

FireFly Series[®]



Multi-GNSS Standalone



11.5 x 13 x 2.1 mm

FireFly 1 Multi-GNSS Module

Product Description

Firefly 1 is built 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%.



Multi-GNSS
GPS/Glonass/
Beidou/Galileo/QZSS



Ultra-Compact
GNSS Module



Ultra-low Power
Consumption



Comprehensive
FW Customization



High Positioning
Accuracy



EASY™ Technology
For Faster TTFF



Anti-Jamming
Technology



Reliable Quality
ROHS, CE, FCC

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-GIONASS 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.

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FireFly 1

GPS/Glonass Module

Track with GlobalTop

Quality

Innovation

Customization

Longevity

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 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 SAW Filter, Embedded Flash			
Supported Antennas	Active and Passive			

Sensitivity

TTF (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

Sensitivity

- 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)

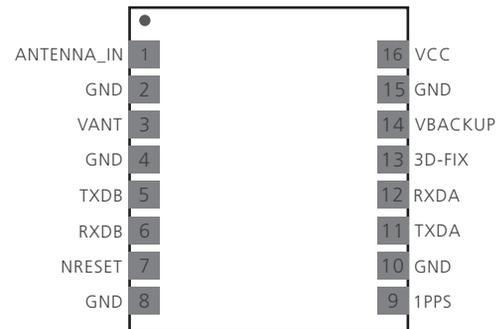
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Dimensions

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	Minimum	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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