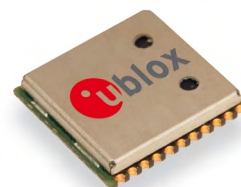# MAX-6 series

Compact u-blox 6 GPS modules

Highlights

- Ultra miniature package
- UART and DDC (I²C compliant) interfaces
- 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:
  - o Navigate down to −161 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
- LCC package for reliable and cost effective manufacturing
- Compatible with u-blox GPS Solution for Android
- Manufactured in ISO/TS 16949 certified production sites
- Qualified according to ISO 16750

Product description

The MAX-6 module series brings the high performance of the u-blox 6 position engine to the ultra miniature MAX form factor. u-blox 6 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. Each module is tested and inspected during production. The modules are qualified according to ISO 16750 - Environmental conditions and electrical testing for electrical and electronic equipment for road vehicles.

Product selector

Model	Type				Supply		Interfaces				Features						
	Standalone GPS	Standalone GLONASS	Timing & Raw Data	Dead Reckoning	1.75 V – 2.0 V	2.7 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
MAX-6G	•				•		•			•		T	•	o		1	•
MAX-6Q	•					•	•			•		T	•	o		1	•

o = requires external components   T = TCXO

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]	Cold starts: Aided starts[2]: Hot starts:	26 s 1 s 1 s
Sensitivity[3]	Tracking & navigation: Cold starts:	−161 dBm −148 dBm

[1] All SV @ −130 dBm
[2] Dependent on aiding data connection speed and latency
[3] 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	41 mA (continuous) 12 mA Power Save Mode (1 Hz)
Backup power	1.4 V – 3.6 V, 22 µA
Supported antennas	Active and passive

Interfaces

Serial interfaces	1 UART 1 DDC (I²C 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	

Package

18 pin LCC (Leadless Chip Carrier): 9.7 x 10.1 x 2.5 mm

Pinout

10	GND	VRESET	9
11	RF_IN	VCC	8
12	GND	VCC_IO	7
13	ANTON	V_BCKP	6
14	VCC_RF	EXTINT0	5
15	Reserved	TIMEPULSE	4
16	SDA2	RXD1	3
17	SCL2	TXD1	2
18	Reserved	GND	1

MAX-6 Top View
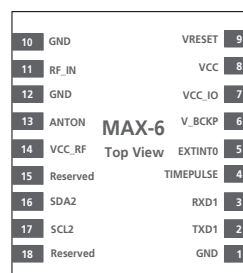
Environmental data, quality & reliability

Operating temp.	−40° C to 85° C
Storage temp.	−40° C to 85° C
RoHS compliant (lead-free)	
Qualification according to ISO 16750	
Manufactured in ISO/TS 16949 certified production sites	

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	

Contact us

For contact information, see www.u-blox.com/contact-us.