SL871K2L

GNSS

Product Description

The SL871K2L series is part of the SL871 module family. It is based on the low-power AG3352 platform from Airoha.

This module series shares the same pinout and form factor of the industry established xL871 products. This multi-constellation receiver supports all global constellations (GPS / GALILEO / BEIDOU / GLONASS), in addition to the regional QZSS signal.

The SL871K2L module tracks all constellations in the L1 frequency by default, including the modern Beidou B1C signal.

This product outputs a precise one pulse per second(1PPS). Furthermore, it embeds timing-related features like time receiver autonomous integrity monitoring (TRAIM) and surveying mode for high-performance timing applications.*

The SL871K2L supports assisted GNSS (A-GNSS) in autonomous and server-based modes.

Key Features

- Airoha AG3352 core
- GPS, GLONASS, Galileo, BeiDou, QZSS, satellite-based augmentation systems (SBAS)
- Ports: UART, I^2C
- 18-pad, 9.7 x 10.1 x 2.5 mm, industry standard LCC
- 1PPS with precise timing capabilities (7 ns jitter*)
- Timing features (TRAIM, satellite hold, self-survey mode)*
- Low-noise amplifier (LNA) and post-amplification SAW filter
- Multiple low-power options
- Adjustable update rate 1-10 Hz
- Adjustable timepulse output rate

Key Benefits

- Multi-constellation support for better performance and multiple timing information sources
- Accurate timing capabilities*
- Hardware variants for optimized cost and consumption
- LNA for best performance
- Footprint compatible with SL871 series in 9.7 x 10.1 mm industry standard

Family Concept

The SL871 form factor allows customers to choose from different GNSS technologies using a similar footprint. Modules in this family are offered in a 9.7 x 10.1 mm LCC package.

Our positioning product portfolio results from over 30 years of experience in GNSS applications. Typical applications include:

- Fleet management systems
- GPS- and GNSS-assisted road tolling
- Cellular base stations
- In-car navigation
- Telematics
- Asset tracking
- Personal sports training monitors

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Variants

	SL871K2L	SL871K2L-18B	SL871K2L-18P
Voltage range	2.8 -3.6 V	1.75 - 1.95 V	1.75 - 1.95 V
I/O levels	VCC dependant	1.8 V domain	1.8 V domain
Power supply	DC-DC	DC-DC	Internal PMU

Product Features

- Frequency bands: GPS (L1), GLONASS (L1, FDMA), Galileo (E1), Beidou (B1)
- Standards: NMEA
- Antenna Sense*
- Timing mode*
- 47 tracking channels
- SBAS-capable (WAAS, EGNOS, MSAS, GAGAN) QZSS
- GPS and GNSS: Local-and server-generated ephemeris
- Jamming rejection
- Supports active or passive antennas
- Low-power modes
- Position update rate: 1-10 Hz

Environmental

- Dimensions: 9.7 x 10.1 x 2.5 mm
- Weight: 1 g | 18-pad LCC package
- Temperature ranges:
  - Operating temperature: -40 to +85°C
  - Storage temperature: -40 to +85°C

Interfaces

- 1PPS output for precise timing
- UART port
- I^2C port

Approvals

- RoHS compliant
- RED

Electrical & Sensitivity

- Power supply (two hardware variants):
  - VCC: 1.75-1.95 V or 2.8-3.6 V
  - Typ: 1.8 V or 3.3 V
- Current consumption GPS+GLO+GAL+BDS
  - Acquisition: 44 mW (3.3V)/36mW (1.8V)
  - Tracking: 44 mW (3.3V)/38mW (1.8V)
  - Standby (V_RTC): 112 µW (3.3V) / 60 µW (1.8V)
- Sensitivity: GPS+GLO+GAL+BDS
  - Acquisition: -148 dBm
  - Navigation/tracking: -166 dBm
- Time to first fix (@ -130 dBm): GPS+GLO+GAL+BDS
  - Hot start: 1 s
  - Warm start: 25 s
  - Cold start: 28 s
- Timing accuracy* (1-σ): Jitter ±7s
- Positioning accuracy (CEP50): 1.5 m

**On dedicated firware*