

# SAH2929P

# SAH2929P-N

Enhanced Atheros GPS Module with  
Path antenna

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## Documentation History

<b>Revision</b>	<b>Description</b>	<b>Date</b>	<b>Remark</b>
V0.1	SAH2929P release	Jun 2009	
V1.0	Connector Update	Sep 2009	

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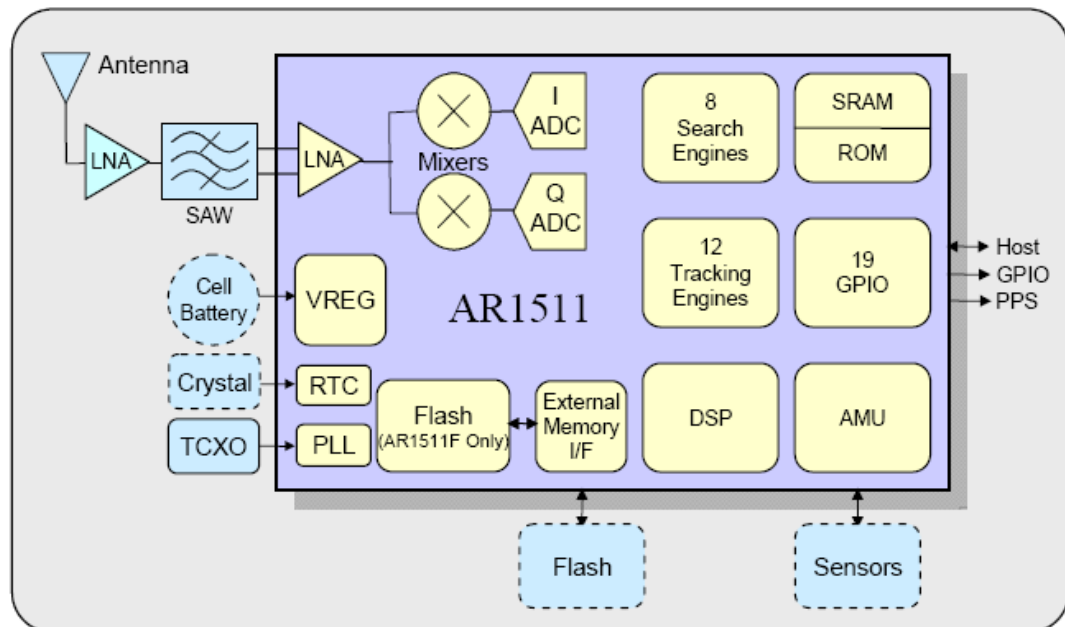
# SAH2929P

## SAH2929P-N

### Features

- ✓ 44 channel Atheros AR1511 positioning engine
- ✓ Ultra high sensitivity to -160 dBm
- ✓ Supports AGPS, WAAS, EGNOS and MSAS
- ✓ Support UART RS232 ports
- ✓ Support 5 Hz position update rate capability @ 3D fix
- ✓ Low power consumption 65mA
- ✓ Backup battery
- ✓ Low position/velocity drift in static mode
- ✓ Small form factor 29 x 29 mm with SMT pads or DIP pin.
- ✓ RoHS compliant (lead-free)

### Block diagram



SAH2929P GPS module

## Technical Specifications

### 1. Electrical

#### Characteristics

1.1 Chipset	AR1511	Atheros GPS chip
1.2 General	Frequency	L1, 1575.42MHz
	Channels, C/A code	44, 1.023 MHz chip rate, 8192 time/frequency search windows
1.3 Accuracy	Position	2.5 meters CEP
	Time	1 usecond rms (1 PPS)
1.5 Acquisition Rate	Cold start	35 sec, typical
	Warm start	33 sec, typical
	Hot start	1.3 sec, typical
1.6 Sensitivity	Tracking	-160dBm
	Navigation	-157dBm
	Cold start	-144dBm
1.7 Dynamic Condition	Altitude	18,000 meters (60,000 Feet) max.
	Velocity	400 Km/hr (1000 Knots) max.
1.8 Power	Main Power	3.3 VDC typical
	Supply current	65 mA
	Backup power	1.5 ~ 3.6V
	Backup current	14µA @ 3V
1.9 Serial Port	Electrical interface	UART, RS232
	Protocols	NMEA, 3GPP, 5 Hz position update rate capability @3D fix

### 2. Environmental Characteristics

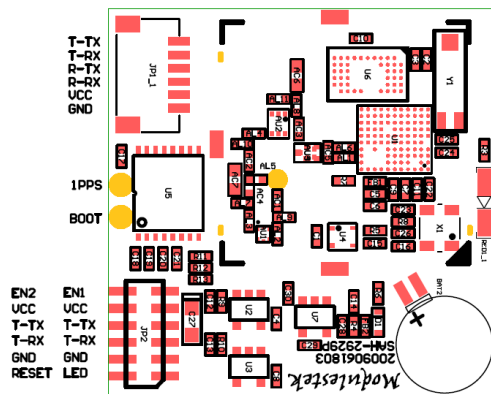
2.1 Temperature	Operating range	- 40 °C to + 85 °C
2.2 Mechanical dimensions	L x W x H	29 x 29 x 8 mm
2.3 Interface	I/O connector	6 pin pitch 1.0mm connector ( SAH2929P) 12 pin pitch 1.27mm (SAH2929P-N)

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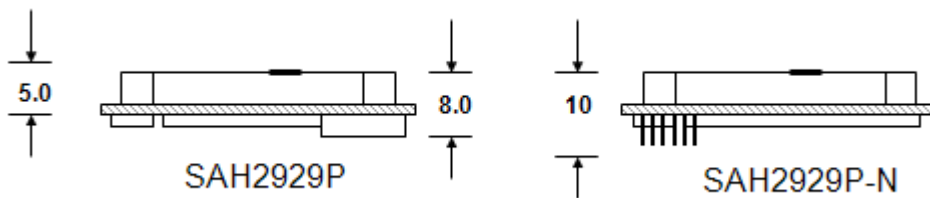
# PIN assignment



# Dimension



Top View



Side View

Unit: mm

## Pin Definition

### SAH2929P JP1 (CSI-1182-061R from CSTCONN - [www.cstconn.com](http://www.cstconn.com))

Pin#	Name	Type	Description
1	TXD0	Output	UART TX output
2	RXD0	Input	UART RX input
3	RS232-TX	Output	RS232 TX output
4	RS232-RX	Input	RS232 RX input
5	Vcc	Input	Input power. Range 3 – 5 V
6	GND	Input	Ground

**1\*6 Pitch 1.0mm**

### SAH2929P-N JP2 (CPA-2001-1230 from CSTCONN - [www.cstconn.com](http://www.cstconn.com))

Pin#	Name	Type	Description
1,12	NC		
2,11	Vcc	PWR	DC power input 3.3 – 5V
3,10	TXD0	Output	UART TX output
4,9	RXD0	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

Table 3 NMEA-0183 Output Messages

<b>NMEA Sentence</b>	<b>Description</b>
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 SAHXXXX series GPS module NMEA protocol reference manual.