

# GPS Module

## Ct-G340 S4



## Specifications Sheet V0.1

Part No.: 1-1S01-041RS401

Features:

- ◆ **SiRF StarIV ultra low power chipset**
- ◆ **40.64 x 71.12 x 1.4 mm**
- ◆ **Fully utilized SS4 upgrade features**

## 1. Introduction

The Connectec Ct-G340 S4 GPS module is a high sensitivity, low power, Surface Mount Device (SMD) that can be compatible to Ct-G348 or fully utilized SiRFstarIV upgrade features. This 48-channel global positioning system (GPS) receiver is designed for a wide range of OEM applications and is based on the GPS signal search capabilities of the SiRFstarIV GSD4e chipset, SiRF's newest chipset technology. The Ct-G340 S4 provides flexible I/O interfaces (UART is default, I<sup>2</sup>C and SPI by customer requirement).

The Ct-G340 S4 is designed to allow quick and easy integration into GPS-related applications such as:

- PDA, Pocket PC, Tablet and other computing devices
- Fleet Management /Asset Tracking
- AVL and Location-Based Services
- Hand-Held Device for Personal Positioning and Navigation
- All applications of battery drive device that needs lower power consumption

### 1.1. Features

#### 1.1.1 Performance

- ◆ Highest performance GPS PVT engine
- ◆ High acquisition sensitivity for fast TTFF
- ◆ Extremely low weak signal tracking sensitivity
- ◆ High jamming immunity
- ◆ Smallest footprint and total solution size
- ◆ Highest level of BOM integration
- ◆ Value added software enhancements
- ◆ Multimode A-GPS (Autonomous, MS-Based, and MS-Assisted) – Need operator Support
- ◆ Embedded CGEE / SGEE (Need server support) speed up TTFF a lot and makes cold start time to be around 22 seconds.
- ◆ SiRFGeoRecov<sup>TM</sup> Reverse EE make positioning process being done under power saving mode.
- ◆ Reacquisition Time: 0.1 second
- ◆ RF Metal Shield for best performance in noisy environments

### 1.1.2 Interface

- ◆ UART interface
- ◆ Protocol: NMEA-0183(default)
- ◆ Baud Rate: 4800 bps (default)

### 1.2 Advantages

- ◆ Built-in LNA.
- ◆ Embed CGEE (Client Generated Extended Ephemeris) that can capture ephemeris data from satellites locally and predicts ephemeris out to 3 days. So if the module was off within 3 days, it could complete positioning process within 2 seconds just like hot start.
- ◆ It can remove in-band jammer up to 80db-Hz and track up to 8CW jammers, so the module can prevent GPS signal interference when design-in the electrical device with noisy electrical signal interferences such as Laptop, mobile phone, DSC, etc.
- ◆ Maintain tracking sensitivity as low as -163dBm, even without network assistance. (SiRF StarIII has only -159dBm sensitivity)
- ◆ 5 Hz Navigation Update Rate : User can select 1 Hz or 5 Hz navigation update rate. (V4.1.0 firmware will be support)
- ◆ SBAS Ranging : SBAS satellite measurements will be used in the navigation solution for improved DOP and coverage. (V4.1.0 firmware will support)
- ◆ Suitable for battery drive devices that need lower power consumption application
- ◆ Ideal for high volume mass production(Taping reel package)
- ◆ Cost saving through elimination of RF and board to board digital connectors
- ◆ Flexible and cost effective hardware design for different application needs

### Interface

- ◆ DIP type pitch 2.0mm- 2x10 pin header.
- ◆ Protocol: NMEA-0183 compliant.
- ◆ Baud Rate: 4800 bps.
- ◆ Right angle MCX (RMCX) RF Connector.

## 2. Specifications

### 2.1. Technical specifications

Feature	Item	Description
<b>Chipset</b>	GSD4e	SiRF StarIV low power single chipset
<b>General</b>	Frequency	L1, 1575.42 MHz
	C/A code	1.023 MHz chip rate
	Channels	48
<b>Accuracy</b>	Position	<2.5 meters
	Velocity	0.01 meters/second
	Time	1 microsecond synchronized to GPS time
<b>Datum</b>	Default	WGS-84
	Other	selectable for other Datum
<b>Time to First Fix (TTFF) (Open Sky &amp; Stationary Requirements)</b>	Reacquisition	0.1 sec., average
	Snap start	1 sec., average
	Hot start	1~2 sec.
	Warm start	9~15 sec.
	Cold start	25~35 sec.
<b>Dynamic Conditions</b>	Altitude	18,000 meters (60,000 feet) max.
	Velocity	515 meters/second (1000 knots) max.
	Acceleration	4g, max.
	Jerk	20 meters/second <sup>3</sup> , max.
<b>Power</b>	Main power input	2.8 ~ 5.0 VDC input
	Power consumption	50 mA (Tracking Mode)
	Backup Power	2.8 ~ 5.0 VDC battery input
<b>Serial Port</b>	Electrical interface	UART : NMEA-0183@4800bps
	Protocol messages	NMEA-0183@4800 bps (Default)

## 2.2 Environmental Characteristics

Items	Description
Operating temperature range	-40 deg. C to +85 deg. C
Storage temperature range	-55 deg. C to +100 deg. C
Humidity	Up to 95% non-condensing or a wet bulb temperature of +35 deg. C

## 2.3 Physical Characteristics

Items	Description
Length	40.64 mm
Width	71.12 mm
Height	1.4 mm
Weight	16g

## 4. Pin Assignment

Pin	Name	Ttpe	Description
1	ANT_PWR	I	Antenna Voltage ( Note 1 )
2	VCC_5V	I	+5.0 VDC Power Input ( Note 2 )
3	BAT	I	Backup Battery 2.0 ~ 5.0 VDC input.
4	VCC_3V	I	+3.3 VDC Power Input ( Note 2 )
5	PBRES	I	System Reset; Active Low
6	ANT_CHK	O	Active Antenna Check; High: Fail / Low: OK
7	Reserved		NC
8	Reserved		NC
9	Reserved		NC
10	GND		Ground
11	TXA	O	TTL Serial Data Output A
12	RXA	I	TTL Serial Data Input A
13	GND		Ground
14	TXB	O	TTL Serial Data Output B
15	RXB	I	TTL Serial Data Input B
16	GND		Ground
17	BOOTSEL	I	Booting Mode Select
18	GND		Ground
19	TIMEMARK	O	1 pulse per second Time Mark output ( option )
20	Reserved		NC

### Note:

1. Pin 1 is the voltage for external active antenna. Either 3.3V or 5V, it should be same as the input voltage of the active antenna used.
2. Pin 2 and Pin 4 are the optional power input pins. The customer should NOT provide both voltages (Pin 2 and Pin 4) at the same time.

## 5. Technical specifications

### 5.1. Block Diagram



