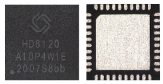
HD8120 SERIES
CYNOSURE III LITE GNSS CHIP



QFN40: 5*5 mm

PRODUCT DESCRIPTION

ALLYSTAR HD8120 series, based on the CYNOSURE III Lite architecture, is a high-performance single chip GNSS solution. This series supports GPS, BeiDou, Galileo, GLONASS, QZSS and SBAS, and can concurrently process GLONASS or BeiDou with GPS and Galileo signals, thereby providing reception of three GNSS systems. The newly designed architecture is optimized in positioning and power-saving performance for industrial and portable applications. The highly integrated architecture brings full positioning functionality, from antenna input to position data output, in a self-contained solution that requires less external components.

HD8120 series targets for the location awareness and logistic transportation markets, and is widely used in shared bike, wearable device, unmanned aerial vehicle (UAV), vehicle management, unmanned driving, car navigation, marine navigation, and other fields.

HIGHLIGHTS

- Concurrent GNSS reception
- Low power consumption
- ARM Cortex-M4F processor with cache controller
- Smart jammer detection and suppression
- Intelligent power control mechanism
- Single supply with wide voltage range

APPLICATIONS

Shared bike

Wearable device

UAV

Fleet management

GENERAL SPECIFICATIONS

GNSS Engine

Cynosure III Lite GNSS engine
88 channels & DSP accelerator

GNSS Reception

GPS/QZSS: L1C/A
BDS: B1I, B1C
GLONASS: G1
Galileo: E1
SBAS: L1 (WAAS, EGNOS, MSAS, GAGAN, SDCM)

Update Rate

GNSS	5 Hz Max.

Position Accuracy

GNSS	1.5m CEP
D-GNSS	1.0m CEP
SBAS	< 1.0m CEP

Velocity & Time Accuracy

GNSS	0.1 m/s CEP
D-GNSS	0.1 m/s
SBAS	0.1 m/s
1PPS	20 ns

Time to First Fix (TTFF)

Hot start	1s
Cold start	28s

Sensitivity

Cold start	-148 dBm
Hot start	-156 dBm
Reacquisition	-158 dBm
Tracking & Navigation	-163 dBm

Operating Condition

Main voltage	1.7V to 3.63V
Digital I/O voltage	1.7V to 3.63V
Backup voltage	1.62V to 3.63V

Operation Limit

Velocity	515 m/s
Altitude	18,000m

Power Consumption

Tracking	GPS+QZSS+BDS	12 mA @ 3.3V
	GPS/QZSS	11 mA @ 3.3V
Acquisition	GPS/QZSS+BDS	13 mA @ 3.3V
	GPS/QZSS	11 mA @ 3.3V
Standby mode		15 uA @ 3.3V

Interfaces

USB (FS, 12Mbps)	1
UART	3
SPI (master/slave)	2
SQI (1-bit/4-bit Master Mode)	1
I^2C	1

Peripheral

PWM	2
INCP	2
Ext. interrupt	8
Digital I/O	16

Clock

Main clock oscillator	TCXO
Sub clock oscillator	32.768 kHz

ENVIRONMENT DATA

Operation temperature	-40°C to +85°C
Storage temperature	-40°C to +125°C
Certification	RoHS & REACH

PACKAGE

Package	QFN40
Dimension	5.0*5.0 mm

ORDERING INFORMATION

Ordering code	GNSS*			
	GPS/QZSS	BDS	GLONASS	Galileo
HD8120-1314CM	•	•	•	•

* *Concurrent reception of three GNSS systems.*

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