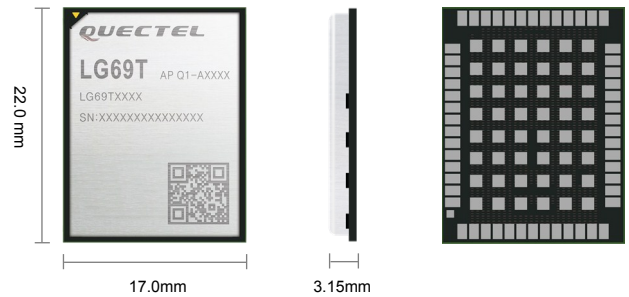


# Quectel LG69T

AEC-Q100 Qualified  
Dual-band Multi-constellation  
GNSS Module Integrating DR/RTK



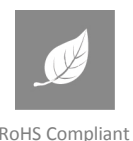
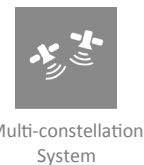
LG69T GNSS module features the STMicroelectronics® 5th generation positioning receiver platform with 80 tracking channels and 4 fast acquisition channels compatible with maximum 6 constellations: GPS, GLONASS, Galileo, BeiDou, QZSS and NAVIC (former IRNSS). It is an AEC-Q100 qualified dual-band GNSS module with integrated multi-band RTK technology for centimeter-level accuracy.

LG69T module provides dead reckoning capabilities with an integrated Inertial Measurement Unit (IMU) to provide continual 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 lane accurate positioning where GNSS alone would fail. LG69T supports standard RTCM corrections input, and also supports centimeter-level navigation by using RTCM data from 3rd party local base stations. The module performs very well under very challenging urban canyon environmental conditions.

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

## Key Benefits

- ✓ Concurrent reception of GPS, GLONASS, IRNSS, BeiDou, Galileo and QZSS
- ✓ Multi-band RTK with fast convergence time and outstanding performance (optional)
- ✓ Support DR algorithms (optional)
- ✓ Support dual GNSS bands (L1, L5)
- ✓ Centimeter level accuracy while using a very low power consumption
- ✓ Integrated LNA for improved sensitivity
- ✓ Support UART, CAN, SPI and I2C interfaces
- ✓ Support A-GNSS
- ✓ Dedicated Quectel SDK commands
- ✓ AEC-Q100 qualification on going



# Quectel LG69T Series

GNSS	LG69T (AP)	LG69T (AA)	LG69T (AB)	LG69T (AF)
<b>Dimensions (mm)</b>	22.0 × 17.0 × 3.15	22.0 × 17.0 × 3.15	22.0 × 17.0 × 3.15	22.0 × 17.0 × 3.15
<b>Weight (g)</b>	1.9	1.9	1.9	1.9
<b>GNSS Features</b>				
<b>Supported Bands</b>	GPS L1 C/A Galileo E1 B/C QZSS L1 C/A GPS L5 Galileo E5a QZSS L5 NAVIC (IRNSS) L5 BeiDou B1I/C/ B2a	GPS L1 C/A Galileo E1 B/C QZSS L1 C/A GPS L5 Galileo E5a QZSS L5 NAVIC (IRNSS) L5 BeiDou B1I/C/ B2a	GPS/GLONASS L1 C/A Galileo E1 B/C QZSS L1 C/A GPS L5 Galileo E5a QZSS L5 NAVIC (IRNSS) L5 BeiDou B1I/C/ B2a	GPS L1 C/A Galileo E1 B/C QZSS L1 C/A GPS L5 Galileo E5a QZSS L5 NAVIC (IRNSS) L5 BeiDou B1I/C/ B2a
<b>Channels</b>	80 Tracking Channels 4 Fast Acquisition Channels	80 Tracking Channels 4 Fast Acquisition Channels	80 Tracking Channels 4 Fast Acquisition Channels	80 Tracking Channels 4 Fast Acquisition Channels
<b>SBAS</b>	WAAS, EGNOS, MSAS, GAGAN	WAAS, EGNOS, MSAS, GAGAN	WAAS, EGNOS, MSAS, GAGAN	WAAS, EGNOS, MSAS, GAGAN
<b>Horizontal Position Accuracy<sup>①</sup></b>	Autonomous: <1.2m CEP RTK: <0.15m CEP	Autonomous: <1.2m CEP	Autonomous: <1.2m CEP	Autonomous: <1.2m CEP
<b>Velocity Accuracy<sup>①</sup></b>	Without Aid: <0.1m/s RTK: <0.05 m/s	Without Aid: <0.1m/s	Without Aid: <0.1m/s	Without Aid: <0.1m/s
<b>Convergence Time<sup>①</sup></b>	With RTK: <10s	N/A	N/A	N/A
<b>Timing Accuracy<sup>①</sup></b>	<20ns	<20ns	<20ns	<20ns
<b>TTFF<sup>②</sup> (Without A-GNSS)</b>	Cold Start: <33s Warm Start: <25s Hot Start: <1.5s	Cold Start: <33s Warm Start: <25s Hot Start: <1.5s	Cold Start: <33s Warm Start: <25s Hot Start: <1.5s	Cold Start: <33s Warm Start: <25s Hot Start: <1.5s
<b>TTFF<sup>②</sup> (With A-GNSS)</b>	Cold Start: TBD Warm Start: TBD Hot Start: TBD	Cold Start: TBD Warm Start: TBD Hot Start: TBD	Cold Start: TBD Warm Start: TBD Hot Start: TBD	Cold Start: TBD Warm Start: TBD Hot Start: TBD
<b>Sensitivity<sup>②</sup></b>	Acquisition: -147dBm Tracking: -163dBm Reacquisition: -156dBm	Acquisition: -147dBm Tracking: -163dBm Reacquisition: -156dBm	Acquisition: -147dBm Tracking: -163dBm Reacquisition: -156dBm	Acquisition: -147dBm Tracking: -163dBm Reacquisition: -156dBm
<b>Dynamic Performance<sup>③</sup></b>	Maximum Altitude: 18000m Maximum Velocity: 515m/s Maximum Acceleration: 4.0g	Maximum Altitude: 18000m Maximum Velocity: 515m/s Maximum Acceleration: 4.0g	Maximum Altitude: 18000m Maximum Velocity: 515m/s Maximum Acceleration: 4.0g	Maximum Altitude: 18000m Maximum Velocity: 515m/s Maximum Acceleration: 4.0g
<b>Dynamic Heading Accuracy<sup>①</sup></b>	<0.15° CEP @80Km/h	<0.15° CEP @80Km/h	<0.15° CEP @80Km/h	<0.15° CEP @80Km/h
<b>Navigation Update Rate</b>	RAW: 10Hz PVT: 10Hz RTK: 50Hz IMU: 100Hz	RAW: 10Hz PVT: 10Hz IMU: 100Hz	RAW: 10Hz PVT: 10Hz IMU: 100Hz	RAW: 10Hz PVT: 10Hz IMU: 100Hz
<b>Interfaces</b>				
<b>UART</b>	× 2 Adjustable: 115200bps~921600bps Default: 460800bps	× 2 Adjustable: 115200bps~921600bps Default: 460800bps	× 2 Adjustable: 115200bps~921600bps Default: 460800bps	× 2 Adjustable: 115200bps~921600bps Default: 460800bps
<b>I2C</b>	× 1 Master, Slave Up to 1Mbps	× 1* Master, Slave Up to 1Mbps	× 1* Master, Slave Up to 1Mbps	× 1* Master, Slave Up to 1Mbps
<b>SPI</b>	× 1 Master, Slave Up to 150Mbps	× 1* Master, Slave Up to 150Mbps	× 1* Master, Slave Up to 150Mbps	× 1* Master, Slave Up to 150Mbps
<b>CAN</b>	× 2 Up to 1Mbps	N/A	N/A	× 2 Up to 1Mbps
<b>Protocols</b>				
<b>Protocols</b>	NMEA 0183 / RTCM 3.x	NMEA 0183 / RTCM 3.x	NMEA 0183 / RTCM 3.x	NMEA 0183 / RTCM 3.x
<b>External Antenna Interface</b>				
<b>Antenna Type</b>	Active	Active	Active	Active
<b>Antenna Power Supply</b>	External	External	External	External
<b>Electrical Features</b>				
<b>Supply Voltage Range</b>	3.0V~3.6V, Typical 3.3V	3.0V~3.6V, Typical 3.3V	3.0V~3.6V, Typical 3.3V	3.0V~3.6V, Typical 3.3V
<b>I/O Voltage</b>	Typical 3.3V	Typical 3.3V	Typical 3.3V	Typical 3.3V
<b>Power Consumption (@3.3V)</b>	Acquisition: TBD Tracking: TBD Power Saving: TBD	Acquisition: TBD Tracking: TBD Power Saving: TBD	Acquisition: TBD Tracking: TBD Power Saving: TBD	Acquisition: TBD Tracking: TBD Power Saving: TBD
<b>Temperature Range</b>				
<b>Operation Temperature</b>	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C
<b>Extended Temperature</b>	-40°C ~ +90°C	-40°C ~ +90°C	-40°C ~ +90°C	-40°C ~ +90°C
<b>Environmental data quality &amp; reliability</b>				
<b>Environmental data quality &amp; reliability</b>	CE RoHS AEC-Q100 Qualification Manufactured and Fully Tested in ISO/TS 16949 Certified Production Sites	CE RoHS AEC-Q100 Qualification Manufactured and Fully Tested in ISO/TS 16949 Certified Production Sites	CE RoHS AEC-Q100 Qualification Manufactured and Fully Tested in ISO/TS 16949 Certified Production Sites	CE RoHS AEC-Q100 Qualification Manufactured and Fully Tested in ISO/TS 16949 Certified Production Sites

#### Notes:

- \* Under Development
- ① Open-sky, Active High precision GNSS Antenna, Less than 1km Baseline Length
- ② Preliminary Data Tested in Labs @ -130dBm
- ③ ITAR Limits