

SE868K3-A/AL

GNSS



Product Description

The SE868K3-A/AL series is an enhanced variant of the SE868-A GNSS antenna module. This delivers a complete, multi-constellation set of GNSS receivers which include a 9 x 9 mm patch antenna, SAW filter, flash memory, GNSS core, RTC, and TCXO. Easy to integrate, this 11 x 11 mm PCB package is swappable with previous generations and delivers an additional LNA which increases the overall RF sensitivity.

The SE868K3-A series is available in two variants: standard antenna (SE868K3-A) and low profile antenna (SE868K3-AL).

Telit's commitment to excellence is reflected in the architecture of the SE868K3-A series. Competing solutions require a guard in the host PCB around the RF PIN zone in order to minimize interference and antenna detuning. The SE868K3-A series provides an integrated solution with an optimized RF path and standard SMT mounting operation, without constraining the host PCB, this minimizing the antenna detuning.

The SE868K3-A series support GPS, QZSS and GLONASS and it is Galileo ready. The SE868K3-A series is capable to track GPS + GLONASS and Galileo constellations simultaneously, providing the positioning data through standard UART, I2C or SPI.

The SE868K3-A series supports either autonomous or server based A-GPS. Its onboard A-GPS software engine is able to locally predict ephemeris up to three days in advance and store this data in the memory.

The compact size of the Jupiter SE868K3-A series features the best balance between size and performance together with optimized power consumption. The SE868K3-A series is the best solution for small tracking applications with challenging footprint requirement. The low profile variant extra thin SE868K3-AL is specifically designed for applications requiring the multipath rejection capability of a RHCP antenna in designs which cannot accommodate chip antenna options.

Key Benefits

- Standard variant with integrated 9 x 9 x 4mm SMT antenna
- Low profile variant with 9 x 9 x 2mm antenna
- Additional LNA and SAW filter
- SMT mounting - no holes on host PCB
- Ready for Galileo
- Backward compatible with SE868-A
- Pin-to-pin compatible with GPS-only variant SE868K7-A / AL and SE868-AS
- Supports ephemeris file injection (A-GPS)
- Satellite Based Augmentation System (SBAS) compliant



Family Concept

Our robust positioning product portfolio reflects over twenty years of dedicated GNSS know-how. Telit has developed a range of products compatible with the GPS constellation as well as its Russian counterpart, GLONASS. Moreover, our portfolio is fully aligned with the upcoming service launch of mEurope's Galileo constellation. Valuable features such as Dead Reckoning, Precision Timing, as well as speed and reliability assured by multiconstellation coverage, provide additional benefits for your telematics or automotive application.

Your application development effort can also benefit significantly from the seamless integration between Telit's 2G 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.

SE868K3-A/AL

Model	Constellations				Interfaces		Features					
	GPS/QZSS	GLONASS	Galileo	BDS	UART	I2C	Add. LNA	SAW	Track. Sensitivity	Acq. Sensitivity	Flash	Size
SE868K3-A	•	•	•		•	•	•	•	-164	-148	•	11 x 11 x 6.1
SE868K3-AL	•	•	•		•	•	•	•	-160	-145	•	11 x 11 x 4.1
SE868K7-A	•				•		•	•	-164	-148		11 x 11 x 6.1

Product Features

- 32-pad QFN package with embedded SMT antenna
- Embedded 9 x 9 mm SMT antenna
- Frequency Bands: GPS L1, GLONASS L1, QZSS L1, Galileo E1
- Standards: NMEA
- Jamming rejection
- Additional LNA + SAW filter
- Data logging
- A-GPS: ephemeris file injection
- EGNOS, WAAS, GAGAN and MSAS capability embedded with correction of positional errors due to ionospheric and orbital disturbances

Environmental

- Dimensions: 11 x 11 x 6.1 mm (SE868K3-A)
- Dimensions: 11 x 11 x 4.1 mm (SE868K3-AL)
- Weight: <2 g
- Temperature range:
 - Operating temperature: -40 to +85°C
 - Storage temperature: -40 to +85°C

Interfaces

- UART
- I2C
- SPI
- PPS for precision timing

Approvals

- RoHS complaint
- R&TTE

Electrical & Sensitivity

- Current consumption
 - Backup : < 30 uW
 - Full power tracking: < 90 mW (G+G)
 - Full power acquisition: < 100 mW (G+G)
- Sensitivity (SE868K3-A)
 - Acquisition: -148 dBm
 - Navigation: -161 dBm
 - Tracking: -164 dBm
- Sensitivity (SE868K3-AL)
 - Acquisition: -145 dBm
 - Navigation: -159 dBm
 - Tracking: -160 dBm
- Power supply
 - Range from 3 up to 4.3 V
- Positional accuracy (CEP50):
 - Autonomous Positional Error = 2.5m
- Accuracy
 - Speed: < 0.01 m/s
 - Heading: < 0.01 deg
- Time to first fix (90% @ -130 dBm)
 - Hot start: 1 s
 - Cold start: < 35 s

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