Product Brief

maestro
GPS receiver

A2235-H

Positioning Product

Fleet management
Asset Tracking
Vehicle Tracking
Personal Tracking
Portable Device

Integrated Antenna
RF switch
Low Power Consumption
MEMS support

Stack-up Antenna
SiRFstarIV Integrated Solution

The A2235-H is Maestro's next generation of active GPS module, integrating a cost effective GPS receiver with an on-board patch antenna judiciously assembled above the components for an optimally small 17.8 x 16.5 mm footprint. This versatile, stand-alone receiver combines the high performance of a SiRFStar IV GPS engine and its extensive features, and a custom high gain patch antenna for best in class sensitivity and position accuracy. Self-contained and easy-to-integrate, the A2235-H results in lower cost of manufacturing and faster times-to-market in a wide range of automotive, consumer and industrial applications. This module was also designed to allow simple migration from A2035-H based designs.

Features		Benefits
SMT-based integrated GPS antenna module	■	Lowest Assembly Cost
17.8mm (L) x 16.5mm (W) x 7.1mm (H)	■	Ultra Small Form Factor
21 mA average tracking (full power mode)	■	Ultra Low Power Consumption
-163 dBm Tracking Sensitivity	■	Tracking in harsh or difficult environment
RF Switch	■	Dual Antenna Support

Positioning Receiver Portfolio

With the mission to support our customers in implementing GPS functionality into their systems, Maestro Wireless Solutions is offering a distinct product portfolio to address a wide area of applications. These range from traditional telematics solutions to latest highly integrated consumer devices, all of them having their special requirements towards a GPS module. Based on SiRFstarIII and now also SiRFstarIV chip sets, Maestro Wireless Solutions GPS module solutions address different specific needs and combine high performance, low power consumption, and simplified integration effort. Our modules comply with the RoHS standard and are 100% electrically and functionally tested prior to packaging, thereby assuring the guarantee of the highest quality products.

A2200-A   A1084-A/B   A2100-A/B   A1080-A/B   A1035-H   A2035-H
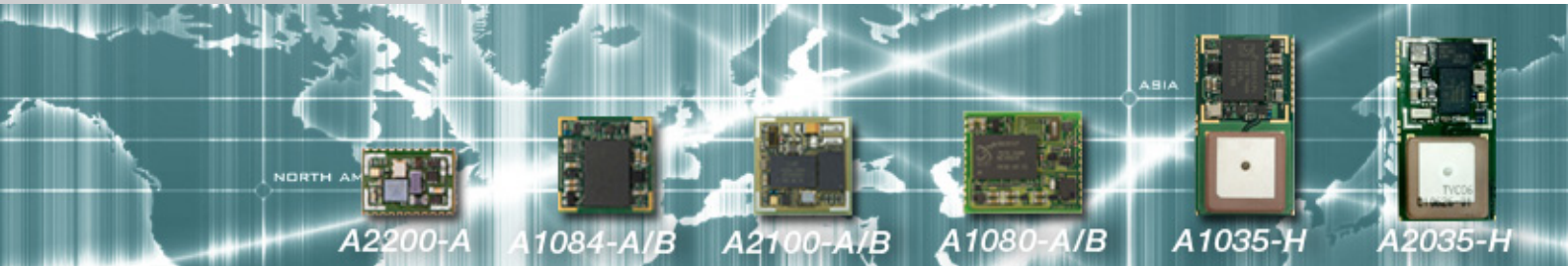
Ordering information:
A2235-H
EVA2235-H Evaluation Board

Technical Details A2235-H

PERFORMANCE

Channels	48 parallel tracking
Correlators	400,000 plus
Frequency	L1 - 1,575 MHz
Sensitivity	
Tracking	- 163 dBm
Navigation	- 160 dBm
Acquisition (cold start)	- 148 dBm
Position Accuracy (horizontal)	< 2.5 m CEP (autonomous) < 2.0 m CEP SBAS
Time To First Fix	
Hot Start[1]	< 1 s
Warm Start[2]	< 35 s
Cold Start[3]	< 38 s
Navigation	
Update Rate	1 Hz/ 5 Hz Supported

COMMUNICATION

UART - NMEA (Default)

NMEA message Switchable	GGA, RMC, GSA, GSV, VTG, GLL, ZDA
Baud rate Switchable	4,800 (default) 1,200 to 115.2k
Ports	Tx (NMEA output) Rx (NMEA input)

UART - SiRF Specific SSB/OSP

SiRFbinary protocol	Protocol for SiRFstar product family up to SSIV
One Socket Protocol	Protocol extension for SiRFstarIV
Baud rate Switchable	57.6k (default) 1,200 to 115.2k
Ports	Tx (Binary output) Rx (Binary input)

SPI - NMEA/SiRF Specific

Clock	Up to 6.8 MHz
Ports	DO (NMEA / Binary output) DI (NMEA / Binary input) SPI CLK (clock - input) SPI CS (chip select - input)

I2C - NMEA/SiRF Specific

Clock	Up to 400 kbps
Ports	I2C DIO (NMEA / Binary input / output) I2C CLK (clock - input)

HIGHLIGHTS

SiRFnav™	High availability and coverage; improved TTFF in weak signal environments
SiRFaware™	Keeps module in a state of readiness for rapid navigation (hot start)
Jammer remover technology	Detects and removes up to 8 in-band jammers with minimal loss of sensitivity
A-GPS	Embedded Extended Ephemeris (SiRFInstantFix1) and Ephemeris Push support
MEMS I2C interface	Prepared to use additional sensor information for improved navigation
ROM-based design	Prepared to store configuration and calibration data and to allow firmware updates
Internal antenna	Best matched build-in antenna for easy integration

### ENVIRONMENT

Temperature	
Operating	-40°C to +85°C
Storage	-40°C to +85°C
Humidity	Non condensing

POWER

Input voltage	3.0 to 3.6 VDC Nominal 3.3 VDC
Average current draw	
Full power mode (searching)	35 mA
Full power mode (tracking)	21 mA
Trickle Power Mode	9.2 mA
PTF mode	236 µA
MPM / SiRFaware	115 µA
Hibernate	25 µA

MECHANICAL

Dimensions	
L x W x H	17.8 x 16.5 x 7.1 mm
L x W x H	0.7" x 0.65" x 0.28"
Weight	4.0 g / 0.14 oz.
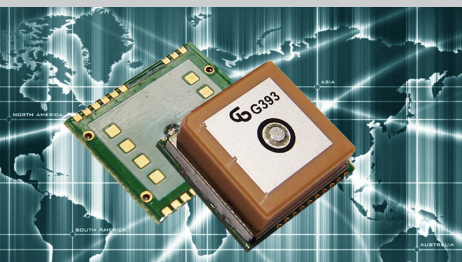
1) The receiver has estimates of immediate position and time and almanac and ephemeris data.
2) The receiver has estimates of time/date/position and almanac
3) The receiver has no estimate of time/date/position, and no recent almanac
4) An external current limiter is suggested to avoid damage in fault conditions

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