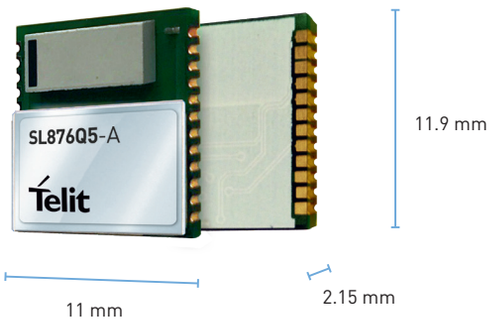
SL876Q5-A

GNSS Embedded



Product Description

The SL876Q5-A is an ultra-slim, GNSS smart antenna location module with an isotropic linear antenna suited for applications requiring omnidirectional reception capability.

Packaged in an 11 x 11.9 x 2.3 mm LCC form factor, this turnkey module includes a comprehensive feature set that eliminates the need for additional components, ideal for IoT projects with size, cost, and time constraints. In addition to an embedded linear antenna, the module is equipped with flash memory, additional LNA, SAW Filter and TCXO.

Easing the development process for designers with little or no RF experience, the SL876Q5-A is compliant with regulatory and industry standards specifications. Additionally, it supports the usage of an external antenna through an embedded RF switch. This feature is particularly useful in applications such as personal trackers and alarms in which the the main antenna is the external one and the internal antenna is used as backup when the external is broken or compromised.

Expect exceptional GNSS coverage with a quad-constellation navigation core and A-GNSS that is designed with onboard extended ephemeris (EE) generation and server-generated file injection that can be stored into the embedded flash memory.

The SL876Q5-A delivers superior performance and ultra-low power consumption. For applications where extended battery life is mandatory, such as wearables, the SL876Q5-A features ultra-low power consumption equipped with intelligent power modes.

Key Benefits

Full GNSS for exceptional coverage

- Quad-GNSS: GPS/QZSS and GLONASS or BeiDou; Galileo ready
- A-GNSS: Onboard generation and server generated file injection that can be stored into the embedded flash memory

Superior performance

- Omnidirectional antenna design delivers industry-leading performance in sensitivity, tracking performance, and accuracy
- MEMS wakeup feature offers lowest power consumption
- Built in LNA for improved sensitivity

Simplify integration

- Primary UART port. A secondary port can be configured as UART, I2C, or SPI at boot/reset (If I2C, the secondary port supports either commands and messages or MEMS wakeup.)
- Embedded RF switch allows easy integration with external antennas

Industry-leading features

- Ultra-slim design
- 11 x 11.9 x 2.3 mm LCC package for space constrained devices
- Flash memory enables firmware upgrades, customization, and AGPS file storage, which is ideal for battery-dependent devices

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SE876Q5-A

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
- Embedded RF switch for external antenna support
- Local and server-based A-GPS
- External antenna support
- Additional LNA
- Embedded SAW filter
- Low Power Modes
  -Smart GNSS 1 Mode (SG1)
  -High Power reduction mode (HPR)

Environmental

- Dimensions: 11 x 11.9 x 2.15 +/- 0.15mm
- 24-pad LCC package
- Weight: 0.8g
- Temperature range:
  - Operating temperature: -40°C to +85°C
  - Storage temp: -40°C to +85°C

Interfaces

- 1st Serial Port: UART, I2C, or SPI
- 2nd Serial Port: I2C or UART
- 1PPS Time Mark pulse
- RF input for external antenna

Approvals

- RoHS compliant
- RED

Electrical & Sensitivity

- Power supply
  - From 1.71V up to 1.89 V
- Current consumption: (GPS+GLO)
  - Acquisition: 85mW
  - Tracking: 83 mW
- Low power modes
  - Hibernate: 69 uW
  - SG1 mode: 47-56mW
  - HPR mode: 24-27mW
- Sensitivity: (GPS+ GLO)
  - Acquisition: -148 dBm
  - Navigation: -161 dBm
  - Tracking: -165 dBm
- Horizontal Positional accuracy (CEP50): GPS+GLO
  - 1.5m
- Accuracy
  - Speed: 0.01 m/s
  - Heading: 0.01 deg
- Time To First Fix (90% @ -130 dBm): (GPS+GLO)
  - Hot Start:: 1.1 s
  - Warm start: 23 s
  - Cold Start: 27 s