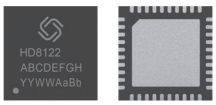
# HD8122
# CYNOSURE III LITE GNSS CHIP



QFN40: 5.0*5.0 mm

## PRODUCT DESCRIPTION

ALLYSTAR HD8122 is a high-performance single chip GNSS solution targeting for the location awareness and logistic transportation markets.

HD8122 is based on the CYNOSURE III Lite architecture, integrated with dual-channel RF and baseband for the concurrent reception from any three GNSS systems. This newly designed architecture is optimized in positioning and power-saving performance for industrial and portable applications. Its highly integrated architecture brings full positioning functionality, from antenna input to position data output, in a self-contained solution that requires less external components.

It can be widely used in shared bikes, wearable devices, unmanned aerial vehicle, vehicle management, unmanned driving, car navigation, marine navigation, and other fields.

## HIGHLIGHTS

- Concurrent reception of three GNSS systems
- 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
- Pin-compatible with the products in the mass market

## APPLICATIONS


Shared bike


Wearable device


UAV


Vehicle management

# GENERAL SPECIFICATIONS

### GNSS Engine

Cynosure III Lite GNSS engine
88 channels in total & 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 maximum |

### Position Accuracy

| | |
|---|---|
| GNSS | 2.5m 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-3.63V |
| Digital I/O voltage | 1.7V-3.63V |
| Backup voltage | 1.62V-3.63V |

### Operation Limit

| | |
|---|---|
| Velocity | 515 m/s |
| Altitude | 18,000m |

### Power Consumption

| | |
|---|---|
| GPS/QZSS | 11 mA @ 3.3V |
| GPS/QZSS+BDS | 12 mA @ 3.3V |
| Standby mode | 15 uA @ 3.3V |

### Interfaces

| | |
|---|---|
| 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 Crystal |

# 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 |

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