



Accurate
positioning

22°43'59.57617"N 114°03'03.61546"E



JS-N80UP-9 GNSS Receiver

Data Sheet



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Change History of Revision

Revision	Date	Contents of Revision Change	Remark
V1.0	2026-02-26	First release	HJX

1 Functional description

1.1 Overview

The JS-N80UP-9 receiver uses a standard precision GNSS platform to provide superior sensitivity and acquisition time for all L1 GNSS systems. The receivers come in different models and can be used for automotive and industrial tracking applications such as navigation, telematics and drones. Supports up to 4 GNSS concurrent receive mode solutions with low power consumption and low cost. The large number of visible satellites allows the receiver to select the best signal. This maximizes positioning accuracy, especially in challenging conditions like canyons deep in the city. Support for detecting interference and spoofing events and reporting them to the host, enabling the system to react to such events. Advanced filtering algorithms mitigate the effects of RF interference and interference, enabling the product to work properly.

1.2 Product Features

- Build on high performance GNSS SOC series
- Cold start acquisition sensitivity of -148dBm and -167dBm tracking sensitivity
- Up to 25Hz update rate
- Supports GPS, BDS, GLONASS, Galileo, SBAS, QZSS
- Supports A-GNSS
- Integrated TCXO, LNA, SAW, RTC
- Configurable peripheral IO pins
- Integrated high gain antenna
- Low power consumption and it has intelligent power control mechanism
- Single supply with wide voltage range
- Compact size ($\varnothing 71\text{mm} \times 15\text{mm} \pm 0.5\text{mm}$) suitable for space-sensitive application
- Rich hardware interface to support multiple configurations. UART, CAN, RS232 can optional
- This module can be equipped with VCM5883(IST8310), MCU, Barometer and so on

1.3 Performance

Parameter	Specification
Receiver type*	■ GPS/QZSS L1C/A ■ GLONASS L1OF ■ BDS B1I ■ Galileo E1-B/C ■ SBAS L1C/A
Sensitivity	Tracking & Navigation -167dBm Reacquisition -160dBm Hot Start -159dBm Cold Start -148dBm
Time-To-First-Fix ¹	Cold Start 24 s Hot Start 2 s
Horizontal Position accuracy ²	PVT 2.0m CEP
Accuracy of time pulse signal	RMS 30 ns 99% 60 ns
Velocity accuracy ³	0.05 m/s
Operational limits ⁴	Dynamics ≤ 4 g Altitude 80000 m Velocity 500 m/s
Frequency of time pulse signal	0.25Hz to 10MHz (configurable)
Baud Rate	4800-921600bps (Default 38400 bps)
Max navigation update rate	25Hz
Dynamic heading accuracy	0.3 deg

¹ All satellites at ≥-130dBm

² CEP 50%, 24 hours static, ≥-130dBm, > 6SVs

- 3 50% @ 30m/s dynamic operation
- 4 Assuming Airborne < 4g platform

1.4 Product Application

- Precision agriculture
- Driving test
- AVL and Location-Based Services
- Timing application
- UAV
- Automotive application
- Car navigation and tracking
- Sports and Recreation
- Marine Navigation, Fleet Management

1.5 Protocols

Protocol	Type
NMEA 0183 V4.10	Input/output, ASCII
UBX	Input/output, binary, u-blox proprietary

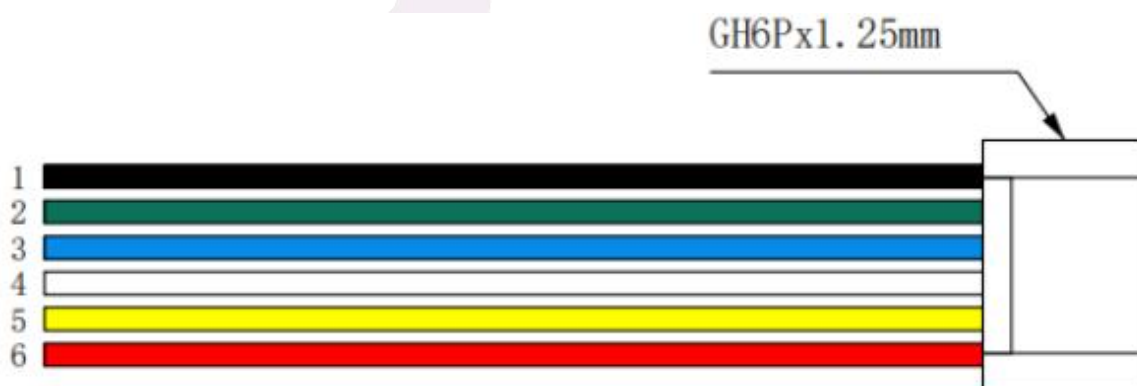
1.6 Antenna

The JS-N80UP-9 module is designed for passive antenna.

Parameter	Specification
Passive Antenna Type	$\phi=44 * 4\text{mm}$ (Default)

2. Pin definitions

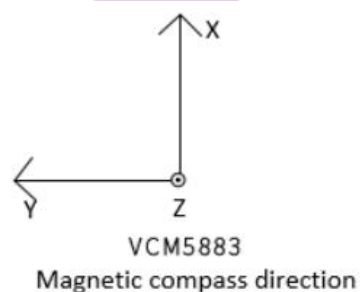
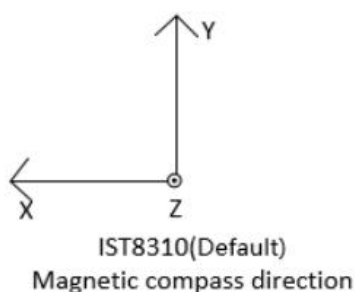
2.1 Definition of Pin Assignment



No.	Color	Name	I/O	Description
1	Black	GND	G	Ground
2	Green	CANH/TXD	O	Serial Port (keep open if not used)

3	Blue	CANL/RXD	I	Serial Port (keep open if not used)
4	White	SDA	I/O	I2C Data (keep open if not used)
5	Yellow	SCL	I/O	I2C Clock (keep open if not used)
6	Red	VCC	P	Main Supply

2.2 Description of geomagnetic sensors



Note:

Magnetic compass model:

The geomagnetic model is IST8310(Default) , IST8310_MS_ADDRESS 0x0F.

The geomagnetic model is VCM5883,VCM5883_MS_ADDRESS 0x0C.

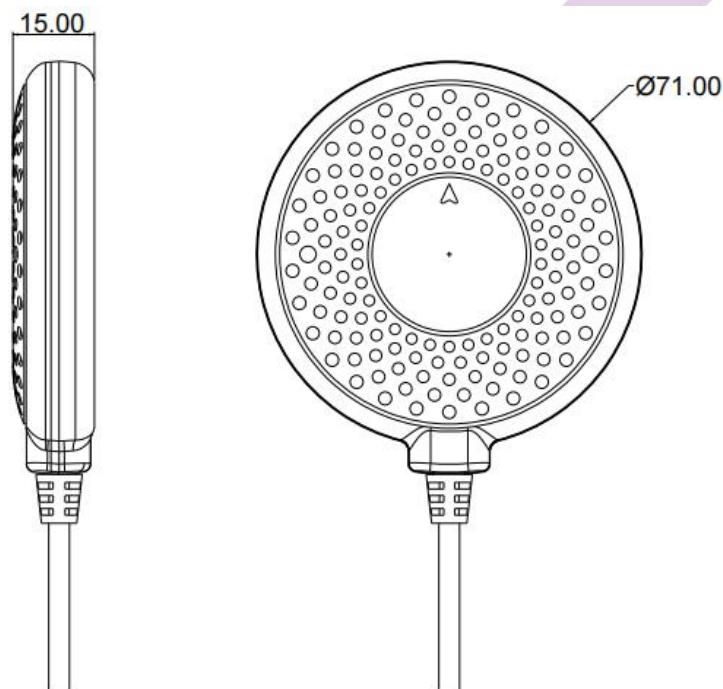
3. Electrical Specifications

Parameter	Symbol	Min	Type	Max	Units
Power supply voltage	VCC	4.5	5.0	20.0	V
Average supply current	Acquisition	36@5.0V	50@5.0V	55@5.0V	mA
	Tracking	28@5.0V	45@5.0V	50@5.0V	mA
Backup battery			0.07		F
Backup battery current	I_BCKP		36@3.3V		uA
Digital IO voltage	Div	3.3		3.3	V
Storage temperature	Tstg	-40		85	°C
Operating temperature ¹	Topr	-40		85	°C
Farah capacitance ²	Tstg	-25		60	°C

Humidity	95	%
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- ¹ The temperature range is the operating temperature range without the Farad capacitor
- ² Hot start cannot be carried out when the temperature is below -20°C or above 60°C

4. Mechanical Specifications



units: mm dimension error:±0.3mm

5. Interface configuration selections

5.1 Interfaces description

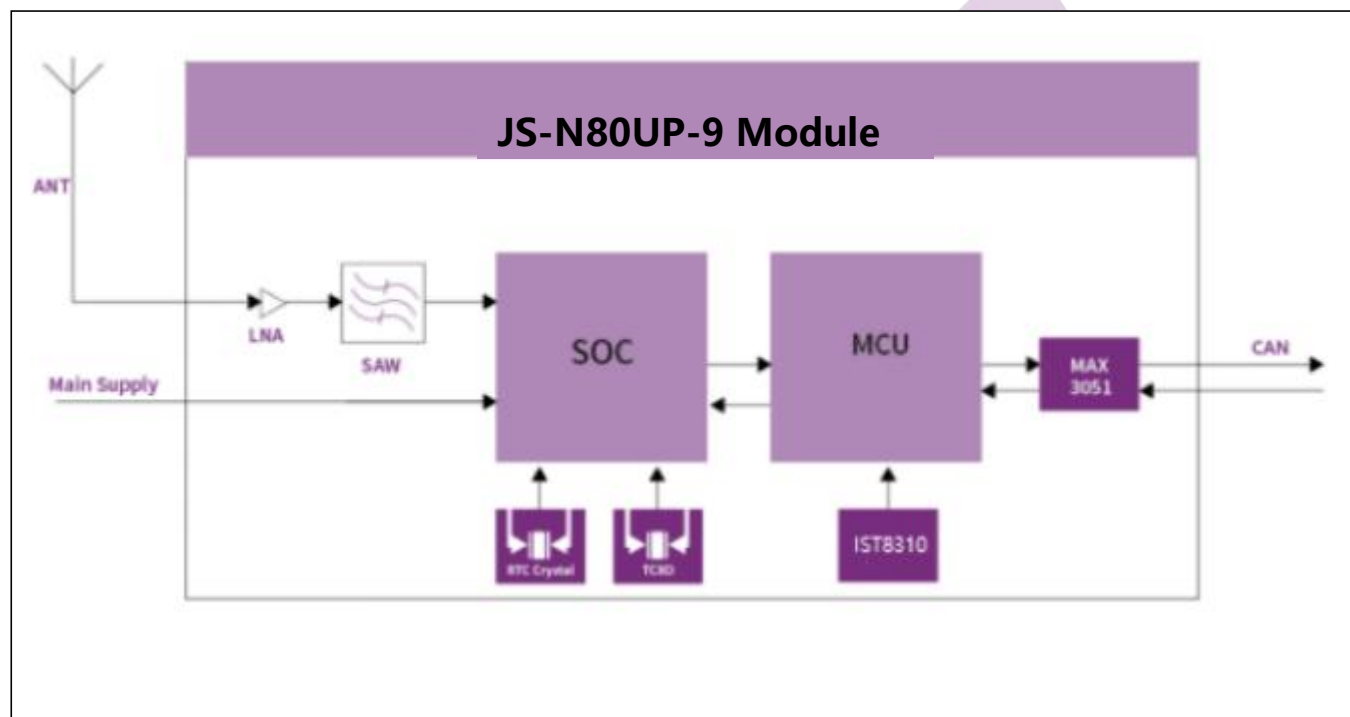
The JS-N80UP-9 GPS module can be selected according to the needs of the corresponding interface output side and additional sensors, there are mainly the following options.

NAME	TTL	CAN	Flash	IST8310/VCM5883	MS5611	MCU
JS-N80UP-9(C)	NC	√	√	√	NC	√
JS-N80UP-9(T) Default	√	NC	√	√	NC	NC
JS-N80UP-9(M)	√	NC	√	√	NC	√
JS-N80UP-9(S)	√	NC	√	√	√	√

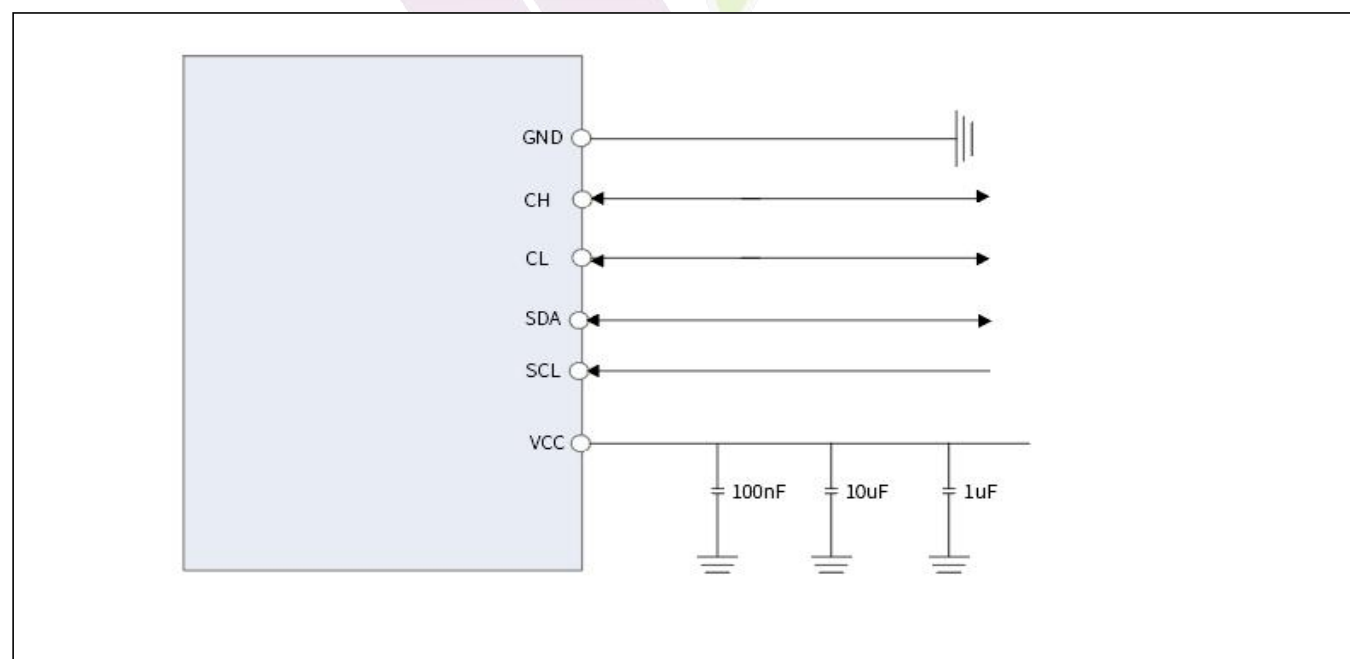
5.1.1 JS-N80UP-9(C)

This series uses CAN as a statement output method, which includes a geomagnetic sensor and an MCU controller.

Block Diagram



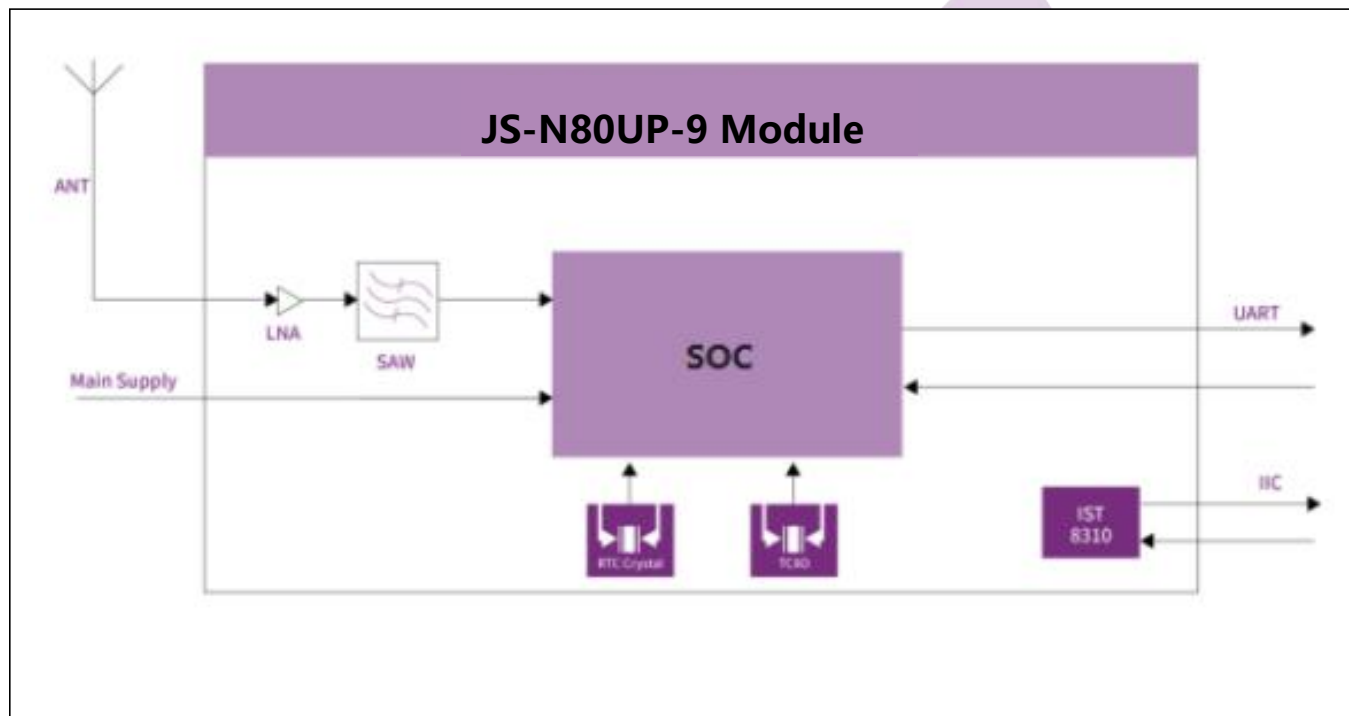
Application Circuit



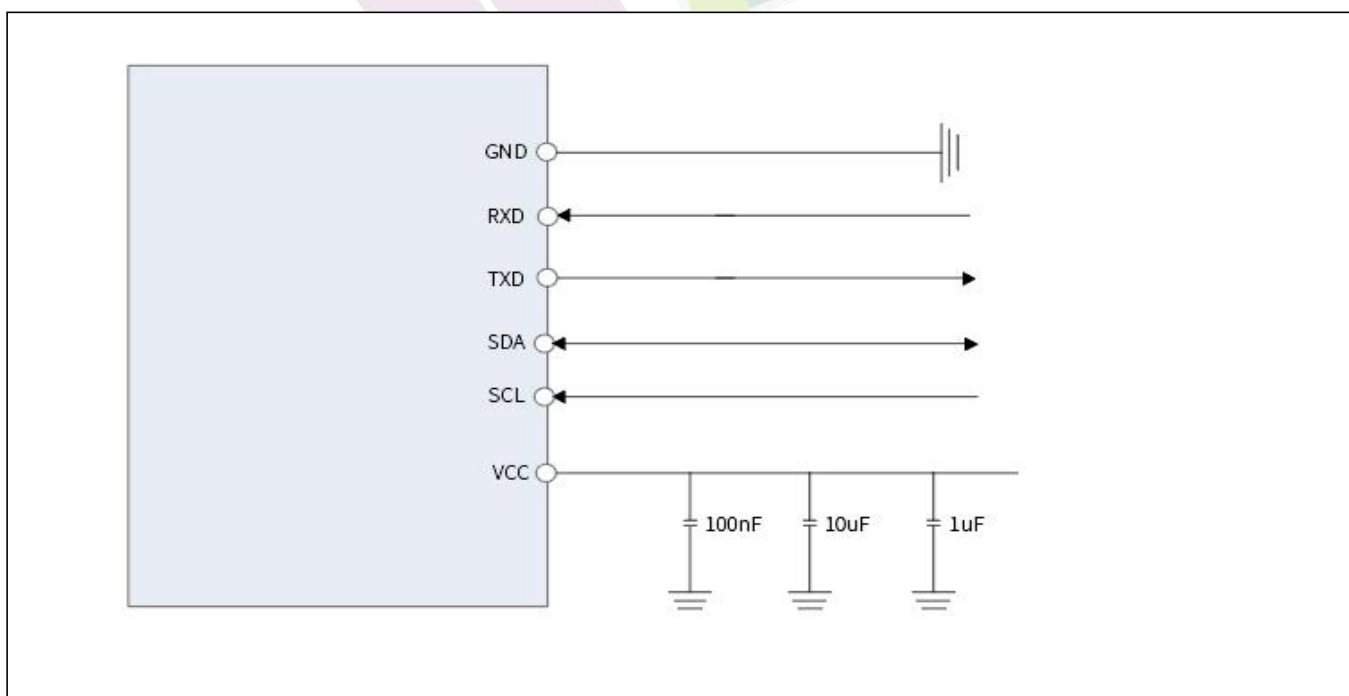
5.1.2 JS-N80UP-9(T)

The series uses the UART as a statement output method. The module includes a geomagnetic sensor whose output is I2C. The detailed block diagram is as follows.

Block Diagram



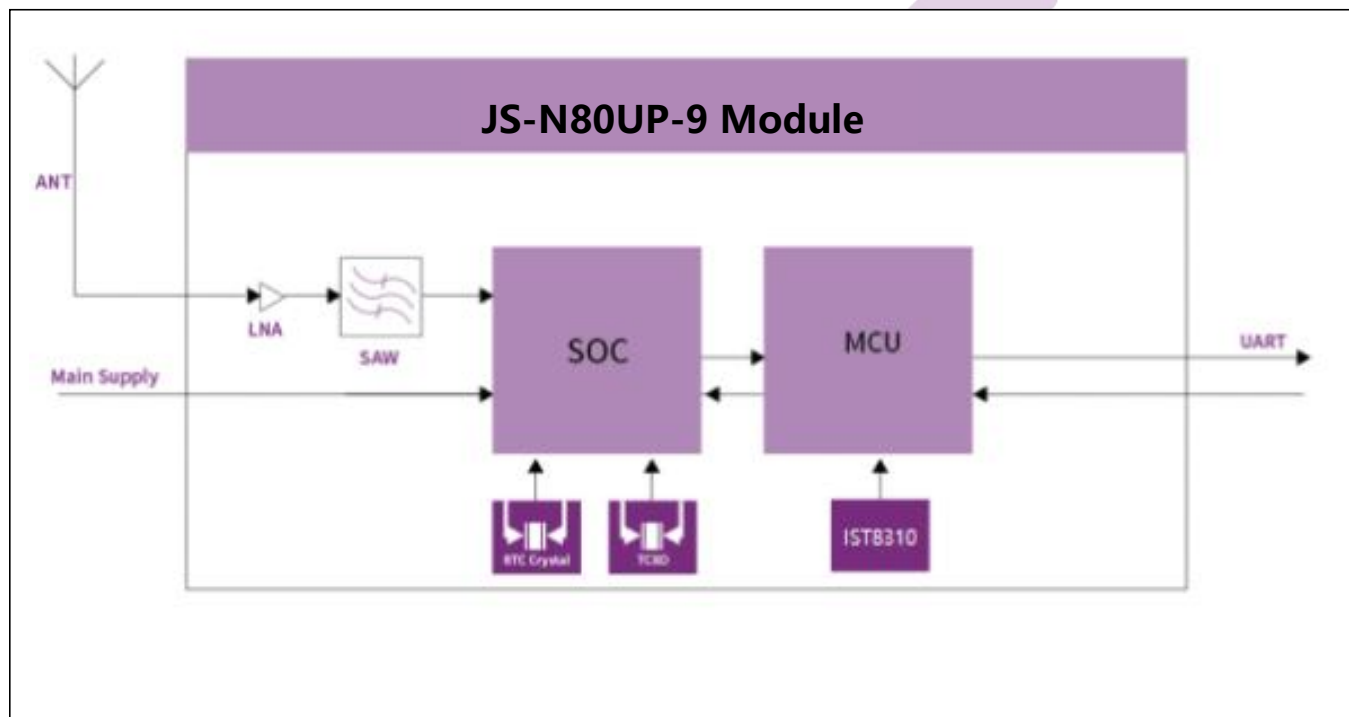
Application Circuit



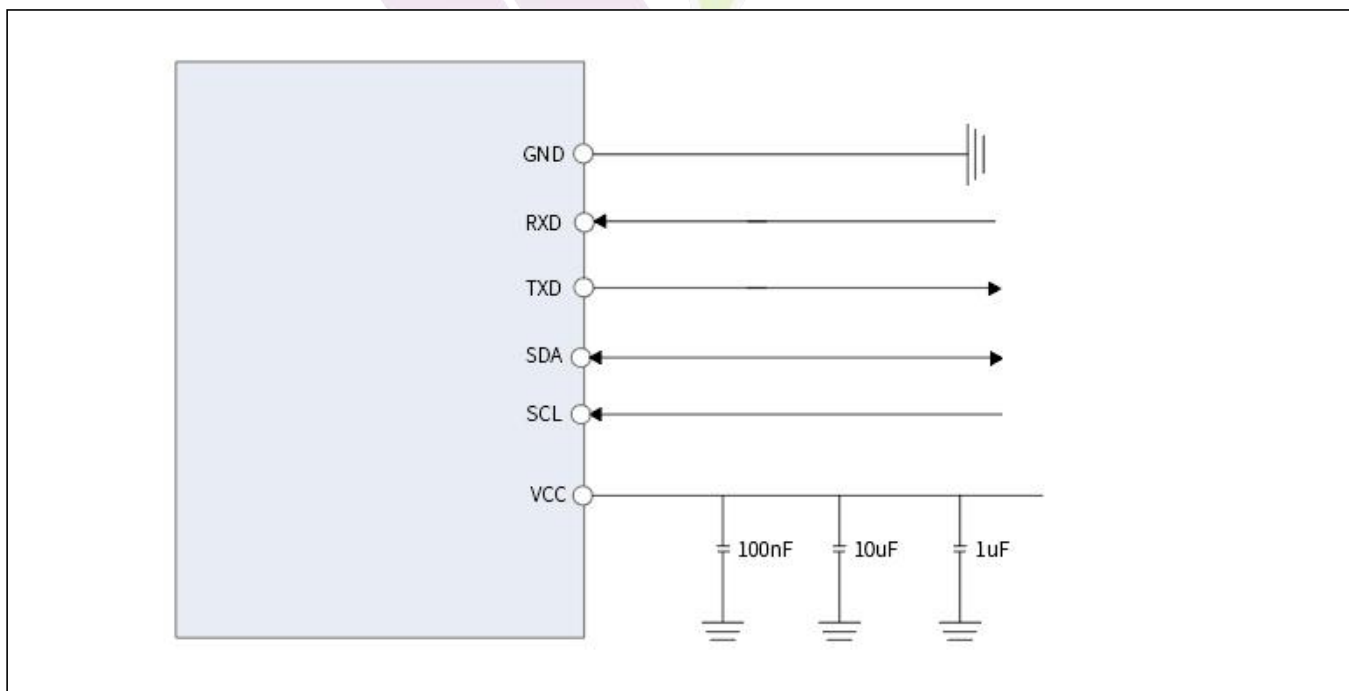
5.1.3 JS-N80UP-9(M)

This series uses UART as a statement output method, which includes a geomagnetic sensor and an MCU controller. There will be an attachment detailing how to use UART as output. Please refer to Annex 1 for details.

Block Diagram



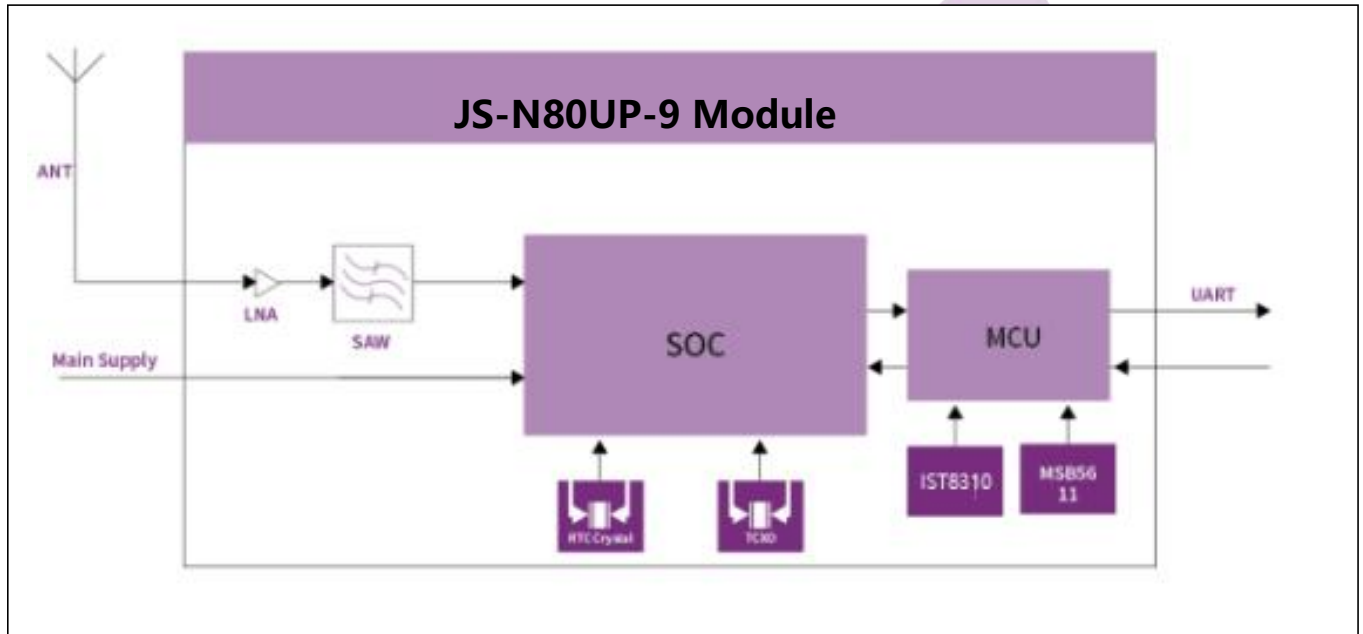
Application Circuit



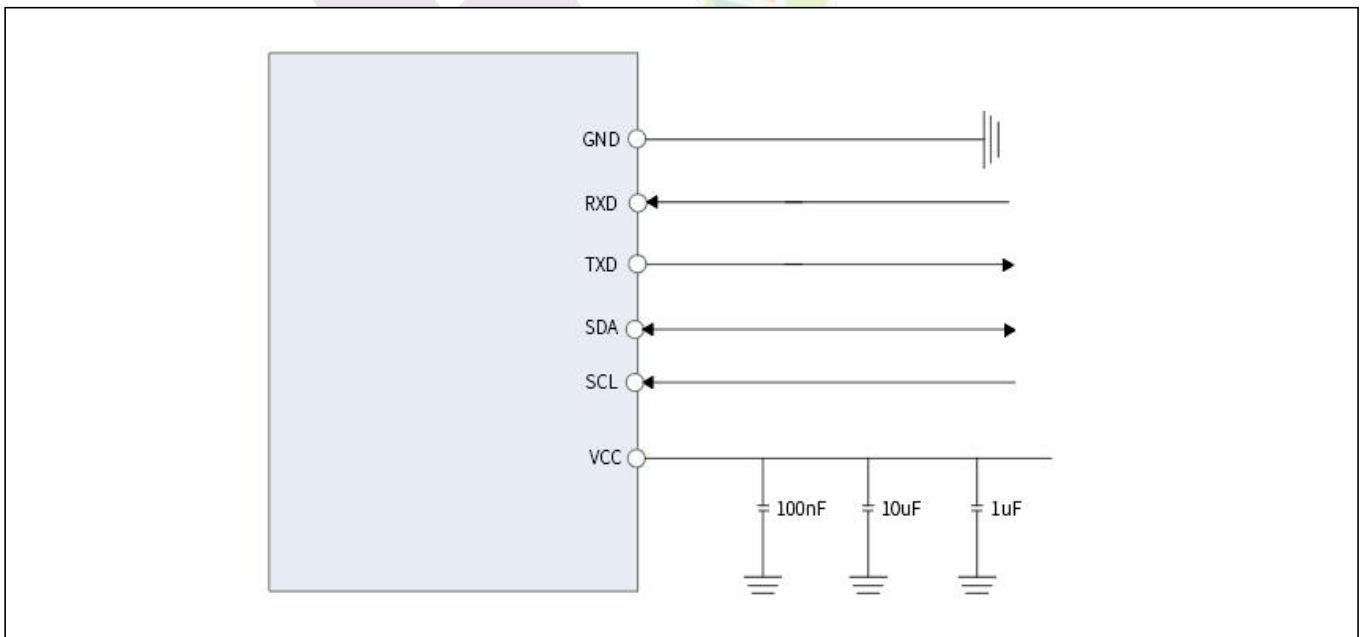
5.1.4 JS-N80UP-9(S)

The series uses the UART as a statement output method. The module includes a geomagnetic sensor and an air pressure sensor. The output method is I2C. The detailed block diagram is as follows.

Block Diagram



Application Circuit



6. RoHS

This product is RoHS compliance