4.2. TCXO

(1) Typical SSB phase noise density 1 Hz offset -50.0 dBc/Hz
(2) Typical SSB phase noise density 10 Hz offset -80.0 dBc/Hz
(3) Typical SSB phase noise density 100 Hz offset -105.0 dBc/Hz
(4) Typical SSB phase noise density 1 kHz offset -125.0 dBc/Hz
(5) Typical SSB phase noise density 10 kHz offset -140.0 dBc/Hz
(6) Load sensitivity (+/-10% load change) :0.2 +/-ppm
(7) Frequency stability over temperature: 0.5 +/-ppm
(8) Long term stability Frequency drift (over 1 year): 1.0+/-ppm

4.3. Environmental Characteristics

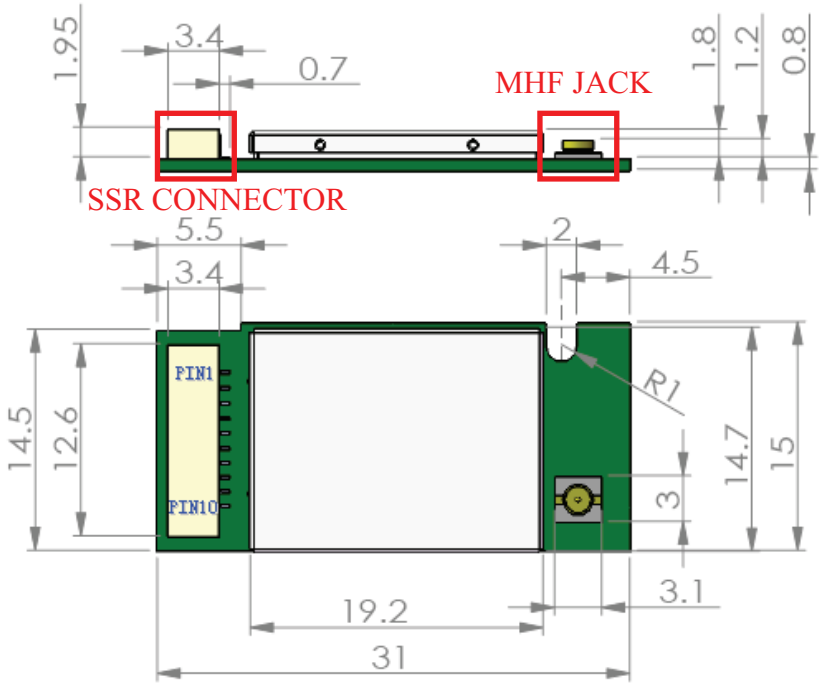
(1) Operating temperature range -40 ℃ to +85 ℃
(2) Storage temperature range -45 ℃ to +85 ℃

4.4. Physical Characteristics

(1) Active Size: 31.0(W) x 15.0(D) x 2.8(H) (mm)
(2) Weight: less than 3.5g

5. Mechanical Dimensions and Electrical feature

5.1. G5020-1 V1.0 outline:(mm)



* General tolerances = ±0.2mm

5.2.Pin Description :

Table 5-1 is pin list of the 10-Pin Interface.

Table 5-1

PIN	Name	Type	Description	Electrical Characteristics
1	LED	O	1 pps pulse output	
2	USB_D+	I/O	USB DATA Plus	USB 2.0
3	USB_D-	I/O	USB DATA Minus	USB 2.0
4	VBUS	PWR	Backup battery input	DC 3.3V+/-10%
5	GND	PWR	System GND	
6	EN	I	Power Enable	EN=Low，disable； EN=High or NC,Power ON
7	TXD	O	Serial data output	Voh≥VCC-0.4V；Vol≤0.4V；
8	RXD	I	Serial data input	Vih≥0.91V；Vil≤0.22V；
9	VBAT	PWR	Backup Battery Supply	DC 3.3V+/-10%
10	GND	PWR	System GND	

! NOTICE:

5.2.1 Configuration and time signal

1．EN：GPS module control. Low level (GND)active, the module into the closed state. High level (VCC)active or when vacancies, module works.

2．LED：Output，Per second from the module to send a pulse signal , Contrast GPS clock synchronization error is less than 30nS.

5.2.2 UARTs

Tow duplicate UARTs，TTL level.

1．RXD: Input, mainly used for GPS control bit.

2．TXD: Output, GPS data output.

5.2.3 USB Communications

1．USB_DP/USB_DM: Module provide USB2.0 communication interface it can be directly connected through the interface module to the PC side.(If use this feature, please consult factory!)

5.2.4 DC input Characters

1．VBUS: This is the main power supply. This pin contains an integrated +3.0V output LDO. The recommended operation condition is shown in the following table (Table 5.2).

2 · VBAT: Power for RTC and SRAM. The recommended operation condition is shown in the following table (Table 5.2).

Parameter	Symbol	Min.	Typ.	Max.	Units
Main power supply voltage	VBUS	3.2	3.3	5.0	V
RTC supply and battery backed SRAM supply	VBAT	1.8	3.3	3.6	V

(Table 5.2)

3. RF_IN: GPS signal input pin, it has powered supply VCC. Proposed external GPS active antenna LNA gain of not less than 15 ~ 20dB, a maximum of not more than 50dB, the module will be too high or too low an impact on receiver performance, please according to actual usage to be adjusted.

6. Antenna Considerations

- The Antenna Perhaps the MOST important element to consider for a successful GPS design! Best signal reception is achieved with the proper antenna integration and orientation into the final package! Requires extensive pre-planning with antenna suppliers to develop the best integrated solution and performance.
- Remember…GPS is a DEEP SPACE receiver, requiring the best conditions possible to amplify the faint GPS satellite signals (< -160dBm!).
- Optimizing the antenna in its final housing may take several iterations to achieve the needed results.
- Allow for ‘Plan A’ and a backup ‘Plan B’ for antenna development!
- It is NOT recommended to use of combination antennas ! This is Not optimized for GPS signals.
- Extremely poor GPS reception will occur, unless antenna designer optimizes for GPS reception as primary function.
- Combination antennas also require some type of diplexer, which can add ~1-2 dB additional loss to the system NF.
- Use only a manufacturer-approved antenna. Use only the supplied or an approved antenna with your GPS receiver. Antennas from other manufacturers which are not authorized by the supplier can damage the GPS receiver.