



Issue	January 24, 2025
Rev.	1.0
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## CRYSTAL UNIT SPECIFICATIONS

<p>客户批准 Customer Approval</p>          <p>(请批准后回签一份 Please Return A Copy With Approval)</p>
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<b>Customer</b>	
<b>Customer P/N</b>	
<b>Product</b>	<b>CLOCK PRODUCT</b>
<b>Spec</b>	<b>AC5050/10.000M</b>
<b>A-Crystal P/N</b>	<b>AAC Series</b>

Drawn	Checked	Approved
<i>Caogaobang</i>	<i>Fengying</i>	<i>Tanqlong</i>



ZHEJIANG A-CRYSTAL

ELECTRONIC TECHNOLOGY CO., LTD.



## 1. FEATURE

- ① 24 Hours Holdover < 1.5uS,  $\pm 10^{\circ}\text{C}$  temperature change
- ② 1pps input and 1pps output for 1pps synchronization
- ③ Discipline to 1ns in phase and <10-12 in frequency
- ④ 1 Second continuous phase measurement and report system, resolution  $\leq 1\text{ns}$
- ⑤ ToD ( Time of Day )
- ⑥ RS232 digital interface
- ⑦ 5MHz, 10MHz, CMOS output
- ⑧  $-10^{\circ}\text{C} \sim 70^{\circ}\text{C}$  operating
- ⑨ Proprietary adaptive algorithm

## 2.TYPICAL APPLICATION

- ① 5G Telecommunication, Base Station
- ② Smart Power Grid
- ③ Test and measurement equipment

## 3.ELECTRICAL SPECIFICATION

### 3.1RF OUTPUT

No.	Item	Symb	Electrical Spec fication				Remark
			Min.	Type	Max.	Units	
1	Frequency Output	$F_0$		10		MHz	5MHz is available. Consult factory for other frequency
2	Output Waveform		3.3V COMS				Consult factory for another waveform
3	Load		10 $\Omega$ /10PF				
4	Rise/Fall Time				10	nS	
5	Output Level	VOL			0.4	V	
		VOH	2.7			V	
6	Duty Cycle		40		60	%	
7	Stability over Temperature				$\pm 0.1$	ppb	$-10^{\circ}\text{C} \sim 70^{\circ}\text{C}$
8	Frequency Accuracy				$\pm 1$	$10^{-12}$	24 hours average. Locked to 1pps.
9	24Hours Holdover				1.5	uS	+/-10oC, after 7 days power on and 1 days discipline. Temperature variance below 1C/Minute.
10	Acceleration Sensitivity				$\pm 1$	Ppb/g	Worst direction, consult factory for better sensitivity.



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## 3.2 1pps Time Output

No.	Item	Symb	Electrical Specification				Remark
			Min.	Type	Max.	Units	
1	1pps	$F_0$	1			Hz	
2	Output Amplitude		3.3V COMS				
3	Pulse Width			20		uS	
4	Rise/Fall Time				15	nS	
5	Load		10 $\Omega$ /10PF				

## 3.3 1pps Time Input

No.	Item	Reference Std.	Remark
1	1pps	1 Hz	
2	Timing Edge	Rising edge	
3	Input Amplitude	3.3V CMOS	
4	Input Impedance	10M $\Omega$ //10pF	

## 3.4 Phase Noise(@10MHz)

No.	Item	Min	TYP	Max	Unit	Remark
1	1 Hz			-100	dBc/Hz	
2	10 Hz			-125	dBc/Hz	
3	100 Hz			-135	dBc/Hz	
4	1 KHz			-145	dBc/Hz	
5	10 KHz			-150	dBc/Hz	

## 3.5 Supply Voltage

No.	Item	Min	TYP	Max	Unit	Remark
1	Supply Voltage	4.75	5.0	5.25	Vdc	
2	Steady Power			2.55	W	at 25°C ambient
3	Warm up Power			8.8	W	Factory configurable
4	Warm up Time			5	Min	To +/-5ppb. Factory configurable for fast warm up



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## 3.6 Digital Communication

No.	Item	Reference Std.	Remark
1	Protocol	RS232	
2	Logic Level	3.3V COMS	
3	Baud rate	57600 bps	

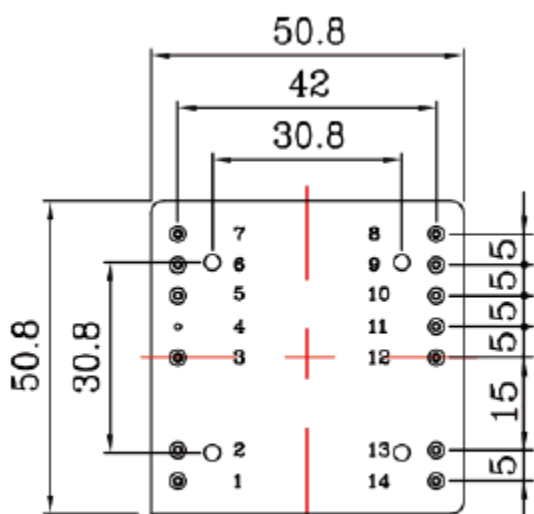
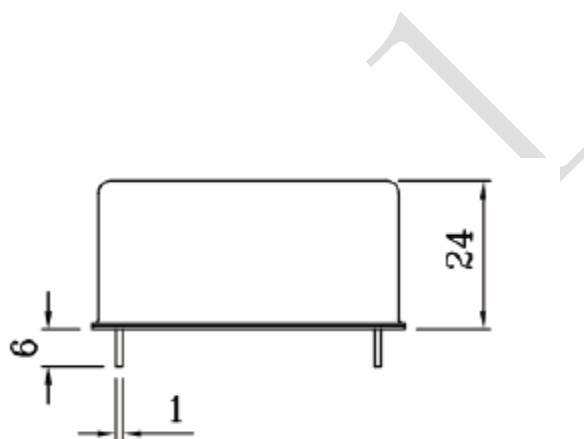
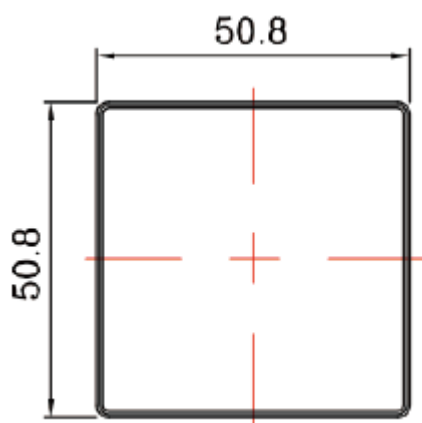
## 3.7 1pps Time Input

No.	Item	Reference Std.	Remark
1	Mechanical Shock	>30G, 11ms Half Sine	MIL-STD-202
2	Vibration	5G up to 2KHz	MIL-STD-202



## 4. PRODUCT SIZE

### 4.1 Dimension (Unit: mm)



Pin #	Function
1	NC
2	NC
3	Vcc
4	GND
5	1PPS lock Indicator 1=Lock 0= not locked
6	RX
7	TX
8	Enable 1=1pps good, enable discipline 0=1pps no good, do not discipline
9	NC
10	1PPS input
11	GND
12	1PPS output
13	GND
14	RF output

NOTE: NOT ALL COMBINATION OF OPTIONS ARE AVAILABLE. OTHER SPECIFICATIONS MAY BE AVAILABLE UPON REQUEST