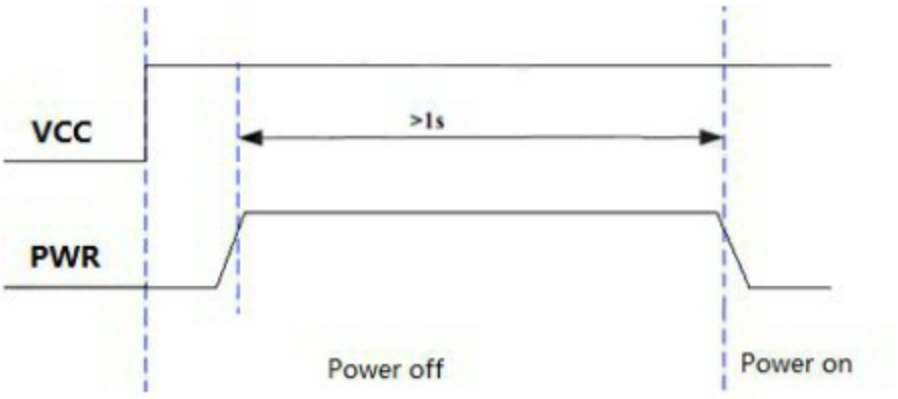


Figure 2 Timing of turn on the module

Note: The module is set to auto baud rate mode (AT+IPR=0) in default configuration. In the auto baud rate mode, the URC "RDY" after powering on is not sent to host controller. Host controller should firstly send an "AT" or "at" string in order that the module can detect baud rate of host controller, and it should send the second or the third "AT" or "at" string until receiving "OK" string from module. If you need to using fixed baud rate, Then an "AT+IPR=x;&W" should be sent to module and save the configuration to flash memory of module. After these configurations, the URC "RDY" would be received from the Serial Port of module every time when the module is powered on. Refer to Chapter "AT+IPR" in AR command manual.

3.2.2 Power off

Application can power off the SIM800C by driving the PWR to a high level voltage for certain time. The power-down scenario is illustrated as in Figure 3.

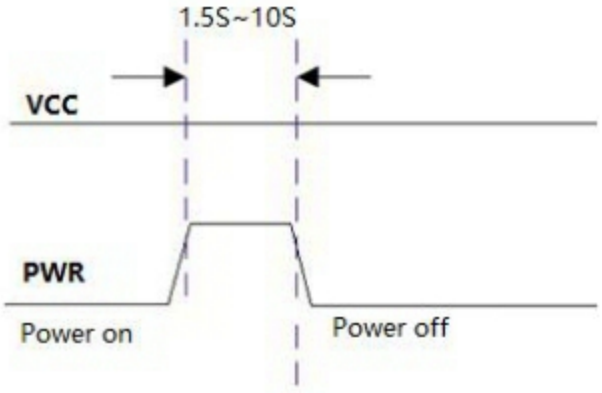


Figure 3 Timing of turn off the module

The power-down procedure causes the module to log off from the network and allows the software to save important data before completely disconnecting the power supply, thus it is a safe way. Before the completion of the power-if procedure the module sends out the result code shown below: NORMAL POWER DOWN. After this moment, no further AT command can be executed, and then the SIM800C enters the POWER DOWN mode.

3.2.3 Power off SIM800C by AT command

Application can use an AT command "AT+QPOWD=1" to turn off the SIM800C. This command will let the SIM800C to log off from the network and allow the software to save important data before completely disconnecting the power supply, thus it is a safe way. Before the completion of the power-off procedure the SIM800C sends out the result code shown below: NORMAL POWER DOWN. After this moment, no further AT command can be executed, and then the SIM800C enters the POWER DOWN mode.

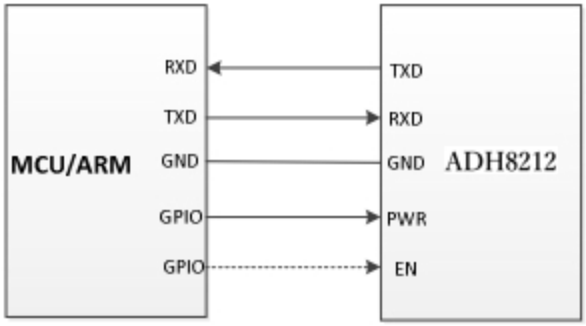
3.3 Power saving

Upon system requirement, there are several actions to drive the ADH8212 to enter low current consumption status.

a. AT+CFUN can set the SIM80C into minimum functionality mode (refer to SIM800 serial AT command manual).
b. AT+QSCLK can set the SIM800C enter sleep mode (refer to SIM800 serial AT command manual).
c. Set **EN** pin to low level to shuts the ADH8212 down and the power consumption is about 12uA.

3.4 Serial interfaces

The connection schematic between ADH8212 with MCU/ARM shown (Dotted line: optional connection):



Connections with MCU/ARM

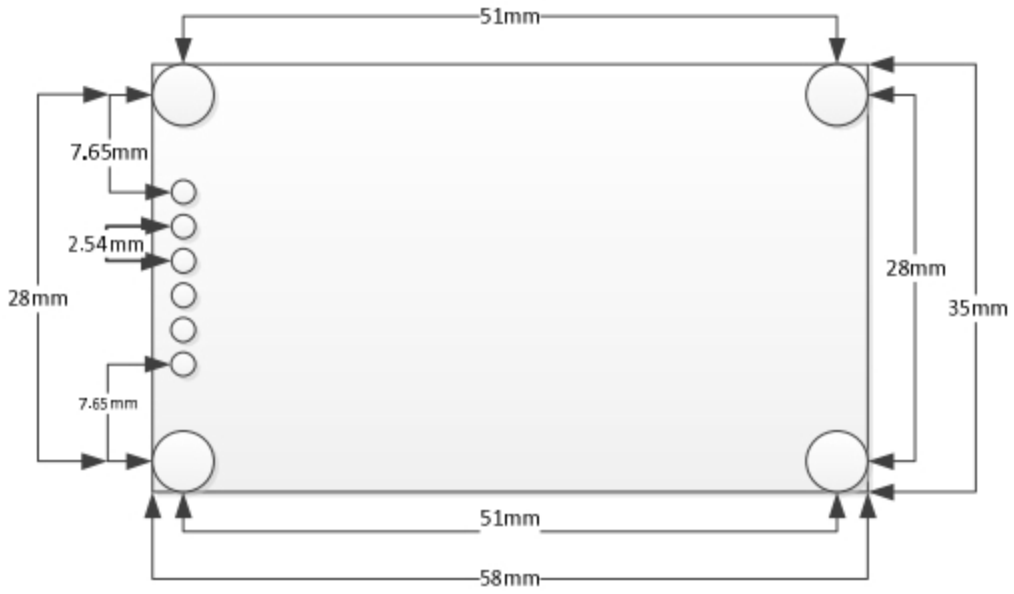
3.5 LED indication

3.5.1 Red Led is the SIM800C power on/off status indication.

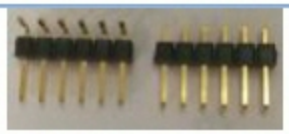
3.5.2 Green Led is the network state indication.

state	Module Function
Off	The SIM800C is power off
64ms On/800ms Off	Not registered the network
64ms On/3000ms Off	Registered to the network
64ms On/300ms Off	GPRS communication is established

4. Mechanical dimension



5. Product List

Name	Quantity	Describe	Picture
ADH8212	1	Module	
Connector	1	Only for sample (appoint the solder type for mass production)	
PCBA antenna	1	Default	
IPX to SMA cable	1	Optional(if not choice PCBA antenna)	

Flexible antenna	1	Optional (11CM)	
Bend antenna	1	Optional (5cm)	
Sucker antenna	1	Optional