

GM-A013, SiRFstarV

Ultra-High Performance

GPS Smart Antenna Module

RoHS
Compliant



- Industrial operating temperature range: -40 ~ 85°C
- Easy to use: built-in patch antenna & 6-pin wire to board connector w/ pitch of 1.0mm

Overview

GM-A013 is an easy to use, ultra-high performance, low power GNSS smart antenna module with patch antenna for various positioning applications. It supports positioning by GPS/QZSS/GLONASS/SBAS multi-satellite systems.

The built-in flash allows firmware enhancement or working parameters update without hardware change.

Based on our experienced design and SiRFstarV chip, GM-A013 provides not only excellent GNSS performance but also high quality and delivery assurance.

Applications

- Automatic vehicle location
- Personal navigation devices
- Fleet management
- Digital camera
- GPS timing
- Child/elderly/personal tracker and security systems

Features

- Based on SiRFstarV low power single chip
- High performance: -165dBm tracking sensitivity
- Low power: 31mA at continuous tracking
- A-GNSS ready
- SBAS (WAAS, EGNOS, MSAS, GAGAN) support
- SiRFInstantFix™ extended ephemeris aiding
- Backup battery support for faster position fix
- Blue LED for position fix indication
- Fully EMI shielded

Technical Specifications

Receiver Performance Data

Receiver Type	52-channel, GPS/QZSS: L1 1575.42MHz GLONASS L1OF 1598.0625 ~ 1605.375 MHz
Horizontal Position Accuracy	< 2.5m (Autonomous) (50% 24hr static, -130dBm)
Velocity Accuracy	<0.01 m/s (speed) <0.01° (heading) (50%@30m/s)
Time To First Fix	Autonomous
Hot start	<1sec
Warm start	<30sec
Cold start	<35sec (50% -130dBm)
Sensitivity (Autonomous)	Acquisition: -146dBm (GPS) Tracking: -165dBm (GPS), -163dBm(GLONASS) Navigation: -163dBm (GPS), -159dBm(GLONASS)
Update Rate	Default: 1Hz; Max. 5Hz
Max. Altitude	<18,000 m
Max. Velocity	<1,852 km/hr
Protocol Support	UART: N81; NMEA V4.00:

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	9600/19200/38400/115200 bps GGA, GSA, GSV, RMC, VTG OSP: 115200bps N,8,1;
SBAS Support	WAAS, EGNOS, MSAS, GAGAN
Dynamics	<4g

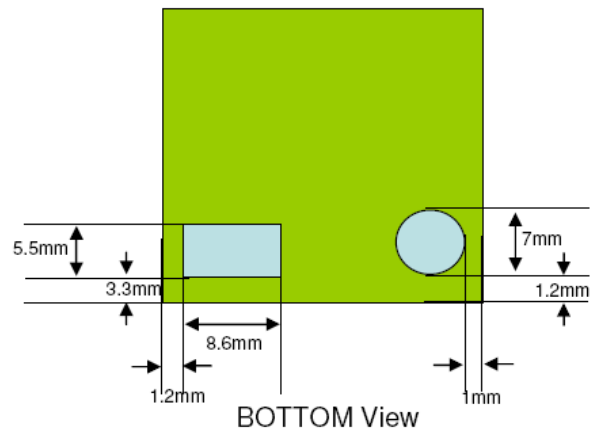
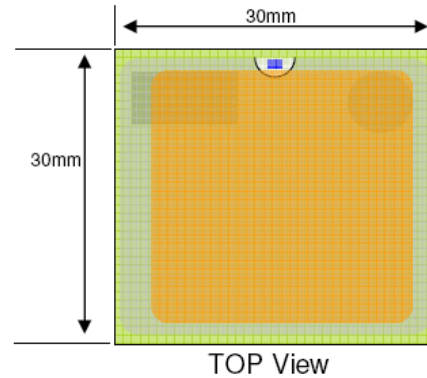
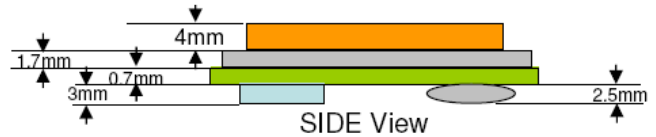
Electrical Data

Power Supply	3.3 ~ 5.5 V
Power Consumption	31mA (GM-A013T)
average tracking	35mA (GM-A103R)
Backup Power (V_BAT)	2.3 ~ 4.5 V
TTL I/O	V_{IH} : 0.7 x VCC ~ 3.6V, V_{IL} : 0~0.4V V_{OH} : ≥ 0.75 x VCC, V_{OL} : ≤ 0.4 V
Protocols	NMEA, SiRF Binary

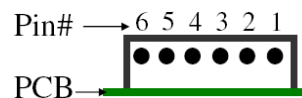
Environmental Data

Operating temperature	-40 ~ 85°C without battery -20 ~ 60°C with battery
Storage temperature	-40 ~ 85°C without battery -40 ~ 60°C with battery
Vibration	5Hz to 500Hz, 5g
Shock	Half sine 30g/11ms

Mechanical Data



6-pin Interface, pitch 1.0mm



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

Options of 1PPS, external backup power available

Ordering Information

GM-A013X

X=E	standard - patch: 25x25x4, 9600bps, N-8-1, GGA, GSA, RMC, VTG@1Hz, GSV@1/5Hz
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*This document is subject to change without notice.