

JS-RP26-2 Dual-band (L1/L5) GNSS Module

Data Sheet

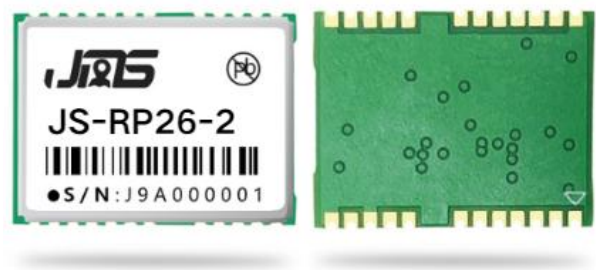


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1. Product Overview

1.1 Overview

The JS-RP26-2 is a dual-band (L1/L5) GNSS module characterized by high performance and low power consumption. It employs an advanced hardware and software-integrated low-power design, achieving low power consumption without compromising performance. It enables optimized multi-band and multi-mode signal tracking, while featuring an advanced anti-multipath and anti-interference RF front-end, and up to eight anti-single-tone interference filters for the L1/L5 bands. This significantly improves real-world positioning and TTFF performance, making it suitable for applications such as wearable devices, trackers, drones, and automotive navigation.

1.2 Product Characteristics

- Based on high-performance SOC series
- Low power consumption , high performance
- It has 200 tracking channels and a dedicated search engine.
- Up to 10Hz refresh rate
- Supports dual-band across all constellations (L1+L5)
- Supports AGPS and SBAS
- Small size (16.2mm*12.2mm*2.3mm±0.3mm), lightweight (<1.1g)
- Supports standard NMEA 0183 protocol and RTCM 3.X.

1.3 Performance Indicators

Category	Specification
Constellation Frequency	■ GPS: L1 L5 ■ BDS: B1I B1C B2I B2B B2A ■ QZSS: L1 L5 ■ GALILEO: E1 E5 ■ GLONASS: G1 ■ IRNSS: L5
Sensitivity	Tracking and navigation -165dBm
	Recapture -159dBm
	Hot start -159dBm
	Cold start -148dBm

First positioning time ¹	Cold start	28s
	AGPS	1.5s
	Warm start	1s
Positioning accuracy ²	Single point positioning	
	Horizontal: 1.0m CEP	Vertical: 2.0m CEP
Velocity accuracy ³	0.1m/s CEP	
Tracking Channels	200	
Application Permission ⁴	Dynamic ≤ 4g 20,000m in height Speed 500m/ s	
Baud rate	115200 ~ 9216 00 bps, (default 115200 bps)	
Maximum update rate ⁵	20 Hz (default 1 Hz)	

1. All satellites ≥ -130dBm

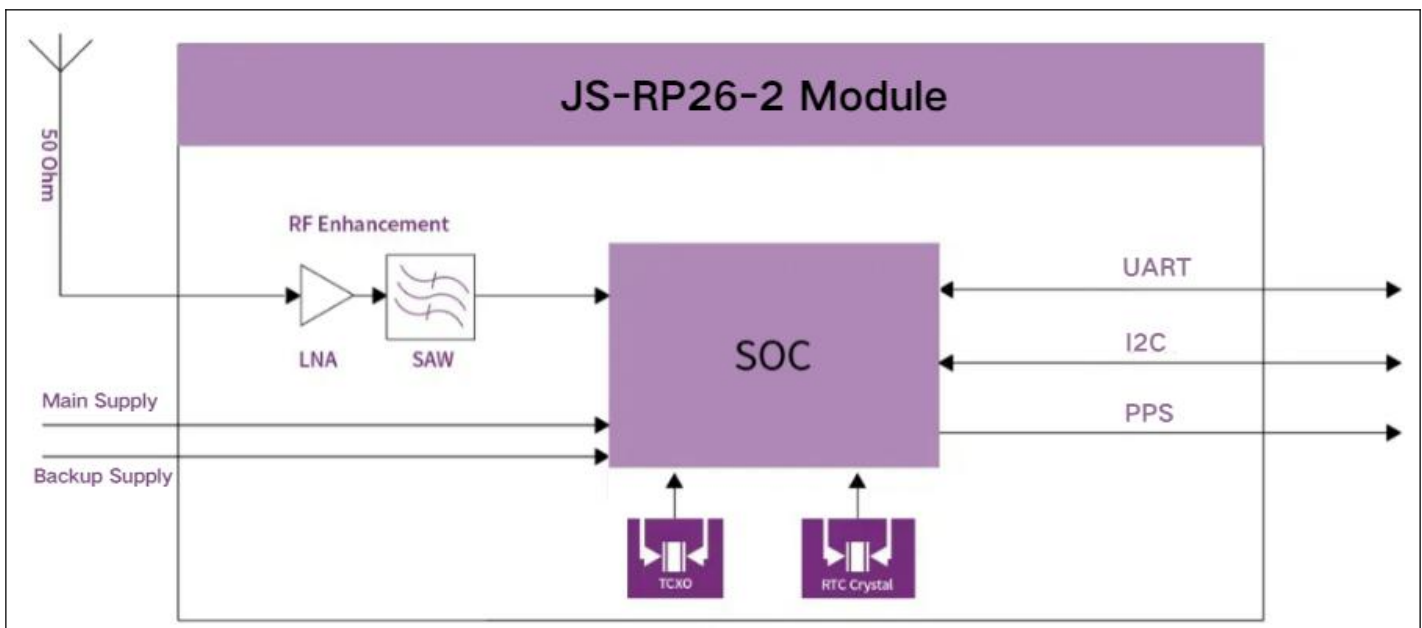
2. Open sky, 24-hour static, ≥-130dBm, >6SVs, CEP 50%

3 50%@30m/s Dynamic Operation

4. Assuming airborne <4 g platform

5. 20Hz requires special firmware support

1.4 Block diagram



1.5 Agreement

Protocol	Type
NMEA 0183	Input/Output , ASCII
RTCM3.X	Input/Output

1.6 antenna

Since the RP26-2 positioning module has a built-in LNA and SAW, it is recommended that the antenna gain not exceed 30dB when using active antenna. The module has built-in active antenna detection and antenna overcurrent protection functions, which can detect the status of the active antenna in normal connection, open circuit and short circuit, and issue prompt information in the form of NMEA data .

Antenna status	Information output	VCC_RF current
normal	\$POANT, 1 , 803*4E	$3.5\text{mA} \leq \text{VCC_RF} < 50\text{mA}$
open circuit	\$POANT, 0 , 803*4 F	$0 < \text{VCC_RF} \leq 3.5\text{mA}$
Short circuit	\$POANT, 2 , 803*4 D	$\text{VCC_RF} \geq 55\text{mA}$

1.7 Product Application

- Emergency Rescue
- Automotive applications and tracking navigation
- AVL and location-based services
- Maritime navigation and fleet management
- Intelligent logistics scheduling
- Personal protection
- The ideal PDA, a pocket personal computer
- UAV

2. Pin definition

2.1 Pin Assignment

13	GND	GND	12
14	LNA_EN	RF_IN	11
15	RES	GND	10
16	RES	VCC_RF	9
17	RES	RESET_N	8
Top View			
18	SDA	RES	7
19	SCL	RES	6
20	TXA	RES	5
21	RXA	EXTINT	4
22	VBAT	TIMEPULSE	3
23	VCC	D_SEL	2
24	GND	BOOT	1

Pin number	Pin Name	I/O	Description
1	BOOT	-	Reserved
2	D_SEL	-	Reserved

3	TIMEPULSE	O	Time pulse (keep it on if not in use)
4	EXTINT	-	Reserved
5, 6, 7, 15, 16, 17	RES	-	Reserved
8	RESET	O	Reset pin (low activation, stays open when not in use)
9	VCC_RF	O	Output voltage RF band (keep it on if not in use)
10, 12, 13, 24	GND	-	Ground
11	RE_IN	I	GNSS signal input
14	LNA_EN	-	Reserved
18	SDA	I/O	I2C data (keep it open if not in use)
19	SCL	I/O	I2C clock (keep on if not in use)
20	TX A	O	TTL output (keep on when not in use)
21	RX A	I	TTL input (keep on when not in use)
22	V BAT	I	Backup voltage power supply
23	VCC	P	Main power supply

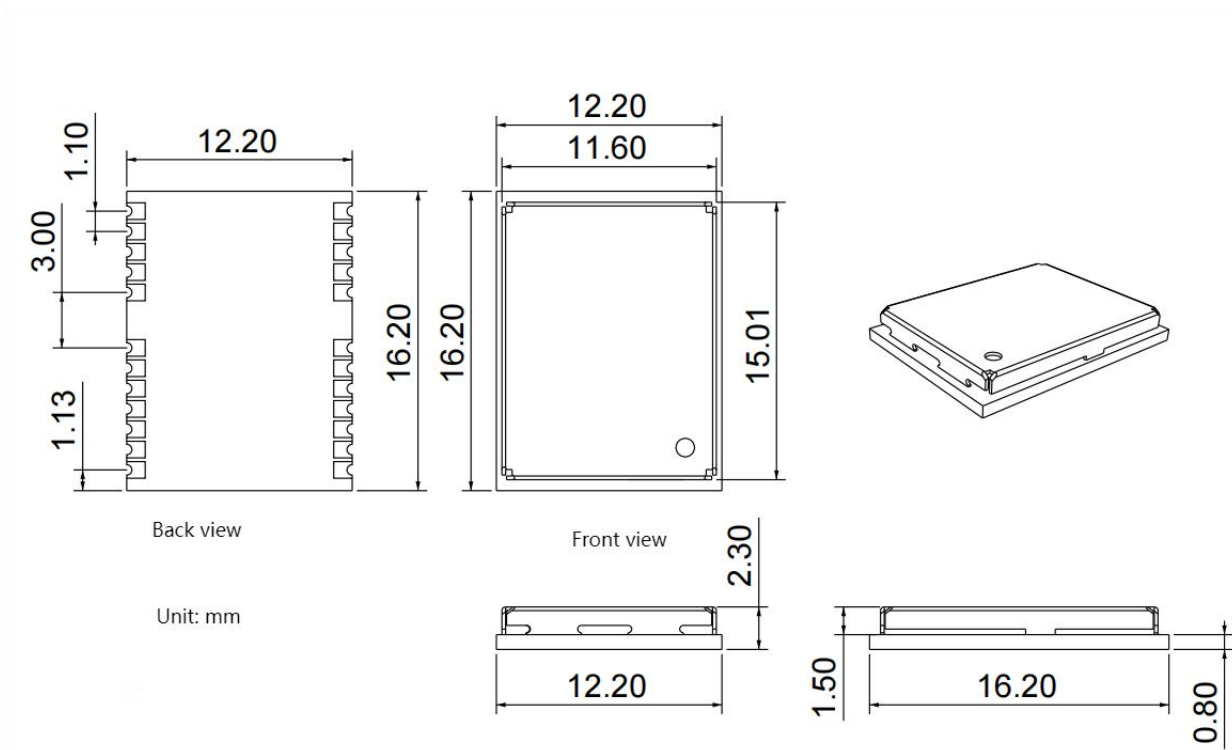
✋₁ Some features require custom firmware; please contact us.

3. Electrical Specifications

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Power supply voltage	V CC	2.0	3.3	3.6	V
Average current	I	16mA@3.3V	20mA@3.3V	30mA@3.3V	mA
Backup battery voltage	V_B A CK	1.8	3.3	3.6	V
Standby mode			14uA@3.3V		uA
Digital I/O voltage	Div	1.8		3.6	V
Storage temperature	Tstg	-40		85	°C
Operating temperature	Topr	-40		85	°C
Humidity				95	%

4. Mechanical Specifications

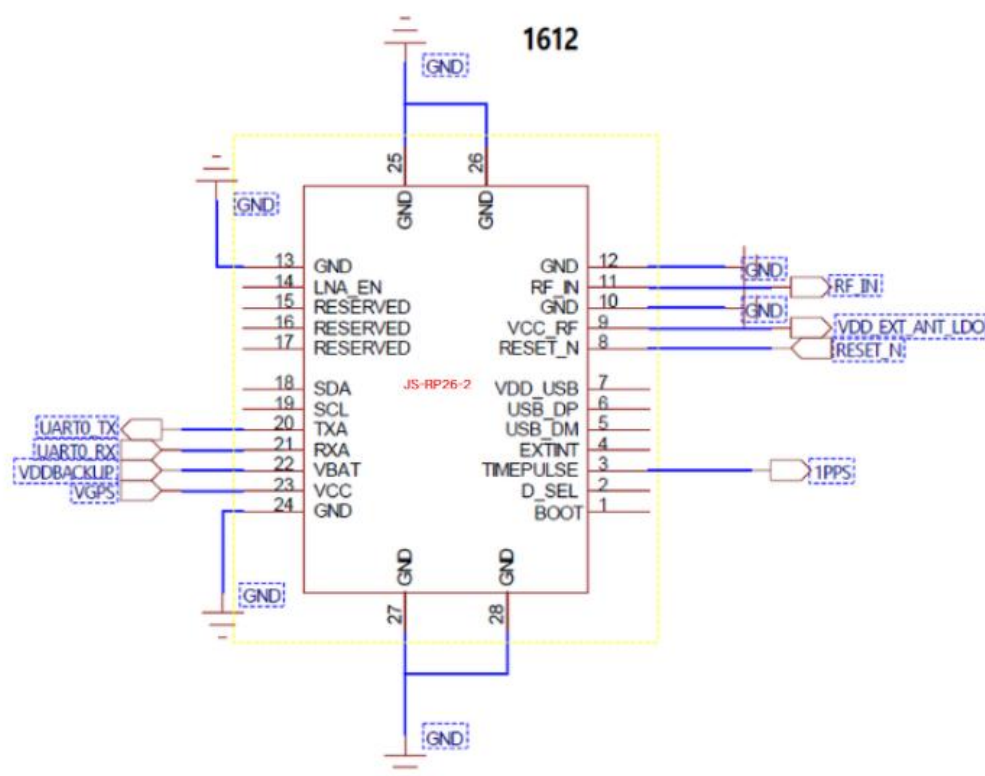
Module dimension diagram:



Dimensional tolerance: $\pm 0.3\text{mm}$

5. Antenna design

JS-RP26-2 module circuit design reference diagram:



6. RoHS

This product complies with RoHS standards.

7. Recommended reflux profile

7.1 GNSS module notes prior to SMT

7.1.1 When the customer opens the stencil, they must ensure that the holes are larger than the GNSS module board. Please widen the opening by 0.7 mm at a 1:1 ratio, with a thickness of 0.12 mm.

7.1.2 When necessary, GNSS modules must not be handled with bare hands; gloves and a static ring must be worn.

7.1.3 The furnace temperature depends on the size of the customer's motherboard. The standard temperature for motherboards that are usually mounted on flat panels is $250\pm5^{\circ}\text{C}$, but it can also be $260\pm5^{\circ}\text{C}$.

7.2 The following points should be noted when storing and using GNSS module control:

7.2.1 Shelf life: 12 months. Storage conditions: $< 40^{\circ}\text{C}$. Relative humidity: $< 90\%$

7.2.2 After opening the bag, the apparatus to be subjected to infrared reflux, gas phase reflux or equivalent treatment must be inspected.

7.2.3 Check the humidity card: Store in an environment with a relative humidity $\leq 20\%$. If: 30%~40% (pink) or greater than 40% (red), the label module is hygroscopic.

7.2.4 Installation within 168 hours under factory conditions: $t \leq 30^{\circ}\text{C}$, relative humidity $\leq 60\%$

7.2.5 Once opened, the shelf life in the workshop is 168 hours.

7.3 If baking is required, the apparatus may be baked:

7.3.1 The module must be free of moisture.

7.3.2 Baking temperature: 125°C , 8 hours.

7.3.3 After baking, place an appropriate amount of desiccant into the sealed packaging.

7.4 The actual quantity of vacuum-packed modules, which is based on the actual packaging quantity required by the customer.

The 7.5 module roll packaging project is as follows.

7.5.1 Shelf life: 12 months. Storage conditions: $< 40^{\circ}\text{C}$. Relative humidity: $< 90\%$

7.5.2 After the module is unpacked for 168 hours, it needs to be baked before it can be pushed out of the surface mount to remove the moisture absorption of the module. Baking temperature conditions: 125°C ,

8 hours.

7.5.3 The actual quantity of module reel packaging is based on the actual packaging quantity required by the customer.

7.6 The modular pallet packaging project is as follows:

7.6.1 Shelf life: 3 months. Storage conditions: $< 40^{\circ}\text{C}$. Relative humidity: $< 90\%$

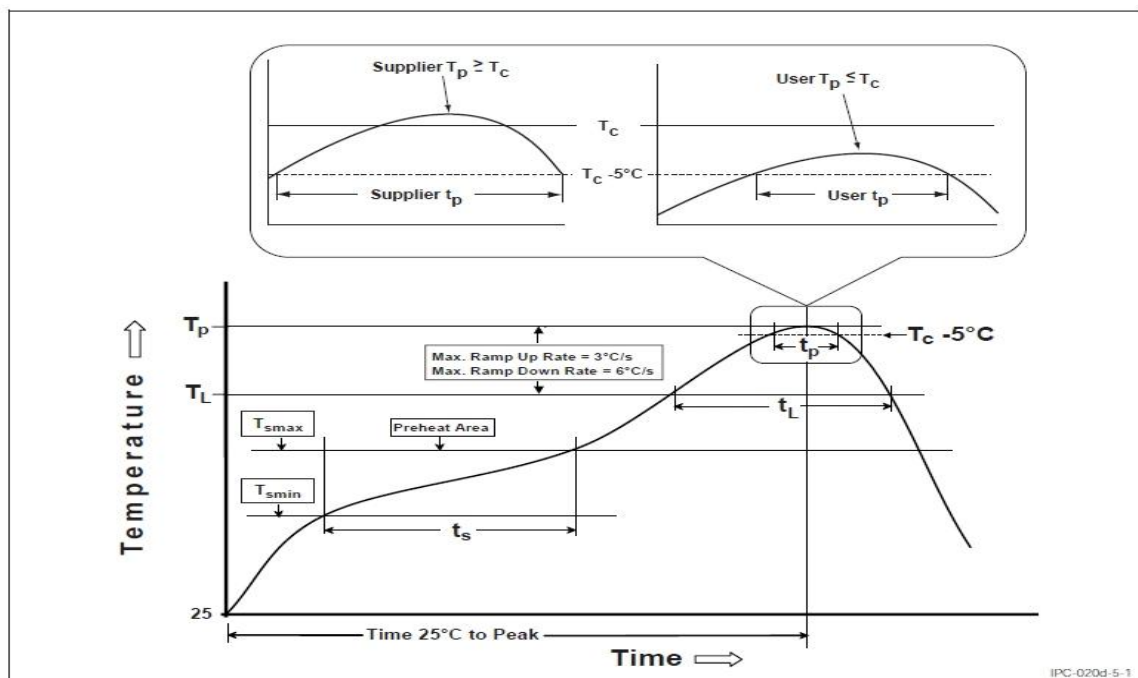
7.6.2 If the module is not used within 48 hours, it needs to be baked before starting. Baking temperature: 125°C , 8 hours.

7.6.3 Pallet packaging: 100 pieces per pallet. The actual quantity of modular pallet packaging is based on the actual packaging quantity required by the customer.

7.6.4 Lead-free process - Classification temperature (T_a)

pack thickness	Volume (mm ³)	Volume (mm ³)	Volume (mm ³)
	< 350	$350 - 2000$	> 2000
$< 1.6\text{mm}$	260°C	260°C	260°C
$1.6\text{mm}-25\text{mm}$	260°C	250°C	245°C
$> 2.5\text{mm}$	250°C	245°C	245°C

7.6.5 Temperature curve



Contour features	Lead-free assembly
Preheating/Soaking	150 °C
Minimum temperature (T _{min})	200 °C
Maximum temperature (T _{max})	60-120 seconds
Rate of ascent (T _L to T _p)	Maximum 3°C/second
Liquid phase temperature (T _L)	217 °C
Peak package temperature (T _p)	It must not exceed T _c (T _c =260°C)
Duration (t _p) within the specified temperature (T _c)	30* seconds
Rate of descent (T _p to T _L)	Maximum 6°C/second
Time from 25°C to peak temperature	Maximum 8 minutes
◆ The tolerance for peak temperature (T _p) is defined as the minimum value from the supplier and the	

*The time spent above 255°C should not exceed 30 seconds.