

NEO-5 module series

u-blox 5 ROM-based GPS receivers

Product description

The NEO-5 module series brings the high performance of the u-blox5 positioning engine to the miniature NEO form factor. These receivers combine a high level of integration capability with flexible connectivity options in a small package. This makes them perfectly suited for mass-market end products with strict size and cost requirements.



16.0 x 12.2 mm

Highlights

- 50-channel u-blox5 engine with over 1 million effective correlators
- < 1 second Time-To-First-Fix for hot and aided starts
- -160 dBm SuperSense® acquisition and tracking sensitivity
- Accelerated startup at weak signals for modules with KickStart feature
- Supports AssistNow Online and AssistNow Offline A-GPS services; OMA SUPL compliant
- High immunity to jamming
- Up to 4 Hz position update rate
- Miniature 16.0 x 12.2 mm package
- UART, USB, DDC and SPI* interfaces
- 1.8V supply voltage for low power consumption (NEO-5D/5G)
- RoHS compliant

* Planned for NEO-5Q/5G

Features

| Series | Power | Size | Memory | Function | Antenna | Input / Output |
|--------|-------------------|----------------|--------------------------------|--|--------------------------------------|--|
| | Voltage range [V] | Thickness [mm] | Programmable (Flash) FW update | Power Save mode KickStart Dead Reckoning Raw data Precision Timing | Antenna supply Antenna supervisor | UART USB SPI DDC (I ² C compliant) Reset input Configuration pin |
| NEO-5M | 2.7 - 3.6 | 2.4 | | P | | 1 1 1 1 |
| NEO-5Q | 2.7 - 3.6 | 2.4 | | P • | | 1 1 P 1 3 |
| NEO-5D | 1.8 | 2.4 | | P | | 1 1 1 1 |
| NEO-5G | 1.8 | 2.4 | | P • | | 1 1 P 1 3 |

P = Planned

Mechanical data



Dimensions 16.0 mm x 12.2 mm

Weight 1.6 g

Electrical data

| | |
|-------------------|--|
| Power supply | 1.8 V (NEO-5D / NEO-5G) 2.7 to 3.6 V (NEO-5M / NEO-5Q) |
| Power consumption | 77 mW ¹ @ 1.8 V Eco mode 81 mW ¹ @ 1.8 V Max.Performance mode 129 mW ² @ 3.0 V Eco mode 135 mW ² @ 3.0 V Max.Performance mode |
| Backup power | 1.4 V to 3.6 V, 25 µA |
| Antenna type | Active and passive |

¹ NEO-5D

² NEO-5M

Support Products

u-blox 5 Evaluation Kits

| | |
|---------|---|
| EVK-5H: | with KickStart suitable for NEO-5G / NEO-5Q |
| EVK-5P: | with SuperSense [®] suitable for NEO-5D / NEO-5M |

Ordering information

| | |
|----------|--|
| NEO-5D-0 | ROM-based u-blox 5 GPS Module, 1.8V |
| NEO-5G-0 | ROM-based u-blox 5 GPS Module with KickStart, 1.8V |
| NEO-5M-0 | ROM-based u-blox 5 GPS Module, 3V |
| NEO-5Q-0 | ROM-based u-blox 5 GPS Module with KickStart, 3V |

Available as samples and tape on reel (250 pieces)

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Interfaces

| | |
|-------------------------|--|
| Serial interfaces | 1 UART 1 USB V2.0 full speed 12 Mbit/s 1 DDC (I ² C compliant) 1 SPI (planned for NEO-5Q / NEO-5G) |
| Digital I/O | Configurable time pulse 1 EXTINT input |
| Serial and I/O Voltages | 1.75 – 2.0 V (NEO-5Q / NEO-5G) 2.7 – 3.6 V (NEO-5M / NEO-5Q) |
| Protocols | NMEA, UBX binary |

Receiver performance data

| | | | |
|---------------------------------|---|---------------------|-----------|
| Receiver type | 50-channel u-blox 5 engine GPS L1 C/A code SBAS: WAAS, EGNOS, MSAS, GAGAN | | |
| Max. update rate | 4 Hz | | |
| Accuracy ³ | Position | 2.5 m CEP | |
| | SBAS | 2.0 m CEP | |
| Acquisition ³ | | NEO-5G/5Q | NEO-5D/5M |
| | Cold starts: | 29 s | 32 s |
| | Warm starts: | 29 s | 32 s |
| | Aided starts ⁴ : | <1 s | <1 s |
| | Hot starts: | <1 s | <3 s |
| Sensitivity ⁵ | | NEO-5G/5Q | NEO-5D/5M |
| | Tracking: | -160 dBm | -160 dBm |
| | Reacquisition: | -160 dBm | -160 dBm |
| | Cold starts: | -144 dBm | -143 dBm |
| Timing accuracy | RMS | 30 ns | |
| | 99% | < 60 ns | |
| | Granularity | 21 ns | |
| Time pulse | Configurable | 0.25 to 1000 Hz | |
| A-GPS | Supports AssistNow Online and AssistNow Offline, OMA SUPL compliant | | |
| Operational limits ⁶ | Velocity: | 500 m/s (972 knots) | |
| | Altitude: | 50,000 m | |
| Operating temp. | -40° C to 85° C | | |
| Storage temp. | -40° C to 85° C | | |

³ All SV @ -130 dBm

⁴ Dependent on aiding data connection speed and latency

⁵ Demonstrated with a good active antenna

Contact us

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