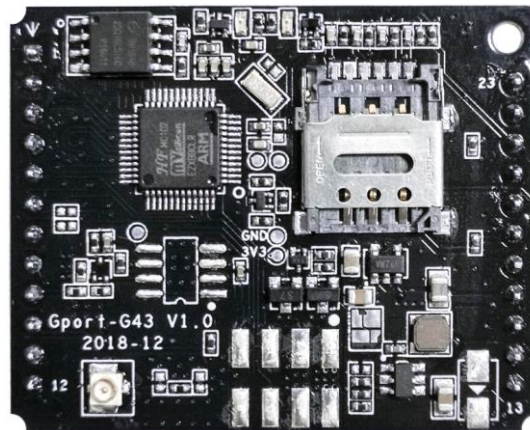


Gport-G43

4G Module User Manual

V 1.1



Overview of Characteristic

- ✧ Support LTE-TDD, LTE-FDD, WCDMA, TD-SCDMA, GPRS
- ✧ Support UART to 2G/3G/4G Data Transmission, UART baud rate Up to 460800bps
- ✧ Supports Max 3 Channel TCP/UDP connections, Each Connection Supports 1400 Bytes of Data Cache
- ✧ Support Multiple Working Modes: Network Transparent Transmission Mode, HTTP Mode
- ✧ Support IOTService Tool, Remotely and Dynamically Modify Module Parameters
- ✧ Support SMS AT Command Configuration
- ✧ Supports Registration Packet, Heartbeat Packet Function, and Packet Supports Combination of ICCID, IMEI, IMSI, Software Version, GPRS Connection Status.
- ✧ Support NTP
- ✧ Support Modbus TCP to Modbus RTU
- ✧ Support IOTBridge for Remote Control and Config
- ✧ Support IOTBridge Working Time Setting, For Example, Only Works From 10:00 to 10:30 to Save the Data Traffic

- ✧ Support UART, Network OTA Upgrade Firmware
- ✧ Size: 45 x 32 x 8mm
- ✧ 5~18VDC Wide Power Supply

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HISTORY

V 1.0 12-19-2018. First Version

V 1.1 01-09-2019. Update picture, EVK

1. PRODUCT OVERVIEW

1.1. General Description

The Gport-G43 support LTE-TDD, LTE-FDD, WCDMA, TD-SCDMA, GPRS full network. 4G network support maximum download data rate 150Mbps, upload data rate 50Mbps.

The Gport-G43 support TCPIP protocol, with its UART interface, it make traditional UART device easy connecting to IOT. Module structure is as following.

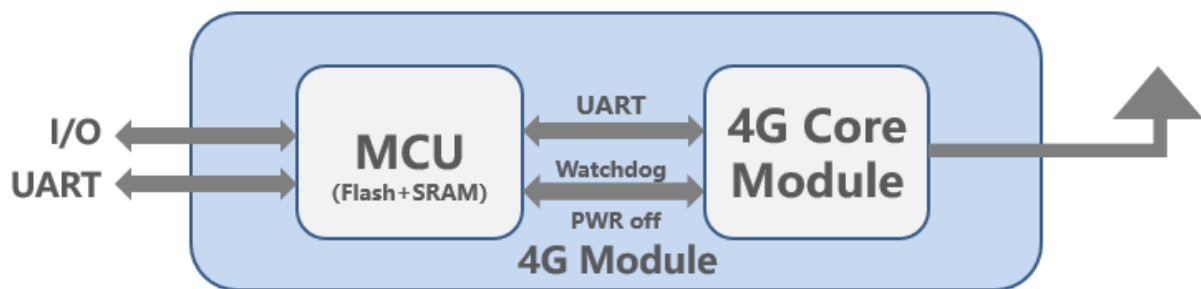


Figure 1. Gport-G43 Module Internal Structure

1.2. Device Parameters

Table1. Gport-G43 Technical Specifications

Item	Parameters
System Information	
Processor/Frequency	Cortex-M3/96MHz
Operating System	FreeRTOS
2G/3G/4G Interface	
Transmit Power	LTE-TDD: Class 3(23dBm+1/-3dB) LTE-FDD: Class 3(23dBm±2dB) WCDMA: Class 3(24dBm+1/-3dB) TD-SCDMA: Class 3(24dBm+1/-3dB) GSM900: Class 4(33dBm±3dB) DCS1800: Class 1(30dBm±3dB) GSM900 8-PSK: Class E2(27dBm±3dB) DCS1800 8-PSK: Class E2(26dBm±3dB)
Receive Sensivity	FDD B1: -96dBm(10M) FDD B3: -96dBm(10M) FDD B5: -96dBm(10M) FDD B8: -96.5dBm(10M) TDD B38: -96dBm(10M) TDD B39: -97dBm(10M) TDD B40: -96.5dBm(10M) TDD B41: -96dBm(10M) WCDMA B1: -110dBm WCDMA B8: -111dBm

	TDSCDMA B34: -109dBm TDSCDMA B39: -109dBm GSM 900M: -109dBm GSM 1800M: -109dBm
LTE	Maximum Support non-CA CAT4 Support 1.4~20MHz RF Bandwidth Downstream Support Multiple Users MIMO FDD: Maximum Upstream Rate 50Mbps Maximum Downstream Rate 150Mbps TDD: Maximum Upstream Rate 35Mbps Maximum Downstream Rate 130Mbps
WCDMA	3GPP R8 DC-HSPA+ 16-QAM,64-QAM and QPSK Modulation Maximum Upstream 5.76Mbps Maximum Downstream 42Mbps
TD-SCDMA	CCSA Release 3 Maximum Upstream 2.2Mbps Maximum Downstream 4.2Mbps
GSM/GPRS	R99: CSD Transmission Rate: 9.6Kbps/14.4Kbps GPRS: Support GPRS multi-slot class 12 Code Method: CS-1/CS-2/CS-3/CS-4
Serial Port	
Port Number	1
Interface Standard	3.3V TTL
Data Bits	7,8
Stop Bit	1,2
Check Bit	None,Even,Odd
Baud Rate	1200 bps~460800 bps
Flow Control	No Flow control Hardware RTS/CTS
Software	
Configuration	Serial AT Command IOTService Serial Port Configuration Software IOTService Network Configuration Software
Firmware Upgrade	UART or OTA Upgrade
Basic Parameter	
SIM Card	Nano SIM card(1.8V/3V)
Size	45mm x 32mm x 8mm
Operating Temp.	-40 ~ 85°C
Storage Temp.	-45 ~ 105°C, 5 ~ 95% RH (no condensation)
Input Voltage	5~18VDC(5V/2A or 9V/1A power supply)
Working Current	~300mA@9V 2A peak current

1.3. Key Applications

The Gport-G43 module connects the serial device to the Internet and conforms to the TCP/IP protocol for transmitting serial data.

- Remote device monitoring

- Production asset tracking and monitoring
- Security field
- Industrial sensors and controllers
- Health medical equipment
- ATM equipment
- Data acquisition equipment
- UPS power management equipment
- Telecommunication equipment
- Data display device
- Hand-held device
- Attendance system and terminal equipment

2. HARDWARE INTRODUCTION

Gport-G43 is a 4G solution for serial device networking. Data transmission via 2G/3G/4G makes product integration very easy. This product meets EMC Class B security level and can pass relevant certification tests in various countries.

2.1. Appearance

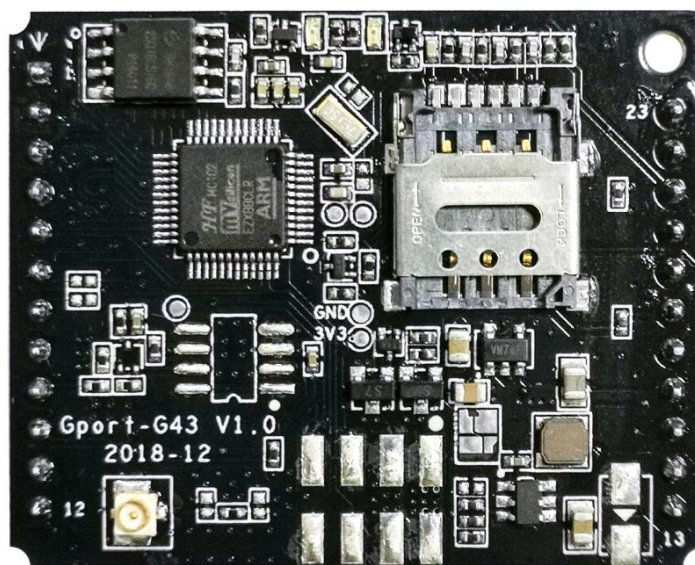


Figure 2. Gport-G43 Front Appearance



Figure 3. Gport-G43 Back Appearance

2.2. Gport-G43 Interface

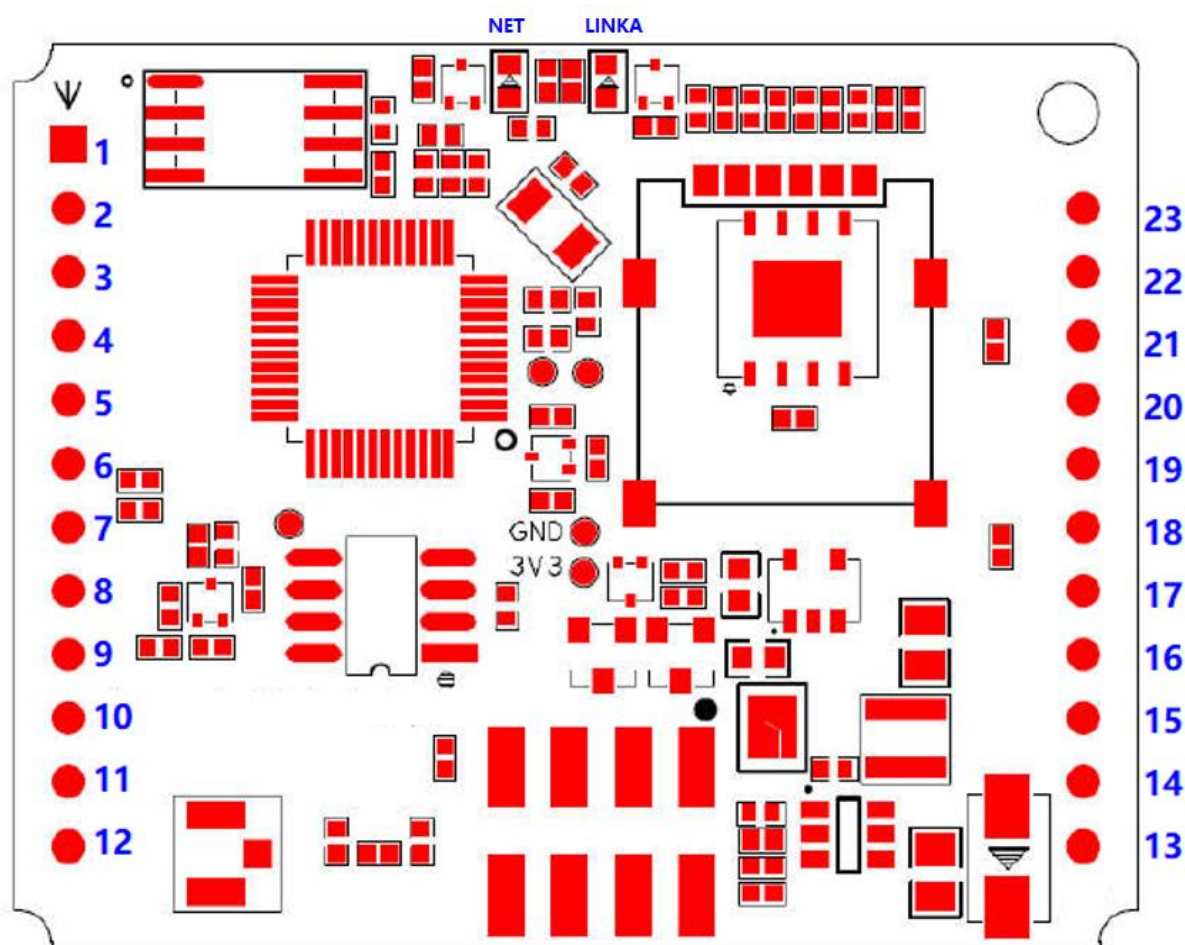


Figure 4. Gport-G43 PIN Interface

Table2. Gport-G43 PIN Interface Definition

Pin	Description	Network Name	Signal Type	Notes
1	Socket A Link	LINKA	O	High voltage effective. On: Socket A channel connection is OK Off: Socket A channel connection is NG
2	Socket B Link	LINKB	O	High voltage effective. On: Socket B channel connection is OK Off: Socket B channel connection is NG
3	USB_DM	USB_DM	IO	
4	USB_DP	USB_DP	IO	
5	ADC1	ADC1	IO	
6	Communication Serial Port 1TX	UART1_TXD	O	3.3V TTL Voltage
7	Communication Serial Port 1RX	UART1_RXD	I	3.3V TTL Voltage
8	ADC0	ADC0	IO	ADC1
9	GPIO	GPIO	IO	

Pin	Description	Network Name	Signal Type	Notes
10	GPIO	GPIO	IO	
11,12	Power GND	GND	P	
13,14	Power Input	VIN	P	5~18VDC
15	Network Status LED	NET	I/O	0.2s On -> 1.8s Off: Search the network 1.8s On ->0.2s Off: Network standby (Reserved) 0.125 On -> 0.125 Off: Network Communication OK
16	Power Output	VOOUT	P	Max 3.8V@2A Output
17	GPIO	GPIO	IO	
18	Reload to Factory Setting	RELOAD	I	Long press 3 seconds down and loose to restore parameters to factory setting
19	Reset Pin	RESET	I	Low voltage effective. Set low for more than 200ms. Leave it open if not use.
20	SIM Card Supply Voltage	SIM_VDD	O	SIM Card Interface, The Interface is Recommended to Use TVS Tube for ESD Protection, SIM Card to Module Longest Wire Diameter Should Not Exceed 20cm
21	SIM Card Data Cable	SIM_DAT	O	
22	SIM Card Clock Line	SIM_CLK	I/O	
23	SIM Card Reset	SIM_RST	O	

2.3. Gport-G43-P8 Interface

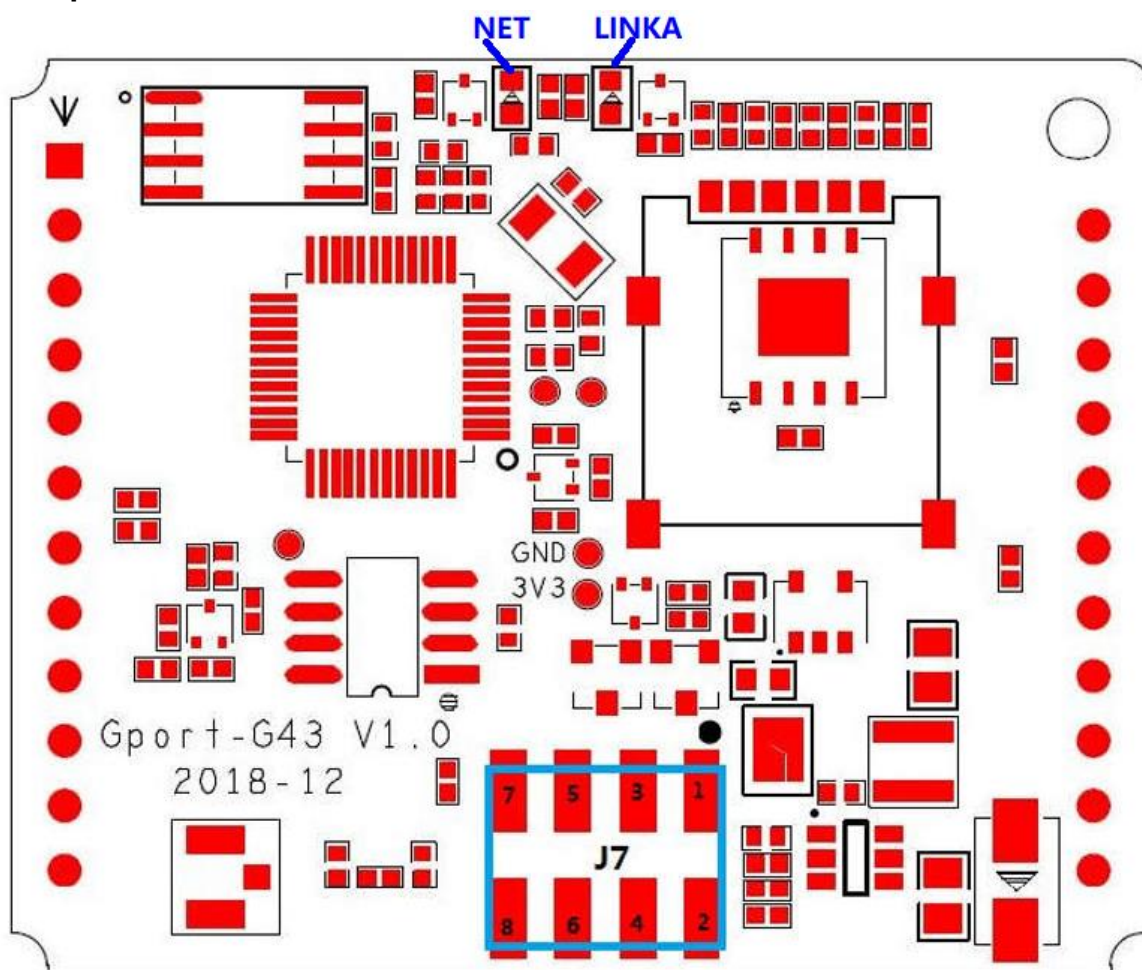


Figure 5. Gport-G43-P8 PIN Interface

Table3. Gport-G43-P8 PIN Interface Definition

Pin	Description	Network Name	Signal Type	Notes
1,2	Power GND	GND	P	
3,4	Power Input	VIN	P	5~18VDC
5	Reload to Factory Setting	RELOAD	I	Long press 3 seconds down and loose to restore parameters to factory setting
6	Communication Serial Port 1TX	UART1_TXD	O	3.3V TTL Voltage
7	Reset Pin	RESET	I	Low voltage effective. Set low for more than 200ms. Leave it open if not use.
8	Communication Serial Port 1RX	UART1_RXD	I	3.3V TTL Voltage
	Network Status LED	NET	I/O	0.2s On -> 1.8s Off: Search the network 1.8s On ->0.2s Off: Network standby (Reserved) 0.125 On -> 0.125 Off: Network

Pin	Description	Network Name	Signal Type	Notes
				Communication OK
	Socket A Link	LINKA	O	High voltage effective. On: Socket A channel connection is OK Off: Socket A channel connection is NG

2.4. GPIO Electrical Characteristics

Table4. Absolute Maximum Ratings

Parameter	Condition	Min.	Typ.	Max.	Unit
Supply voltage		0		3.8	V
Voltage on any I/O pin		0		3.3	V
ESD (Human Body Model HBM)	TAMB=25°C			2	KV
ESD (Charged Device Model, CDM)	TAMB=25°C			1	KV

Table5. Power Supply & Power Consumption

Parameter	Condition	Min.	Typ.	Max.	Unit
Operating Supply voltage		2.8	3.3	3.8	V
Supply current, peak	Continuous Tx		300		mA
Supply current, IEEE PS	DTIM=100ms		12		mA
Output high voltage	Sourcing 6mA	2.8			V
Output low voltage	Sinking 6mA			0.2	V
Input high voltage		2.2			V
Input low voltage				0.8	V
GPIO Input pull-up resistor			200		kΩ
GPIO Input pull-down resistor			200		kΩ

2.5. NET Status LED

NET is used for indicating network status. There is LED on module, but can also fan this out to the board via NET pin.

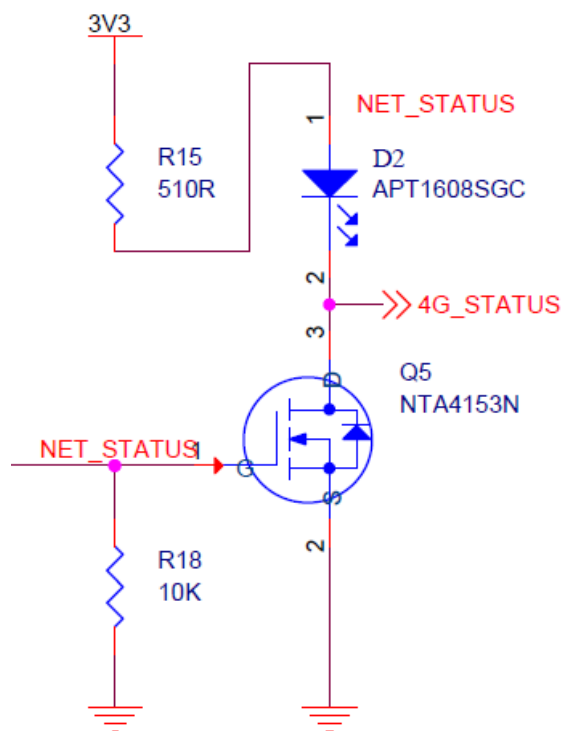


Figure 6. NET Recommended Circuit

2.6. Onboard SIM Slot

Open the slot as following picture.



Figure 7. SIM Slot

2.7. SIM Card Interface

The SIM card interface supports the functions of the GSM Phase1 specification. It also supports the functions of the GSM Phase 2+ specification and the FAST 64 kbps SIM card (for the SIM Application Toolkit). The SIM card is powered by the internal power supply of the module and supports 1.8V and 3.0V power.

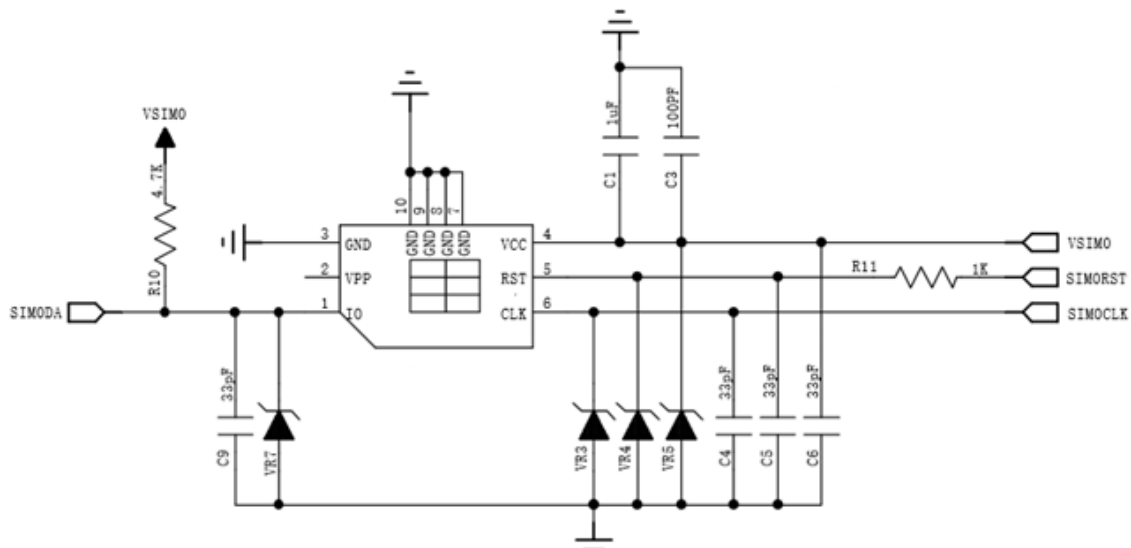


Figure 8. Using the 6PIN SIM Card Reference Circuit Diagram

In the circuit design of the SIM card interface, in order to ensure the good functional performance of the SIM card and not to be damaged, the following design principles are recommended in the circuit design:

- SIM card holder and module distance can not be too far away, the closer the better, try to ensure that the SIM card signal line wiring does not exceed 20cm.
- The SIM card signal cable is routed away from the RF line and the VBAT power line.
- The routing width of SIM_VDD is not less than 0.5mm, and the bypass circuit between SIM_VDD and SIM_GND does not exceed 1uF and is placed close to the SIM card holder.
- In order to prevent possible crosstalk of the SIM_CLK signal to the SIM_DATA signal, the wiring should not be too close, and the ground shield should be added between the two traces. And the SIM_RST signal also needs to be protected.
- To ensure good ESD protection, it is recommended to add a TVS tube and place it near the SIM card holder. The selected ESD device has a parasitic capacitance of no more than 50pF, such as WILL (<http://www.willsemi.com>) ESDA6V8AV6. A 22 ohm resistor in series is required between the module and the SIM card to suppress spurious EMI and enhance ESD protection. The peripheral circuit of the SIM card must be as close as possible to the SIM card holder.

With a 6-pin SIM card holder, Amphenol Company's C70710M0065122 is recommended. Visit <http://www.amphenol.com> for more information.

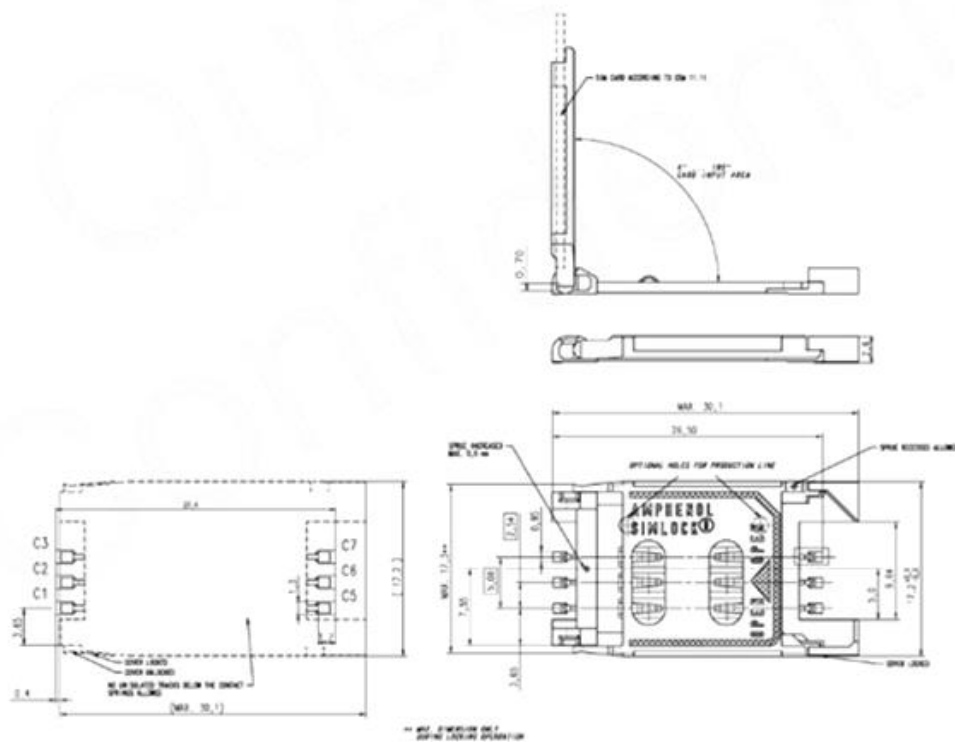


Figure 9. Recommended SIM Card Holder

2.8. Mechanical Size

The dimensions of Gport-G43 are defined as following pictures(mm):

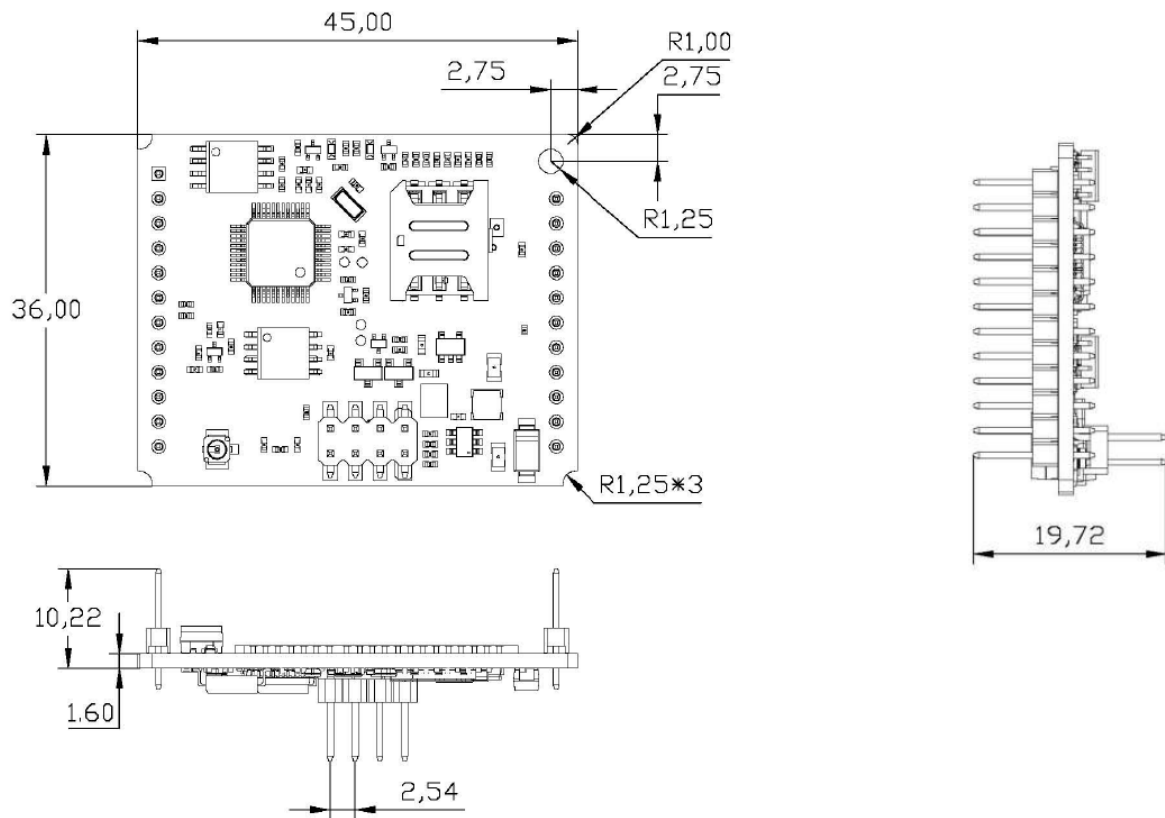


Figure 10. Gport-G43 Mechanical Size

2.9. Evaluation Kit

High-Flying provides the evaluation kit to promote user to familiar the product and develop the detailed application. The evaluation kit shown as below, user can connect to Gport-G43 with the RS-232 UART to configure the parameters, manage the module or do the some functional tests.

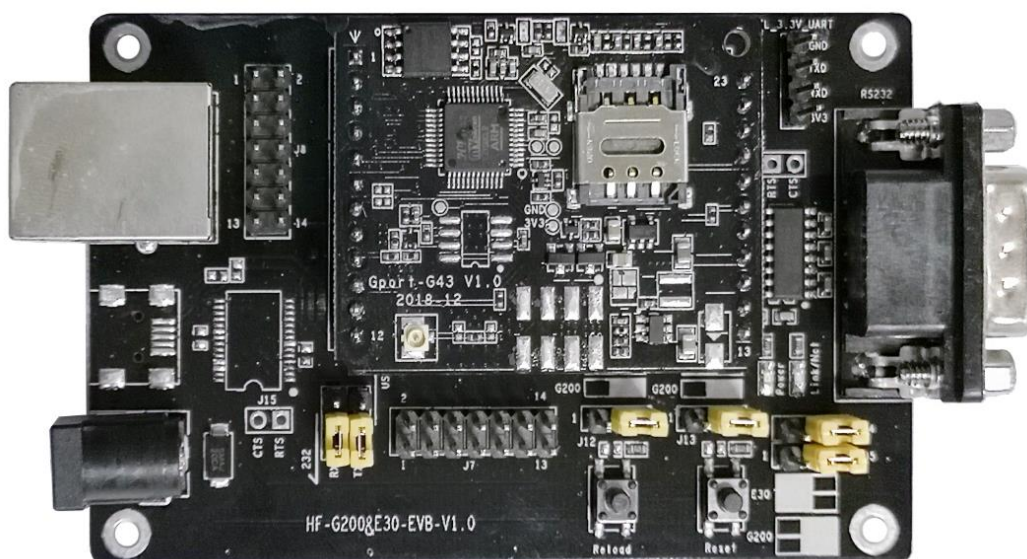


Figure 11. Gport-G43 EVK

The external interface description for evaluation kit as follows:

Table6. Gport-G43 Evaluation Kit Interface Description

Function	Name	Description
External Interface	RS232	Main data/command RS-232 interface
	DC	DC jack for power in, 9~12V input.
LED	Power	Power LED
	NET	LED is on module 0.2s On -> 1.8s Off: Search the network 1.8s On ->0.2s Off: Network standby (Reserved) 0.125 On -> 0.125 Off: Network Communication OK
	LinkA	LED is on module High voltage effective. On: Socket A channel connection is OK Off: Socket A channel connection is NG
Button	Reload	Long press 3 seconds down and loose to restore parameters to factory setting
	Reset	Reset module

2.10. Product Order Information

Based on customers detailed requirements, we provide different configuration Gport-G43, details as below:

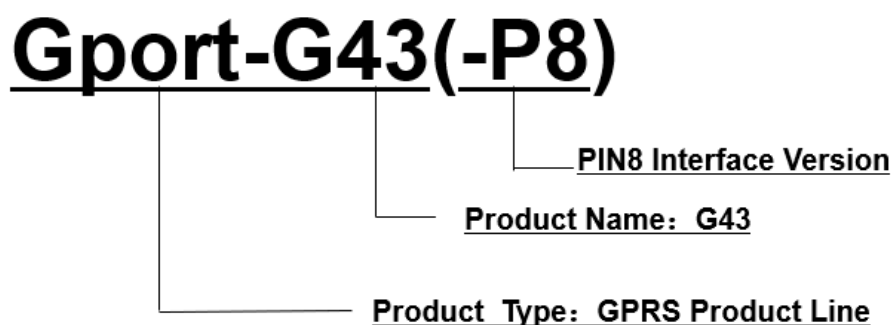


Figure 12. Gport-G43 Product Order Information

APPENDIX A: CONTACT INFORMATION

Address: Room1002 , #1Building, No.3000 Longdong Avenue, Pudong District, Shanghai, China 201202

Website: www.iotworkshop.com or www.hi-flying.com

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Support: support@iotworkshop.com

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Business: business@iotworkshop.com

For more information about us, please visit our website: www.iotworkshop.com

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