UBX-G6010-NT

Smallest ever u-blox 6 GPS chip

Highlights

- High performance GPS engine
- Minimal space (less than 7 x 8 mm PCB area)
- High level of design flexibility
- eBoM requires as few as 5 components
- Capture & Process support

UBX-G6010-NT:
5.0 x 6.0 x 1.1 mm

Features

- u-blox 6 position engine:
  - o Navigate down to –162 dBm and –148 dBm coldstart
  - o Faster acquisition with AssistNow Autonomous
  - o Configurable power management
  - o Hybrid GPS/SBAS engine (WAAS, EGNOS, MSAS)
  - o 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 technology[1]
- 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-NT is u-blox' smallest ever GPS chip featuring the high performance u-blox 6 position engine. Sophisticated interference suppression ensures maximum performance even in GPS-hostile environments. By integrating most passive components, the UBX-G6010-NT reduces the eBoM and minimizes space requirements for GPS solutions to less than 7 x 8 mm.

u-blox 6 has been designed with low power consumption in mind, with intelligent power management enabling low-power applications. The minimal eBoM requires as few as 5 components (including SAW filter and TCXO). Both LDO and LNA are integrated, and costly external memory is not needed. Lower price GPS crystals as well as TCXOs are supported, 2-layer PCB integration capability and small footprint ensure further cost savings.

The UBX-G6010-NT is the ideal solution for space sensitive applications requiring flexible performance and cost options.

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 (I²C compliant)	Programmable (Flash) FW update	Oscillator	RTC crystal	Antenna supply and supervisor	Configuration pins	Timepulse	External interrupt / Wakeup
UBX-G6010-NT	•	Y			•	•	•	•	•	•		C/T	o	o	10	2	2

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

o = requires external components

u-blox

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 SBAS	2.5 m CEP 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: Altitude:	500 m/s 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 (I²C compliant) 1 SPI
Digital I/O	Configurable time pulse 2 EXTINT interrupt inputs 10 configuration pins

Package

UBX-G6010-NT:	45 Pin LGA (similar to QFN 42): 0.4 mm pitch, 5.0 x 6.0 x 1.1 mm

Environmental data, quality & reliability

Operating temp.	−40° C to 85° C
Storage temp.	−40° C to 85° C

RoHS compliant (lead-free)

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-NT	u-blox 6 GPS chip, 45 Pin LGA

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