

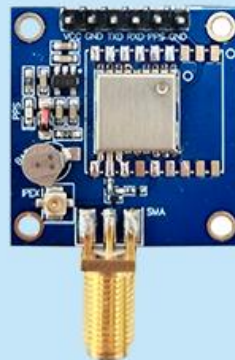
Product Specification



GPS03-01-IPEX
GPS03-01TD-IPEX
GPS03-01ZK-IPEX



GPS03-UBX-IPEX
GPS03-02TD-IPEX



GPS03-01-SMA
GPS03-01TD-SMA
GPS03-01ZK-SMA



GPS03-UBX-SMA
GPS03-02TD-SMA

Catalogue

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Note: Revision History

Revision	Date	Comment
V1.0	2022-10	First release
V2.0	2022-11	Description Updated

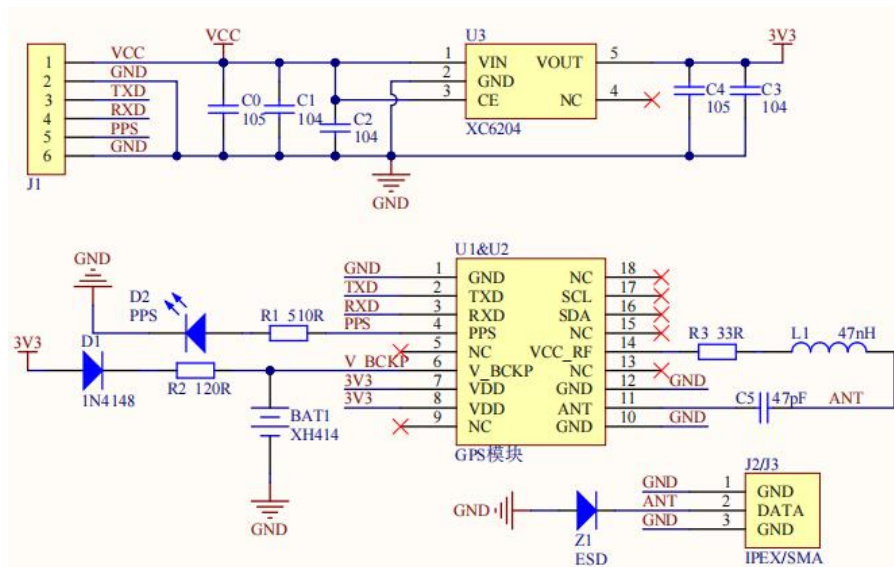
1. Overview

GPS03 is All-in-One module with one of the GPS Module embedded (GPS01, GPS01-TD, GPS01-ZK, GPS02-UBX ,GPS02-TD). With built-in self-charged spare battery, GPS03 can support heat start within 1 hour. It is extremely convenient for customer's application.

2. Applications

- Personal positioning and navigation products
- Internet of Things
- Vehicle, ship positioning and navigation
- Handheld portable device

3. Internal schematic diagram



4. Module interface description

1) Power supply

The external power supply can be connected to 3.3-5.5V, and there is a 3.3V regulator circuit.

2) Antenna interface

RF_IN of the module can be connected to multi-mode antenna directly. The impedance is 50Ω

3) 1PPS signal interface

The 6th pin (1PPS): 1 pulse output per second, 1PPS signal will not appear until a few seconds after successful positioning.

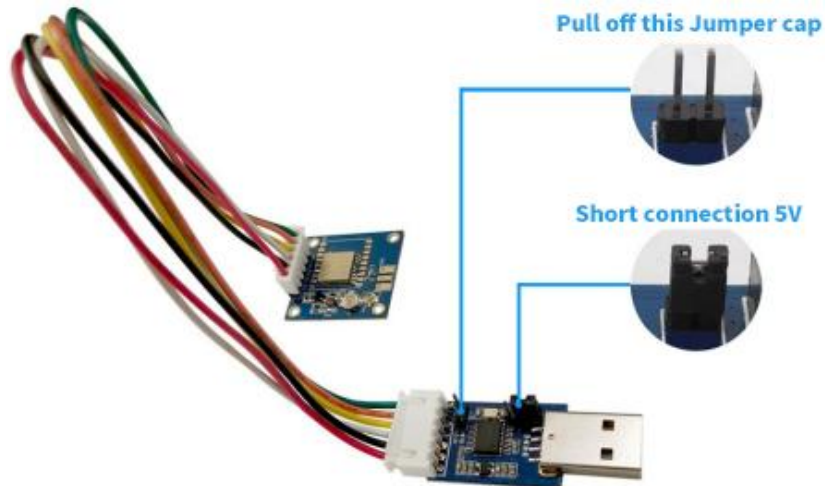
4) UART interface

The serial port outputs NMEA data at the UTC secondary boundary, and the upper machine can also operate the module working mode and baud rate switching to the module through the serial port.

GPS03-01, GPS03-ZK's default baud rate is 9600, GPS03-01TD/02TD default baud rate is 115200bps, GPS03-UBX default Baud rate is 38400.

The data format is: 1 bit, 8 digits of data bits, 1 stop digit, and no school test.

5. Connection description

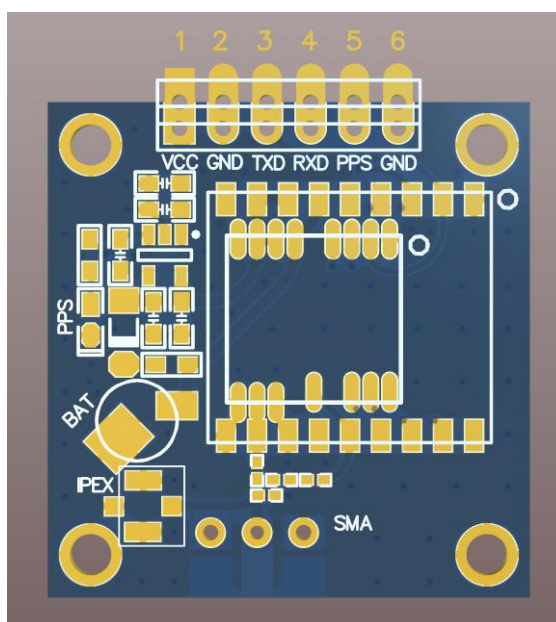


Note: Pull off the jumper cap before using (pls refer to above picture.),otherwise,it will cause short between 1PPS and Ground.

6. Performance parameters

Parameter	Description	Minimum	Typical	Maximum	Unit	Condition
Operating conditions						
Operating voltage range	VCC	3.3	5	5.5	V	
Temperature range	Working	-40		85	°C	
	Storage	-40		125	°C	
Current consumption						
Receive current	Active antenna		< 38		mA	GPS03-01
	Passive antenna		< 30		mA	
	Active antenna		< 36		mA	GPS03-01ZK
	Passive antenna		< 28		mA	
	Active antenna		< 43		mA	GPS03-01TD/ GPS03-02TD
	Passive antenna		< 35		mA	
	Active antenna		< 33		mA	GPS03-UBX
	Passive antenna		< 25		mA	
External antenna gain				30	dB	
Serial parameters						
Serial baud rate			9600		bps	GPS03-01, GPS03-01ZK
		4800	115200	230400	bps	GPS03-01TD /GPS03-02TD
		4800	38400	921600	bps	GPS03-UBX

7. Pin definition

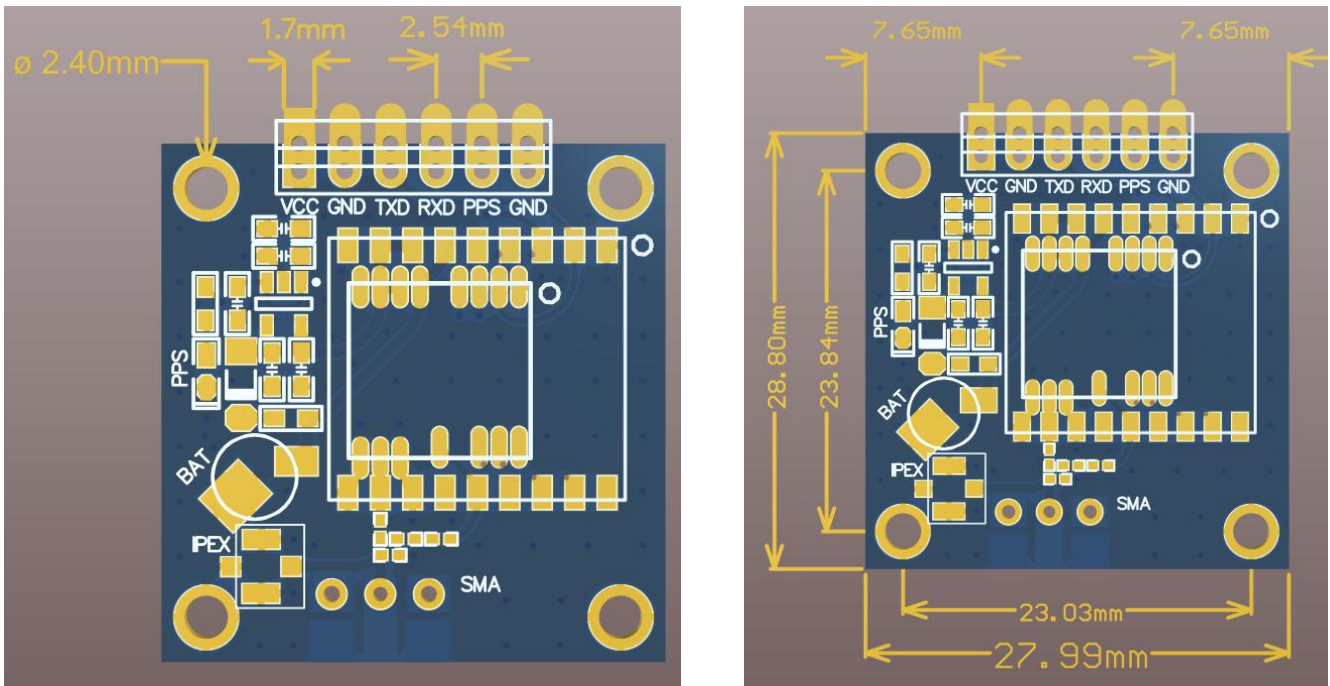


Pin number	Pin definition	I/O	Level standard	Description
1	VCC	-	3.3-5.5V	Main power input
2	GND	-		
3	TXD	O	0-3.3V	UART TXD
4	RXD	I	0-3.3V	UART RXD
5	1PPS	O	0-3.3V	1 pulse output per second
6	GND	-		

8. Recommended antenna index

Item		Active antenna	Passive antenna
Frequency range	BDS	1561.098 ± 2.046 MHz	1561.098 ± 2.046 MHz
	GPS	1575.42 ± 1.023 MHz	1575.42 ± 1.023 MHz
	GLONASS	1602.0 ± 4 MHz	1602.0 ± 4 MHz
Input resistance		50Ω	50Ω
Gain		< 30dB	-
In-band gain flatness		≤ 1.5dB	-
Noise Factor		≤ 1.5dB	-
Input standing wave		≤ 1.5	≤ 1.5
Output standing wave		≤ 2	≤ 2
Out-of-band rejection: 1568 ± 30MHz		≤30dB	-
Recommend working voltage		3.0V±0.3	-
Temperature range		-40~85℃	-40~85℃

9. Mechanical size (unit: mm)



10. Product order information

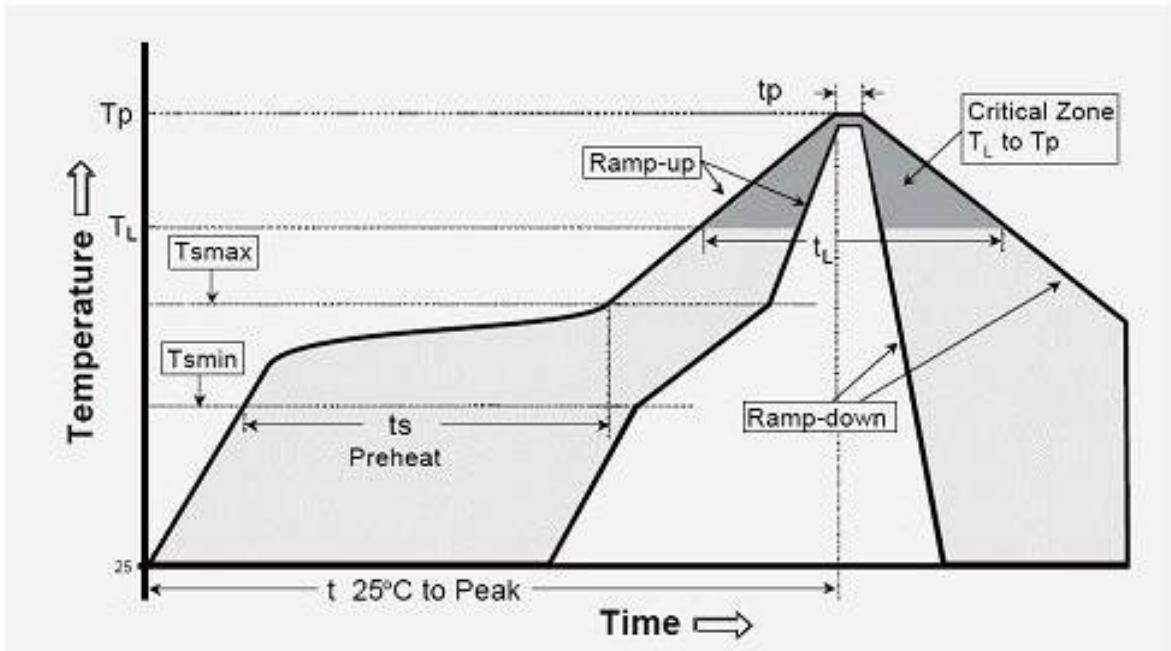
Product Number	GPS Module on board
GPS03-01-IPEX	GPS01
GPS03-01TD-IPEX	GPS01-TD
GPS03-01ZK-IPEX	GPS01-ZK
GPS03-UBX-IPEX	GPS02-UBX
GPS03-02TD-IPEX	GPS02-TD
GPS03-01-SMA	GPS01 with SMA connector
GPS03-01TD-SMA	GPS01-TD with SMA connector
GPS03-01ZK-SMA	GPS01-ZK with SMA connector
GPS03-UBX-SMA	GPS01-UBX with SMA connector
GPS03-02TD-SMA	GPS01-TD with SMA connector

11. Precautions

- 1) The module contains electrostatic sensitive components. Please pay attention to electrostatic protection during soldering, installation and transportation. Please do not touch the RF_IN pin with bare hands, otherwise the module may be damaged.
- 2) Try to control the ripple of VCC power supply within 100mV.
- 3) Please ensure that the baud rate of the host computer and the module is same.
- 4) It is recommended to choose our active or passive antenna.
- 5) Please control the temperature when solder the module.

Appendix: SMD Reflow Chart

Below reflow profile is recommended for SMT technology:



IPC/JEDEC J-STD-020B the condition for lead-free reflow soldering	big size components (thickness >=2.5mm)
The ramp-up rate (Tl to Tp)	3°C/s (max.)
preheat temperature	
- Temperature minimum (Tsmín)	150°C
- Temperature maximum (Tsmáx)	200°C
- preheat time (ts)	60~180s
Average ramp-up rate(Tsmáx to Tp)	3°C/s (Max.)
- Liquidous temperature(TL)	217°C
- Time at liquidous(tL)	60~150 second
peak temperature(Tp)	245+/-5°C