

# CAN6-CT6

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## CAN6-CT6

Low-Power High-Performance Low-Cost 48 Channel SMD GPS Module :

### Features

- ◆ 48 track verification channels
- ◆ SBAS(WASS or EGNOS)
- ◆ Tracking sensitivity -163dBm
- ◆ Active Jammer Remover
- ◆ Extremely fast TTFF at low signal level
- ◆ Multipath detection and suppression
- ◆ Accuracy 2.5m CEP
- ◆ Tracking current ~35mA
- ◆ Supports active and passive antenna
- ◆ Operating temperature -40 ~ +85°C
- ◆ RoHS compliant

### Applications

- ◆ Personal positioning
- ◆ Navigation
- ◆ Smart Phone
- ◆ Automatic Vehicle Location

### Product Description

The CAN6-CT6 is a small form factor GPS module solution intended for a broad range of Original Equipment Manufacturer (OEM) products, where fast and easy system integration and minimal development risk is required. The user only need to provide DC power of 3.0V ~ 3.6V and GPS signal; the CAN6-S will output navigation solution in standard NMEA-0183.

The CAN6-CT6 features 48 channel GPS receiver with fast time to first fix and improved -148dBm cold start sensitivity. The superior cold start sensitivity allows it to acquire, track, and get position fix autonomously in difficult weak signal environment. The receiver's -163dBm tracking sensitivity allows continuous position coverage in nearly all application environments.

## Receiver Specification

### ◆ Electrical Spceification

Parameter	Min	Typ	Max	Unit
Power Supply (VDD)	3.0	3.3	3.6	V
Backup battery voltage(VBAT)	2.0	3.3	3.6	V
Supply Current for not 3D fixed	45	50	55	mA
Supply Current for 3D fixed	35	38	45	mA
RF out power for ANT(VRF)	3.0	3.3	3.6	V

### ◆ DC Electrical characteristics

Paramter	Symbol	Min	Typ	Max	Units
High Level input Voltage	V <sub>IH</sub>	0.7*VCC		3.6	V
Low Level input Voltage	V <sub>IL</sub>	-0.4		0.45	V
High Level output Voltage	V <sub>OH</sub>	0.75*Vg <sub>cc</sub>		Vg <sub>cc</sub>	V
Low Level output Voltage	V <sub>OL</sub>			0.4	V
High Level output Current	I <sub>OH</sub>		2		mA
Low Level output Current	I <sub>OL</sub>		2		mA

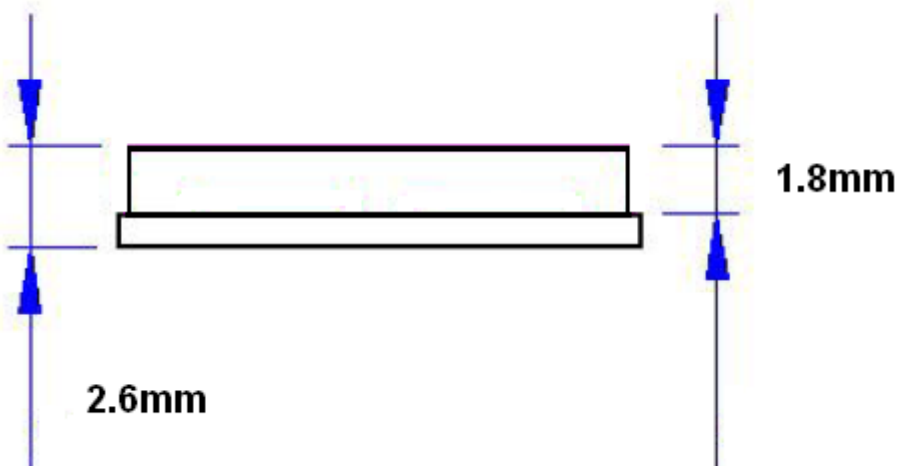
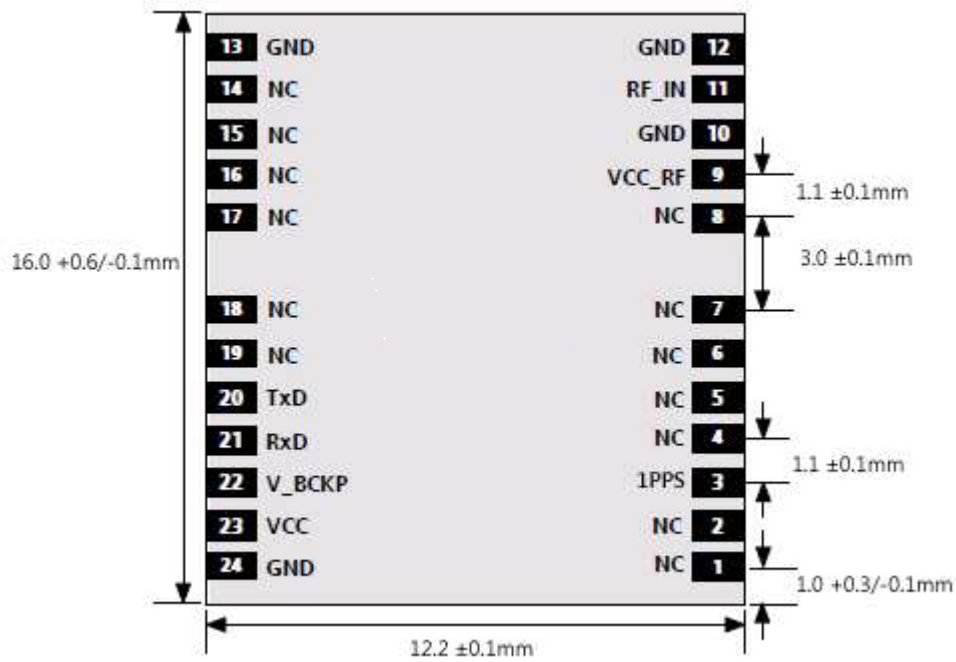
Vg<sub>cc</sub> is 1.8V input .

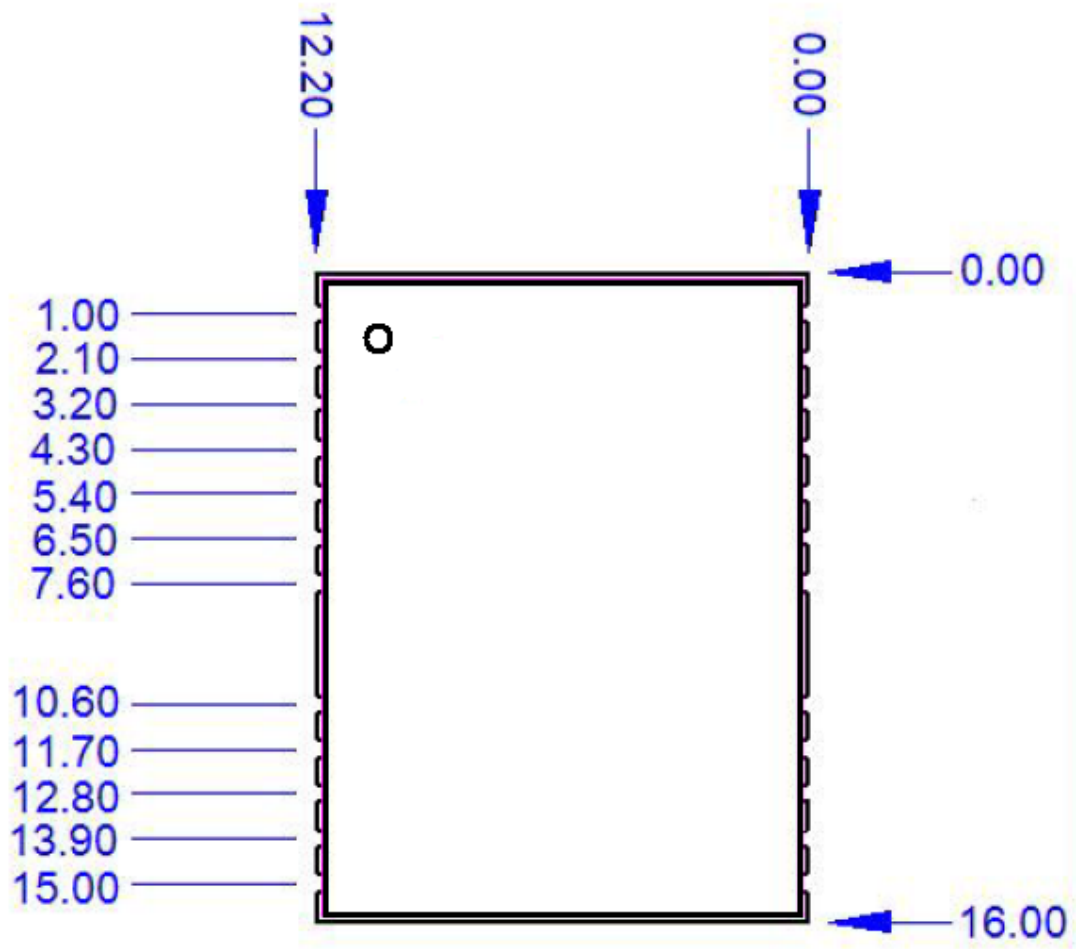
### ◆ Receiver Description :

- Tracking Sensitivity -163dBm .
- Cold Star < 35s , with CGEE <15s .
- Warm Star < 35s , with CGEE <15s .
- Hot Star < 1s .
- Accuracy < 2.5m CEP .
- Operational Limits Altitude < 18,000m and velocity < 515m/s .
- Serial Interface 3.3V LVTTTL level .
- Protocol NMEA-0183 V3.01 .  
GPGGA, GPGLL, GPGSA, GPGSV, GPRMC, GPVTG\*9600 baud, 8, N, 1
- Datum : Default WGS-84 .
- Multi-path Mitigation : Advanced multi-path detection and suppression .
- Input Voltage : 3.3V DC +/-10% .
- Operating Temperature : -40oC ~ +85oC .
- Storage Temperature : -55 ~ +100oC .
- Humidity : 5% ~ 95% .
- Dimension :16mm L x 12mm W

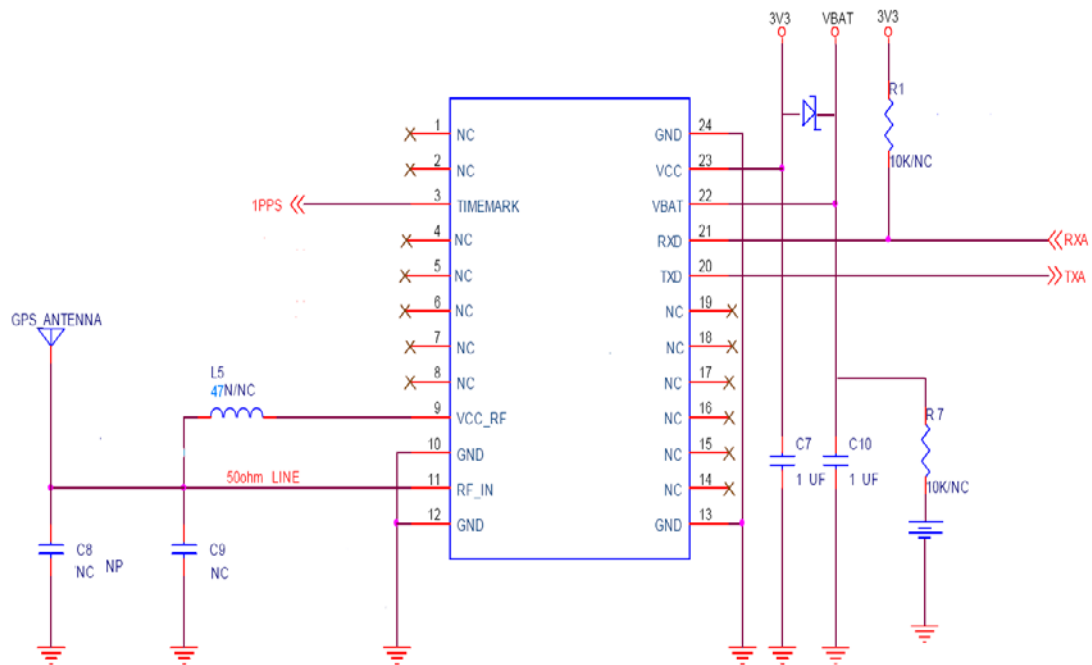
# Product Dimensions

Dimensions : 16mmX12.2mmX2.6mm





## Applicaation circuit :



## GPS Ative antenna specification (option)

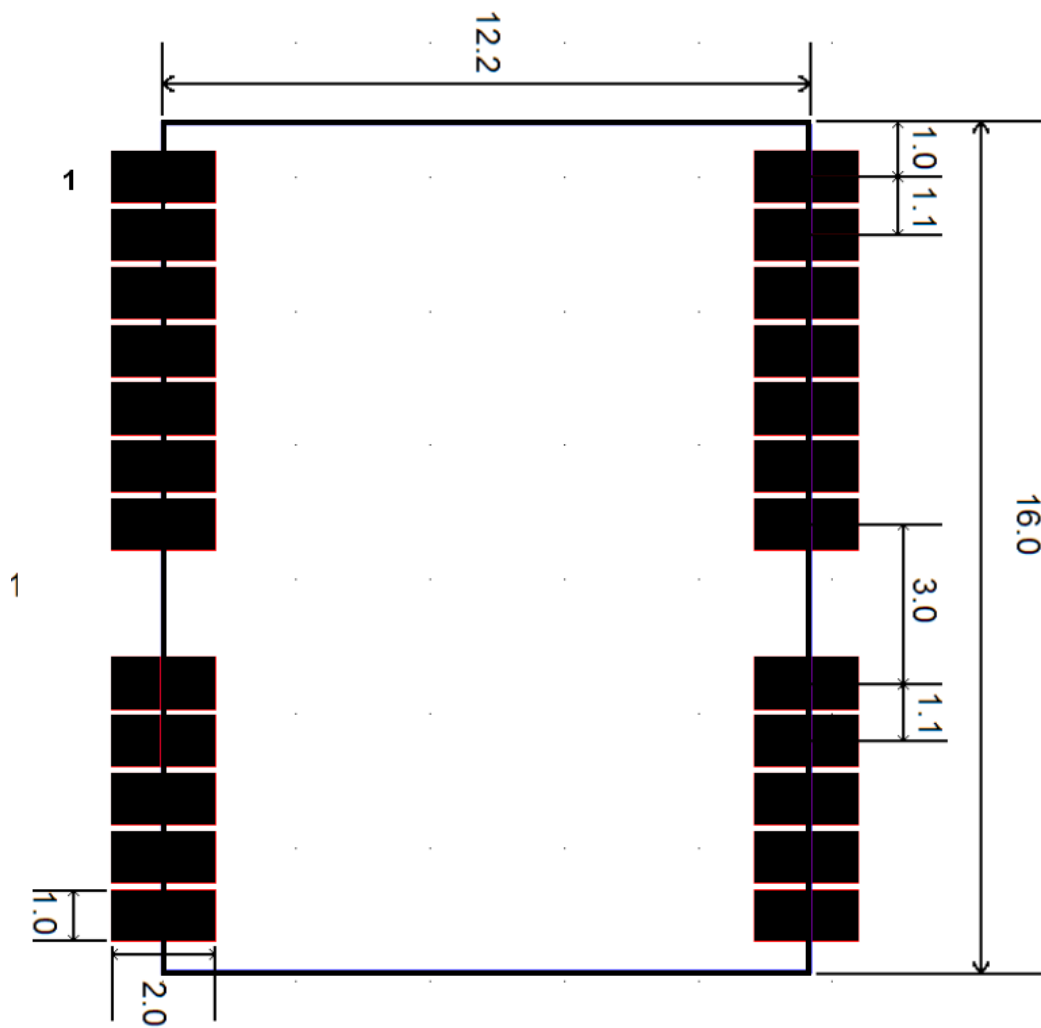
Frequency	1575.42MHz	GAIN	18~28dB
Output Impedance	50Ω	Noise Figure	2dB
Polarization	RHCP	Antenna Voltage	3V

## Pinout Description :

	Name	descripton
1,4,5,6,7,8,14,15,16,17,18,19	NC	No connection
3	1pps	One-pulse-per-second (1PPS) time mark output, 3V LVTTTL. The Pin provides one pulse-per-second output , when getting 3D position fix. The pulse duration is about 4msec at rate of 1 Hz.
9	VCC_RF	3V output voltage from RF section Can supply 3V active antenna via an inductor-choke.If use Patch antenna not connect the pin.
10,12,13	RF_GND	RF_Ground
11	RF_IN	GPS RF input, connect to antenna

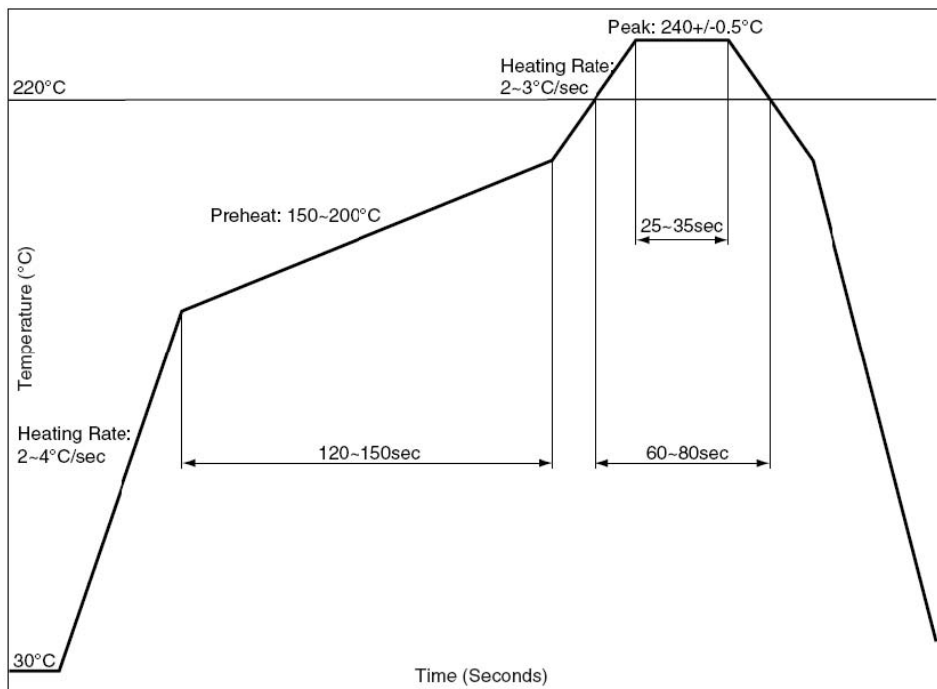
20	TXD	UART serial data output, 3V LVTTTL. One full-duplex asynchronous serial UART port is implemented. This UART output is normally used for sending position, time and velocity information from the receiver in NMEA-0183 format. When idle, this pin output HIGH.
21	RXD	UART serial data input, 3V LVTTTL. One full-duplex asynchronous serial UART port is implemented. This UART input is normally for sending commands or information to the receiver in binary protocol. In the idle condition, this pin should be driven HIGH. If the driving circuitry is powered independently of CAN6, ensure that this pin is not driven to HIGH when primary power to CAN6 is removed, or a 10K-ohm series resistor can be added to minimize leakage current from application to the powered off module.
22	V_BCKP	Backup supply voltage for internal RTC and backup SRAM, 1.8V ~ 6V. V_BCKP must be applied whenever VCC is applied. This pin should be powered continuously to minimize the startup time. If VCC and V_BCKP are both removed, the receiver will be in factory default mode upon power up, all user configuration set is lost. For applications the does not care cold starting every time, this pin can be connect to VCC.
23	VCC	Main power supply, 3.0V ~ 3.6V DC
24	Gnd	This is Ground pin.

## PCB Layout



**RF:**The signal path from antenna to RF input of CAN6-CT6 is the most critical part of application design. The goal is to provide optimal 50-ohm match between a 50-ohm antenna and the module 50-ohm RF input for maximum power transfer. The 50-ohm grounded coplanar wave guide, consisting of the RF input signal with RF ground on either sides and a RF ground underneath, is a good choice for efficiency.

## SMT Reflow Profile :



The reflow profile shown above should not be exceeded, since excessive temperatures or transport times during reflow can damage the module. Cooling temperature fall rate: max 3°C / sec