

JS-RK26-3

DataSheet



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Revised Record

[illegible]

1 Product Introductions

1.1 Overview

JS-RK26-3 is one (L1/L5) dual frequency GNSS module, characterised by high performance low power consumption, Employing an advanced combined hardware and software low power design, it achieves reduced power consumption without compromising performance, it enables optimized multi-frequency, multi-modes signal tracking, Simultaneously implementing an advanced anti-multipath and anti-interference RF front end, alongside providing up to eight anti-monophonic interference filters for the L1/L5 bands, significantly improving real-world positioning and TTFF performance. This makes it suitable for applications such as wearable devices, trackers, drones, and automotive navigation systems.

1.2 Product Features

- High performance SOC series
- Low power consumption,high performance

- Featuring 200 tracking channels and a dedicated search engine
- Upgrade rate up to 20Hz
- Support Multi-satellites L1+L5 bands
- Support GPS and SBAS
- Compact dimension (16.2mm*12.2mm*2.3mm±0.3mm) , Suitable for space-sensitive applications
- Support Standard NMEA 0183、RTCM3.X

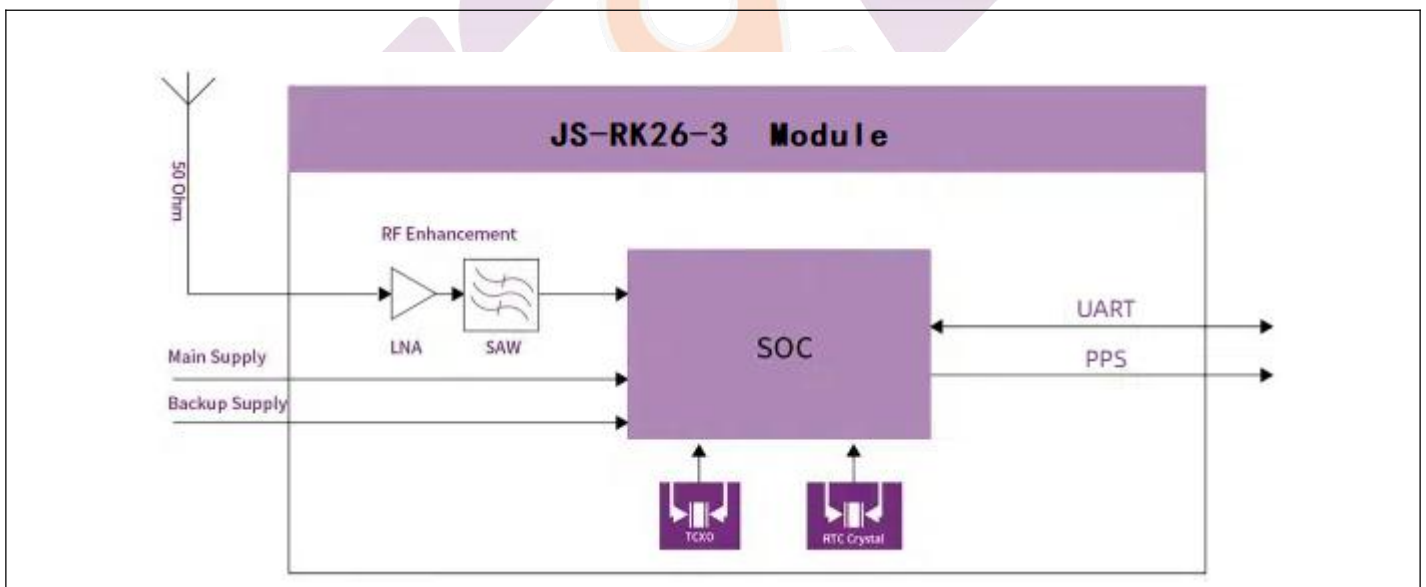
1.3 Performance Specifications

Parameter	Descriptions	
Satellite & Frequency Band	■GPS: L1 L5 ■BDS: B1I B1C B2I B2B B2A ■QZSS: L1 L5 ■GALILEO : E1 E5 ■GLONASS: G1 ■IRNSS: L5	
Sensitivity	Tracking & navigation	-165dBm
	Re-acquisition	-159dBm
	Warm Start	-159dBm
	Cold Start	-148dBm
Time to First Fix ¹	Cold Start	28s
	AGPS	1.5s
	Warm Start	1 s
Positioning Accuracy ²	Standalone	Horizontal: 1.5m CEP
		Vertical: 2.5m CEP
	RTK	Horizontal: 1.0cm+1ppm CEP
		Vertical: 1.5 cm+1ppm CEP
Velocity ³		0.1m/s CEP
Timing Accuracy	PPS	20ns RMS

Application Permissions ⁴	Status	≤4g
	Altitude	18000m
	Velocity	515m/s
Baud Rate	115200 ~ 921600 bps, (Default 115200 bps)	
Maximum update rate	10 Hz (Default 1Hz)	

- 1 All Satellites ≥ -130dBm
- 2 Open Skye, 24 hours static state ≥ -130dBm, >6SVs, CEP 50%
- 3 50%@30m/s Dynamic operating
- 4 Assuming onboard <4g platform

1.4 Block Diagram



1.5 Protocol

Standard	Type
NMEA 0183	Input/output, ASCII
RTCM3.X	Input/output

1.6 Antenna

JS-BK26-3 the module can be used for the design of passive and active antenna

Protocol	Type
Active Antenna	Minimum Gain 15db(compensating for signal loss in RF cables)
	Maximum 30db
	Maximum noise factor 1.5db

1.7 Production Applications:

- Emergency rescue
- Automotive application and tracking navigation
- AVL and Service basic location
- Maritime navigation,fleet management
- Intelligent logistics scheduling
- Personnel protection
- Ideal PDA, laptop
- UAV

2 Pin Definition

2.1Pin 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			
18	SDA	RES	7
19	SCL	RES	6
20	TX	RES	5
21	RX	EXTINT	4
22	VBAT	TIMEPULSE	3
23	VCC	D_SEL	2
24	GND	BOOT	1

NO.	Name	I/O	Description
1	BOOT	I/O	BOOT
2	D_SEL	-	Reserved
3	TIMEPULSE	O	Time pulse (keep it open if not in use)
4	EXTINT	-	Reserved

5、6、7、15、16、17	RES	-	Reserved
8	RESET_N	O	Reset pin (Low active, keep it open if not in use)
9	VCC_RF	O	Output voltage RF bands (keep it open if not in use)
10、12、13、24	GND	-	Ground
11	RF_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 it open if not in use)
20	TX	O	TTL output (keep it open if not in use)
21	RX	I	TTL input (keep it open if not in use)
22	VBAT	I	Standby voltage power supply
23	VCC	P	Main power supply

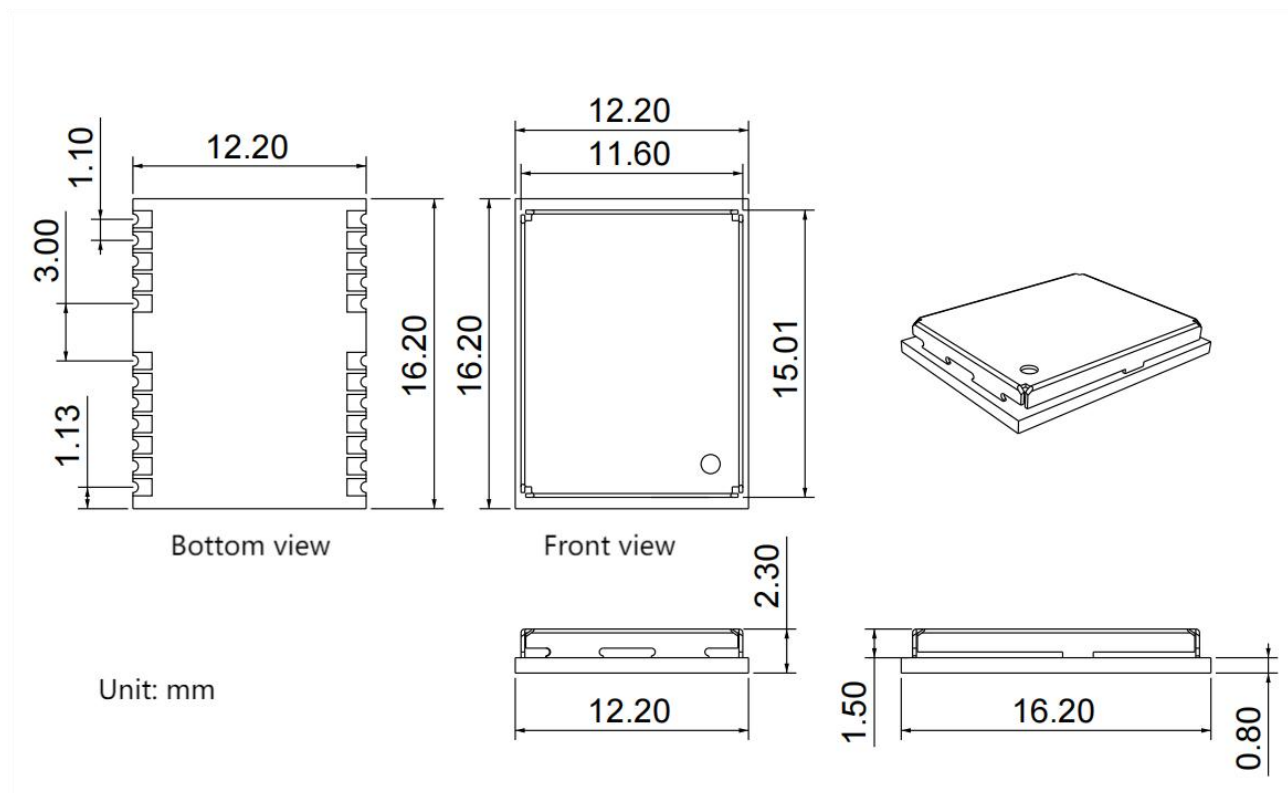
✋₁ **Please contact us, some functions need to user-defined firmware**

3 Electrical Characteristic

Parameter	Symbol	Min	Typ	Max	Unit
Supply voltage	VCC	2.0	3.3	3.6	V
Operating current	I	16mA@3.3V	20mA@3.3V	30mA@3.3V	mA
Standby battery voltage	V_BACK	1.8	3.3	3.6	V
Standby mode			14uA@3.3V		uA
Digital IO voltage	Div	1.8		3.6	V
Storage temperature	Tstg	-40		85	°C
Operating temperature	Topr	-40		85	°C
Humidity				95	%

4 Mechanical Specification

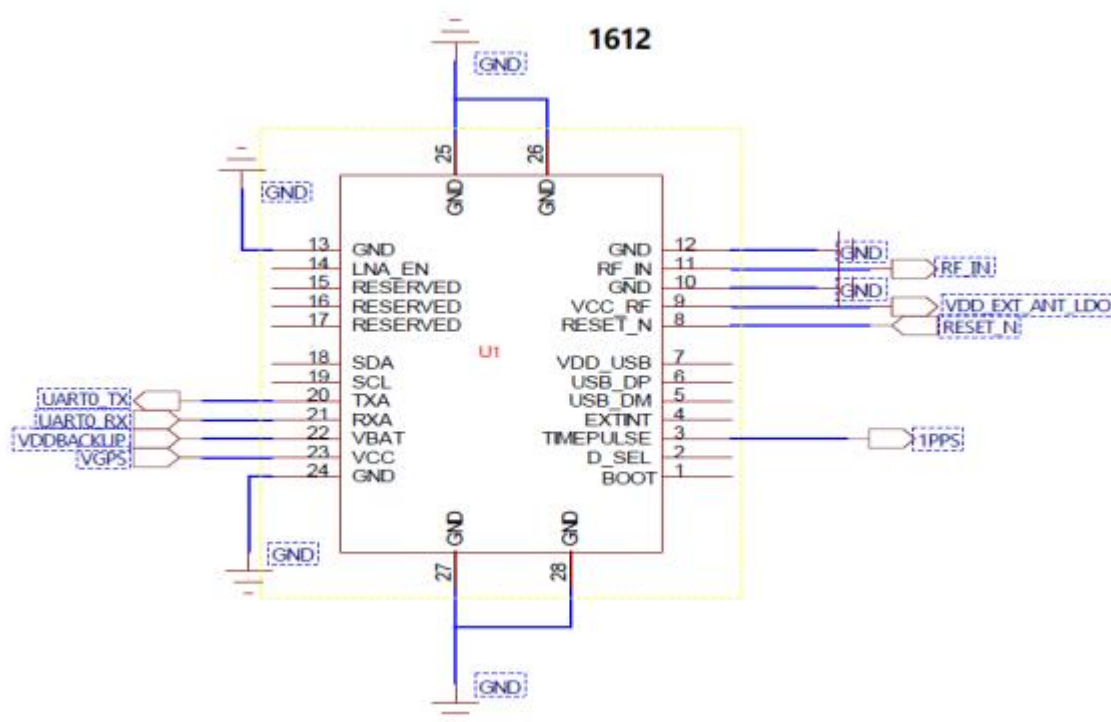
Block dimension diagram :



Tolerance: $\pm 0.3\text{mm}$

5 Antenna Design

JS-BK26-3 modular circuit design diagram :



6 RoHS

Comply with RoHS Standard

7 Recommend reflux curve

7.1 SMT Previous GNSS module

7.1.1 When the customer opens the steel mesh, it must be ensured that the aperture is larger than the GNSS module board. Please widen the opening by 1:1 and 0.7 mm, with the thickness of 0.12 mm

7.1.2 When handling GNSS modules, do not touch them with bare hands; gloves and a static ring must be worn

7.1.3 The oven temperature is determined by the size of the customer's motherboard. The standard temperature preferred for surface mounting on a flat panel is $250 \pm 5^\circ\text{C}$, though $260 \pm 5^\circ\text{C}$ can also be accommodated.

7.2 When storing and using the GNSS module controller, observe the following precautions:

7.2.1 Storage Period: 12 months. Storage Conditions: $< 40^\circ\text{C}$. Relative Humidity: $< 90\% \text{ RH}$.

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 indicator card: Stored in an environment with relative humidity $\leq 20\%$. If: 30%–40% (pink) or $>40\%$ (red). The label module is hygroscopic.

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

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

7.3 The device could be baked if baking is required;

7.3.1 The module must be eliminate moisture issues within the module.

7.3.2 Baking temperature: 125°C , 8 hours.

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

7.4 The actual quantity of modules vacuum-packed is based on the customer's specified packaging quantity.

7.5 The module roll packaging project is as follows:

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

7.5.2 After 168 hours of unpacking the module, baking is required to remove moisture absorption, Baking conditions: 125°C for 8 hours.

7.5.3 The actual quantity of modules in reel packaging is based on the customer's specified packaging quantity.

7.6 The module pallet packaging project is as follows:

7.6.1 Storage period: 3 months. Storage Conditions: $< 40^{\circ}\text{C}$, Relative Humidity: $< 90\%$

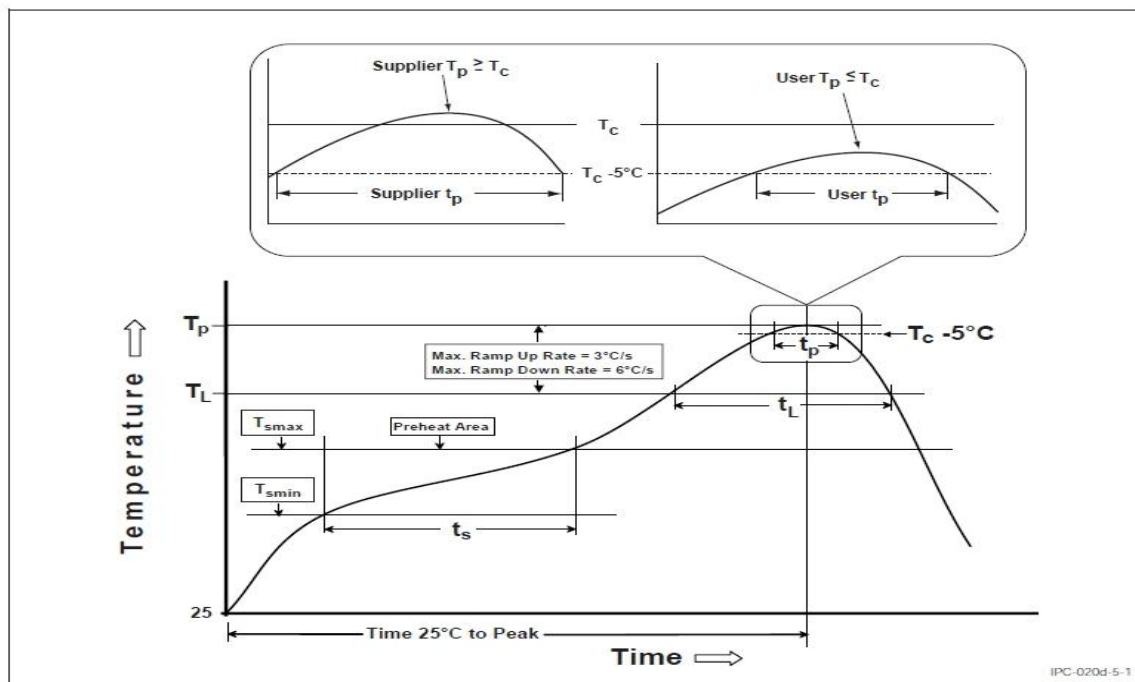
7.6.2 If the module has not been used within 48 hours, it must be baked before startup. Baking temperature: 125°C for 8 hours.

7.6.3 Pallet packaging contains 100 units per pallet. The actual quantity per module pallet packaging is based on the customer's specified packaging requirements.

7.6.4 Lead-Free Process - Classification Temperature (T_a)

Packing	Volume, mm ³	Volume, mm ³	Volume, mm ³
Thickness	< 350	350 - 2000	> 2000
$< 1.6\text{mm}$	260°C	260°C	260°C
1.6mm- 25mm	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 packaging
Preheating / Soaking	150 °C
Minimum Temperature (T _{smin})	200 °C
Maximum Temperature (T _{amax})	60-120Seconds
Ramp Rate(T _L to T _p)	Max 3°C/S
Liquid Phase Temperature (T _L)	217 °C
Package Body Temperature Peak (T _p)	Must Not Exceed T _c (T _c =260°C)
At Specified Temperature(T _c)±5°C Duration within(t _p)	30*S
Cool-Down Rate(T _p to T _L)	Max 6°C/S
25°C,Time to Peak Temperature	Max 8 minutes
◆ Peak Temperature(T _p),Tolerance is defined as the supplier's minimum and the user's maximum.	

*255°C above times must not exceed 30 seconds.