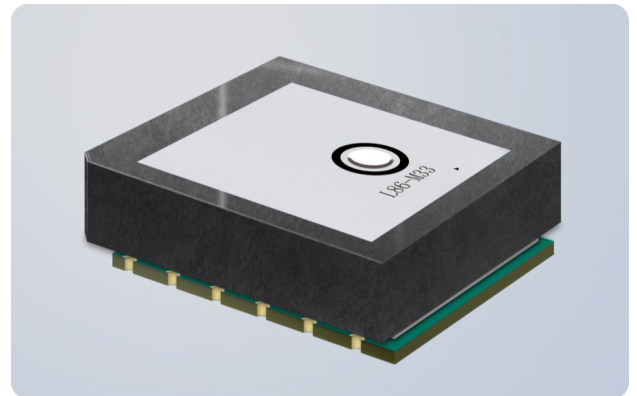


# Quectel L86

## Compact GNSS Module Integrating Patch Antenna & MT3333 Solution



L86 is an ultra-compact GNSS POT (Patch on Top) module with an embedded 18.4mm × 18.4mm × 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 space-saving design makes L86 a perfect module for miniature devices. Adopting LCC package and integrating 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 allows L86 to calculate and predict orbits automatically using the ephemeris data (up to 3 days) stored in internal RAM 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.

Due to its compact 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. It is especially suitable for special applications, like GPS mouse and OBD.



### Key Benefits

- ✓ Multi-GNSS engine for GPS, GLONASS, Galileo and QZSS
- ✓ Embedded patch antenna: 18.4mm × 18.4mm × 4.0mm
- ✓ Extremely compact footprint: 16.0mm × 16.0mm × 6.45mm
- ✓ Automatic antenna switching function
- ✓ Support short circuit protection and antenna detection
- ✓ Built-in LNA for better sensitivity
- ✓ EASY™, an advanced AGPS technology without external memory
- ✓ Ultra low power consumption in tracking mode, 26mA
- ✓ AlwaysLocate™, an intelligent controller of periodic mode
- ✓ LOCUS, an embedded logger function without the need of host and external flash
- ✓ High sensitivity: -167dBm @Tracking, -149dBm @Acquisition
- ✓ 99 acquisition channels, 33 tracking channels
- ✓ Balloon mode, for high altitude up to 80km
- ✓ Support DGPS, SBAS (WAAS/EGNOS/MSAS/GAGAN)
- ✓ Great anti-jamming performance due to multi-tone active interference canceller
- ✓ PPS VS. NMEA can be used for time service
- ✓ Support SDK command developed by Quectel



Embedded Patch Antenna



EASY™ Technology



Low Power Consumption



Super Tracking Sensitivity: -167dBm



Extended Temperature Range: -40°C ~ +85°C



High Accuracy



Anti-jamming



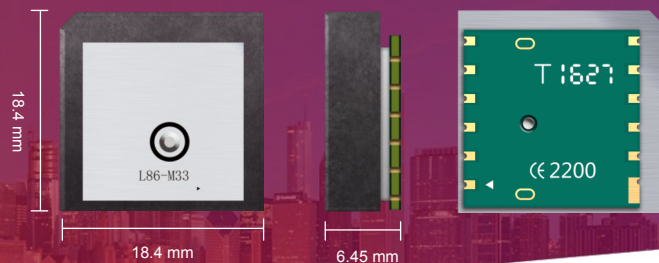
GPS/GLONASS/Galileo/QZSS



RoHS Compliant

# Quectel L86

## Compact GPS Module Integrating Patch Antenna & MT3333 Solution



### GNSS Features

GPS L1 Band Receiver (1575.42MHz)/

GLONASS L1 Band Receiver (1601.71MHz):

Channel: 33 (Tracking)/ 99 (Acquisition)

C/A Code

SBAS: WAAS, EGNOS, MSAS, GAGAN

Horizontal Position Accuracy:

Autonomous: <2.5m CEP

Velocity Accuracy:

Without Aid: <0.1m/s

Acceleration Accuracy:

Without Aid: <0.1m/s<sup>2</sup>

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: -149dBm

Tracking: -167dBm

Reacquisition: -161dBm

Dynamic Performance:

Maximum Altitude: Max. 18000m

Maximum Velocity: Max. 515m/s

Maximum Acceleration: 4G

### Interfaces

Serial Interface:

UART: Adjustable 4800bps~115200bps

Default: 9600bps

Update Rate:

1Hz (Default), up to 10Hz

I/O Voltage:

2.7V~2.9V

Protocols:

NMEA 0183

PMTK

### General Features

Temperature Range:

-40°C ~ +85°C

Dimensions:

18.4mm × 18.4mm × 6.45mm

Weight:

Approx. 7.6g

### Power Management

Power Supply:

3.0V~4.3V

Power Acquisition:

30mA @3.3V (GPS+GLONASS)

Power Tracking:

26mA @3.3V (GPS+GLONASS)

Power Saving:

3.5mA @AlwaysLocate™ (Note1)

7uA @Backup Mode

1mA @Standby Mode

Periodic Mode

Note1: Measured in GPS+GLONASS System under  
Outdoor Static Mode.