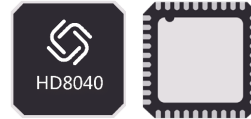# HD8040 SERIES CYNOSURE III GNSS CHIP

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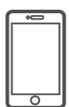
HD8040 series is based on state of the art CYNOSURE III architecture integrating multi-band multi-system GNSS RF and baseband, making this series chip achieve sub-meter level position accuracy without correction data from ground-based augmentation station.

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

Mobile phones   Wearable devices   Unmanned aerial vehicle   Vehicle management

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	2.5m CEP
SBAS	2.0m CEP
D-GNSS	<1.0m CEP

Velocity & Time Accuracy

GNSS	0.1m/s CEP
SBAS	0.05m/s
D-GNSS	0.05m/s
1PPS	25ns

Time to First Fix (TTFF)

Hot start	1s
Cold start	28s

Sensitivity

Reacquisition	-160dBm
Tracking & Navigation	-167dBm

Operation Limit

Velocity	515 m/s
Altitude	18,000 m

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
I^2C	1

Peripheral

PWM	4
INCP	2
Ext. interrupt	7
Digital I/O	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	5.0mm*5.0mm
WLCSP	2.78mm*2.933mm

ORDERING INFORMATION

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