

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:
 - Navigate down to -161 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
- 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-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. 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 (I ² C compliant)	Programmable (Flash) FW update Oscillator RTC crystal Antenna supply and supervisor Configuration pins Timepulse External interrupt / Wakeup
MAX-6G	•	•	•	•
MAX-6Q	•	•	•	•

◦ = requires external components

T = TCXO

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	Cold starts:	26 s
	Aided starts ² :	1 s
	Hot starts:	1 s
Sensitivity ³	Tracking & navigation:	-161 dBm
	Cold starts:	-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 (I ² 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

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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

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.