GPS Receiver Module

Model: GM-12TA

WI-RD-D-017   V1.2

UBX-G6010 Single-Chip GPS Receiver Series

Overview:

The main goal of **GM-12TA** is used as a part of integrated system, which can be a simple PVT (Position-Velocity-Time) system, for instance, G-mouse, PND (Personal Navigation Device), or complex wireless systems, such as a system with GSM function, a system with Bluetooth function, and a system with GPRS function. The T-type design of **GM-12TA** is the best choice for embedding in portable devices and receivers like PND, mobile phone, car holder, personal locator, digital camera, and vehicle locator. It can be the best candidate for users' systems as the users' systems need the careful consideration on the performance, sensitivity, power consumption, and/or size of the module.

Features:

- Assembled in the form of T-type
- 50 parallel channels
- -160 dBm high GPS sensitivity
- Up to 5Hz update rate

Application:

- Personal Navigation Device including GPS PDA and GPS Handheld
- Mobile phone and smart phone
- GPS receiver and GPS mouse
- Personal positioning and navigation
- Automotive/Marine navigation
- Timing application

Specifications:

PHYSICAL CONSTRUCTION	
GPS Board Dimension	L19.8mm*W14.0mm*H2.80mm
Weight	<5.5g
Receiving frequency	1575.42MHZ; C/A code
Mounting	14-pin stamp holes
Construction	Full EMI shielding
ENVIRONMENTAL CONDITIONS	
Temperature	Operating: -30 ~ +85 ℃
	Storage: -40 ~ +85 ℃
COMMUNICATION	
Protocol	NMEA, UBX binary
Signal level	UART
INTERFACE CAPABILITY	
Output Sentences	Standard: GGA, RMC, GSV, GSA, VTG,GLL, (Option: ZDA)
PERFORMANCE	
Sensitivity	Tracking & Acquisition -160dBm
	Reacquisition -160dBm
	Cold Start -147dBm
SBAS	WAAS, EGNOS, MSAS, GAGAN
Receiver architecture	50 parallel channels
Start-up time	1 sec. typical (hot start)
	40 sec. typical (warm start)
	45 sec. typical (cold start) (*All satellites at -130 dB)
Position accuracy*	Autonomous: <2.5 m
	SBAS: <2.0 m
Accuracy of Time pulse Signals	RMS 30ns
	99% <60ns
	Time pulse Configurable: 0.25....1000Hz
Velocity Accuracy	0.1 m/s
Heading Accuracy	0.5 degrees
Operational Limits	500 m/s
Update Rate	1Hz(Default) , Up to 5Hz
Power Supply	3V~3.6V
Power Consumption	Acquisition: 67mA, Tracking: 47mA
Baud Rate	9600 bps (default)
	4800/9600/38400/57600/115200 bps are adjustable

*CEP, 50%, 24 hours static, -130dBm, SEP <3.5m

**This specification is subject to change without prior notice

Pin Assignment:

Figure 2.1 shows the pin definitions of GM-12TA. Table 2.1 describes the corresponding definitions for pins.
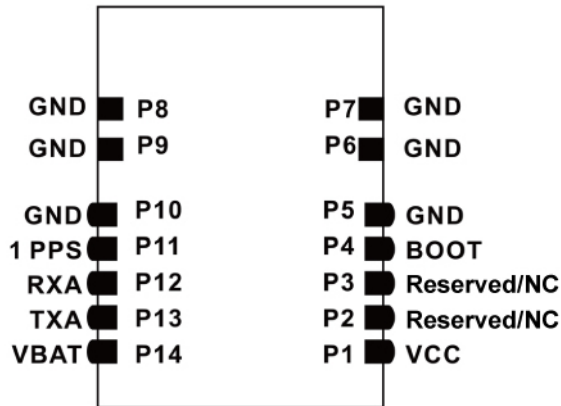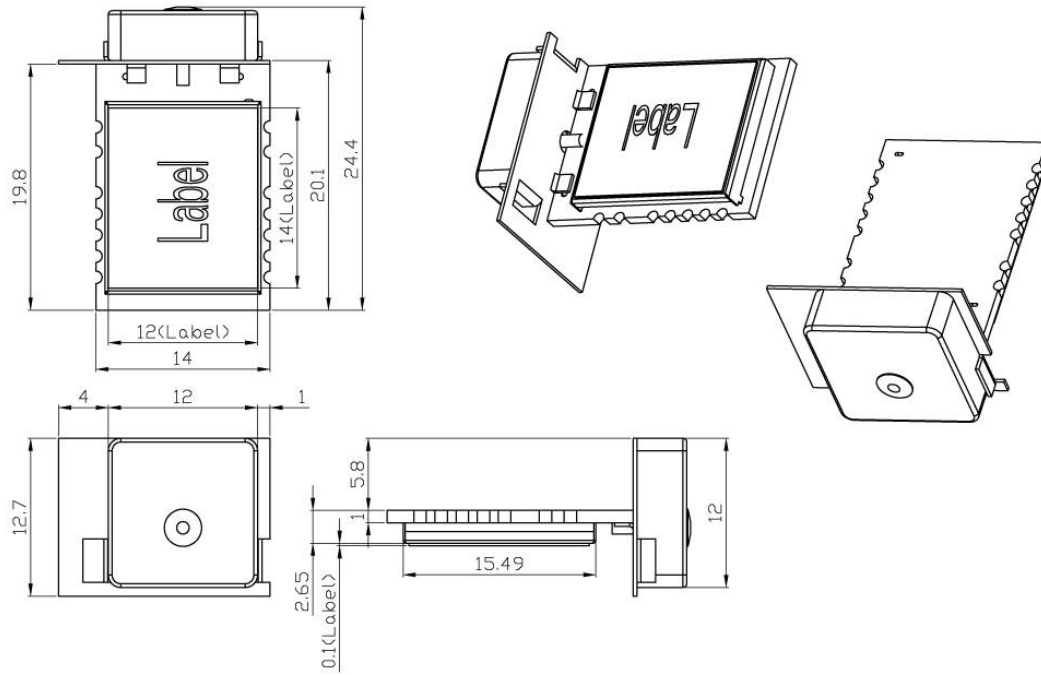

Figure 2.1 GM-12TA Pin definitions

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	P	Ground
6	GND	P	Ground
7	GND	P	Ground
8	GND	P	Ground
9	GND	P	Ground
10	GND	P	Ground
11	1 PPS	O	TIME PULSE output CMOS Output Logic High, VOH 0.8xVCC(min) VCC(max) CMOS Output Logic Low, VOL GND(min) 0.2xVCC(max)
12	RX_A	I	CMOS level asynchronous input for UART A Input Logic High, VIH 0.7 x VCC(min) Input Logic Low, VIL 0.3 x VCC(max) 0.2xVCC(max)
13	TX_A	O	CMOS level asynchronous output for UART A CMOS Output Logic High, VOH 0.8 x VCC(min) VCC(max) CMOS Output Logic Low, VOL GND(min)
14	VBAT	P	Backup Battery Input (3~3.6VDC) It must be connected.

Mechanical Diagram:

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