

# S4F2929P

Ultra High Sensitivity SiRF StarIV GSD4e  
GPS Module with Miniature Dimension

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## Documentation History

<b>Revision</b>	<b>Description</b>	<b>Date</b>	<b>Remark</b>
V0.1	S4F2929P Release	Jul 2011	

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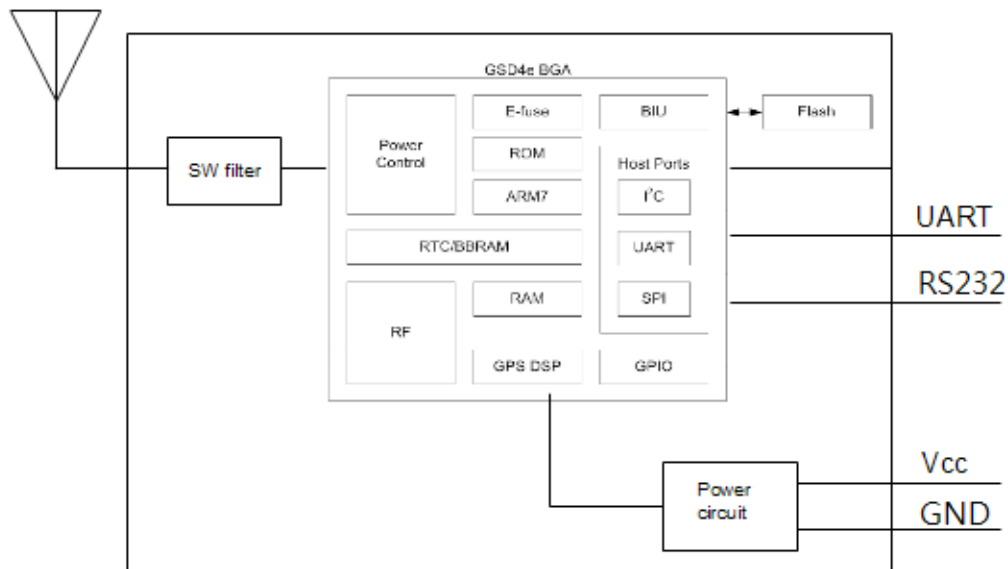
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## Features

- ✓ 48 channel SiRF StarIV GSD4e positioning engine.
- ✓ Ultra high sensitivity to -163 dBm.
- ✓ SBAS (WAAS, MSAS, and EGNOS) support.
- ✓ Support 5Hz Update rate
- ✓ Supports UART and RS232 interface.
- ✓ LED indicate location fix.
- ✓ Ultra low power consumption.
- ✓ Ultra miniature 29 x 29 mm dimension with SMT pad package
- ✓ Operating temperature range: -40 to 85°C
- ✓ RoHS compliant (lead-free)

## Block diagram



## Technical Specifications

### 1. Electrical

#### Characteristics

1.1 Chip set	SiRF StarIV GSD4e9411	
1.2 General	Frequency	L1, 1575.42MHz
	Channels, C/A code	48, 1.023 MHz chip rate, 8192 time/frequency search windows
1.3 Accuracy	Position	3 meters CEP
	Time	200 msec (1 PPS)
1.4 DGPS Accuracy	Position	2.5 meters CEP
1.5 Acquisition Rate	Reacquisition	< 1 sec, typical
	Cold start	32 sec, typical
	Cold start ( CGEE* )	Under 15 sec
	Hot start	1 sec, typical
1.6 Sensitivity	Tracking	-163dBm ( with external LNA )
	Navigation	-160dBm ( With external LNA )
	Autonomous Acquisition	-148dBm ( With external LNA )
1.7 Dynamic Condition	Altitude	18,288 meters (60,000 Feet) max.
	Velocity	515 meters /sec (1000 Knots) max.
1.8 Power	Main Power	3.3 VDC typical
	Supply current (Tracking)	45 mA (AVG)
	Supply current (Navigation)	42 mA (AVG)
	OFF mode	40 uA
1.9 Serial Port	Electrical interface	UART, RS232
	Protocols	NMEA0183 v3.0
	Baud Rate	4800, 9600(default)

### 2. Environmental Characteristics

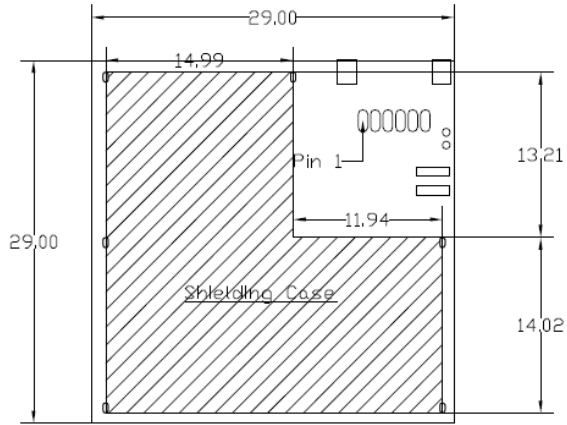
2.1 Temperature	Operating range	- 40 °C to + 85 °C
2.2 Mechanical dimensions	L x W x H	29.0 x 29.0 x 7.5 mm
2.3 Interface	I/O connector	RS232 and UART

\*CGEE: Client Generated Extended Ephemeris

### 3 Antenna

Parameter	Specification
3.1 Antenna type	Passive antenna

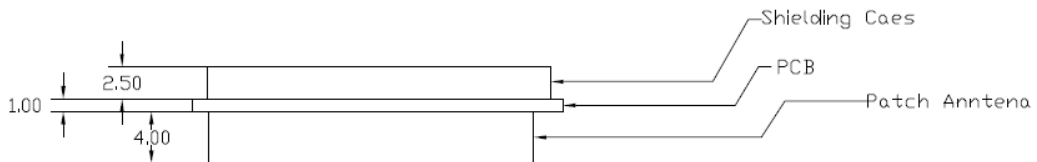
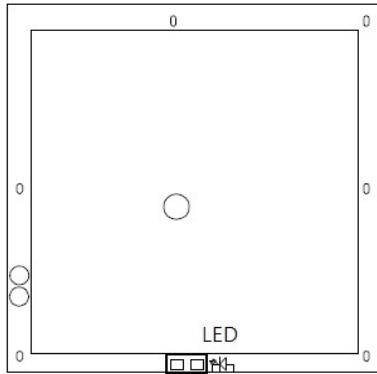
## Dimension



### Pin Assignment

1. GND
2. Vcc
3. RS232 RX
4. RS232 TX
5. UART RX
6. UART TX

Unit : mm



## Pin Definition

Pin#	Name	Type	Description
1	GND	GND	Ground
2	Vcc	PWR	DC power input 3.3V (3.5~5V)
3	RS232 RX	Input	UART RX Input (1.8~3.5V)
4	RS232 TX	Output	UART TX output.
5	UART RX	Input	RS232 RX Input
6	UART TX	Output	RS232 TX Output

## Output NMEA Messages

NMEA-0183 V3.0 Output Messages

NMEA Sentence	Description
GGA (default)	Global Positioning System Fixed Data
GLL	Geographic Position - Latitude/Longitude
GSA (default)	GNSS DOP and Active Satellites
GSV (default)	GNSS Satellites in View
RMC (default)	Recommended Minimum Specific GNSS data
VTG	Course Over Ground and Ground Speed
ZDA	Time and Date

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

## Labeling information

The Labeling of GPS modules includes product information. The location of the product type number and serial number are show in the figure.

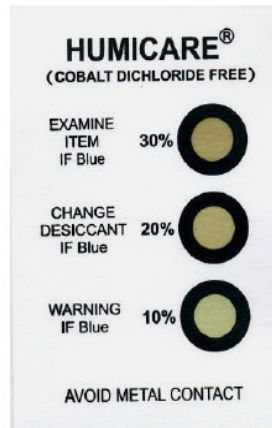
Product type number

Serial number



## Humidity Card

The dry bag provide an MSD label describing the handling requirement to prevent humidity intake. JEDEC J-STD-033B specifications require that MSD sensitive device be packaged together with a Humidity indicator Card and desiccant to absorb humidity. If no moisture has been absorbed, the three field in the HIC indicate blue color.



The calculated shelf life for dry packed SMD packages is a minimum of 12 months from the bag seal date, when stored in a non-condensing atmospheric environment of <math><40^{\circ}\text{C}/90\% \text{RH}</math>.

The parts must be processed and soldered within the time specified for the MSL level 3 168 hours. If this time is exceeded, or the humidity indicator card in the sealed package indicates that they have been exposed to moisture, the devices need to be pre-baked before the reflow solder process.



**Ordering code**

S4F2929P- X X  
a b

Defaultl ordering code: S4F2929P-11

a. Baud Rate setting:

- 1 : 4800 bps;
- 2 : 9600 bps;
- 3 : 19200 bps;
- 4 : 38400 bps;
- 5 : 57600 bps;
- 6 : 115200 bps

b. Output NMEA setting:

- 1 : RMC(1), GGA(1), GSA(1), GSV(5)
- 2 : RMC(1), GGA(1), GSA(1), GSV(1), VTG(1)
- 3 : RMC(1), GGA(1)

**ps.**

**RMC(1) means output \$GPRMC once per second.**

**GSV(5) means output \$GPGSV once every 5 seconds.**

If your request ordering code not show above, Please contact us.  
We have to make a specified ordering code for you.