

Quectel L80

Compact GPS Module Integrated with Patch Antenna



Embedded Patch Antenna



EASY™ Technology



Low Power Consumption



Super Tracking Sensitivity -165dBm



Extended Temperature Range -40°C to +85°C



High Accuracy



Anti-Jamming



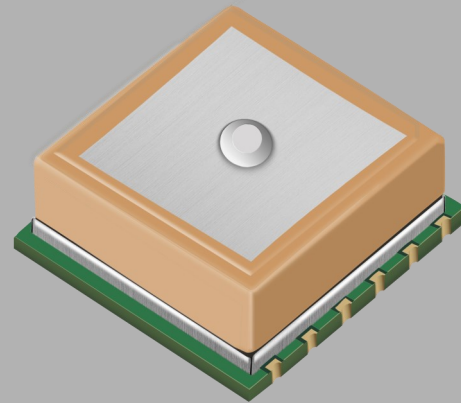
GPS+QZSS



RoHS Compliant

Key benefits

- Embedded patch antenna: 15.0 x 15.0 x 4.0mm
- Extremely compact size: 16.0 x 16.0 x 6.45mm
- Automatic antenna switching function
- Support short circuit protection and antenna detection
- Built-in LNA for better sensitivity
- EASY™, advanced AGPS technology without external memory
- Ultra low power consumption in tracking mode, 20mA
- AlwaysLocate™, an intelligent controller of periodic mode
- LOCUS, innate logger solution with no need of host and external flash
- High sensitivity, -165dBm@Tracking, -148dBm@Acquisition
- 66 acquisition channels, 22 tracking channels
- FLP mode, about 50% power consumption of normal mode
- Balloon mode, for high altitude up to 80km
- Support DGPS, SBAS(WAAS/EGNOS/MSAS/GAGAN)
- Anti-Jamming, Multi-tone Active Interference Canceller
- PPS VS. NMEA can be used in time service
- Support SDK command developed by Quectel



GPS

L80 is an ultra compact GPS POT (Patch on Top) module with an embedded 15.0 × 15.0 × 4.0mm patch antenna. This space-saving design makes L80 the perfect module for the miniature devices. Adopted by LCC package and integrated with patch antenna, L80 has exceptional performance both in acquisition and tracking.

Combining advanced AGPS called EASY™ (Embedded Assist System) and proven AlwaysLocate™ technology, L80 achieves the highest performance and fully meets the industrial standard. EASY™ technology ensures L80 can calculate and predict orbits automatically using the ephemeris data (up to 3 days) stored in internal flash memory, so L80 can fix position quickly even at indoor signal levels with low power consumption. With AlwaysLocate™ technology, L80 can adaptively adjust the on/off time to achieve balance between positioning accuracy and power consumption according to the environmental and motion conditions.

L80 supports automatic antenna switching function. It can achieve the switching between internal patch antenna and external active antenna. Moreover, it keeps positioning during the switching process.

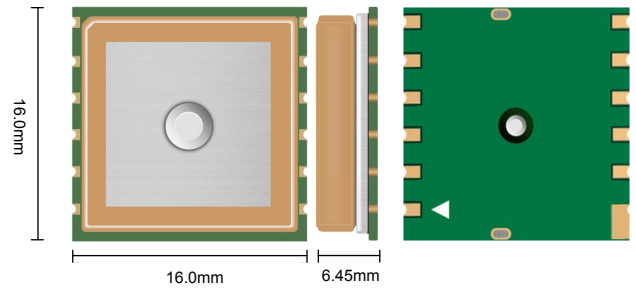
The Fitness Low Power (FLP) feature provides low power GPS solution for fitness application. It is an optimized solution for wearable, fitness and tracking device and only costs about 50% power consumption of normal mode.

With its tiny design, high precision and sensitivity, L80 is perfectly suitable for a broad range of M2M applications such as portable device, automotive, personal tracking, security and industrial PDA, especially suitable for special applications, like GPS mouse and OBD.

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General Specifications

L1 Band Receiver (1575.42MHz)	Channel	22 (Tracking) / 66 (Acquisition)
	C/A code	
	SBAS	WAAS, EGNOS MSAS, GAGAN
Horizontal Position Accuracy	Autonomous	<2.5 m CEP
Velocity Accuracy	Without aid	<0.1m/s
Acceleration Accuracy	Without aid	0.1m/s ²
Timing Accuracy	1PPS out	10ns
Reacquisition Time		<1s
TTFF@-130dBm with EASY™	Cold Start	<15s
	Warm Start	<5s
	Hot start	<1s
TTFF@-130dBm without EASY™	Cold Start	<35s
	Warm Start	<30s
	Hot Start	<1s
Sensitivity	Acquisition	-148dBm
	Tracking	-165dBm
	Reacquisition	-160dBm
Environmental	Operating Temperature	-40 °C to 85 °C
	Storage Temperature	-45 °C to 125 °C
Dynamic Performance	Maximum Altitude	Max.18000m
	Maximum Velocity	Max.515m/s
	Maximum Acceleration	4G
Dimensions	16.0 x 16.0 x 6.45mm	
Weight	6.0g	

Power Management

Power supply	3.0V ~ 4.3V
Power Acquisition	25mA
Power Tracking	20mA
Power Saving	3mA@AlwaysLocate™ (Note1)
	7uA @Backup Mode
	1mA@Standby Mode
	11mA@FLP Mode
	Periodic Mode

Note1: Measured in GPS system under outdoor static mode.

Serial Interfaces

Serial Interfaces	UART: Adjustable 4800~115200 bps Default: 9600bps
Update rate	1Hz (Default), up to10Hz
I/O Voltage	2.7V ~ 2.9V
Protocols	NMEA 0183 PMTK