

Quectel L86

Compact GNSS Module Integrated with Patch Antenna MT3333 Solution



Embedded
Patch Antenna



EASY™ Technology



Low Power
Consumption



Super Tracking
Sensitivity -165dBm



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



High Accuracy



Anti-Jamming



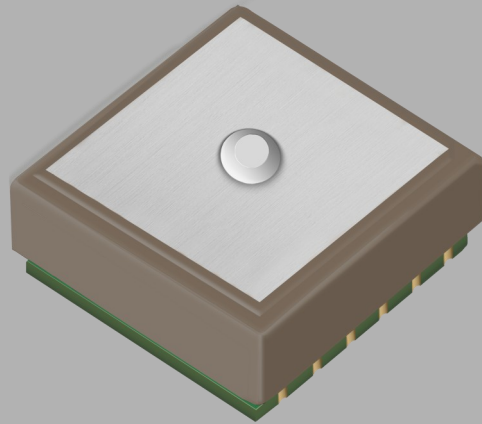
GPS+GLONASS+QZSS



RoHS Compliant

Key Benefits

- Multi-GNSS engine for GPS, GLONASS, and QZSS
- Embedded patch antenna: 18.4 x 18.4 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
- 99 acquisition channels, 33 tracking channels
- Support DGPS, SBAS(WAAS/EGNOS/MSAS/GAGAN)
- Anti-Jamming, Multi-tone Active Interference Canceller



L86 is an ultra compact GNSS POT (Patch on Top) module with an embedded 18.4 × 18.4 × 4.0mm patch antenna and utilizes the MediaTek new generation GNSS chipset MT3333 that achieves the perfect performance. Designed to be compatible with Quectel GPS L80 module In the compact and unified form factor, it provides a flexible and scalable platform for migrating from GPS to GNSS. This saving-space design makes L86 the perfect module for the miniature devices. Adopted by LCC package and integrated with patch antenna, L86 has exceptional performance both in acquisition and tracking.

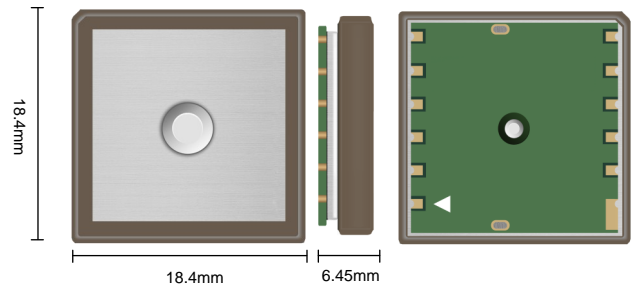
Combining advanced AGPS called EASY™ (Embedded Assist System) and proven AlwaysLocate™ technology, L86 achieves the highest performance and fully meets the industrial standard. EASY™ technology ensures L86 can calculate and predict orbits automatically using the ephemeris data (up to 3 days) stored in internal flash memory, so L86 can fix position quickly even at indoor signal levels with low power consumption. With AlwaysLocate™ technology, L86 can adaptively adjust the on/off time to achieve balance between positioning accuracy and power consumption according to the environmental and motion conditions.

L86 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.

With its tiny design, high precision and sensitivity, L86 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

GPS L1 Band Receiver (1575.42MHz)	Channel	33 (Tracking) / 99 (Acquisition)
GLONASS L1 Band Receiver (1601.71MHz)	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	18.4 x 18.4 x 6.45mm	
Weight	7.6g	

Power Management

Power supply	3.0V ~ 4.3V
Power Acquisition	25mA
Power Tracking	22mA
Power Saving	3mA@AlwaysLocate™ (Note1)
	7uA@Backup Mode
	1mA@Standby 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