

GPS Module with patch antenna

Ct-G352



Specification Sheet V0.4

Part No.: 1-1S01-071RS00 (TTL)

1-1S01-071RS01 (RS232)

Dimension: 25x25x8.9mm (with 4mm patch antenna)

1. Introduction

The Connectec Ct-G352 module is a high sensitivity and very compact smart antenna module, with built in GPS receiver circuit. This 20-channel global positioning system (GPS) receiver is designed for a wide range of OEM applications and is based on the fast and deep GPS signal search capabilities of SiRFStarIII™ architecture. Ct-G352 is designed to allow quick and easy integration into GPS-related applications such as:

- PDA, Pocket PC, and other computing devices
- Car and Marine Navigation
- Fleet Management /Asset Tracking
- AVL and Location-Based Services
- Hand-Held Device for Personal Positioning and Navigation

1.1. Features

Hardware and Software

- Based on the high performance features of the SiRF III/LPX single chip
- Compact module size for easy integration: 25 x 25 x 8.9 mm (with 4 mm patch antenna)
- Fully automatic assembly: reflow solder assembly ready
- Hardware compatible with SiRF GSW3.5.0 serial software

Performance

- Cold/Warm/Hot Start Time: 1/35/35 sec.
- Reacquisition Time: 0.1 second.
- RF Metal Shield for best performance in noisy environments.

Interface

- RS232 or TTL (**option**) level serial port for GPS communications interface
- Protocol: NMEA-0183/SiRF Binary (default NMEA).
- Baud Rate: 4800, 19200 or 57600 baud (default 4800).

2. Specifications

2.1 Technical Specifications

Feature	Item	Description
Chipset	GSC3f	SiRF StarIII/LPX single chipset
General	Frequency	L1, 1575.42 MHz
	C/A code	1.023 MHz chip rate
	Channels	20
	Sensitivity	-159dB
Accuracy	Position	10 meters, 2D RMS
		5 meters 2D RMS, WAAS corrected <5meters(50%).
	Velocity	0.01 meters/second
	Time	1 microsecond synchronized to GPS time
Datum	Default	WGS-84
	Other	selectable for other Datum
Time to First Fix (TTFF) (Open Sky & Stationary Requirements)	Reacquisition	0.1 sec., average
	Hot start	18,000 meters (60,000 feet) max.1 sec., average typical TTFF
	Warm start	35 sec., average typical TTFF
	Cold start	35 sec., average typical TTFF
Dynamic Conditions	Velocity	515 meters/second (1000 knots) max.
	Acceleration	4g, max.
	Jerk	20 meters/second ³ , max.
Power	Main power input	3.3 ~ 5.0 VDC input
	Power consumption	≈165mW (continuous mode)
	Supply Current	≈50 mA
	Backup Power	2.8 ~ 5.0 VDC battery input
Serial Port	Electrical interface	Two full duplex serial TTL interface.
	Protocol messages	NMEA-0183@4800 bps (Default)
Time-1PPS Pulse	Level	TTL or RS232 (Option)
	Pulse duration	The 1PPS pulse width is 1 μs, this 1PPS is NOT suited to steer various oscillators (timing receivers, telecommunications system, etc).
	Time reference	At the pulse positive edge.
	Measurement	Aligned to GPS second, ±1 microsecond

2.2 Operating Conditions

Operation Conditions					
Parameter	Min	Typ	Max	Units	Note
Input Operation supply voltage	3.2	3.3	5	V	
Peak supply current	-	50	-	mA	
Sustained supply current	-	35	-	mA	
Backup battery current		1		mA	
I/O Input high level (VIH)	2	2.85	3.1	V	
I/O Input low level (VIL)	-0.3	0	0.7	V	
I/O Output high level (VoH)	2	2.7	2.85	V	
I/O Output low level (VoL)	-0.3	0	0.7	V	

2.3 Environmental Characteristics

Items	Description
Operating temperature rage	-20 deg. C to +60 deg. C
Storage temperature range	-40 deg. C to +60 deg. C

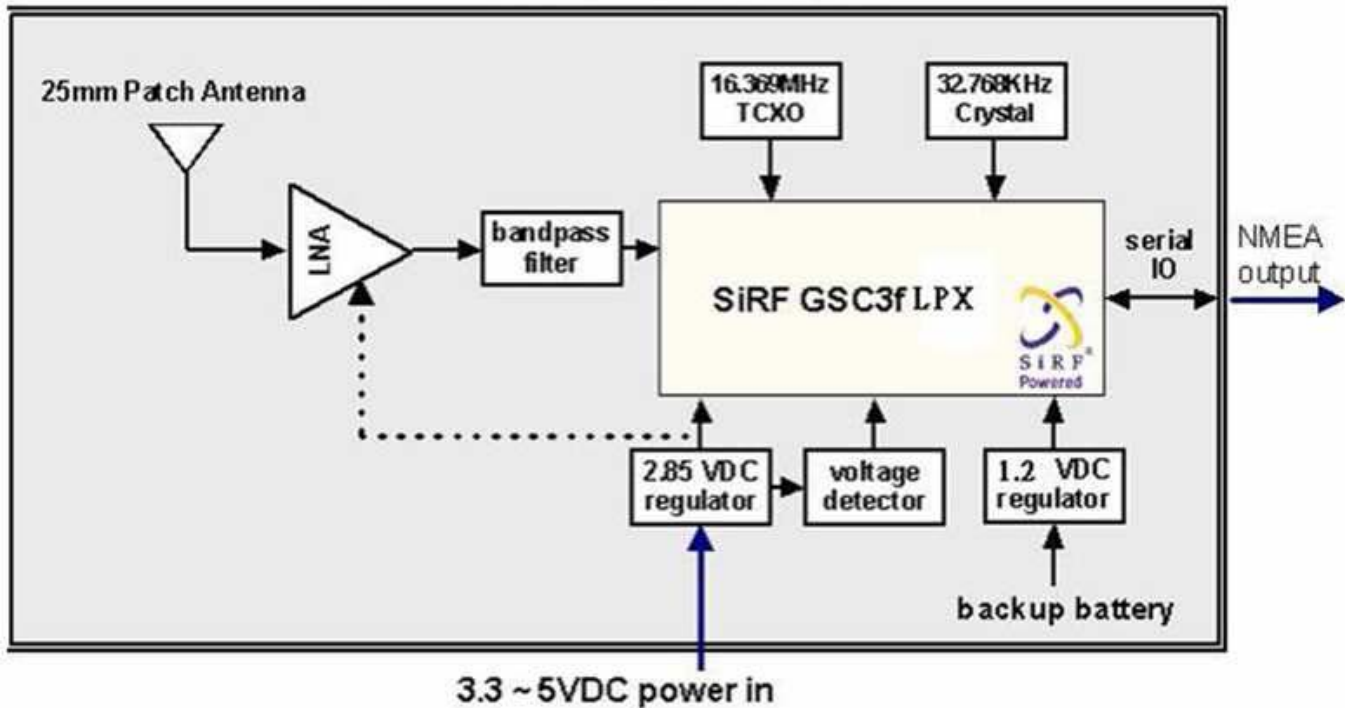
Note: The module can be operated between -30~+85degC, but higher temperature may cause internal Li backup battery deterioration or fail, that will influence the performance of GPS hot start.

2.4 Physical Characteristics

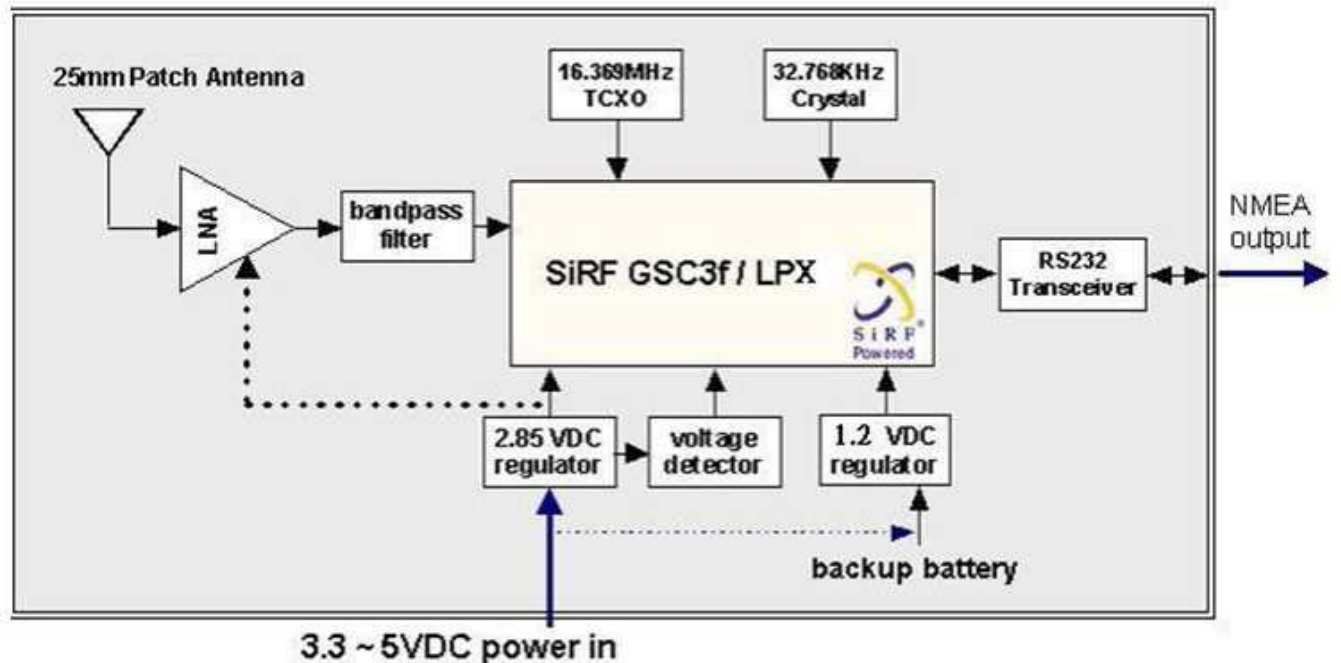
Items	Description
Length	25.0 mm \pm 0.3mm
Width	25.0 mm \pm 0.3mm
Height	8.9 mm \pm 0.3mm
Weight	13.0g (w/ 4mm patch antenna)

2.5 Module architecture

Ct-G352 (TTL) Block Diagram



Ct-G352 (RS232) Block Diagram



3. Software

The Ct-G352 module includes GSW3, high sensitivity software solution.

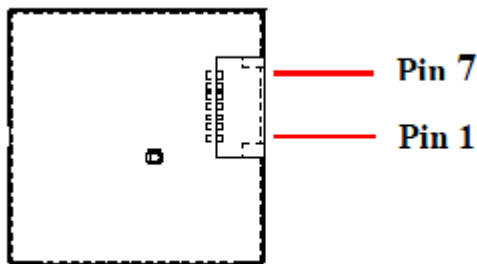
Features include:

- High tracking sensitivity
- High configurability
- 1 Hz position update rate
- Real-time Operating System (RTOS) friendly
- Capable of outputting both NMEA and SiRF-proprietary binary protocols
- Designed to accept custom user tasks executed on the integrated ARM7TDM1 processor
- Runs in full power operation or optional power saving modes

GSW3 default configuration is as follows:

Item	Description
Core of firmware	SiRF GSW3
Baud rate	4800, 9600, 19200, 38400 or 57600 bps (default 4800)
Code type	NMEA-0183 ASCII
Datum	WGS-84
Protocol message	GGA(1sec), GSA(5sec), GSV(5sec), RMC(1sec),VTG(1sec)
Output frequency	1 Hz

3.1 Pin Assignment



Pin No.	Define	Pin No.	Define
1	GND	5	NA
2	TXDA	6	TIMEMARK
3	RXDA	7	VCC_3.3V5V
4	NA		

3.2 Outline Dimension

Items	Description
Length	25.0±0.3mm
Width	25.0±0.3mm
Height	8.9±0.3mm

(4mm patch antenna)

