

GM-A703, SMT Mountable, Ultra-High Performance, GPS Module with Patch Antenna

Overview

GM-A703 is an easy to use, ultra-high performance, low power GPS receiver module with patch antenna for AVL /marine applications. The SMT mountable design allows mass production with automatic assembly.

GM-A703 supports multiple satellite positioning systems – GPS, QZSS, GLONASS, and SBAS. Our experienced design fully exhibits the excellent performance of SiRFstarV chip. It works in GPS signal difficult environment, provides fast acquisitions and excellent tracking performance.

With GM-A703, the RF tuning efforts and also development time is reduced to the minimum.

An optional hardware controlled power switch was built-in GM-A703. It allows power cycling by the PWR_CTRL pin.

Applications

- Marine GPS plotters
- Vehicle navigation devices
- Driving recorders
- Timing (GPS clock, FEMTO cell, traffic lights etc)

Features

- High performance: -165dBm tracking sensitivity
- Low power: 31mA at continuous tracking
- SMT Mountable with built-in antenna
- Multi-constellation: GPS/QZSS/GLONASS¹
- Supported SBAS: WAAS/EGNOS/MSAS/GAGAN

RoHS
Compliant



- AGPS support
- Local self-generated ephemeris prediction support
- Up to 5Hz update rate
- High accuracy 1PPS timing
- Easy to use: built-in patch antenna
- V_BAT pin support for faster position fix
- PWR_CTRL pin to switch GPS module on and off dynamically for easy power saving control.
- Blue LED for position fix indication
- Fully EMI shielded
- Industrial operating temperature range: -40 ~ 85°C

Notes

1. Some features may conflict with other features

Technical Specifications

Receiver Performance Data

Receiver Type	52 channels, 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, autonomous) <0.01° (heading) (50%@30m/s)
Time To First Fix Hot start Warm start Cold start	Autonomous <1sec <30sec <35sec

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	(50% -130dBm)
Sensitivity (Autonomous)	Acquisition: -146dBm (GPS) Tracking: -165dBm (GPS), -163dBm(GLONASS) Navigation: -163dBm (GPS), -159dBm(GLONASS)
Update Rate	Up to 5Hz, default 1Hz
Max. Altitude	<18,000 m
Max. Velocity	<1,852 km/hr
Datum	WGS-84(default)
Protocol Support	NMEA V4.00: 4800/9600/38400bps OSP: 115200bps N,8,1; GGA, GSA, GSV, RMC, VTG
SBAS Support ⁺	WAAS, EGNOS, MSAS, GAGAN
Dynamics	<4g

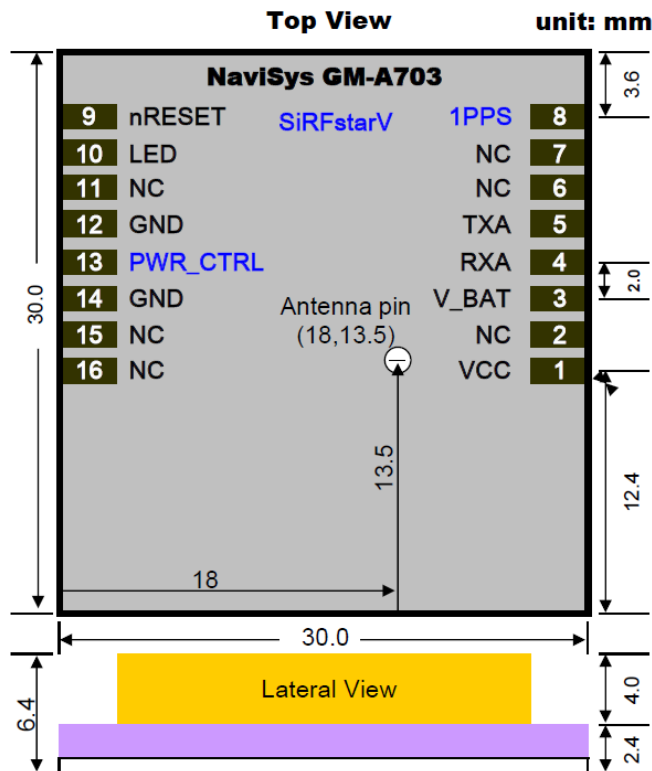
Electrical Data

Power Supply	3.3 ~ 5.5 VDC
Power Consumption	31mA average tracking
Backup Power	3.3 VDC 57uA
Digital I/O	V _{IH} : ≥0.7V _{AT} , V _{IL} : 0~0.4V V _{OH} : ≥0.75V _{AT} , V _{OL} ≤0.4V
Protocols	NMEA, OSP

Environmental Data

Operating temperature	-40 ~ 85°C
Storage temperature	-40 ~ 125°C
Vibration	5Hz to 500Hz, 5g
Shock	Half sine 30g/11ms

Mechanical Data



16-pin Interface

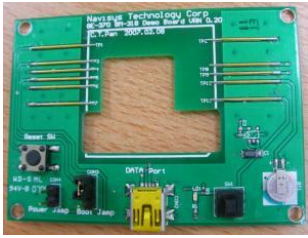
Pin	Name	Function	I/O
1	VCC	3.3~5.5VDC Power supply	Input
2	NC	No connection	-
3	V_BAT	2.1~4.2VDC backup battery supply	Input
4	RXA	Port 0 serial data input (GPS in)	Input
5	TXA	Port 0 serial data output (GPS out)	Output
6	NC	No connection	-
7	NC	No connection	-
8	1PPS	1 Pulse Per Second signal	Output
9	nRESET	Active low, at least 250ms	Input
10	LED	LED display for position fix	Output
11	NC	No connection	-
12	GND	Ground	Input
13	PWR_CTRL	"L": turn off VCC; "H" or floating: normal	Input
14	GND	Ground	Input
15	NC	No connection	-
16	NC	No connection	-

Ordering Information

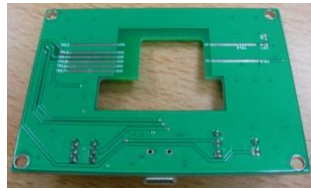
GM-A703X

X=A	standard - patch: 25x25x4, 4800bps, N-8-1
X=B	standard - patch: 25x25x4, 9600bps, N-8-1

Evaluation Board:



(a) Top



(b) Bottom



(c) GM-A703 Mounted



(b) mini-USB Connected

*This document is subject to change without notice.