

ORG-1300 Fully integrated GPS Module including antenna

OriginGPS has developed a proprietary miniaturized RF technology which enables to produce extremely small fully-integrated GPS modules. This technology reveals the GPS systems which incorporates the OriginGPS antenna into extremely small modules, therefore optimizing integration for mobile devices such as hand-held computers, radios and cellular phones.

Overview:

The ORG-1300 is an industry's first fully-integrated GPS Antenna Module optimized for stand alone operation.

The ORG-1300 incorporates an onboard filtering antenna which enables only the GPS frequency of 1.575 GHz to enter the system. All RF signals are being processed through OriginGPS's Noise-Free Zones (NFZ) technology with a very high signal-to noise ratio. All this occurs within the single integrated module, thereby achieving best-in-class sensitivity and noise immunity with outstanding navigation performance, even under weak signal conditions.

Internal ARM CPU core and sophisticated firmware keep GPS payload off the host and allow integration in low resources embedded solutions.

OriginGPS system-in-package (SiP) miniaturization technology achieves form-factor of only 17mm x 17mm x 3.2mm, including the antenna.

LGA SMT pads enable reflow soldering and automatic assembly process using standard equipment for cost-efficient high-volume production.



Features

- Multi channel GPS receiver
- Microstrip patch antenna
- High performance SiRFstarIII chipset
- Acquisition sensitivity: -157dBm
- Tracking sensitivity: -159dBm
- Fast TTFF: <40s (typical) under cold start conditions
- ARM7 baseband CPU
- A-GPS advanced aiding capability
- SBAS support
- Automatic and user defined power saving scenarios
- UART and SPI communication
- NMEA-0183 or SiRF binary protocol
- Low power consumption: 100mW
- Single operating voltage: 3.3V to 5.5V
- Small size: 17mm x 17mm x 3.2mm
- Pb-Free RoHS compliant

Benefits

- Fully integrated solution
- Built-in antenna
- Stand alone operation
- Advanced miniature packaging
- No external ground plane needed
- High sensitivity
- Noise immunity
- Accurate positioning
- Fast start-up time
- Assisted-GPS support
- SBAS support
- Low power consumption



Actual size

*Patent pending

Specifications

Performance

Receiver Chipset	SiRFstarIII GSC3LT
Channels	20 (12 parallel tracking)
Frequency	L1 - 1575 MHz, C/A Code
Sensitivity	
Tracking	-159 dBm
Acquisition[1]	-157 dBm
Position Accuracy (Horizontal)[2]	5m 2dRMS
Time To First Fix	
Hot Start[3]	<1s
Warm Start[4]	<35s
Cold Start[5]	<40s
Signal Reacquisition[6]	<1s
Timing Accuracy	<1µs
Dynamics[7]	
Velocity	<515m/s
Acceleration	<2g
Altitude	<18,000m

Communication

UART	Full Duplex, 8-N-1, 57600 bps
SPI	Slave up to 2 Mbps
Navigation Output Format[8]	NMEA-0183 / SiRF binary

Electrical Data

Input Voltage	3.3 to 5.5 V DC
Power Consumption[9]	
Acquisition	100mW
Tracking	75mW
Hibernate	10mW
Interface	
UART[10]	1.8V/ 2.5V/ 3.3V LVCMOS
SPI	1.8V LVCMOS
Digital I/O	1.8V LVCMOS

Mechanical Data

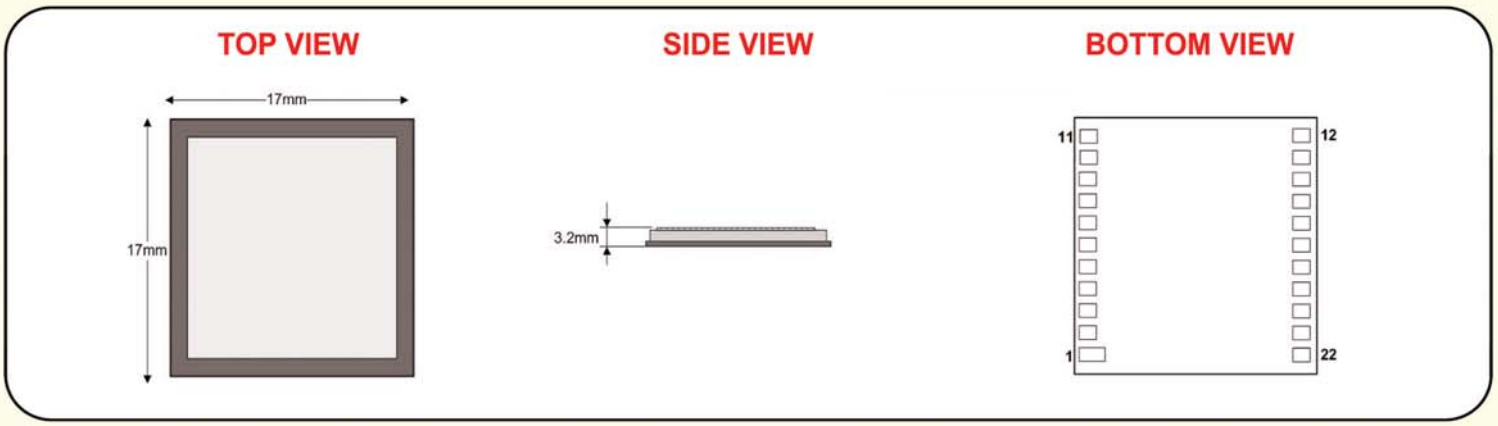
Dimensions	17mm x 17mm x 3.2mm 0.67" x 0.67" x 0.13"
Weight	2.2g< 0.1oz

Environment

Temperature	
Operating/Storage	-20°C to +70°C

1. With GSM or WCDMA/3G aiding.
2. With signals at -130dBm and HDOP < 1.5.
3. The receiver has estimates of time/date/position and valid Almanac and Ephemeris.
4. The receiver has estimates of time/date/position and Almanac.
5. The receiver has no estimate of time/date/position and no recent Almanac.
6. The receiver's calibrated clock is not stopped.
7. Regulatory limitation.
8. Default startup protocol is factory preset.
9. V_{CC} = 3.3V, V_{UART} = 3.3V.
10. Host defined. V_{IO} = 1.8V generated internally.





Origin GPS Ltd.
High-Tech Village, Givat Ram Campus, The Hebrew University
P.O.Box 39158, Jerusalem 91391, ISRAEL
Tel: +972- 2 -6535191 Fax: +972 - 2 - 6540487 e-mail: info@origingps.com
Lat: 31°46'06.49"N; Long: 35°11'48.33"E
www.origingps.com