

JS-168BTP-2

Standard Precision G-Mouse GNSS Receiver

Data Sheet



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Revision History

Revision	Date	Revisions and changes	Comment
V1.0	2025 - 11 - 25	First release	HJX

1. Function Description

1.1 Overview

The JS-168BTP-2 is a general-purpose precision positioning product that integrates an antenna and positioning module, employing a multi-mode single-frequency solution that supports several major constellations—GPS, BDS, GLONASS, Galileo, QZSS, and SBAS. Based on a high-performance SOC positioning engine, this positioning module offers excellent sensitivity and acquisition time, features interference suppression measures, and can achieve reliable positioning even under difficult signal conditions. This product is characterized by low power consumption, low cost, and high cost-effectiveness, and can be widely used in applications requiring meter-level positioning accuracy, such as shared mobility, outdoor sports positioning, park personnel/vehicle positioning, and logistics scheduling and tracking equipment.

1.2 Product Features

- Based on high-performance GNSS SOC series
- The cold start acquisition sensitivity is -148dBm, and the tracking sensitivity is -16.5dBm.
- Navigation update rate up to 10 Hz
- Supports GPS, BDS, GLONASS, Galileo, QZSS and SBAS
- Supports AGPS
- Supports PPS output
- Indoor and outdoor multipath detection and compensation
- Integrated 12 multi-tone active interference cancellers
- Integrating TCXO, LNA, SAW, and RTC
- With its compact size (50.2 mm x 39.2 mm x 19.2 mm ± 0.3 mm), it is suitable for space-sensitive applications.
- Supports standard NMEA 0183 V 3.01/V4.1 0

1.3 Performance

Parameter	Specification
Constellation Frequency	■GPS / QZSS: L1C, L1C/A ■ GLONASS: L1 ■BDS: B1I, B1C ■ Galileo: E1 ■SBAS: WAAS/EGNOS/MSAS/GAGAN
Sensitivity	Tracking and navigation: -165dBm Cold start: -148dBm
Time To First Fix (TTFF) ¹	Cold start: 24s Warm start: 1s
GNSS positioning accuracy ²	Horizontal: 2m Vertical: 3.75m
Time pulse signal accuracy	1PPS: 10ns
Speed accuracy ³	GNSS: 0.1 m/s SBAS: 0.05m/s
Operational Restriction ⁴	Acceleration: 4g Altitude: 10,000m Speed limit: 100m/s
Time pulse signal frequency	1Hz
Baud rate	4800-921600 bps (115200bps default) ⁵
Maximum navigation update rate	10Hz (default is 1Hz)

¹. All satellites are at -130dBm

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

³. 50%@30m/s dynamic operation

⁴. Assuming an airborne platform ≤4g

⁵. Enabling debuglog requires support for higher baud rates of 230400 bps or higher.

1.4 Protocol

Protocol	Type
NMEA 0183 V 3.01/V4.1 0	Input/output, ASCII

1.5 Antennas

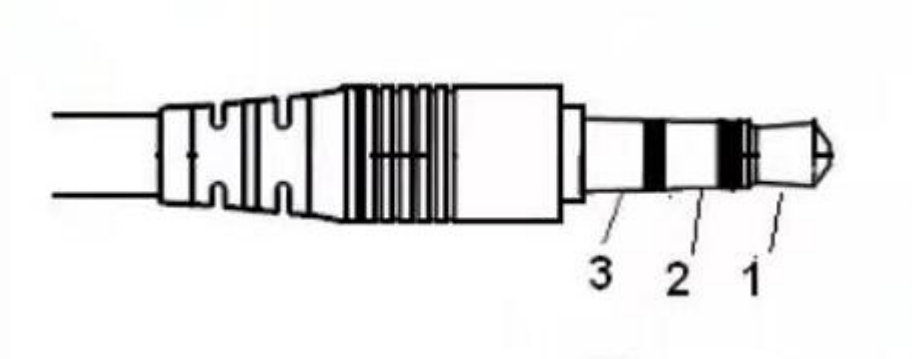
Parameter	Specification
Passive antenna types	25.0*25.0*4.0mm

1.6 Product Applications

- Automotive Applications
- Intelligent logistics scheduling
- Intelligent robots
- Solo travel and wilderness adventure
- Personnel protection
- Ground vehicle tracking
- Urban intelligent traffic management
- Emergency Lifesaving

2. Pin Definitions

2.1 Definition of Pin Assignment



S.N.	Name	I/O	Description
1	VCC	I	Power supply 3.3V-5V
2	TX D	O	Output GNSS positioning data
3	GND	G	Ground

3. Electrical Specifications

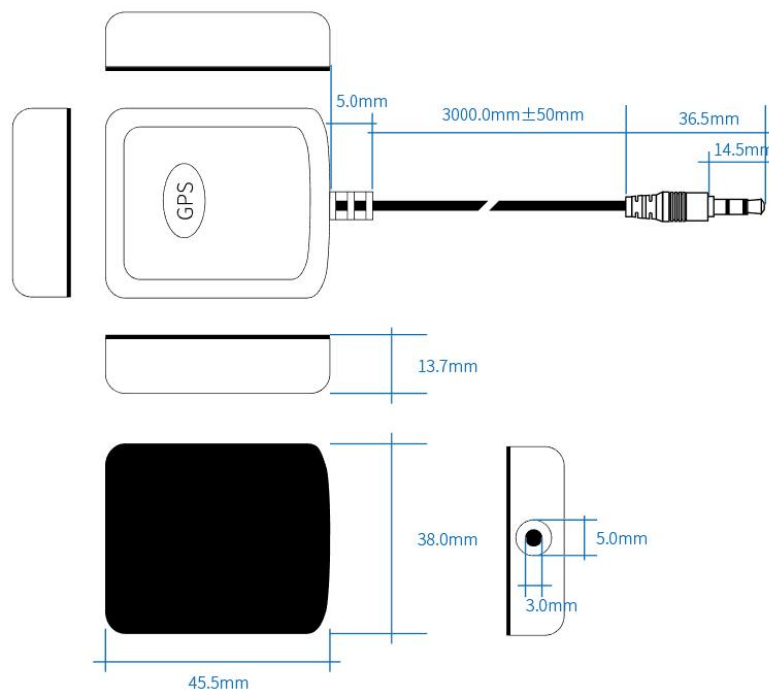
Parameter	Symbol	Minimum	Typical	Maximum	Unit
Power supply voltage	VCC	3.3	5	5	V
Average supply current	Acquire	31 @ 5.0 V	34 @ 5.0 V	38 @ 5.0 V	mA
	Track	30 @ 5.0 V	32 @ 5.0 V	35 @ 5.0 V	mA
Backup battery			0.07		F
Backup battery current	I_BCKP		11@3.3V		uA
Digital input/output voltage	Div	3.3		3.3	V
Storage temperature	Tstg	-40		85	°C
Operating temperature ¹	Topr	-40		85	°C
Farad capacitors ²	Tstg	-25		60	°C
Humidity				95	%

¹. This temperature range is the operating temperature range without supercapacitors.

². This module cannot perform a hot start when the temperature is below -25°C or above 60°C.

4. Mechanical Specifications

4.1 Dimensions

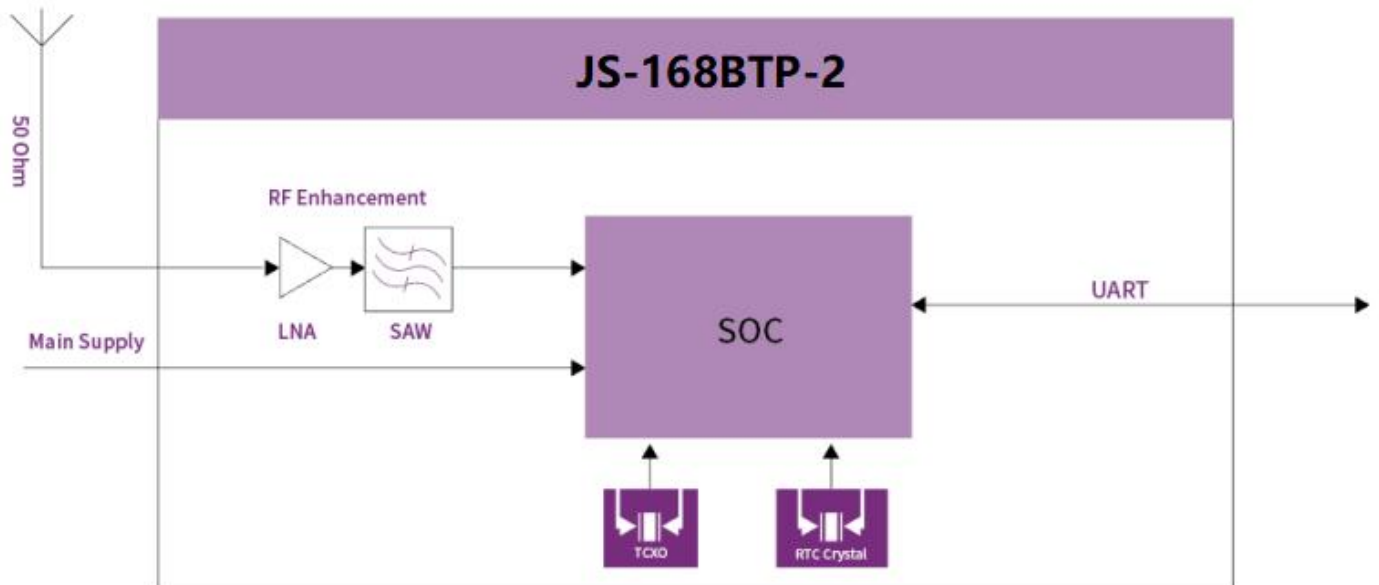


Unit: mm Dimensional tolerance: ±0.3mm

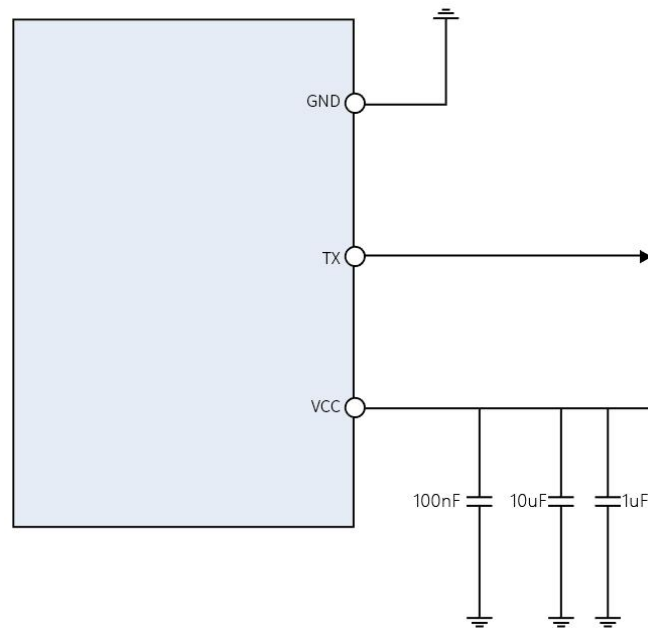
4.2 Product Image



5. Block Diagram



6. Application Circuits



7. RoHS

This product complies with RoHS standards.