# HD8040 SERIES CYNOSURE III GNSS CHIP





QFN40: 5\*5mm

WLCSP: 2.78\*2.933mm

## **PRODUCT DESCRIPTION**

ALLYSTAR HD8040 series is a group of highly integrated GNSS receiver chips. It is the World's 1st multi-band multi-system SoC chip which supports BDS-3. It is capable of tracking all global civil navigation systems (BDS, GPS, GLONASS, Galileo, IRNSS, QZSS and SBAS) in all bands (L1, L2, L5).

HD8040 series is based on state of the art CYNOSURE III architecture integrating multi-band multisystem GNSS RF and baseband, making this series chip achieve sub-meter level position accuracy without correction data from ground-based augmentation station.

HD8040 series can be widely used in mobile phones, wearable devices, unmanned aerial vehicle, vehicle management, unmanned driving, car navigation, marine navigation, engineering survey, and other fields.

# HIGHLIGHTS

- Support BDS-3 signal
- Concurrent multi-band GNSS reception
- Support all civil GNSS signals
- Ultra low power RTC mode
- Built-in AES/DES/SM4 data encryption engine
- Smart jammer detection and suppression

## **APPLICATIONS**





Wearable devices

Unmanned aerial vehicle





# **GENERAL SPECIFICATIONS**

#### **GNSS** Engine

Cynosure III GNSS Engine 136 channels & DSP accelerator

#### **GNSS** Reception

GPS/QZSS: L1 C/A, L1C, L2C, L5 BDS: B1C, B1I, B2a, B2I, B3I GLONASS: L1, L2 Galileo: E1, E5, E6 IRNSS: L5 SBAS: WAAS, EGNOS, MSAS, GAGAN, SDCM

#### Update Rate

GNSS	20Hz maximum

#### **Position Accuracy**

GNSS SBAS D-GNSS

#### Velocity & Time Accuracy

GNSS SBAS D-GNSS 1PPS

0.05m/s 0.05m/s 25ns

1s

28s

2.5m CEP

2.0m CEP

<1.0m CEP

0.1m/s CEP

#### Time to First Fix (TTFF)

Hot start Cold start

#### Sensitivity

Reacquisition Tracking & Navigation

#### **Operation Limit**

Velocity Altitude

#### 515 m/s 18,000 m

-160dBm

-167dBm

#### **Operating Condition**

Main voltage	1.62 ~ 3.63V
Digital I/O voltage	1.62 ~ 3.63V
Backup voltage	1.62 ~3.63V

#### Power Consumption

L1 band	16mA
L1+L5 band	34mA
Standby	1.2uA

#### Interfaces

USB (FS, 12Mbps)	1
UART	2
SPI (master/slave)	2
SQI (master mode)	1
l <sup>2</sup> C	1

#### Peripheral

4
2
7
16

#### Clock

Main clock oscillator	Crystal or TCXO
Sub clock oscillator	32768Hz(optional)

## **ENVIRONMENT DATA**

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

## PACKAGE

QFN WLCSP 5.0mm\*5.0mm 2.78mm\*2.933mm

## **ORDERING INFORMATION**

HD8040 HD8040D HD8041 HD8041D QFN40/WLCSP QFN40/WLCSP QFN40/WLCSP QFN40/WLCSP



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