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LEADTEK GPS MODULE LR9540 Specifications Sheet

(Rev. G, TTL, with LR9548S)



Features:

- SiRF StarIII low power single chipset
- 40.64 x 71.12 x 1.4 mm (1.6 x 2.8 x 0.5 inch)
- TTFF(C/W/H) : 42 / 38 / 1 sec.
- RoHS compliance

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1. Introduction

The Leadtek GPS 9540 (LR9540G) module is high performance, low power, 20-channel TTL level GPS receiver, based on the SiRFStarIII/LP single chipset technology while providing fast time-to-first-fix. Its far reaching capability meets the sensitivity requirements of car navigation as well as other location-based applications. Leadtek GPS 9540 is designed to allow quick and easy integration into GPS-related applications, especially for compact size devices, such as:

- Fleet Management / Asset Tracking
- AVL and Location-Based Services

1.1. Features

Hardware and Software

- Based on the high performance features of the SiRF Star III low power single chipset.
- Dimensions: 40.64 x 71.12 x 1.4 mm *(1.6 x 2.8 x 0.5 inch)*
- RoHS compliant (lead-free)

Performance

- Cold/Warm/Hot Start Time: 42 / 38 / 1 sec. at open sky and stationary.
- Reacquisition Time: 0.1 second

Interface

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

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2. Specifications

Technical Specifications

Feature	Item	Description
Chipset	GSC3f/LP Series	SiRFstarIII/LP single chip technology
General	Frequency	L1, 1575.42 MHz
	C/A code	1.023 MHz chip rate
	Channels	20
Accuracy	Position	10 meters, 2D RMS 5 meters 2D RMS, WAAS corrected < 5meters(50%), DGPS corrected
	Velocity	0.1 meters/second
	Time	1 microsecond synchronized to GPS time
Datum	Default	WGS-84
Time to First Fix(TTFF) (Open Sky & Stationary Requirements)	Reacquisition	0.1 sec., average
	Hot start	1 sec., average typical TTFF
	Warm start	35 sec., average typical TTFF
	Cold start	42 sec., average typical TTFF
Dynamic Conditions	Altitude	18,000 meters (60,000 feet) max.
	Velocity	515 meters/second (1000 knots) max.
	Acceleration	4g, max.
Power	Main power input	3.3 ~ 5.0 VDC
	Power consumption	≈250 mW (continuous mode)
	Supply Current	≈50mA @5.0 VDC
	Backup Power	2.0 ~ 5.0 VDC input.
Interface	Pin Header	DIP type pitch 2.0mm 2x10 pin header
	Protocol messages	NMEA-0183@4800 bps

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Environmental Characteristics

Items	Description
Operating temperature range	-20 deg. C to + 60 deg. C
Storage temperature range	-55 deg. C to +100 deg. C

Physical Characteristics

Items	Description
Length	1.6 in / 40.64 mm
Width	2.8 in / 71.12 mm
Height	0.5in / 1.40 mm
Weight	16g (net)

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3. Software

The Leadtek LR9540(G) module includes GSW3.2.X series, the SiRF standard GPS software for SiRFstarIII low power single chipset receivers. Features include:

- Excellent sensitivity
- High configurability
- I Hz position update rate
- Supports use of satellite-based augmentation systems like the US WAAS or European EGNOS system **(Option)**
- Real-time Operating System (RTOS) friendly
- Capable of outputting either NMEA(default) or SiRF proprietary binary protocols
- Runs in full power operation (default) or optional power saving modes

Default configuration is as follows:

Item	Description
Core of firmware	SiRF GSW3.2.X
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

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Pin Assignment

Pin	Name	Type	Descriptions
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

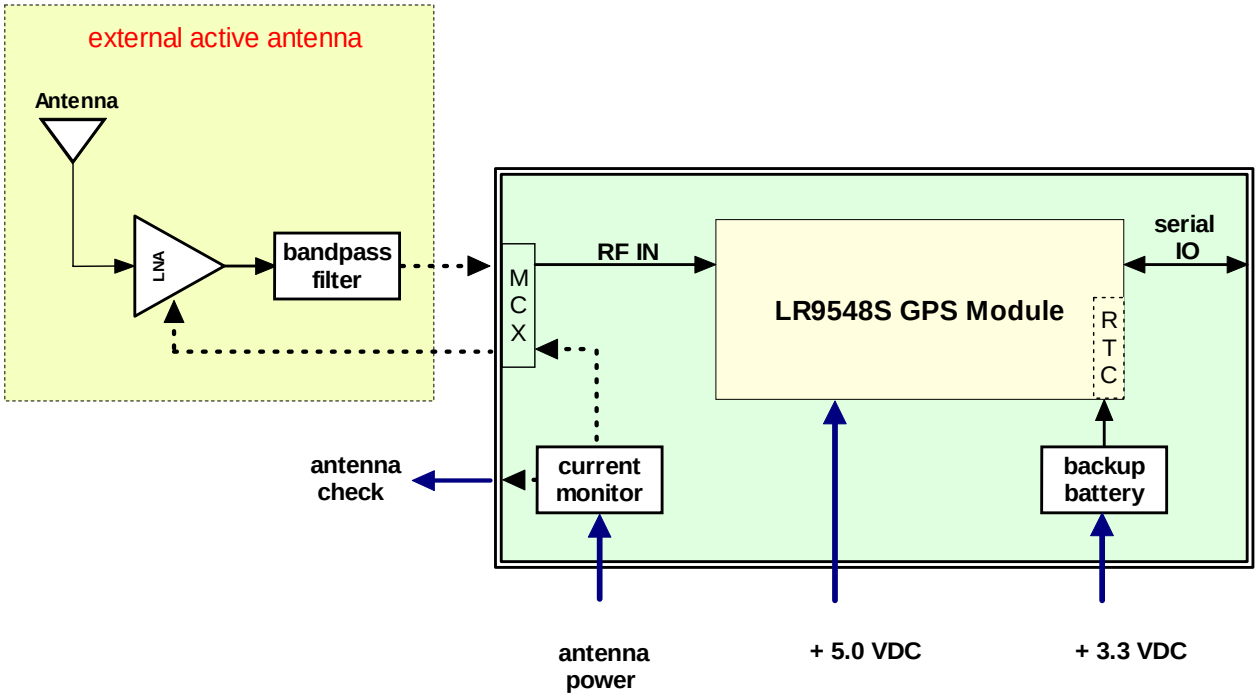
Note:

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.**

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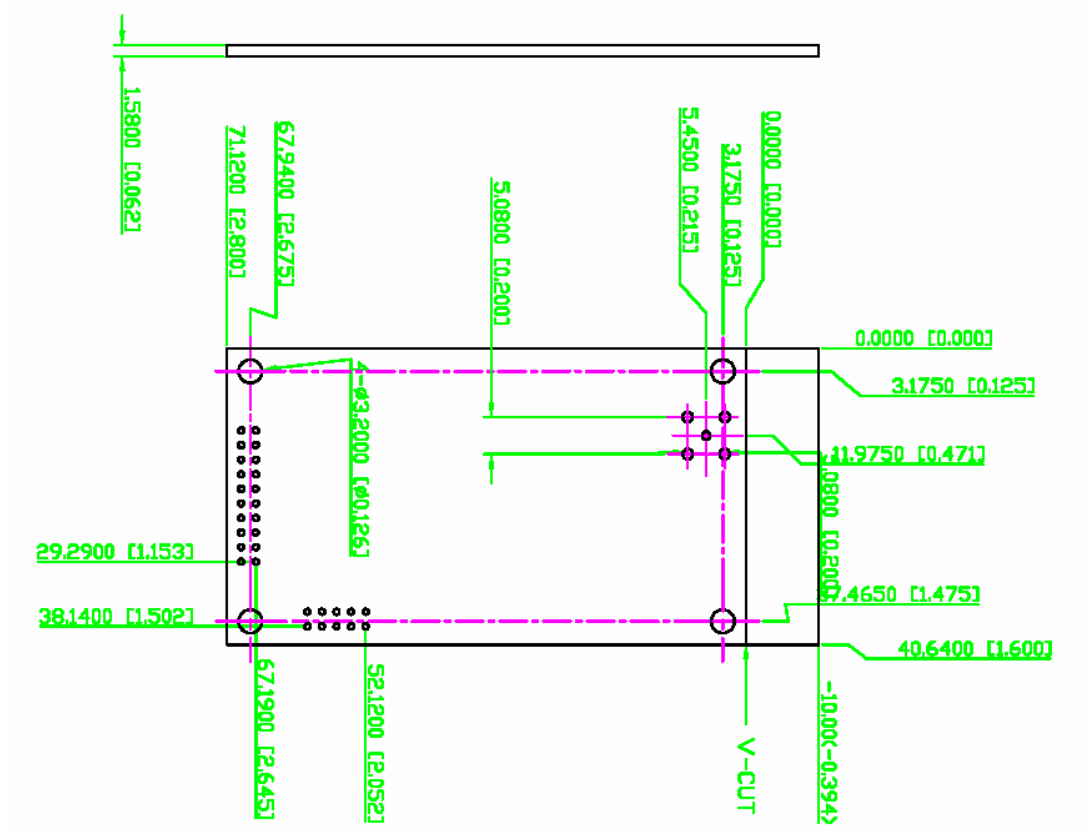
4. Technical specifications

4.1. Block Diagram



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4.2. PCB Drawing (Unit : mm)



Outlook Image



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