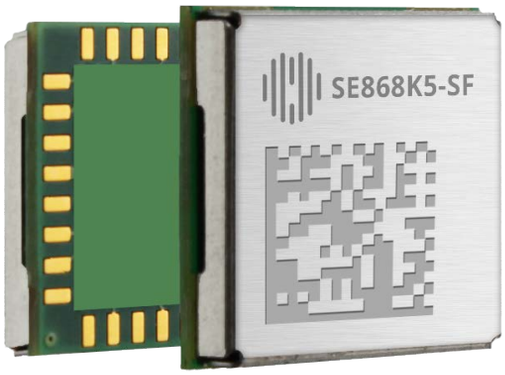
SE868K5-SF

GNSS



Product Description

The SE868K5-SF is a single-frequency and multiconstellation positioning receiver and a member of the xE868 Telit Cinterion form factor family. Using only the L1 band, the SE868K5-SF represents the optimal trade-off between performance and power consumption.

This module is in a compact form factor, ideal for battery-powered and size-constrained applications. The SE868K5-SF can navigate to -165 dBm and maintain optimal performance in harsh environments.

The SE868K5 family is pin-out compatible with the SE868SY family and legacy products JF2 and SE868V3. It tracks several constellations simultaneously, enabling it to provide full multiconstellation and multifrequency navigation benefits. Constellations include:

- GPS/QZSS
- Galileo
- GLONASS
- BeiDou

The SE868K5 is encased in an 11 x 11 mm QFN-like package and includes:

- A powerful baseband processor
- Flash memory
- Integrated LNA for optimal performance
- SAW filter for improved coexistence

The module's compact design and optimized positioning engine enable high-quality navigation in challenging outdoor scenarios (e.g., dense urban areas and harsh environments).

The SE868K5 delivers navigation data over a serial interface (i.e., UART, I2C and SPI*) according to the NMEA protocol standard. It supports the output of raw measurements for high-precision applications.

The SE868K5-SF supports:

- Ephemeris file injection (A-GNSS) and local prediction of short-term ephemerides starting from data broadcast by GNSS satellites for faster time to first fix (TTFF)
- SBAS or QZSS L1S signals to increase position accuracy

Key Benefits

- Footprint compatible with SE868K5 family, SE868SY family and legacy JF2 and SE868V3 variants
- Ultralow power consumption and multiple low power modes
- SAW filter for optimal coexistence with other radios
- Embedded LNA allows optimal performance even with passive antennas
- Supports ephemeris file injection (A-GNSS) and onboard ephemeris prediction (A-GPS)
- PVT Logging

Family Concept

Telit Cinterion's positioning product portfolio is the result of over 20 years of experience in GNSS applications. Our product offering ranges from GPS-only and multiconstellation receivers to the best-in-class multifrequency modules.

The SE686K5 family offers a broad series of positioning solutions and customizations in a compact 11 x 11 mm form factor. The integrated Telit Cinterion proprietary commands enable easy transition between variants. These unified command sets reduce development complexity without additional costs.

Typical applications include:

- Fleet management systems
- E-mobility applications
- Road tolling systems
- Cellular base stations
- Automotive telematics systems
- Wearable sports training monitors
- Drones

SE868K5-SF

Product Features

- 32-pad QFN-like package
- Frequency bands: GPS L1 C/A, Galileo E1a, GLONASS L1OF, BeiDou B1
- 75 tracking channels
- Standards: NMEA/RTCM
- Jamming rejection
- Multiple low power modes
- A-GNSS: Self-generated prediction and ephemeris file injection
- Up to 10 Hz update rate
- Telit Cinterion proprietary PTWS commands
- EGNOS, WAAS, GAGAN and MSAS capabilities embedded with positional error correction for augmented accuracy and integrity
- Embedded SAW for optimal coexistence and LNA for improved performance
- Raw measurement output in RTCM format for high-accuracy applications

Environmental

- Dimensions: 11 x 11 x 2.8 mm
- Weight: 1 g
- Temperature range:
  - Operating temperature: -40 °C to +85°C
  - Storage temperature: -40 °C to +85°C

Interfaces

- UART, I2C and SPI* interfaces
- A pulse per second (1PPS) output for precise timing

Approvals

- RoHS compliant
- RED and UKCA approvals*

Electrical & Sensitivity

- Power supply:
  - From 1.72 V up to 1.89 V
  - RTC supply: 1.62 V to 1.95 V
- Power consumption**: full power, 1Hz at 1.8 V
  - Acquisition: 32 mW (G3BQ); 24 mW (GPS)
  - Tracking: 34 mW (G3BQ); 26 mW (GPS)
  - RTC mode: 36 µW (typical)
- Sensitivity**: G3BQ
  - Acquisition: -146 dBm
  - Tracking and Navigation: -165 dBm
- Horizontal positional accuracy:
  - CEP50: <1.5 m
- Time to first fix (90% @ -130 dBm):
  - Hot start: 1.5 s
  - Cold start: 30 s

**: Roadmap*
***: Preliminary values on early samples*

QUESTIONS? VISIT WWW.TELIT.COM/CONTACT-US

Like Us on Facebook | Follow Us on LinkedIn | Follow Us on Twitter | Subscribe to Our Channel

[10.2023]