GM-5017,

Ultra-High Performance

GPS Smart Antenna Module

RoHS Compliant

Overview

GM-5017 is an easy to use, ultra-high performance, low power GPS smart antenna module with patch antenna for vehicle/handheld applications. GM-5017 supports multiple satellite positioning systems – GPS, QZSS and SBAS.

The built-in MT3337 chip and our experienced design provide fast acquisitions and excellent tracking performance.

Applications

- Positioning
- Timing (GPS clock, FEMTO cell, traffic lights etc)
- DGPS (RTCM SC-104)

Features

- High performance: -165dBm tracking sensitivity
- Low power: 30 mA at continuous tracking
- QZSS support to boost the GPS accuracy in Japan
- SBAS (WAAS, EGNOS, MSAS, GAGAN) support
- 12 multi-tone active interference cancellers
- Indoor/outdoor multi-path detection & compensation
- Up to 5Hz update rate
- Optional high accuracy 1PPS timing (10ns jitter)
- Easy to use: built-in patch antenna & 6-pin wire to board connector w/ pitch of 1.0mm
- Optional RTCM support with 8-pin connector
- Optional support of I-PEX RF connector and w/o patch antenna
- Backup battery support for faster position fix
- Optional V_BAT pin support to replace backup battery
- Optional PWR_CTRL pin to disable GPS module
- Green LED for position fix indication
- Fully EMI shielded
- Industrial operating temperature range: -40 ~ 85℃

Notes

* Some features need command programmed by customer

Technical Specifications

Receiver Performance Data

Receiver Type	GPS Chipset: MT3337 Frequency: L1, 1575.42MHz C/A code: 1.023 MHz chip rate Channels: Tracking: 22 /acquisition: 66
Horizontal Position Accuracy	< 3.0m (Autonomous) < 2.5m (SBAS) (50% 24hr static, -130dBm)
Velocity Accuracy	<0.1 m/s (w/o SBAS) <0.05 m/s (w/ SBAS) (50%@30m/s)
Timing Accuracy	±10ns RMS (1PPS output)
Time To First Fix Hot start Warm start Cold start Reacquisition	Autonomous <1sec, average <35sec, average <35sec, average (50% -130dBm)

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Sensitivity (Autonomous)	-148dBm (acquisition) -165dBm (tracking)
Update Rate	Up to 5Hz, default 1Hz
Max. Altitude	<18,000 m
Max. Velocity	<1,852 km/hr
Datum	WGS-84(default), Tokyo-A, Tokyo-M
Protocol Support	NMEA 0183 V3.01, MTK NMEA 4800/9600/38400/115200bps N,8,1; GGA, GLL, GSA, GSV, RMC, VTG, ZDA
SBAS Support	WAAS, EGNOS, MSAS, GAGAN
Dynamics	<4g

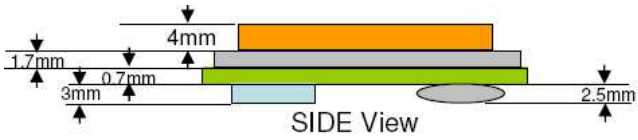
Electrical Data

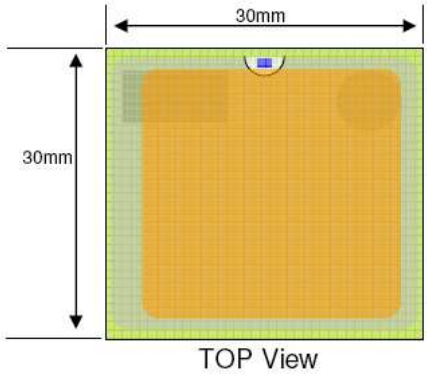
Power Supply	3.3 ~ 5.5 V
Power Consumption,RS232	24mA/average tracking
Backup Battery	Nominal voltage: 3.0 V
TTL I/O	V_{IH}: 2~3.15V, V_{IL}: 0~0.85V V_{OH}: >2.1V, V_{OL}< 0.72V
Protocols	NMEA, MTK NMEA

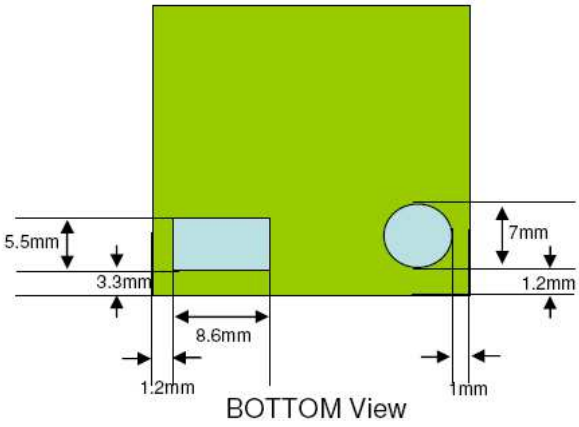
Environmental Data

Operating temperature	-40 ~ 85℃ except battery: -20~60℃
Storage temperature	-40 ~ 85℃except battery: -40~60℃
Vibration	5Hz to 500Hz, 5g
Shock	Half sine 30g/11ms

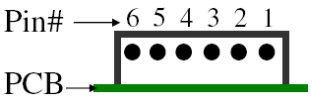
Mechanical Data







6-pin Interface, pitch 1.0mm



GM-5017R

Pin	Name	Function	I/O
1	GND	Ground	Input
2	VCC	Power supply	Input
3	TXD-TTL	TTL level serial data output	Output
4	RX-RS232	RS232 level serial data input	Input
5	TX-RS232	RS232 level serial data output	Output
6	RXD-TTL	TTL level serial data input	Input

GM-5017P:

Pin	Name	Function	I/O
1	GND	Ground	Input
2	VCC	Power supply	Input
3	1PPS	Time Pulse Per Second	Output
4	RX-RS232	RS232 level serial data input	Input
5	TX-RS232	RS232 level serial data output	Output
6	PWR_CTL	Power control; floating or high: ON Low : OFF	Input

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Ordering Information

GM-5017X

X=R	standard - patch: 25x25x4, 9600bps, N-8-1, GGA, GSA, RMC, VTG@1Hz, GSV@1/5Hz

*This document is subject to change without notice.

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