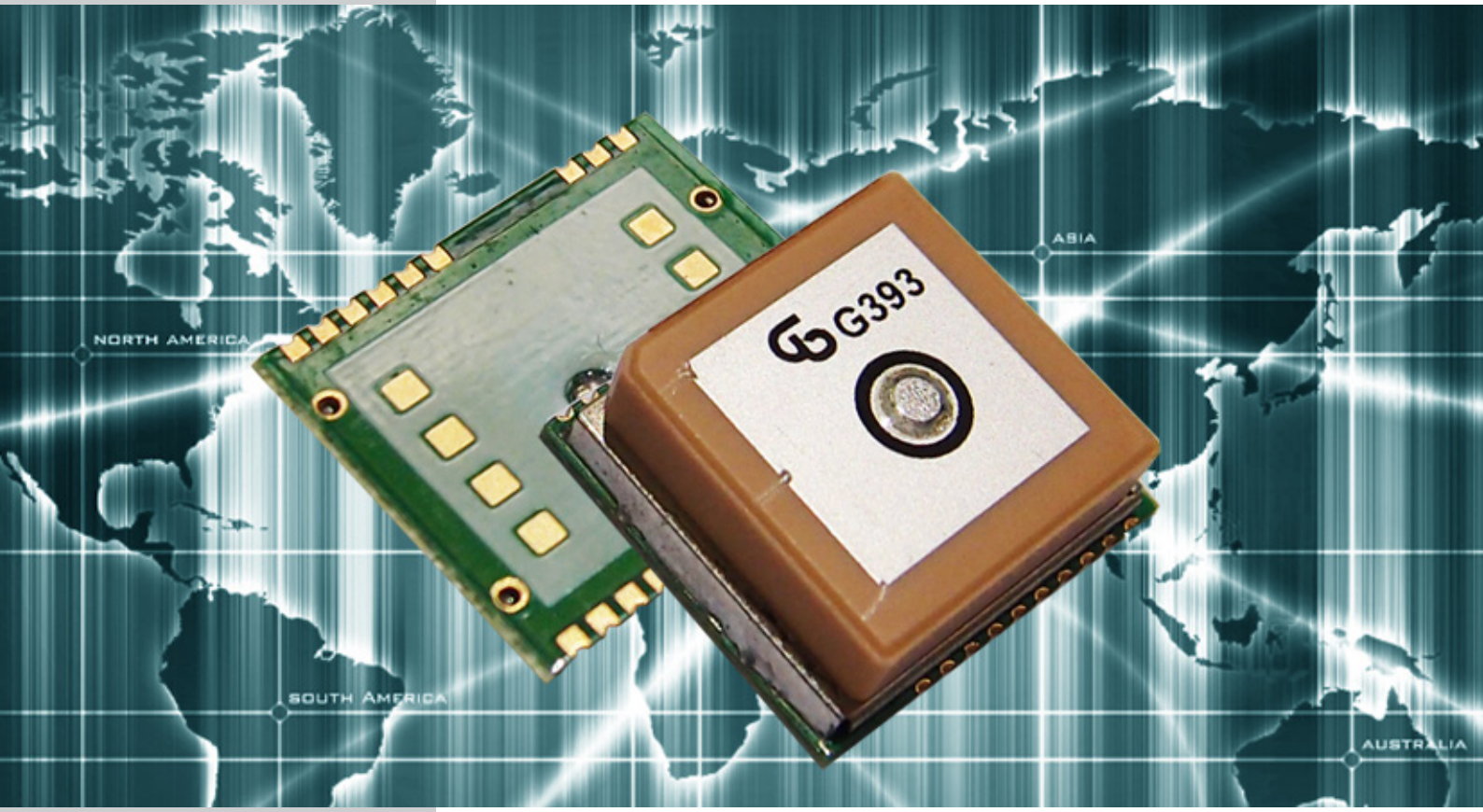
# Product Brief

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

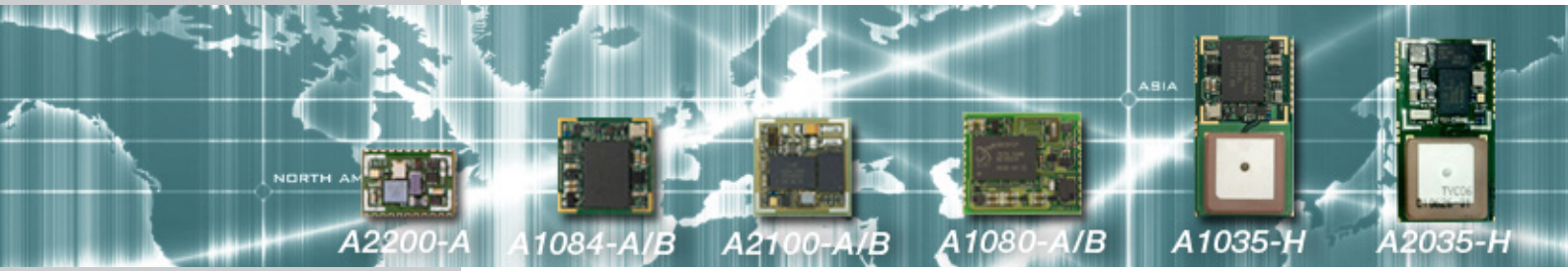
# Stack-up Antenna SiRFstarIV Integrated Solution

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 |
| 31 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.




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<br>Navigation<br>Acquisition (cold start) | - 163 dBm<br>- 160 dBm<br>- 148 dBm |
| **Position Accuracy (horizontal)** | < 2.5 m CEP (autonomous)<br>< 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)<br>1,200 to 115.2k |
| Ports | Tx (NMEA output)<br>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)<br>1,200 to 115.2k |
| Ports | Tx (Binary output)<br>Rx (Binary input) |
| **SPI - NMEA/SiRF Specific** | |
| Clock | Up to 6.8 MHz |
| Ports | DO (NMEA / Binary output)<br>DI (NMEA / Binary input)<br>SPI CLK (clock - input)<br>SPI CS (chip select - input) |
| **I2C - NMEA/SiRF Specific** | |
| Clock | Up to 400 kbps |
| Ports | I2C DIO (NMEA / Binary input / output)<br>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 (with external memory) |
| **MEMS I2C interface** | Prepared to use additional sensor information for improved navigation |
| **ROM-based design** | Prepared to store configuration and calibrated data and to allow firmware updates (with external memory) |
| **Internal antenna** | Best matched built-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<br>Nominal 3.3 VDC |
| **Average current draw** | |
| Full power mode (searching) | 69 mA |
| Full power mode (tracking) | 31 mA |
| Trickle Power Mode | 14 mA |
| PTF mode | 46.4 µA |
| MPM / SiRFaware | 45 µA |
| Hibernate | 27 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 time/date/position and valid 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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