

HD8125 CYNOSURE III LITE GNSS CHIP



BGA: 3.0*3.0 mm

PRODUCT DESCRIPTION

ALLYSTAR HD8125, based on the CYNOSURE III Lite architecture, is a high-performance standard precision GNSS chip which supports GPS, BDS, Galileo, GLONASS, QZSS and SBAS, and can concurrently process three systems. The newly designed architecture optimizes positioning and power-saving performance, and brings full positioning functionality. From antenna input to position data output, fewer external components are required in a self-contained solution.

HD8125 is an ideal choice for most industrial and portable applications, such as shared bikes, wearable devices, unmanned aerial vehicles, vehicle management, unmanned driving, car navigation, marine navigation, and other fields where low power consumption and small size are critical.

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 bikes



Wearable devices



Unmanned aerial vehicles



Vehicle 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: L1C/A (WAAS, EGNOS, MSAS, GAGAN, SDCM)

Update Rate

GNSS 1 Hz default

Position Accuracy

GNSS 2.5m 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 -162 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		9 uA @ 3.3V

Interfaces

USB (FS, 12Mbps)	1
UART	3
SPI (master/slave)	2
SQI (1-bit/4-bit Master Mode)	1
I ² C	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 ~ +85°C
Storage temperature	-40°C ~ +125°C
Certification	RoHS & REACH

PACKAGE

Package	BGA
Dimension	3.0*3.0 mm

ORDERING CODE

Ordering code	GNSS			
	GPS/QZSS	BDS	GLONASS	Galileo
HD8125-1314AM	•	*	*	•

* BDS is alternative to GLONASS.

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