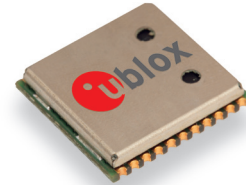


# MAX-6 series

## Compact u-blox 6 GPS modules

### Highlights

- Ultra miniature package
- UART and DDC (I<sup>2</sup>C compliant) interfaces
- Optional RTC crystal for faster warm and hot starts
- 1.8 V and 3.0 V variants



MAX-6:  
9.7 x 10.1 x 2.5 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
- Manufactured in ISO/TS 16949 certified sites
- LCC package for reliable and cost effective manufacturing
- Operating temperature range: -40°C to 85°C

### Product description

The MAX-6 module series brings the high performance of the u-blox6 position engine to the ultra miniature MAX form factor. u-blox6 has been designed with low power consumption and low costs in mind. Intelligent power management is a breakthrough for low-power applications. These receivers provide high performance and a high level of integration capability in a tiny package. This makes them perfectly suited for end products with strict size and cost requirements. The DDC interface provides connectivity and enables synergies with u-blox wireless modules.

All MAX-6 modules are manufactured in ISO/TS 16949 certified sites. Qualification tests on MAX-6 modules are performed as stipulated in the ISO16750 standard: "Road vehicles – Environmental conditions and testing for electrical and electronic equipment".

### Product selector

Model	Type	Supply	Interfaces	Features
	Standalone GPS Capture & Process Timing & Raw Data Dead Reckoning	1.75 V – 2.0 V 2.7 V – 3.6 V	UART USB SPI DDC (I <sup>2</sup> C compliant)	Programmable (Flash) FW update TCXO RTC crystal Antenna supply and supervisor Configuration pins Timepulse External interrupt / Wakeup
MAX-6G	•	•	•	•
MAX-6Q	•	•	•	•

◦ = requires external components and integration on application processor

## 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 <sup>1</sup>	Position	2.5 m CEP
	SBAS	2.0 m CEP
Acquisition <sup>1</sup>	Cold starts:	26 s
	Aided starts <sup>2</sup> :	1 s
	Hot starts:	1 s
Sensitivity <sup>3</sup>	Tracking:	-161 dBm
	Cold starts:	-148 dBm
	Reacquisition:	-160 dBm

<sup>1</sup> All SV @ -130 dBm

<sup>2</sup> Dependent on aiding data connection speed and latency

<sup>3</sup> Demonstrated with a good active antenna

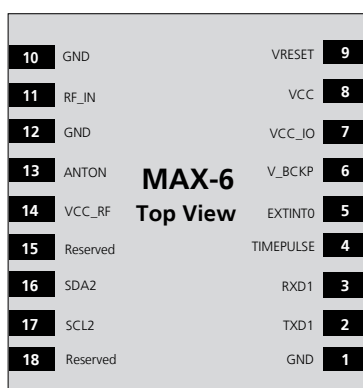
## Electrical data

Power supply	2.7 V – 3.6 V (MAX-6Q) 1.75 V – 2.0 V (MAX-6G)
Power consumption	120 mW @ 3.0 V (continuous) 36 mW @ 3.0 V Power Save Mode (1 Hz) 72 mW @ 1.8 V (continuous) 22 mW @ 1.8 V Power Save Mode (1 Hz)
Backup power	1.4 V – 3.6 V, 22 µA
Supported antennas	Active and passive

## Package

Dimensions	LCC (Leadless Chip Carrier), surface mount package: 9.7 x 10.1 x 2.5 mm
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Pinout



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Specification applies to FW 7

## Interfaces

Serial interfaces	1 UART 1 DDC (I <sup>2</sup> C compliant)
Digital I/O	Configurable timepulse 1 EXTINT input for Wakeup
Serial and I/O	Voltages 2.7 – 3.6 V (MAX-6Q) 1.75 – 2.0 V (MAX-6G)
Timepulse	Configurable 0.25 Hz to 1 kHz
Protocols	NMEA, UBX binary, RTCM

## Environmental data

Operating temp.	-40° C to 85° C
Storage temp.	-40° C to 85° C
RoHS compliant (lead-free)	

## Support products

u-blox 6 Evaluation Kits:

Easy-to-use kits to get familiar with u-blox 6 positioning technology, evaluate functionality, and visualize GPS performance.

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

## Ordering information

MAX-6G-0	u-blox 6 GPS Module, 1.8V, TCXO, 9.7x10.1 mm, 500 pcs/reel
MAX-6Q-0	u-blox 6 GPS Module, TCXO, 9.7x10.1 mm, 500 pcs/reel

Available as samples and tape on reel (500 pieces)

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