

UBX-G6010-ST

Low-cost u-blox 6 GPS chip

Highlights

- High performance GPS engine
- Cost and size effective
- High level of design flexibility
- Qualified according to AEC-Q100
- Manufactured in ISO/TS 16949 certified production sites



UBX-G6010-ST:
8.0 x 8.0 x 0.85 mm

Features

- u-blox 6 position engine:
 - Navigate down to -162 dBm and -148 dBm coldstart
 - Faster acquisition with AssistNow Autonomous
 - Configurable power management
 - Hybrid GPS/SBAS engine (WAAS, EGNOS, MSAS)
 - Anti-jamming technology
- Simple integration with u-blox wireless modules
- A-GPS: AssistNow Online and AssistNow Offline services, OMA SUPL compliant
- Supports ultra-low power logging and geo-tagging applications with Capture & Process technology¹
- Backward compatible (hardware and firmware); easy migration from u-blox 5
- Operating temperature range: -40°C to 85°C
- 3GPP compliant
- Compatible with u-blox GPS Solution for Android

¹ Requires u-blox' YUMA, available separately.

Product description

The UBX-G6010-ST is u-blox' standard grade GPS chip featuring the high performance u-blox 6 position engine. The UBX-G6010-ST provides even better sensitivity and acquisition times while requiring no external host. Sophisticated RF-architecture and interference suppression ensure maximum performance even in GPS-hostile environments.

u-blox 6 has been designed with low power consumption and low cost in mind. Intelligent power management is a breakthrough for low-power applications. The minimal eBoM requires as few as 16 passive components, an LDO and LNA are integrated and costly external memory is not needed. Lower price GPS crystals as well as TCXOs are supported, and 2-layer PCB integration capability and small footprint ensure further cost savings.

The UBX-G6010-ST is the ideal GPS chip solution for cost sensitive, high-volume applications.

Product selector

Model	Type	Supply	Interfaces	Features
	Standalone GPS Capture & Process Timing & Raw Data Dead Reckoning	1.75 V – 2.0 V 2.5 V – 3.6 V	UART USB SPI DDC (I ² C compliant)	Programmable (Flash) FW update Oscillator RTC crystal Antenna supply and supervisor Configuration pins Timepulse External interrupt / Wakeup
UBX-G6010-ST	• Y	• •	• • • •	C/T ○ ○ 10 2 2

Y = requires u-blox' YUMA (available separately)
C/T = Crystal and TCXO supported

○ = requires external components

Receiver performance data

Receiver type	50-channel u-blox 6 engine GPS L1 C/A code SBAS: WAAS, EGNOS, MSAS		
Navigation update rate	up to 5 Hz		
Accuracy ¹	Position	2.5 m CEP	
	SBAS	2.0 m CEP	
Acquisition ¹		TCXO	Crystal
	Cold starts:	26 s	27 s
	Aided starts ² :	1 s	< 3 s
	Hot starts:	1 s	1 s
Sensitivity ³		TCXO	Crystal
	Tracking:	-162 dBm	-161 dBm
	Cold starts:	-148 dBm	-147 dBm
	Hot starts:	-157 dBm	-156 dBm
Operational limits	Velocity:	500 m/s	
	Altitude:	50,000 m	

¹ All SV @ -130 dBm

² Dependent on aiding data connection speed and latency

³ Demonstrated with a good active antenna

Electrical data

Supply voltages	1.75 V – 2.0 V 2.5 V – 3.6 V
Digital I/O voltage level	1.65 V – 3.6 V
Power consumption	67 mW @ 1.8 V (continuous) 20 mW @ 1.8 V Power Save Mode (1 Hz)
Backup supply	Voltage range: 1.4 to 3.6 V
RTC input	32.768 kHz (optional)
Antenna supervision	Short and open circuit detection supported with external circuit
Antenna type	Active and passive

Interfaces

Serial interfaces	1 UART 1 USB V2.0 full speed 12 Mbit/s 1 DDC (I ² C compliant) 1 SPI
Digital I/O	Configurable time pulse 2 EXTINT interrupt inputs 10 configuration pins

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Specification applies to FW 7

Package

UBX-G6010-ST: 56 Pin MLF: 8.0 x 8.0 x 0.85 mm

Environmental data, quality & reliability

Operating temp. -40°C to 85°C
Storage temp. -40°C to 85°C
RoHS compliant (lead-free) and green (no halogens)
Qualification according to ISO 16750
Manufactured in ISO/TS 16949 certified production sites

Support products

u-blox 6 Evaluation Kit: easy-to-use kit to get familiar with u-blox 6.

EVK-6H: u-blox 6 Evaluation Kit with TCXO.

EVK-6P: u-blox 6 Evaluation Kit with Crystal.

u-blox 6 Chipset Development Kit

CDK-6X: For information contact u-blox.

Ordering information

UBX-G6010-ST u-blox 6 GPS single chip, 56 Pin MLF

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