FireFly 1
Multi-GNSS Module

Product Description

FireFly 1 is build based on MT3333 Multi-GNSS engine capable of achieving the high level of sensitivity (-165dBm) and instant Time-to-First Fix (TTFF).

FireFly 1 is a dual system GNSS receiver which acquires and tracks GPS/Glonass systems concurrently to provide high sensitivity and positioning capability.

FireFly 1 has an in-built LNA which allows the customer to work without the need of an external LNA. Power management design allows Firefly 1 to be integrated easily into your system without extra voltage regulator. Firefly 1 also allows direct battery connection without the need for an external LDO and gives customers plenty of choices for their application circuit.

Firefly 1 includes features such as SBAS, Anti-Jamming, AlwaysLocate™, EASY™, EPO™, and logger function. Firefly 1's Multi-GNSS capability makes it perfect for position and performance critical applications, such as Urban environment.

GlobalTop's industry leading free customization service further expands the capability of FireFly 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

- Compact size, 11.5 x 13 x 2.1 mm
- Free and extensive firmware customization
- Ultra-low tracking power consumption, 18 mA
- Ultra-sensitive tracking, -165 dBm
- Built-in LNA, SAW-Filter, TCXO, RTC Crystal
- GPS/QZSS, GLONASS and BEIDOU support, GALILEO-ready

Applications

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

Ordering Information

- Part number: GMM-G3
- Default Constellation: GPS / Glonass
- Packaging: Tape on reel, 1500 pcs per reel
- Evaluation Kit: GMM-G3-EVB-KIT
- Firmware configurations: Standard, Customized

To order samples and EVAL-Kits, please contact your local distributor.
FireFly 1
GPS/Glonass Module

Product Features

Receiver Type: MT3333 Engine
Frequency Bands: GPS L1, GLONASS L1, QZSS L1, BEIDOU B1, GALILEO E1, SBAS L1
Channels:
 Acquisition  Tracking  PRN
 99  33  210
DGPS (SBAS):
 USA  EU  Japan  India
 WAAS  EGNOS  MSAS  GAGAN
Positioning Accuracy:
 RTCM  < 1.0 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)
Maximum Acceleration:
 4G
Anti-Jamming:
 Active CW detection and removal
12 multi-tone interference canceller
AGPS:
EPO in flash™ 7 - 14 days ephemesis
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
SAW Filter, Embedded Flash
Supported Antennas:
Active and Passive

Sensitivity

TTFF (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

Recognitions:
Tracking - 165 dBm
Acquisition - 148 dBm (Cold Start)
Re-acquisition - 163 dBm (Hot Start)

Interfaces

Serial Interfaces:
UART, RTCM
Max. Baud Rate:
115200 bps (Default: 9600 bps)
Max. Update Rate:
10 Hz (Default: 1 Hz)
Digital I/O:
1 PPS
Protocols:
NMEA standard
NMEA Secure (binary, ASCII)

Dimensions

16-Pin LCC Package  11.5 x 13 x 2.1 mm
Weight  0.65 g
Pinout

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:
Mininum  Typical  Maximum
Acquisition  29 mA  33 mA  37 mA
Power Tracking  24 mA  31 mA  36 mA
(GLP) Low Power Tracking  TBA
Power Saving (Periodic):
Backup Mode  12.7 µA (Typical)
Standby Mode  574 µA (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

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