

G-201 GPS ENGINE BOARD



Introduction

G-201 is high performance and affordable GPS engine board suited for various applications, such as handheld GPS device, vehicle navigation, tracking devices, location logger, etc. With SiFR III chipset set built-in and fine tuned RF signal, we quarrantee that your experience of positioning will never be the same again.

Model	Mounted Type
G-201	SMD Gold-Plated PAD

- 👁 Full navigation accuracy provided by Standard Positioning Service (SPS)
- 👁 Reception frequency 1575.42MHz
- 👁 SBAS(WAAS, EGNOS Euro Geostationary Navigation Overlay Service) support
- 👁 CPU (ARM7TDMI) with 4Mb of internally packaged Flash memory
- 👁 Advanced Power Management. (The mode of low power management when signal levels are less than 30dB Hz. Update rates are limited from 10 seconds to 255 seconds.)
- 👁 1 UARTS, high speed serial bus
- 👁 Support standard NMEA 0183 protocol(Version. 3.0 GGA, GSA, GSV, RMC, VTG)
- 👁 Internal RTC (Real Time Clock)
- 👁 Build-in +3~+5V DC converter
- 👁 Shielding case including

Specification and Performance ----- Engine board specifications

Parameter	specification
Receiver channels / Fixing method	20 channels , Parallel / All in view
Sensitivity	-159 dBm (average)
Receiver frequency	1575.42MHz
Code	C / A Code (L1 Band)

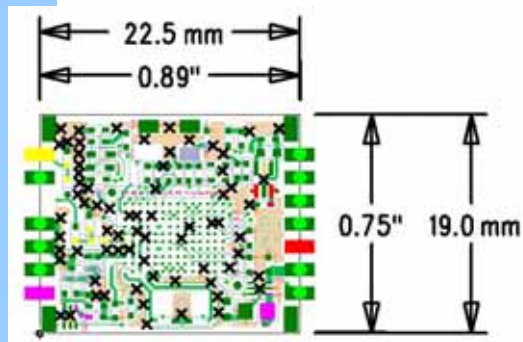
Accuracy (1)Position (2)Speed (3)Azimuth (4)Datum	5m 2DRMS(without SA) 0.5km/h or less 1.5° or less WGS-84(default)
Time To First Fix (1)Reacquisition (2)Cold start (3)Warm start (4)Hot start	0.1 Sec <42 Sec (typ) <35 Sec (typ) 5 Sec(typ)
Dynamic condition (1)Altitude (2)Velocity (3)Acceleration	18000 meters 500 Km ² /hr 1G Km/Hr ² (max)
1PPS Output	1uS or less precision
Power Consumption	Under 75mA@3.3V fully active

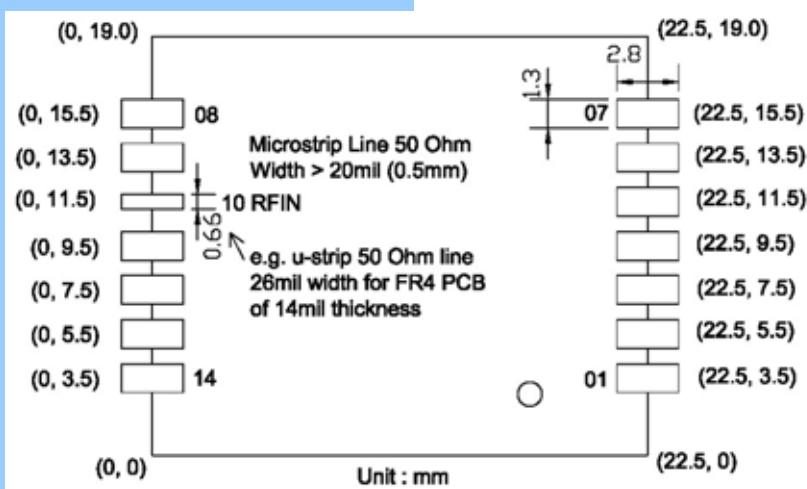
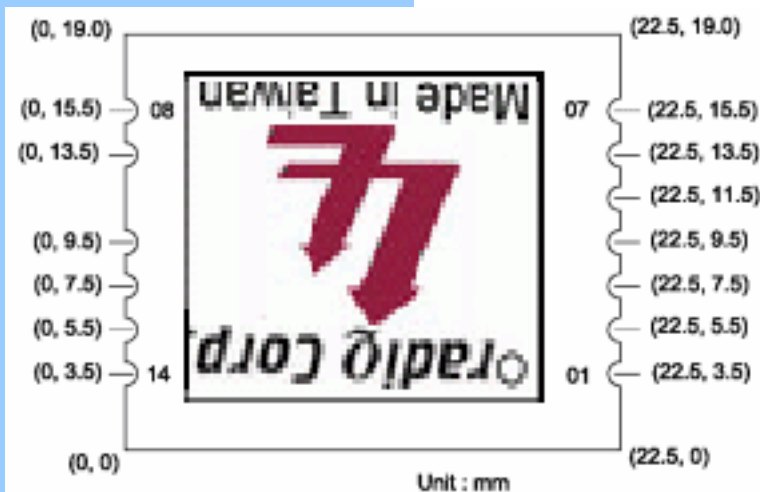
Mechanical specifications

⌘ Dimension : 22.5 mm(W) X 19mm(L) X 4mm(T)

⌘ Weight : 2.0 g

More detail information refer to Pin configuration

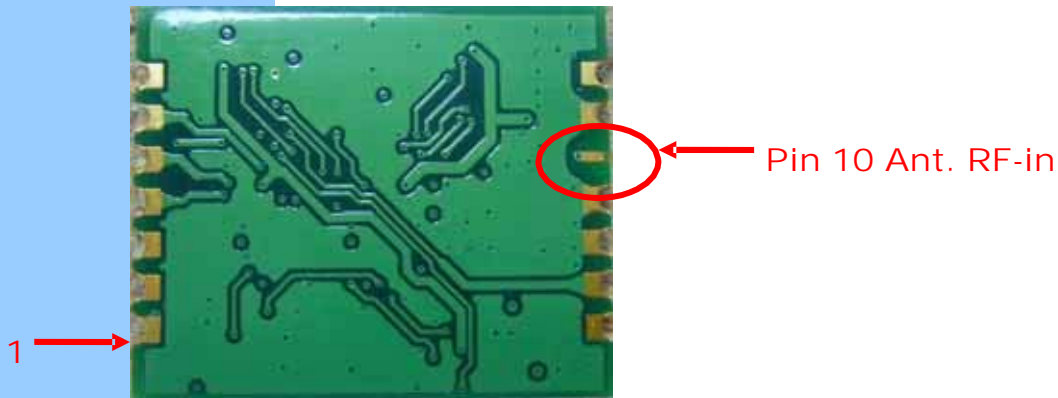




Interface characteristics

<p>Baud rate</p>	<p>Default baud rate for SSIII NMEA is 9600 baud. (4800 is optional)</p> <p>The default serial port settings for SiRF binary mode is 57600, N, 8, 1.</p>	<p>I/O Connector</p>	<p>14 pin SMD type</p>
<p>RF Antenna</p>	<p>SMD PAD for Patch Antenna</p>	<p>I/O Protocol</p>	<p>NMEA 0183 (default)</p>

Pin Description



Pin	Pin Name	Type	Function description
1	RST#	I	Reset input, Active Low
2	CAP	PWR	Bypass capacitor of Internal power pin
3	VBATT	PWR	RTC battery input, 3V recommended
4	TX	O	Serial Data Out, NEMA format
5	RX	I	Serial Data In
6	GPS_Status	O	GPS Fixed status Indicator
7	NC		
8	ANT_VCC	PWR	3.3V input for Active Antenna
9	GND		GND
10	ANT RF	I	RF Input connected to Active Antenna
11	GND		GND
12	GND		GND
13	BootSel	I	Reserved
14	VCC	PWR	Power supply input. Better be 3.3V

Electric /Signal Specifications

⌘ Absolute Maximum Rating

Item	Absolute Maximum Rating	Unit
Vcc input voltage	-0.3 to +4.6	V
Vb input voltage	-0.3 to +6	V
RST input voltage	-0.3 to Vcc+0.3 (Max 6V)	V
ANT_Vcc input voltage	* Antenna Spec.	V
RX input voltage	-0.3 to Vcc+0.3 (Max 6V)	V

⌘ DC Electrical Characteristics

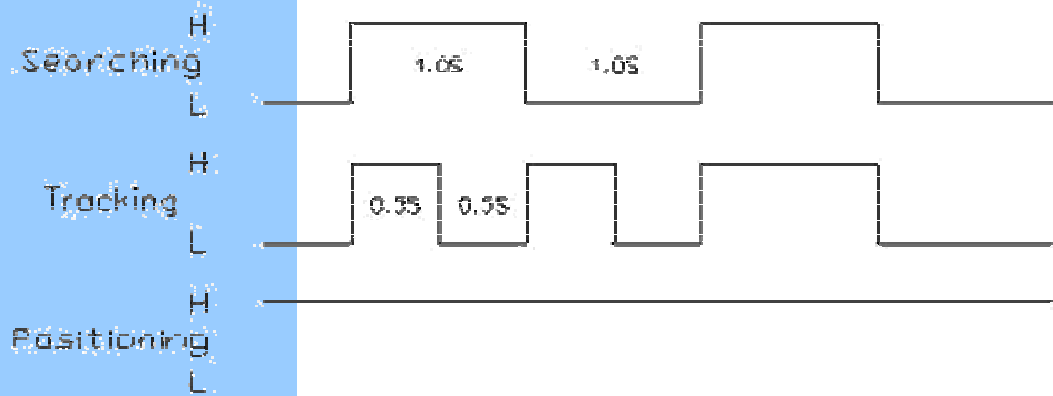
Item			Min	Typ.	Max	Unit	Notes
TX (OUT)	H	Voltage	Vcc-0.6	-	Vcc	V	
	L	Voltage	0	-	0.4	V	
RX (IN)	H	Voltage	Vcc-0.6	-	Vcc	V	
	L	Voltage	0	-	0.4	V	
ANT_Vcc	Voltage		Refer to the spec. of GPS antenna				
	Current						
Vcc	Voltage		3.0	3.3	3.6	V	
	Current		-	50	-	mA	
VB	Voltage			3.3		V	
	Current			10		uA	
RST	Voltage		-	2.98		V	
ANT IN	Impedance			50		Ohm	
	Center frequency			1575.42		MHz	

* Vcc \geq VB during operations

⌘ **Adaptation Antenna**

Parameter	condition
Output impedance	50 Ohm
VSWR	2.0dB or less
N.F	2.0dB or less
Gain	25dBi to 30dBi
Axial ratio	3dB or less

⌘ **GPS Status Output**



Environment Specifications

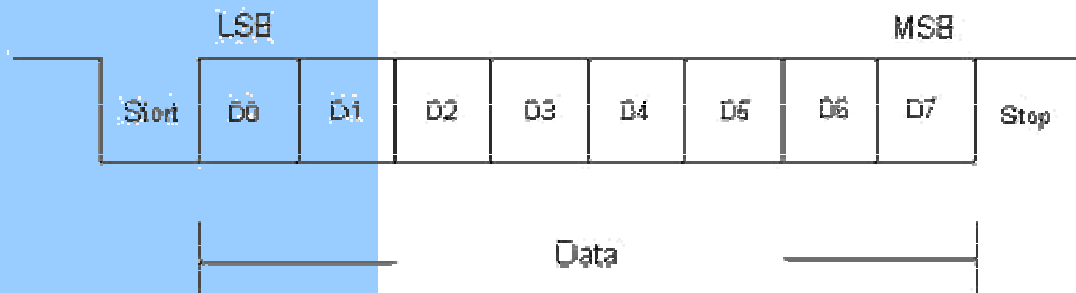
Parameter	Specification	
Temperature	Operating	-40°C to +85°C
	storage	-40°C to +85°C
Operating	5% ~ 95% RH, non condensing	

reference circuit for G-201

The reference design guide of application circuit will be offered upon sample order.

Communication Specification

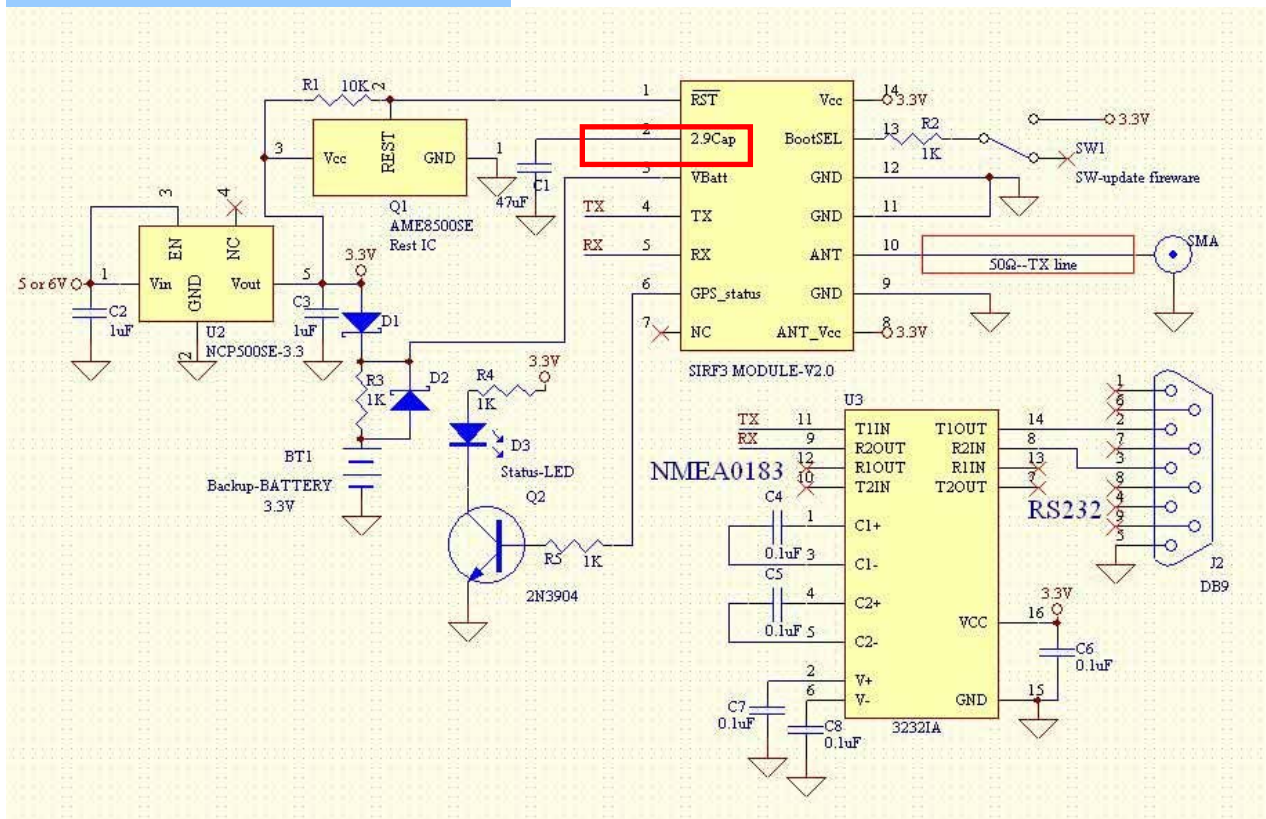
Parameter	Specification
Interface	Simple UART
Baud rate	9600 bps (default) 4800 bps (optional)
Start bit	1 bit
Stop bit	1 bit
Data bit	8 bit
Parity	None
Transmission data	NMEA 0183 Ver3.01



NMEA Output Sentence

Sentence	Function
GPGGA	UTC of position, Latitude N/S, Longitude E/W, HDOP, Number of satellites in use 0 to 20, may be different from the number in view
GPGSA	ID number of satellite used in solution(null for unused fields) PDOP,HDOP,VDOP
GPGSV*	Total number of satellite in view, satellite ID number, Elevation, degree 90° maximum, Azimuth, degree true 000 to 359 SNR(C/N)00-99 dB-Hz, null when not tracking
GPRMC	UTC of position fix, Latitude N/S, Longitude E/W, Course over ground degrees true, Speed over ground, degrees true

Reference Application Circuit



Notes:

1. SW1 is optional, if user want to update RN201 firmware . Please connect R2 to 3.3V and then update firmware.