



# ORG-1100 Fully integrated GPS Module including antenna

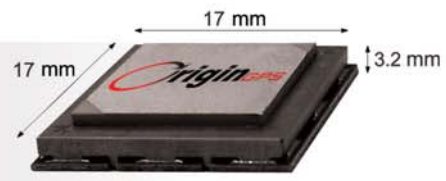
**OriginGPS** has developed a proprietary miniaturized RF technology to produce extremely small fully-integrated GPS modules. This technology enables the development of a GPS system that incorporates the OriginGPS antenna into the single extremely small module, thereby optimizing integration for mobile devices such as hand-held computers, radios and cellular phones.

### Overview:

In its first application this technology has achieved the industry's smallest fully-integrated GPS module, as small as 17mm x 17mm x 3.2mm. These miniature modules yield high sensitivity and improved performance with low power consumption. The ORG-1100 GPS Module is an industry-first module incorporating an onboard filtering antenna that allows only the GPS frequency of 1.575 GHz to enter the system. All RF signals are processed through OriginGPS's Noise-Free Zones (NFZ) technology that presents filtered signals with a very high signal-to-noise ratio. All this occurs within the single integrated module, thereby achieving a best-in-class sensitivity and noise-immunity with outstanding navigation performance, even under weak signal conditions.

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

The LGA SMT pads allow reflow soldering and automatic assembly process using standard equipment, enabling cost-efficient high-volume production

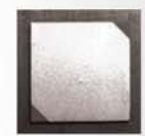


### Features

- Multi channel GPS receiver
- Microstrip patch antenna
- Acquisition sensitivity: -157dBm
- Tracking sensitivity: -159dBm
- Fast TTFF: <40s (typical) under cold start conditions
- Sophisticated baseband algorithms for complicated signal environments
- Hosted architecture for stand alone operation
- Control plane and user plane A-GPS advanced aiding capability
- Automatic and user defined power saving scenarios
- Low power consumption: 135mW
- UART communication
- Single operating voltage: 3.3V to 5.5V
- Small size: 17mm x 17mm x 3.2mm
- Industrial operating temperature range: -40°C to +85°C
- Pb-Free RoHS compliant

### Benefits

- Advanced miniature packaging
- Built-in antenna
- No external ground plane needed
- High sensitivity
- Noise immunity
- ESD protected
- Accurate positioning
- Fast start-up time
- Assisted-GPS support
- Low power consumption



Actual size  
\*Patent pending



# Specifications

## Performance

Receiver Chipset	Glonav GNS4540
Channels	14 parallel tracking
Frequency	L1 – 1575 MHz, C/A code
Sensitivity	
Tracking	-159 dBm
Acquisition <sup>1</sup>	-157 dBm
Position Accuracy (Horizontal) <sup>2</sup>	5m 2dRMS
Time To First Fix	
Hot Start <sup>3</sup>	< 1s
Warm Start <sup>4</sup>	< 15s
Cold Start <sup>5</sup>	< 38s
Aided Start <sup>6</sup>	< 2s
Signal Reacquisition <sup>7</sup>	< 1s
Timing Accuracy	< 1µs
Dynamics <sup>8</sup>	
Velocity	< 515m/s
Acceleration	< 2g
Altitude	< 18,000m

## Communication

Serial Port	Full Duplex UART, 8-N-1
Baudrate	115200 bps
Navigation Output Format <sup>9</sup>	NMEA-0183

## Electrical Data

Input Voltage	3.3 to 5.5V DC
Power Consumption	
Operating	135mW
Sleep <sup>10</sup>	55mW
Deep Sleep <sup>11</sup>	18mW
Serial Ports	
UART A – Host Communication	3.3V LVTTTL
UART B – Test Communication	2.5V LVTTTL
Digital IO	
4 GPIO	2.5V LVTTTL
1PPS Output	2.5V LVTTTL

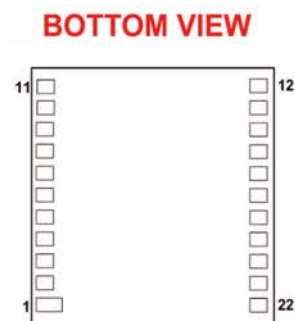
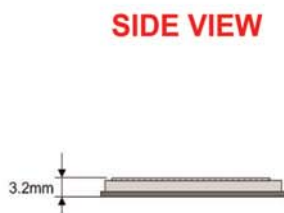
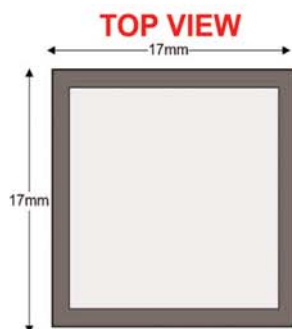
## Mechanical Data

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

## Environment

Temperature	
Operating/Storage	-40°C to +85°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) GSM (coarse) and WCDMA/3G Aiding - time known to <2 sec, location known to <3Km, oscillator known to 0.05ppm, known Ephemeris for available satellites.
- 7) The receiver's calibrated clock is not stopped.
- 8) Regulatory limitation.
- 9) Program host output.
- 10) Most baseband clocks are disabled.
- 11) All baseband clocks are disabled.



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 -5661881 e-mail: info@origingps.com

Lat: 31°46'06.49"N; Long: 35°11'48.33"E

www.origingps.com