

Miniature Rubidium Atomic Clock(CT31)

Description

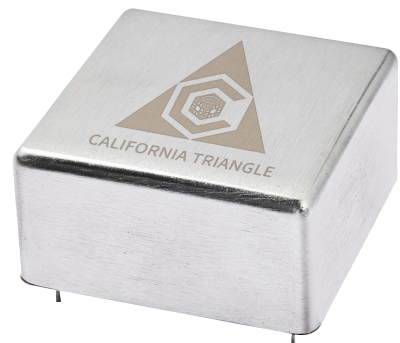
CT31 is a miniature rubidium atomic clock, which uses the "0-0" superfine energy level transition frequency signal of rubidium atoms to lock the voltage-controlled quartz crystal oscillator, and outputs an accurate and stable 10MHz standard frequency signal. The overall appearance of CT31 rubidium clock is compatible with high-stable OCXO, can work in time-frequency boards and modules, also it has RS232 frequency calibration interface and external ESC interface.

Feature

- Dimension:50mm×50mm×25mm
- Micro quantum physics system with independent intellectual property rights
- Low Power Consumption($\leq 6W$, steady)
- Compatible with OCXO voltage controlled external voltage frequency adjustment

Application Filed

- Timing Board and Module
- Telecommunication System
- Power Grid
- Positioning System



Technical Parameter

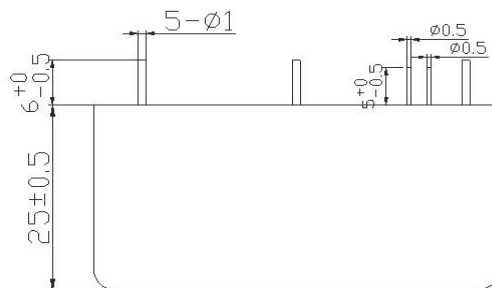
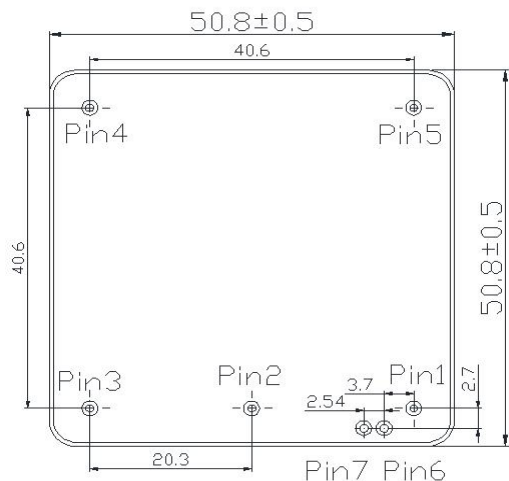
Output 10MHz Feature		
Item		Parameter
Output Frequency		10MHz
Wave		Square Wave
Voltage Level		3.3V
Single-Band Phase Noise	10Hz	$\leq -95\text{dBc/Hz}$
	100Hz	$\leq -125\text{dBc/Hz}$
	1kHz	$\leq -135\text{dBc/Hz}$
	10kHz	$\leq -145\text{dBc/Hz}$
Frequency Feature		
Item		Technical Parameter
Relative Error (Initial)		$\leq \pm 5.0\text{E-11}$
Stability (Allan Variance)	$\delta y(1\text{s})$	$\leq 5.0\text{E-11}$
	$\delta y(10\text{s})$	$\leq 1.8\text{E-11}$
	$\delta y(100\text{s})$	$\leq 7.0\text{E-12}$
	$\delta y(1000\text{s})$	$\leq 3.0\text{E-12}$
Drift (Power-on 24h)		$\leq 5.0\text{E-12/d}$
Repeatability (2h-on,24h-off,2h-on)		$\leq 2.0\text{E-11}$
Temperature Feature	$-5^{\circ}\text{C}\sim+60^{\circ}\text{C}$	$\leq 8.0\text{E-10}$
	$+20^{\circ}\text{C}\sim+40^{\circ}\text{C}$	$\leq 2.0\text{E-10}$
Power-on Feature	Lock Time (Normal Temperature)	≤ 7 mins
	Lock Time (-5°C)	≤ 15 mins
Geomagnetic effect		$\leq 2.0\text{E-11}$
Frequency Adjustment ($>10\text{K}$)	Range	$\geq \pm 1.0\text{E-9}$
Frequency Adjustment(Software)	Range	$\geq \pm 1.0\text{E-9}$
	Resolution	$\leq 1.0\text{E-12}$

Technical Parameter

Power and Consumption		
Item	Technical Parameter	
Voltage	+5Vdc \pm 0.1Vdc	
Startup Consumption	\leq 20W	
Steady Consumption	\leq 6W	
Status Indication		
Item	Technical Parameter	
Lock Indication	Lock	0V \sim 0.4V
	Unlock	2.2V \sim 3.4V
Mechanical Feature		
Item	Technical Parameter	
Weight	\leq 200g	
Ambient Environment		
Item	Technical Parameter	
Working Temperature	-5 $^{\circ}$ C \sim +60 $^{\circ}$ C	
Storage Temperature	-55 $^{\circ}$ C \sim +85 $^{\circ}$ C	
Magnetic Field	\leq 2Gauss	
Reliability		
MTBF	\geq 100000h	

Dimension

(50.8 ± 0.5) mm \times (50.8 ± 0.5) mm \times (25 ± 0.5) mm.



Pin Definition

Serial	Function	Description
1	Frequency Adjustment	Used for frequency adjustment, input 0V~5V
2	Lock Level	ACMOS Level: Lock 0V, unlock 3.3V
3	10MHz Output	10MHz Output
4	Ground	Power GND, signal GND
5	+5V Power	Supply VCC
6	TX	Usart TX, LvTTL
7	RX	Usart RX, LvTTL