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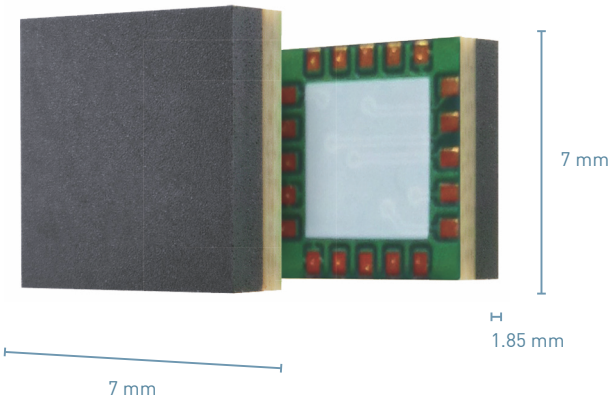
JUPITER **SE873Q5**

GNSS Embedded



Product Description

The SE873Q5 is the new low power variant of the Telit Jupiter SE873 Family. The SE873Q5 has been designed to be 100% backward compatible with SE873.

The SE873Q5 is a multi-constellation receiver in 7x7x1.85mm QFN-like package including embedded SQI flash, RTC, TCXO and internal LNA with RF sensitivity up to -167 dBm.

The SE873Q5 is able to track and navigate simultaneously up to three of the four GNSS available (GPS+Galileo & Glonass or GPS+Galileo & BeiDou).

The Jupiter SE873Q5 provides GNSS information over a serial port (UART, I2C, or SPI interface) using either the NMEA or binary protocol. Its low power-processing core delivers several customizable power-saving modes to optimize current draw for the desired use case.

The Jupiter SE873Q5 supports both local and server-based A-GPS for the GPS and GLONASS constellations, thus improving TTFF. Satellite-Based Augmentation System (SBAS) corrections from WAAS, EGNOS, MSAS, and GAGAN can be used to increase positioning accuracy. The internal flash memory allows Firmware (FW) updates and customization as well as Extended Ephemeris (EE) storage.

The SE873Q5, thanks to its small package, the new power supply and the advanced power modes including: smart-GNSS, duty cycle and push-to-fix is the ideal solution for wearable, light portable devices and battery powered solutions.

Key Benefits

- New low power supply
- Complete GNSS module, including TCXO, RTC, LNA and flash memory
- Full GNSS compliance: GPS, Glonass, Galileo and BeiDou
- Flexible power management modes allow improvement to the battery life
- Sensitivity up to -167 dBm
- Supports both active and passive antennas with internal LNA
- Support both local and server-based A-GPS for improved TTFFs
- Satellite Based Augmentation System (SBAS) corrections increase positioning accuracy
- QTI SiRFstarV™ (B02) based
- Battery-friendly 1.8 V GPIO

Family Concept

Our positioning product portfolio is the result of over twenty years of experience in GNSS applications. Telit has developed a range of products compatible with the well-known GPS constellation as well as its Russian and Chinese counterparts, GLONASS and BeiDou (BDS), respectively. Moreover, our portfolio is fully aligned with the upcoming service launch of Europe's Galileo constellation. Valuable features such as speed and reliability assured by multi-constellation coverage, provide additional benefits for your application.

Your application development effort can also benefit significantly from the seamless integration between Telit's cellular and positioning modules. This bundling of cellular and positioning modules significantly reduces development complexity without adding costs. Multi-constellation positioning products applied together with our eCall/ERA-GLONASS compliant cellular modules bring you ready-to-use emergency automotive tracking solutions for the European and Russian markets.

Typical applications include fleet management systems, European GPS-assisted road tolling systems, cellular base stations, in-car navigation systems, automotive telematics systems, and GPS-based personal sports training monitors.

Combine your GNSS module with

Cellular modules

Short Range modules

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ENABLING THE I OT
IS WHAT WE DO.

JUPITER **SE873Q5**

Product Features

- Frequency Bands: GPS L1, GLONASS L1, Galileo E1, BeiDou B1
- Standards: NMEA and OSP binary
- SBAS (EGNOS, WAAS, GAGAN and MSAS) capability
- RTC for efficient power management
- Jammer rejection
- Data logging
- Local and server-based A-GPS

Environmental

- Dimensions: 7 x 7 x 1.85 mm
- 20-pad QFN package
- Weight: 0.5 g
- Temperature range:
  - Operating temperature: -40 to +85°C
  - Storage temperature: -40 to +85°C
- Power supply
  - Range from 1.75 up to 1.85 V

Interfaces

- 1st Serial Port: UART, I²C, or SPI
- 2nd Serial Port: I²C
- 1PPS Time Mark pulse

Approvals

- RoHS complaint
- CE / R&TTE

Performance

- Power consumption
  - Hibernate: 62 uW
  - Acquisition (G+G): 94 mW
  - Tracking (G+G): 77 mW
- Sensitivity
  - Acquisition: -146 dBm
  - Tracking: -167 dBm
- Positional accuracy (CEP):
  Autonomous Positional Error ←1.5 m
- Accuracy
  - Speed: 0.01 m/s
  - Heading: 0.01 deg
- Time To First Fix (90% @ -130 dBm)
  - Hot Start: 1s
  - Cold Start: ←27s

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