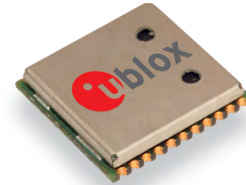


MAX-M5Q

Compact GPS/GNSS receiver

Highlights

- Multi-GNSS engine for combined GPS, GLONASS and QZSS
- Extremely small for factor and low power consumption
- Form-factor compatible with MAX-7 series



MAX-M5Q:
9.7 x 10.1 x 2.5 mm

Product description

The MAX-M5Q is a standalone, multi-GNSS module from u-blox. With the exceptional utilization of GPS and GLONASS simultaneously, MAX-M5Q can enhance the position availability in harsh GNSS satellite visibility conditions or at high latitudes, e.g. in the polar regions of Russia. It is characterized by a small foot-print, low power consumption, and sophisticated interference suppression, ensuring maximum performance even in GPS-hostile environments. This makes incorporating MAX-M5Q into customer designs simple and straightforward.

MAX-M5Q supports autonomous A-GPS, allowing a reduction of the warm start TTFF by as much as 90%. It features an embedded data logger, which can store location information to internal Flash memory for up to 16 hours at the predetermined interval of 15 seconds.

MAX-M5Q targets industrial and consumer applications that require parallel GPS/GLONASS reception. MAX-M5Q is form factor compatible with other MAX modules, allowing the upgrade of existing designs with minimal effort.

Product selector

The table below shows the MAX-M5Q feature set compared to the MAX-7 based receivers.

| Model | Type | | | Supply | Interfaces | | | | Features | | | | | | | | | | |
|---------|------|------|---------|----------------|------------|-----|-----|----------------------------------|----------------------|-------------|---------------------|----------------------|------------|-------------|----------------|--|------------------------------------|-----------|-----------------------------|
| | GPS | QZSS | GLONASS | | UART | USB | SPI | DDC (I ² C compliant) | Programmable (Flash) | Data logger | Extra front-end LNA | Front-end SAW filter | Oscillator | RTC crystal | Antenna supply | Antenna short circuit detection / protection | Antenna open circuit detection pin | Timepulse | External interrupt / Wakeup |
| MAX-7C | • | • | • | 1.65 V - 3.6 V | • | | | • | | | | | C | ■ | ○ | ○ | ○ | • | • |
| MAX-7Q | • | • | • | 2.7 V - 3.6 V | • | | | • | | | | | T | • | ○ | ○ | ○ | • | • |
| MAX-7W | • | • | • | 2.7 V - 3.6 V | • | | | • | | | | | T | • | • | • | ○ | • | • |
| MAX-M5Q | • | • | • | 3.0 V - 4.3 V | • | | | • | • | • | • | • | T | • | ○ | ○ | ○ | • | • |

○ = Optional, not activated per default or requires external components

C = Crystal / T = TCXO

■ = Derived from single crystal feature

Features

| | | |
|------------------------|---|-----------|
| Receiver type | MT3333 engine 99/33-channel (search/track) GPS/QZSS L1 C/A, GLONASS L1 FDMA, SBAS: WAAS, EGNOS, MSAS | |
| Navigation update rate | up to 10 Hz | |
| Accuracy | Position | 3.0 m CEP |
| | SBAS | 3.0 m CEP |
| Acquisition | Cold starts: | 23 s |
| | Aided starts: | 3 s |
| | Reacquisition: | 1 s |
| Sensitivity | Tracking: | -165 dBm |
| | Cold starts: | -148 dBm |
| | Warm starts: | -148 dBm |
| Assistance | Autonomous | |
| Oscillator | TCXO | |
| RTC crystal | Built-In | |
| Anti jamming | Active CW detection and removal | |
| Memory | Flash | |
| Supported antennas | Active antenna suggested | |

Electrical data

| | |
|-------------------|-----------------------------|
| Supply voltage | 3.0 V to 4.3 ¹ V |
| Power Consumption | 57 mW @ 3.3 V (continuous) |
| Backup Supply | 2.0 to 4.3 ¹ V |

¹ For future-proof designs, u-blox recommends a 3.6 V maximum.

Interfaces

| | |
|-------------------|-----------|
| Serial interfaces | 1 UART |
| Digital I/O | Timepulse |
| Timepulse | 1 Hz |
| Protocols | NMEA |

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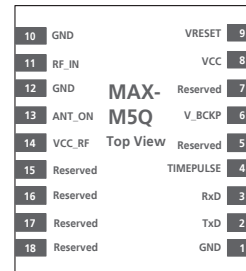
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Package

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

Pinout



Environmental data, quality & reliability

Operating temp. -40° C to +85° C

Storage temp. -40° C to +85° C

RoHS compliant (lead-free)

Manufactured in ISO/TS 16949 certified production sites

Ordering information

MAX-M5Q-0 Fastrax GPS/GNSS Module, 3.0 – 4.3 V,
9.7 x 10.1 mm, 500 pcs/reel

Available as samples and tape on reel

Contact us

HQ Switzerland / EMEA
+41 44 722 7444
info@u-blox.com

Americas
+1 703 483 3180
info_us@u-blox.com

APAC – Singapore
+65 6734 3811
info_ap@u-blox.com

China
+86 10 68 133 545
info_cn@u-blox.com

India
+91 959 1302 450
info_in@u-blox.com

Japan
+81 3 5775 3850
info_jp@u-blox.com

Korea
+82 2 542 0861
info_kr@u-blox.com

Taiwan
+886 2 2657 1090
info_tw@u-blox.com