seeed studio

L76K GNSS Module for Seeed Studio XIAO

SKU: 109100021

Datasheet

V1.0

Table of contents

Revision history

Date	Version	Description
January 11, 2024	V1.0	Initial release.

Introduction

L76K GNSS Module for SeeedStudio XIAO is a Multi-GNSS (Global Navigation Satellite System) module compatible with all XIAO development boards, supports GPS, BeiDou (BDS), GLONASS and QZSS systems, allows multi-system combined or single-system independent positioning. It also supports AGNSS function, built-in low-noise amplifier and sound surface filter, and provides a good positioning experience of fast, accurate, high-performance.

The module comes with a high-performance active GNSS antenna intended to cover GPS L1 C/A, BeiDou B1 and GLONASS L1 bands. The design also has a tiny bright green LED for indicating the 1PPS output on fix.

What's included

- 1x L76K GNSS Module for Seeed Studio XIAO
- 1x High-performance active GNSS antenna
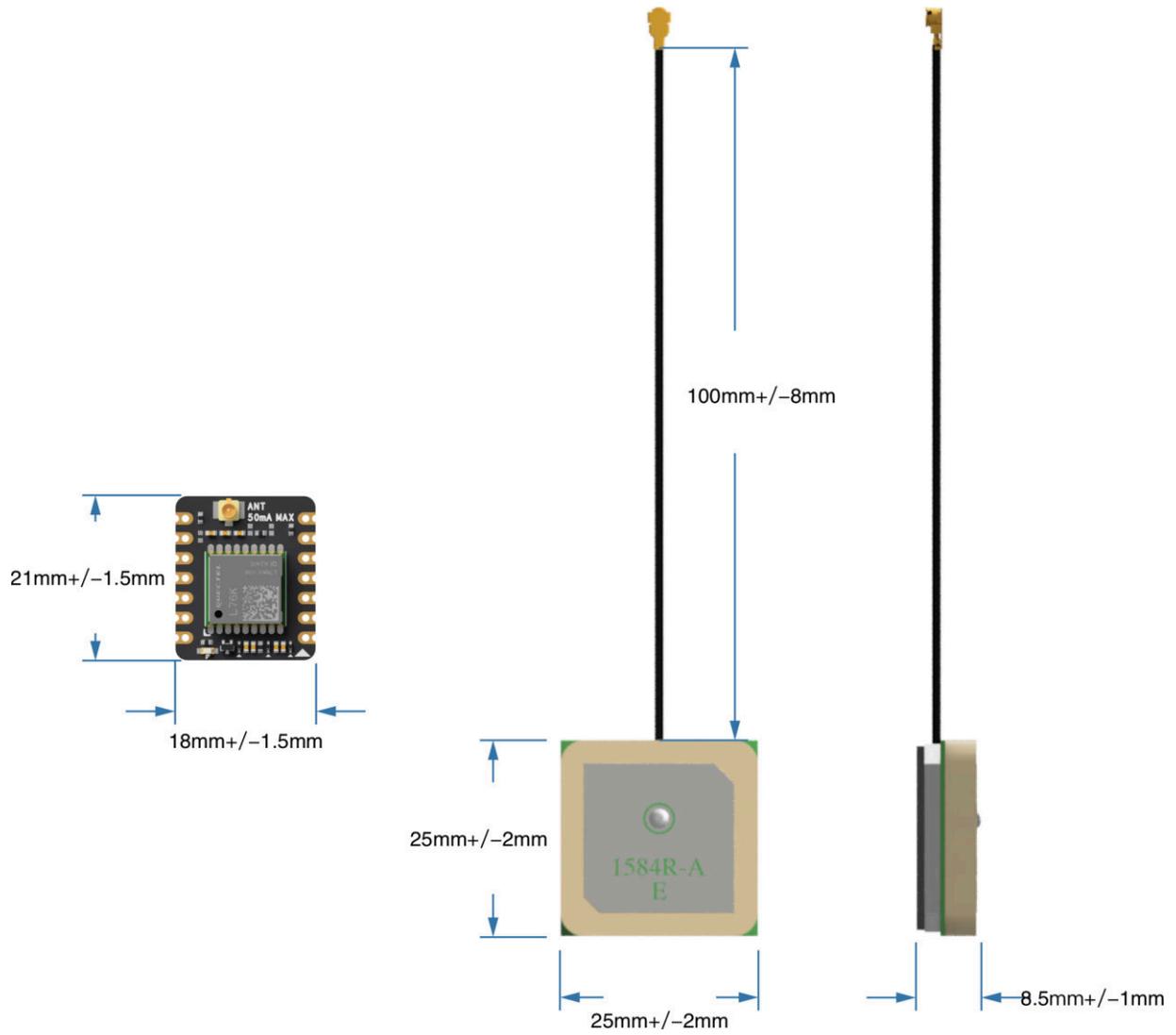- 2x 1*7 PIN 2.54mm Header Socket

Features

- **Support Multi-GNSS Systems:** Built around Quectel L76K, supporting GPS, BeiDou (BDS), GLONASS and QZSS
- **High Compatibility:** Highly compatible with all XIAO series products, easily integrated into your current projects
- **Support external active antenna**: Comes with a U.FL receptacle for high-performance active GNSS antenna
- **Thumb-sized Design**: 18 x 21mm, Seeed Studio XIAO series classic form-factor, suitable for small devices
- **Perfect for Production**: Breadboard-friendly & SMD design, no components on the back

Specifications

Item	Detail
GNSS bands	- GPS L1 C/A: 1575.42MHz - GLONASS L1: 1602MHz - BeiDou B1: 1561.098MHz
Channels	32 tracking ch/72 acquisition ch
TTFF (Time To First Fix)	- Cold Starts: 30s(w/o AGNSS), 5.5s(w/ GNSS) - Hot Starts: 5.5s(w/o AGNSS), 2s(w/ AGNSS)
Sensitivity	- Auto-aquisition: -148dBm - Tracking: -162dBm - Re-acquisition: -160dBm
Accuracy	- Position: 2.0m CEP - Velocity: 0.1m/s - Acceleration: 0.1m/s² - Timing: 30ns
UART Interface	- Baud Rate: 9600~115200bps(9600bps default) - Update Rate: 1Hz(default), 5Hz(Max.) - Protocol: NMEA 0183, CASIC proprietary protocol
Antenna	- Type: Active Antenna - Operating Frequency: 1559–1606MHz - Coaxial Cable: RF1.13 Length=10cm - Cable Connector: U.FL Plug RA
Current consumption(w/ active antenna)	- Auto-aquisition: 41mA - Tracking: 41mA - Standby: 360uA

Dimension	18mm x 21mm

Mechanical dimensions

Hardware diagram

U.FL Receptacle
For Active GNSS Antenna
Sink current limit: 50mA

RXD

ANT
50mA MAX

TXD

Quectel L76K

RESET   1 Normal   Reset   0

3V3

GND

5V

0 Sleep   Normal 1   WAKEUP

Green LED
1PPS, Fix status indicator

Pins for Rechargeable Cell
Optional. SEIKO MS621FE is recommended

WUP   +   -   5V

D1   GND

D2   3V3

D3   RST

D4   D9

D5   D8

RX   TX

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