

# RB2929S

Ultra High Sensitivity SiRF StarIII 7989  
GPS Module with Patch Antenna

## Documentation History

<b>Revision</b>	<b>Description</b>	<b>Date</b>	<b>Remark</b>
V0.1	RB2929S release	Mar 2009	
V1.0	NMEA Update	Jul 2009	
V1.1	Connector Update	Sep 2009	

# Content

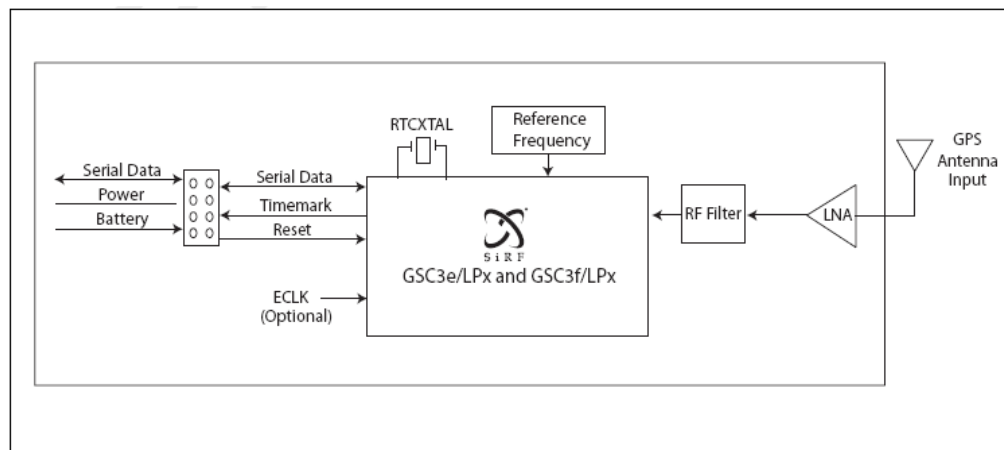
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# RB2929S

## Features

- ✓ 20 channel SiRF StarIII7989 positioning engine
- ✓ Ultra high sensitivity to -159 dBm
- ✓ SBAS (WAAS, MSAS, and EGNOS) support
- ✓ Supports Power saving modes
- ✓ Build in backup battery
- ✓ Support UART and RS232 ports
- ✓ Ultra low power consumption 60mW
- ✓ Ultra miniature 29X 29 mm dimension.
- ✓ Operating temperature range: -30 to 85 °C
- ✓ RoHS compliant (lead-free)

## Block diagram



RB2929S GPS module

# Technical Specifications

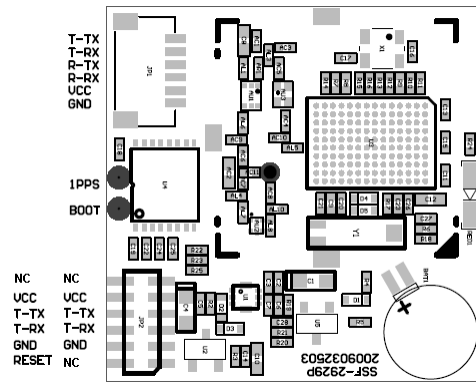
## 1. Electrical Characteristics

1.1 Chipset	SiRF StarIII GSC3eLP	
1.2 General	Frequency	L1, 1575.42MHz
	Channels, C/A code	20 1.023 MHz chip rate, 8192 time/frequency search windows
1.3 Accuracy	Position	5 meters CEP
	Time	50 nanosecond rms (1 PPS)
1.4 DGPS Accuracy	Position	2.0 meters CEP
1.5 Acquisition Rate	Reacquisition	< 1 sec, typical
	Cold start	35 sec, typical
	Warm start	35 sec, typical
	Hot start	1 sec, typical
1.6 Sensitivity	Tracking	-159dBm
	Acquisition/Reacquisition	-155dBm
	Cold start	-144dBm
1.7 Dynamic Condition	Altitude	18,000 meters (60,000 Feet) max.
	Velocity	515 meters /sec (1000 Knots) max.
1.8 Power	Main Power	3.3 VDC typical
	Supply current	40 mA
	Backup power	1.4 ~ 5V
1.9 Serial Port	Electrical interface	UART, RS232
	Protocols	NMEA0183 v3.0

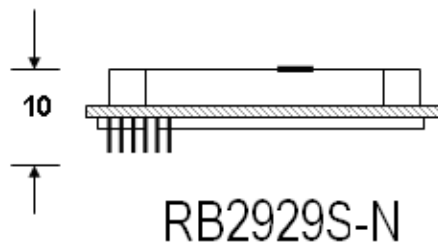
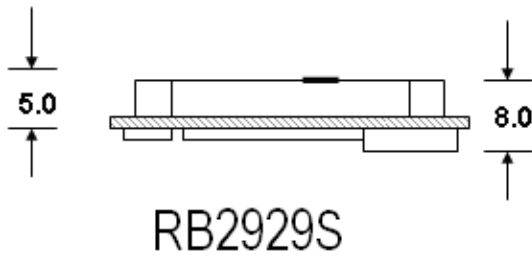
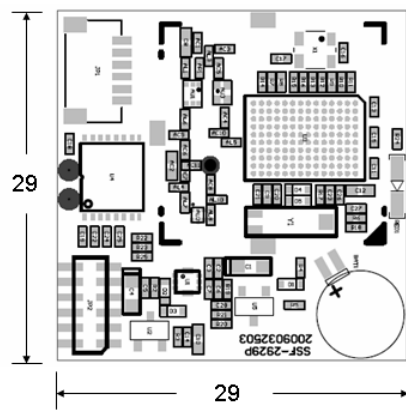
## 2. Environmental Characteristics

2.1 Temperature	Operating range	- 30 °C to + 85 °C
2.3 Interface	I/O connector	6 pin pitch 1.0mm connector (RB2929S) 12 pin pitch 1.27mm (RB2929S-N)

## PIN assignment



## Dimension



Side View

Unit: mm

## Pin Definition

### RB2929S JP1 (CSI-1182-061R from CSTCONN - www.cstconn.com)

Pin#	Name	Type	Description
1	T-TX	Output	UART TXD output
2	T-RX	Input	UART RX input
3	R-TX	Output	RS232 TX
4	R-RX	Input	RS232 RX
5	Vcc	PWR	DC power input 3.3 – 5V
6	GND	PWR	Ground

1\*6 Pitch 1.0mm

### RB2929S-N JP2 (CPA-2001-1230 from CSTCONN - www.cstconn.com)

Pin#	Name	Type	Description
1,12	NC		
2,11	Vcc	PWR	DC power input 3.3 – 5V
3,10	T-TX	Output	UART TX output
4,9	T-RX	Input	UART RXD input
5,8	GND	PWR	Ground
6	Reset	Input	
7	NC		

**Boot:** High Boot from Flash, Low Boot from serial port

**1pps:** Time plus

2\*6 Pitch 1.27mm

## Output NMEA Messages

### NMEA-0183 Output Messages

<b>NM EA Se nte nce</b>	<b>Description</b>
GGA ( <b>default</b> )	Global Positioning System Fixed Data
GLL	Geographic Position - Latitude/Longitude
GSA ( <b>default</b> )	GNSS DOP and Active Satellites
GSV ( <b>default</b> )	GNSS Satellites in View
RMC ( <b>default</b> )	Recommended Minimum Specific GNSS data
VTG	Course Over Ground and Ground Speed
ZDA	Time and Date

The detail information please refers to RBXXXX series GPS module NMEA protocol reference manual.