



**Product Name: GPS Receiver Module**

**Part Number: GM-12TA**

**Feature:**

- 1~10 Hz updates for smooth and accurate location
- highly accurate GPS
- Supports SBAS including WAAS/EGNOS/MSAS

**Application:**

- high-sensitivity reception and enhanced position acquisition

# GPS Receiver Module

## MODEL: GM-12TA

WI-RD-D-017 V1.3

### I. Specifications:

Category	Specifications
<b>PHYSICAL CONSTRUCTION</b>	
<b>Dimension</b>	24.5mm (L) x 14mm (W) x 12.7mm (H)
<b>Weight</b>	5.5 grams
<b>Mounting</b>	14-pin stamp holes
<b>Construction</b>	Full EMI shielding
<b>ENVIRONMENTAL CONDITIONS</b>	
<b>Temperature</b>	Operating: -40 ~ +85 °C
	Storage: -40 ~ +85 °C
<b>COMMUNICATION</b>	
<b>Protocol</b>	NMEA 0183, UBX binary
<b>Interfaces</b>	UART
<b>INTERFACE CAPABILITY</b>	
<b>Output Sentences (Optional)</b>	GGA(1 sec), RMC(1 sec), GSV(1 sec), GSA(1sec), VTG(1 sec), GLL(1sec)
<b>Baud Rate (Optional)</b>	9600 bps
<b>PERFORMANCE</b>	
<b>Receiving frequency</b>	1575.42MHZ; C/A code
<b>Channels</b>	56-channel u-blox 7 engine
<b>Sensitivity*</b>	Tracking & Acquisition -161dBm
	Reacquisition -160dBm
	Cold Start -147dBm
<b>SBAS</b>	WAAS, EGNOS, MSAS
<b>TTFF*</b>	Hot start 1 sec. typical
	Cold start 30sec. typical
<b>Position accuracy *</b>	Autonomous: 2.5 m

	SBAS: 2.0 m
<b>Accuracy of Time pulse Signals</b>	RMS 30ns
	99% 60ns
<b>Velocity Accuracy**</b>	0.1 m/s
<b>Heading Accuracy**</b>	0.5 degrees
<b>Operational Limits</b>	500 m/s
<b>Update Rate (Optional)</b>	1Hz
<b>Power Supply</b>	3V~3.6V
<b>Power Consumption</b>	<50 mA @ 3.3V

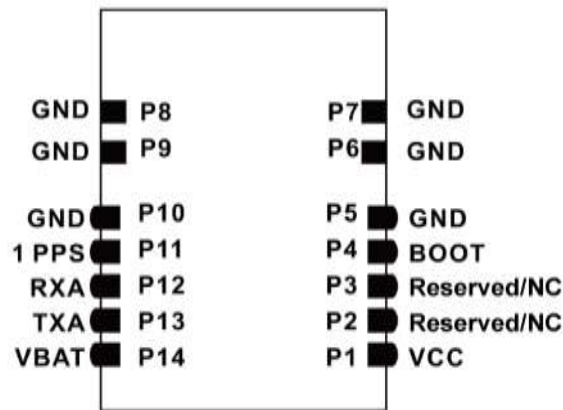
\* All satellites -130dBm, CEP, 50%, 24 hours static, > 6 Svs

\*\* 50 % @ 30 m/s

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## II. Pin Assignment:



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Pin	Name	Type	Description
1	VCC	P	Main power input ( 3.0 ~ 3.6VDC )
2	Reserved/NC		Reserved/NC
3	Reserved/NC		Reserved/NC
4	BOOT	I	Keep floating ( For internal manufacturing use ) It is pulled to high level.
5	GND	G	Ground
6	GND	G	Ground
7	GND	G	Ground
8	GND	G	Ground
9	GND	G	Ground
10	GND	G	Ground
11	1 PPS	O	TIME PULSE output(TABLE 1)
12	RXA	I	UART receive (TABLE 1)
13	TXA	O	UART transmit (TABLE 1)
14	VBAT	P	Backup Battery Input (3~3.6VDC ) It must be connected.

Symbol	Parameter	Condition	Min.	Max.	Unit
Vil	Low level input voltage		0	0.56	V
Vih	High level input voltage		1.96	3.3	V
Vol	Low level output voltage	Iol=4mA		0.4	V
Voh	High level output voltage	Ioh=4mA	2.4		V

TABLE 1:UART / Digital IO pins