Ladybird Series

GPS-Only Antenna Module

16 x 16 x 4.7 mm

Product Description

Ladybird 1 is built based on MT3339 GPS Engine from MediaTek. It is capable of achieving the high level of sensitivity (-165dBm) and instant Time-to-First Fix (TTFF). It is designed for lowest power consumption for precise GPS signal processing while giving precise positioning even under low signal, high velocity conditions.

Ladybird 1 has a well-tuned and optimized built-in Patch Antenna that offers excellent performance, and relieves the developer from Antenna integration. Power management design allows Ivory 3 to be integrated easily into your system without extra voltage regulator. Ladybird 1 also allows direct battery connection without the need for an external LDO and gives customers plenty of choices for their application circuit.

Ladybird 1 includes features such as SBAS, Anti-Jamming, AlwaysLocate™, EASY™, EPO™, and logger function. Ladybird 1’s feature set, especially its ultra-low power consumption make it suitable for power sensitive and portable applications.

GlobalTop’s industry leading free customization service further expands the capability of Ladybird 1 with unique features such as custom NMEA output sentence, distance calculation, geofencing, magnetic variation and last-position-retention, etc. Advanced users can also customize the basic parameters of the module, including baud rate, update rate, internal logger settings, DGPS mode, 3D Fix, 1 PPS timing, and many more.

All modules are produced at GlobalTop’s in-house ISO 9001:2008 certified manufacturing facility, with 100% unit testing and complete quality control, allowing for a consistent annual yield rate of 99.98%.

Highlights

- Embedded Patch Antenna, 16 x 16 x 4.7 mm
- Free and extensive FW customization
- Ultra-low tracking power consumption, 19 mA
- Ultra-sensitive tracking, - 165 dBm
- Built-in LNA, SAW-Filter, TCXO, RTC Crystal, AGPS, SBAS for better accuracy

Applications

- Wearables
- Fleet management
- Automotive Telematics
- Timing synchronization
- eCall / ERA-Glonass systems
- Navigation devices
- AVIONICS
- Smart watch, Digital cameras
- Industrial PDA
- UAV (unmanned air vehicles)
- Personal, pet tracking
- Vehicle, freight tracking

Ordering Information

- Part number: PA6H
- Default Constellation: GPS Only
- Packaging: Tape on reel, 1500 pcs per reel
- Evaluation Kit: PA6H-EVB-KIT
- Firmware configurations: Standard, Customized

To order samples and EVAL-Kits, please contact your local distributor.

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Product Features

- Receiver Type: MT3339 Engine
- Frequency Bands: GPS L1, QZSS L1, SBAS L1
- Channels:
  - Acquisition: 66
  - Tracking: 22
  - PRN: 210
- DGPS (SBAS): USA, EU, Japan, India
- Positioning Accuracy:
  - Minimum: < 2.0 m
  - Typical: < 3.0 m
  - SBAS: < 2.5 m
- Velocity Accuracy:
  - 0.05 m/s (with SBAS)
  - 0.10 m/s (without SBAS)
- Timing Accuracy (1 PPS): ±10 ns RMS (100 ms pulse-width)
- Maximum Altitude: 50000 m (Default: 18000 m)
- Maximum Velocity: 515 m/s (1000 Knots)
- Filter: 4G
- Anti-Jamming: Active CW detection and removal
- AGPS: EPO in flash™ 7 - 14 days ephemeris
- EASY™: Self-generated orbit prediction
- AlwaysLocate™: Intelligent periodic mode algorithm
- LOCUS™: Internal data logger, up to 16 hours at 15s intervals (default setting)
- Built-In Components: TCXO, RTC Crystal, Additional LNA, LDO, SAW Filter, Embedded Flash
- External Antenna Interface: Supported, with Antenna Detection

Sensitivity

- TFF (time-to-first-fix): With EASY™, Without EASY™
  - Hot Start: 1 Second, 1 Second
  - Warm Start: 5 Seconds, 33 Seconds
  - Cold Start: 15 Seconds, 35 Seconds
- Tracking: 165 dBm
- Acquisition: 148 dBm (Cold Start)
- Re-acquisition: 163 dBm (Hot Start)

Electrical Data

- Supply Voltage: 3.0 V to 4.3 V (Typical 3.3 V)
- Backup Supply: 2.0 V to 4.3 V (Typical 3.0 V)
- Power Consumption:
  - Acquisition: Minimum 22 mA, Typical 30 mA, Maximum 37 mA
  - Power Tracking: Minimum 19 mA, Typical 24 mA, Maximum 36 mA
  - GLP Low Power Tracking: TBA
  - Power Saving (Periodic):
    - Backup Mode: 9 µA (Typical)
    - Standby Mode: 1.6 mA (Typical)

Environmental Data and Approvals

- Operating Temperature: -40°C to 85°C
- Storage Temperature: -40°C to 85°C
- Approvals and Compliance: CE, FCC, ROHS, REACH, E911
- Manufactured at an ISO 9001:2008 certified facility

Free Firmware Customization

- Basic Functions:
  - Default baud-rate
  - NMEA sentence interval
  - Datum (222 selections)
  - DGPS mode
  - Update rate
  - Data digits after decimal
  - 3D Fix settings
  - 1 PPS duration, output
  - Active interference canceller
- Advanced Functions:
  - NMEA Secure (ASCII, Binary)
  - Custom NMEA output
  - Last position retention
  - Magnetic variation
  - Geofencing
  - Distance calculation
  - Navigation mode
  - Advanced altitude
  - Data-logger customization

Dimensions

- 20-Pin LCC Package: 16 x 16 x 4.7 mm
- Weight: 3.9 g

Pinout

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