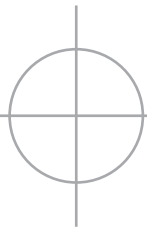


Get your Position!



A1029-A/C Miniaturized

GPS Modules

Highly sensitive and accurate positioning is the driving force of the two GPS receiver modules A1029-A and A1029-C. While the standard version A1029-A already offers high accuracy, the enhanced version A1029-C with TCXO provides even better results at increased availability and decreased TTFF. Both modules are 100% compatible, thus an easy migration is guaranteed. WAAS/EGNOS/MSAS is supported in order to improve position accuracy and the modules are capable of interpreting satellite information received on their serial interface for faster start-up times (assisted GPS). In situations where the satellite signals are blocked, sensor signals that are connected to the module with a minimum of effort will help to further calculate positions (Dead Reckoning). Beyond this, the A1029's offer an accurate one pulse per second (1PPS) signal synchronized to Universal Time (UTC). All this is achieved by the combination of the strengths of two industry leading GPS integrated circuits: The STMicroelectronics STA2051 GPS base-band chip with embedded ARM processor, RAM and Flash coupled to the low-power and small-sized SiGe SE4100L GPS RF down-converter. The results are complete, ultra-low power consumption modules that perfectly serve as off-the-shelf, ready-to-use, NMEA-supporting surface mount components – small, smart, and simple.

- Highly sensitive and accurate positioning
- Single-sided SMD component for reflow solder process
- Very small footprint, ultra-low power consumption
- Cost-effective antenna input
- Differential ready, SBAS (WAAS/EGNOS/MSAS) support
- Integrated Dead Reckoning

Performance

Channels	12 parallel tracking
Frequency	L1 - 1575 MHz
Position Accuracy	
Stand alone	3 m CEP, SA off
Differential ¹	< 1 m CEP
Time To First Fix	
Obscuration recovery ²	1 s
Hot start ³	< 3 s
Warm start ⁴	< 32 s
Autonomous/Cold ⁵	< 60 s (A), < 45 s (C)
Power-off start ⁶	varying

Mechanical

Dimensions	22 mm x 28 mm x 3.2 mm 0.87" x 1.10" x 0.12"
Weight	2 g, < 0.1 oz



Power

Input Voltage	3.0 to 3.6 VDC
Current Draw	
Operational (1 fix/s)	< 50 mA (typ.)
Standby	< 30 μ A (typ.)
Antenna Supply via VANT	
Voltage range	VCC-0.5 V to 5.2 V
Max. allowed current ⁷	50 mA
Antenna Current Monitor	
ANTSTAT high	9 mA < I _{ant} < 16 mA (typ.)
ANTSTAT low	I _{ant} out of above specified range

1) Assumes a benign multipath environment and differential corrections once per second.
 2) The receiver's calibrated clock is not stopped, thus it knows precise time (to the μ s level).
 3) The receiver has estimates of time/date/position and valid almanac and ephemeris data.
 4) The receiver has estimates of time/date/position and almanac.
 5) The receiver has no estimate of time/date/position, and no recent almanac.
 6) Receiver is powered-off, clock stops. Start-up time depends on time to power on and power-on location.
 7) An external current limiter is suggested to avoid damage in fault conditions.

Communications

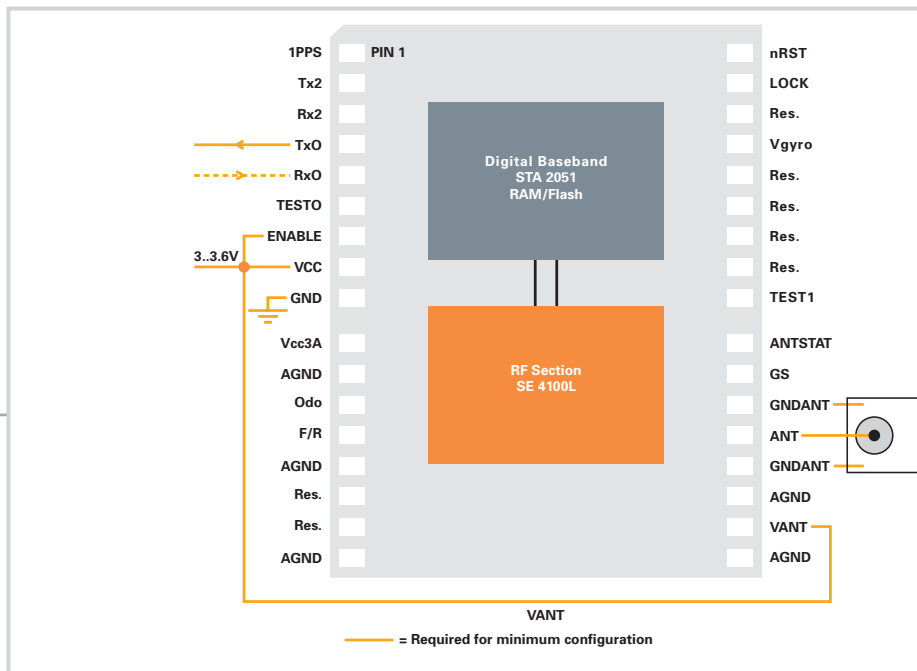
Standard GPS Software	
NMEA message switchable	GGA, GSA, GSV, VTG, RMC
Baudrate (in baud)	4800 default, 9600, 19200, 38400
Geodetic datum	WGS84 standard and 258 map datums
Projection	UTM
Boot loader	Easy firmware update through serial port
Serial Ports	
	3.3V CMOS compatible
Tx0	NMEA output
Rx0	NMEA input
Tx2	Test report output
Rx2	RTCM input (DGPS)

Environment

Temperature	
Operating	-40°C to +85°C
Storage	-40°C to +85°C
Humidity	non-condensing

Products

A1029-A	GPS receiver module, single samples or quantities in tape-and-reel packaging
A1029-C	GPS receiver with TCXO, single samples or quantities in tape-and-reel packaging
USB1029-A USB1029-C	Demonstration kit with easy installation for PC environment using USB cable; complete with either A1029-A or A1029-C module, active antenna, USB cable, drivers, documentation
EVA1029-A EVA1029-C	Evaluation kit with additional access to all I/O ports, external power supply and backup battery; complete with A1029-A or A1029-C module, active antenna, serial cable, documentation



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