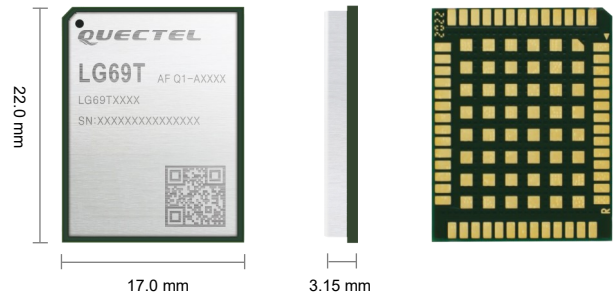


Quectel LG69T

Automotive Grade Dual-Band Multi-Constellation GNSS Module Integrating DR/RTK



The LG69T module features the 5th generation of STMicroelectronics® positioning receiver platform, with 80 tracking channels and 4 fast acquisition channels, that is compatible with up to 6 constellations: GPS, GLONASS, Galileo, BeiDou, QZSS, and NAVIC (former IRNSS). It is a dual-band GNSS module with integrated multi-band RTK technology that enables centimeter-level accuracy. The module is designed and manufactured according to IATF 16949:2016 quality management system.

With the dead-reckoning capabilities and an integrated inertial measurement unit (IMU), the LG69T module provides continuous high-precision positioning. The state-of-the-art integrated algorithms fuse between the IMU data, GNSS measurements, wheel ticks, and vehicle dynamics model in order to provide accurate positioning in areas where GNSS alone would fail. The LG69T module supports standard RTCM correction input, as well as centimeter-level navigation by using RTCM data from 3rd party base stations. The module performs exceptionally well under challenging environmental conditions, such as urban canyons.

The module is designed for the easy integration with minimal e-BOM. It is well-suited for mass market adoption. Due to its small package size and light weight, it is ideal for vehicle markets, such as automotive, ADAS, V2X, and precise agriculture applications.



Key Features

- ✓ Concurrent reception of GPS, GLONASS, IRNSS, BeiDou, Galileo, and QZSS
- ✓ Multi-band RTK with fast convergence time and outstanding performance (optional)
- ✓ Centimeter-level accuracy
- ✓ Integrated LNA for improved sensitivity
- ✓ Supports DR algorithms (optional)
- ✓ Supports dual GNSS bands (L1 and L5)
- ✓ Supports UART, CAN, and I2C* interfaces
- ✓ Supports AGNSS
- ✓ Designed and manufactured according to IATF 16949:2016 quality management system



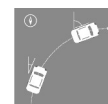
L1 & L5
Dual Bands



Multi-Constellation
System



Anti-Jamming



DR



RTK



Wide Operating
Temperature:
-40 °C to +85/105 °C



RoHS Compliant

Quectel LG69T Series

GNSS	LG69T (AP)	LG69T (AA)	LG69T (AB)
Dimensions (mm)	22.0 × 17.0 × 3.15	22.0 × 17.0 × 3.15	22.0 × 17.0 × 3.15
Weight (g)	1.9	1.9	1.9
Temperature Range			
Operating Temperature	-40 °C to +85 °C	-40 °C to +85 °C	-40 °C to +105 °C
Storage Temperature	-40 °C to +90 °C	-40 °C to +90 °C	-40 °C to +105 °C
GNSS Features			
Supported Bands	GPS/QZSS: L1 C/A; L5 Galileo: E1 B/C; E5a BeiDou: B1I; B2a	GPS/QZSS: L1 C/A; L5 GPS L2 (Optional) Galileo: E1 B/C; E5a GLONASS G1 OF GLONASS G2 (Optional) BeiDou: B1I; B2a	GPS/QZSS: L1 C/A; L5 GPS L2 (Optional) Galileo: E1 B/C; E5a GLONASS G1 OF GLONASS G2 (Optional) BeiDou: B1I; B2a
Channels	80 Tracking Channels 4 Fast Acquisition Channels	80 Tracking Channels 4 Fast Acquisition Channels	80 Tracking Channels 4 Fast Acquisition Channels
SBAS	WAAS, EGNOS, MSAS, GAGAN	WAAS, EGNOS, MSAS, GAGAN	WAAS, EGNOS, MSAS, GAGAN
Position Accuracy^①	Autonomous: < 1.2 m CEP RTK: Horizontal Accuracy: < 0.05 m CEP Height Accuracy: < 0.2 m CEP Longitudinal Accuracy: < 0.1 m CEP Normal Accuracy: < 0.1 m CEP	Autonomous: < 1.2 m CEP	Autonomous: < 1.2 m CEP
Velocity Accuracy^①	Without Aid: < 0.1 m/s RTK: < 0.05 m/s	Without Aid: < 0.1 m/s	Without Aid: < 0.1 m/s
Convergence Time^①	With RTK: < 10 s	N/A	N/A
Dynamic Heading Accuracy^①	RTK: < 0.15 CEP @ 80 km/h	N/A	N/A
TTFF^② (Without AGNSS)	Cold Start: < 33 s Warm Start: < 25 s Hot Start: < 2 s	Cold Start: < 33 s Warm Start: < 25 s Hot Start: < 2 s	Cold Start: < 33 s Warm Start: < 25 s Hot Start: < 2 s
TTFF^② (With AGNSS)	Cold Start: < 13 s	Cold Start: < 13 s	Cold Start: < 13 s
Sensitivity^②	Cold Start: -147 dBm Tracking: -161 dBm Reacquisition: -154 dBm	Cold Start: -144 dBm Tracking: -159 dBm Reacquisition: -151 dBm	Cold Start: -144 dBm Tracking: -160 dBm Reacquisition: -152 dBm
Dynamic Performance^③	Maximum Altitude: 18000 m Maximum Velocity: 515 m/s Maximum Acceleration: 4.5 g	Maximum Altitude: 18000 m Maximum Velocity: 515 m/s Maximum Acceleration: 4.5 g	Maximum Altitude: 18000 m Maximum Velocity: 515 m/s Maximum Acceleration: 4.5 g
Navigation Update Rate	RAW: 10 Hz PVT: 10 Hz RTK: 10 Hz IMU: 100 Hz	RAW: 10 Hz PVT: 10 Hz IMU: 100 Hz	RAW: 10 Hz PVT: 10 Hz
Interfaces			
UART	× 2 Adjustable: 115200–921600 bps Default: 460800 bps	× 2 Adjustable: 115200–921600bps Default: 460800 bps	× 2 Adjustable: 115200–921600 bps Default: 460800 bps
I2C*	× 1 Master/Slave Mode Up to 150 Mbps	N/A	N/A
CAN	× 1 Up to 150 Mbps	N/A	N/A
Protocols			
Protocols	NMEA 0183/ RTCM 3.x	NMEA 0183/ RTCM 3.x	NMEA 0183/ RTCM 3.x
External Antenna Interface			
Antenna Type	Active	Active	Active
Antenna Power Supply	External	External	External
Electrical Features			
Supply Voltage Range	3.0–3.6 V, Typical 3.3 V	3.0–3.6 V, Typical 3.3 V	3.0–3.6 V, Typical 3.3 V
I/O Voltage	Typical 3.3 V	Typical 3.3 V	Typical 3.3 V
Power Consumption^② (@ 3.3 V)	Acquisition: 360 mA Tracking: 366 mA	Acquisition: 260 mA Tracking: 260 mA	Acquisition: TBD Tracking: TBD
Quality & Reliability			
Quality & Reliability	CE RoHS Manufactured and Fully Tested in ISO/TS 16949 Certified Production Sites	CE RoHS Manufactured and Fully Tested in ISO/TS 16949 Certified Production Sites	CE RoHS Manufactured and Fully Tested in ISO/TS 16949 Certified Production Sites

Notes:

- ① Open-sky, active high precision GNSS antenna, less than 1 km baseline length
- ② Preliminary Data Tested on EVB boards in Labs @ -130 dBm, room temperature
- ③ ITAR limits
- * Under development/planning