JS-AUP28-1

PRODUCT SPECIFICATION

Data Sheet

Contents

Change History of Revision

Revision	Date	Contents of Revision Change	Remark
V1.0	2022-01-08	First release	Wang Wei
V1.1	2022-03-31	Adding configuration options	Wang Wei

1 Functional description

1.1 Overview

The JS-AUP28-1 uses multi mode solution, low power consumption, low cost, the JS-AUP28-1 are multi GNSS (BDSGPS,,GLONASS,Galileo,QZSS and SBAS) positioning module developed to meet the requirements of an extensive range of applications and end-products. Based on the high performance SOC position engine, these receivers provide exceptional sensitivity and acquisition times and interference suppression measures enable reliable positioning even in difficult signal conditions.

1.2 Product Features

- SOC high performance GNSS Chips
- Over 2 million effective correlators
- 72 acquisition-channel / 32 tracking
- Cold start acquisition sensitivity of -148dBm and -166dBm tracking sensitivity
- Up to 10 Hz navigation update rate
- Supports BDS,GPS, QZSS, SBAS,GLONASS ,Galileo
- Supports AGPS
- Integrated TCXO, LNA, SAW, RTC
- Compact size (28.0mmx28.0mmx8.6mm±0.3mm) suitable for space-sensitive application
- Support standard NMEA 0183, version 4.0 and 4.1, UBX

1.3 Performance

Parameter	Specification	
Receiver type*	■GPS/QZSS L1C/A ■SBAS EGNOS, GAGAN, MSAS and WAAS ■GLONASS L1OF ■BDS B1I ■Galileo E1B/C	
Sensitivity	Tracking & Navigation	-166dBm
	Reacquisition	-160dBm
	Cold Start	-148dBm
Time-To-First-Fix[1]	Cold Start	29s
	Hot Start	1s
Horizontal Position accuracy[2]	Autonomous	2.0m CEP
Accuracy of time pulse signal	RMS	30ns
	99%	60ns
Velocity accuracy[3]		0.05m/s
Operational limits[4]	Dynamics	≤ 4g
	Altitude	80000m
	Velocity	500m/s
Frequency of time pulse signal	1Hz	
Baud Rate	9,600 -- 460800 bps (Default 38400 bps)	
Max navigation update rate	10 Hz (Default 1Hz, configurable)	

*Default GPS+Galileo+QZSS+SBAS, and BDS and GLONASS are not supported at the same time

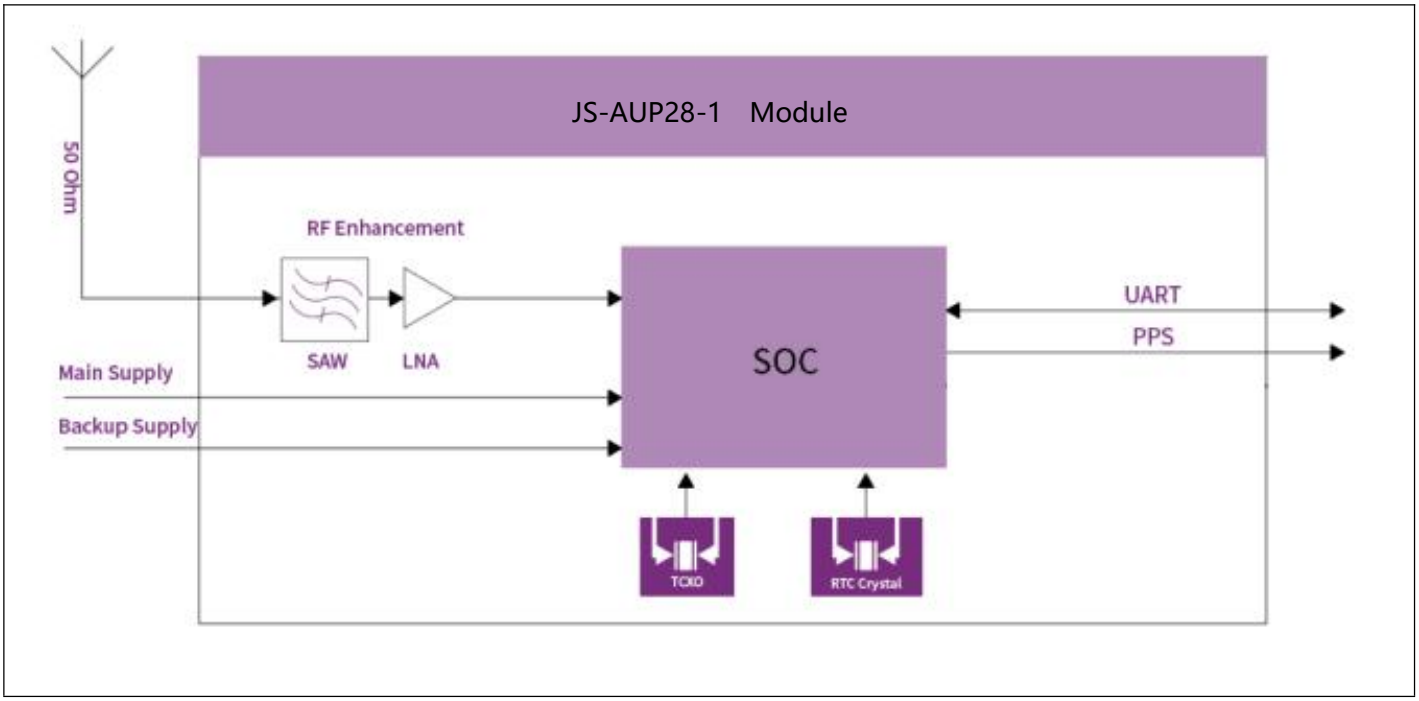
[1] All satellites at ≥-130dBm

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

[3] 50% at 30 m/s for dynamic operation

[4] Assuming Airborne < 4g platform

1.4 Block Diagram



1.5 Protocols

Protocol	Type
NMEA 0183 v4.0 and 4.1	Input/output, ASCII
UBX	Input/output, binary, u-blox proprietary

1.6 Antenna

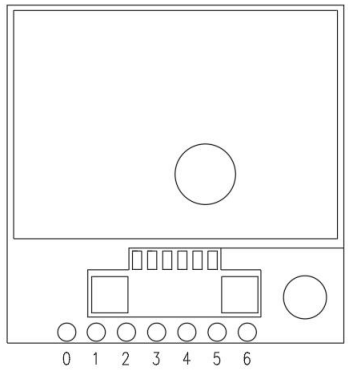
Parameter	Specification
Passive Antenna Type	25.0*25.0*4.0mm

1.7 Product Application

- UAV
- Automotive application
- Marine navigation, fleet management
- Handheld GPS receiver application
- Intelligent logistics scheduling
- Personnel protective
- Car navigation and tracking
- Intelligent robot

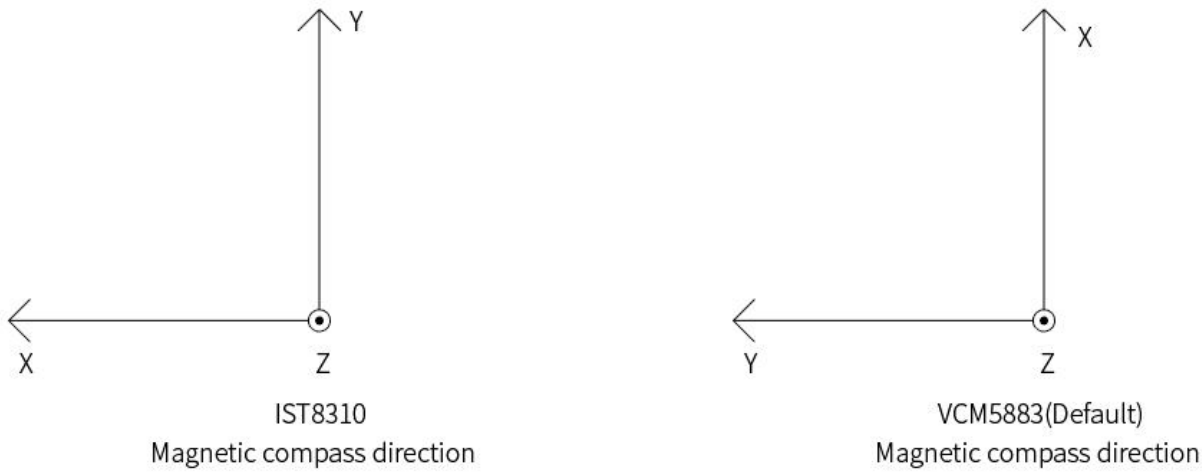
2 Pin definitions

2.1 Definition of Pin Assignment



No.	Name	I/O	Description
0	1PPS	O	1PPS
1	GND/SCL	G	Ground/I2C Clock
2	GND	G	Ground
3	TX	O	TTL Output
4	RX	I	TTL Input
5	VCC	P	Main Supply
6	VBAT/SDA	P	Backup voltage supply/I2C Data

2.2 Description of geomagnetic sensors



Note: Magnetic compass model: The geomagnetic model is VCM5883(Default) , VCM5883_MS_ADDRESS 0x0C. The geomagnetic model is IST8310 , IST8310_MS_ADDRESS 0x0F.

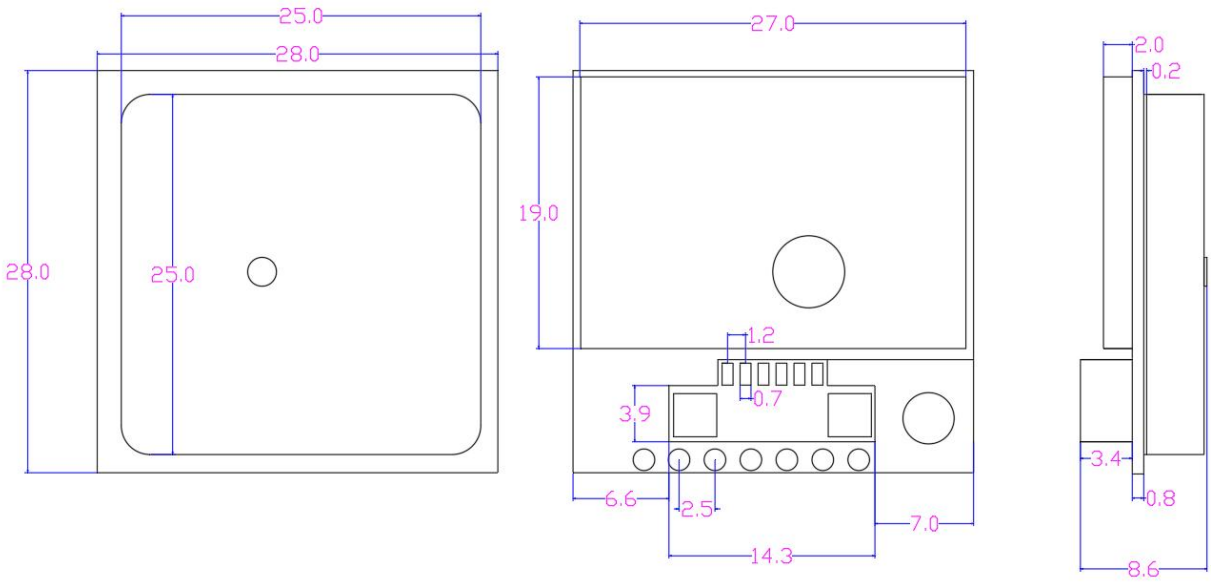
3 Electrical Specifications

Parameter	Symbol	Min	Type	Max	Units
Power supply voltage	VCC	3.3	5.0	5.5	V
Average supply current	Acquisition	27@5.0V	35@5.0V	41@5.0V	mA
	Tracking	27@5.0V	32@5.0V	40@5.0V	mA
Backup battery			0.07		F
Backup battery current	I_BCKP		8@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	%

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℃ or above 60℃

4 Mechanical Specifications



units: mm dimension error:±0.3mm

5 Version of the configuration

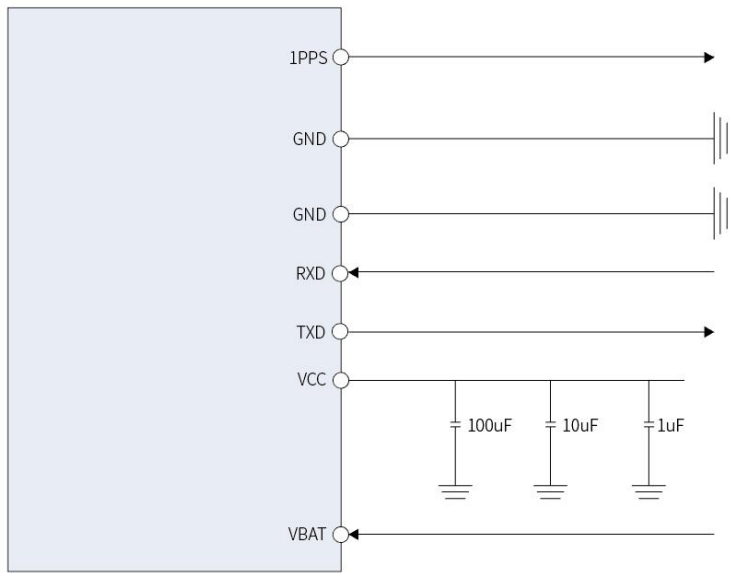
NAME	TTL	FLASH	IST8310/VCM5883	Farah capacitance
JS-AUP28-1	√	NC	NC	√
JS-AUP28GF-1	√	√	√ (I2C)	√
JS-AUP28F-1	√	√	NC	√
JS-AUP28NF-1	√	√	NC	NC

6 Interface configuration selections

6.1 Interfaces description

The JS-AUP28-1 GPS module can be selected according to the needs of the corresponding interface output side and additional sensors, Support UART interface output

Application Circuit



7 ROHS

This product is RoHS compliance