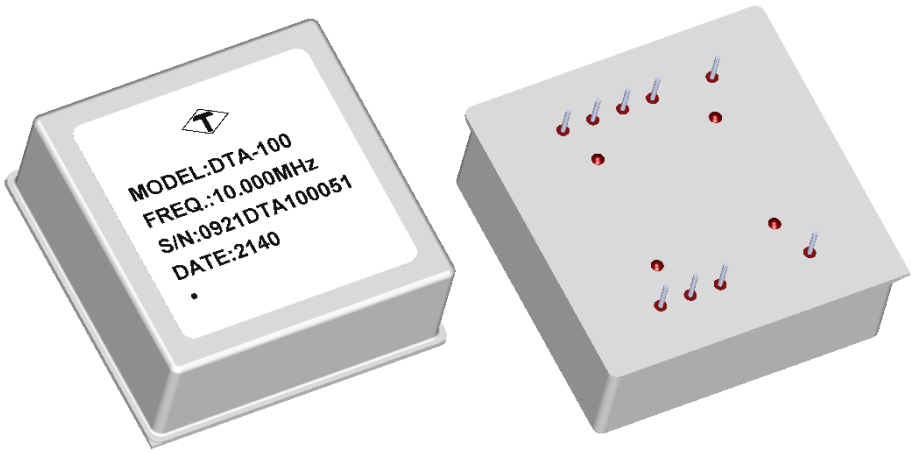
TAITIEN
Our Performance Your Reputation

Low Power Atomic Oscillator
DTA-100 Series

Feature:

- ***Low power consumption 150mW typical***
- 1pps input and 1pps output for timing synchronization
- Discipline to 1ns RMS in phase and $<10^{-12}$ in frequency
- 1 Second continuous phase measurement and report system, resolution $\leqq$ 1ns
- ToD(Time of Day)
- RS232 digital interface
- 10MHz HCMOS output
- Low phase noise, optional



Applications:

- GNSS Receivers
- Portable Radios
- IED Jamming System
- UAV
- Autonomous Sensor Networks

ELECTRICAL SPECIFICATIONS

1. RF OUTPUT

	Parameter		Min.	Typ.	Max.	Unit	Test Condition
1.1.	Frequency Output			10		MHz	
1.2.	Output Waveform			3.3V CMOS			
1.3.	Load			10MΩ//10pF			
1.4.	Rise/Fall Time				10	nS	
1.5.	Output Level	V_{OL}			0.4	V	
		V_{OH}	2.7				
1.6.	Duty Cycle		40		60	%	
1.7.	Frequency Stability over Temperature				$\pm5x10^{-10}$		-10°C ~ 70°C Temperature Slope < 0.5°C/min.
1.8.	Frequency Stability over Supply Voltage Range				$\pm4x10^{-10}$		

	Parameter	Min.	Typ.	Max.	Unit	Test Condition
1.9.	Frequency Accuracy			$\pm 5x10^{-11}$		At shipment
1.10.	Daily Aging		$\pm 1x10^{-11}$	$\pm 3x10^{-11}$		After 30 days of continuous operation.
1.11.	Retrace			$\pm 5x10^{-10}$		48 hours off
1.12.	Short Term(ADEV)			$3x10^{-10}$		Tau=1sec
				$9.5x10^{-11}$		Tau=10sec
				$3x10^{-11}$		Tau=100sec
				$8x10^{-12}$		Tau=1000sec
1.13.	Frequency Control (Analog Tuning)		$\pm 2.2x10^{-8}$			Resolution : $1x10^{-11}$ Input : 0V ~ 2.5V into 100KΩ
1.14.	Frequency Control (Digital Tuning)		$\pm 1x10^{-8}$			Resolution : $1x10^{-12}$

2. 1pps Time Output

	Parameter	Min.	Typ.	Max.	Unit	Test Condition
2.1.	1pps		1		Hz	
2.2.	Output Amplitude		3.3V CMOS			
2.3.	Pulse Width		97.656	100	us	
2.4.	Rise/Fall Time			10	ns	
2.5.	Load		10MΩ//10pF			

3. 1pps Time Input

	Parameter	Min.	Typ.	Max.	Unit	Test Condition
3.1.	1pps		1Hz			
3.2.	Timing Edge		Rising edge			
3.3.	Low Level			0.5	V	
	High Level	2.5		3.3	V	
3.4.	Input Impedance		10MΩ//10pF			

4. Built-In Test Equipment (BITE) Output

	Parameter	Min.	Typ.	Max.	Unit	Test Condition
4.1.	Format		3.3V CMOS			
4.2.	Load Impedance		1MΩ			
4.3.	Logic		0 = Normal Operation 1 = Alarm			

5. Phase Noise (@10MHz)

	Parameter	Min.	Typ.	Max.	Unit	Test Condition
5.1.	1 Hz			-52	dBc/Hz	
5.2.	10 Hz			-90	dBc/Hz	
5.3.	100 Hz			-122	dBc/Hz	
5.4.	1 KHz			-140	dBc/Hz	
5.5.	10 KHz			-150	dBc/Hz	
5.6.	100 KHz			-152	dBc/Hz	
5.7.	1MHz			-152	dBc/Hz	

6. Supply Voltage

	Parameter	Min.	Typ.	Max.	Unit	Test Condition
6.1.	Supply Voltage	3.2	3.3	3.4	Vdc	
6.2.	Steady Power		150	170	mW	-10°C ~ 70°C
6.3.	Warm up Power			170	mW	
6.4.	Warm up Time			150	Second	

7. Digital Communication

	Parameter	Reference Std.	Test Condition
7.1.	Protocol	RS232	
7.2.	Logic Level	3.3V CMOS	
7.3.	Baud Rate	57600	
7.4.	Number of Data Bits	8	
7.5.	Number of Stop Bits	1	
7.6.	Parity	none	

8. Environmental

	Parameter	Test Condition	Reference Std.
8.1.	Storage Temperature	-40°C ~ 85°C	Non-operating
8.2.	Mechanical Shock	>30G, 11ms Half Sine	MIL-STD-202
8.3.	Vibration	7G rms, maintain lock	MIL-STD-810
8.4.	Humidity	0-95%, RH	
8.5.	Magnetic Sensitivity	$<\pm 1x10^{-10}$/1 Gauss	Up to 2 Gauss

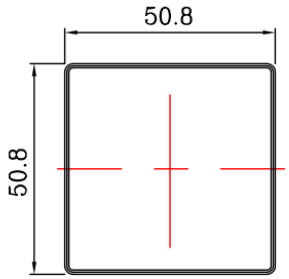
Table 1 : ORDERING INFORMATION

DTA-100 Series Ordering Information	FootPrint	
	Standard (A)	Optional (B)
	DTA-100-A-R	DTA-100-B-R

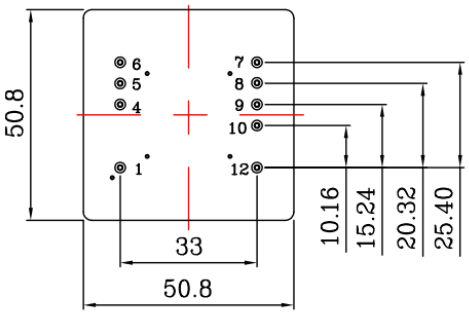
OUTLINE DRAWING

Standard Footprint :

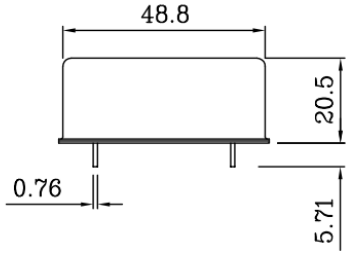
[TOP VIEW]



[BOTTOM VIEW]



[SIDE VIEW]

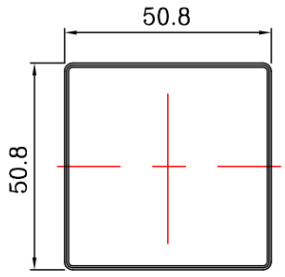


Unit: mm

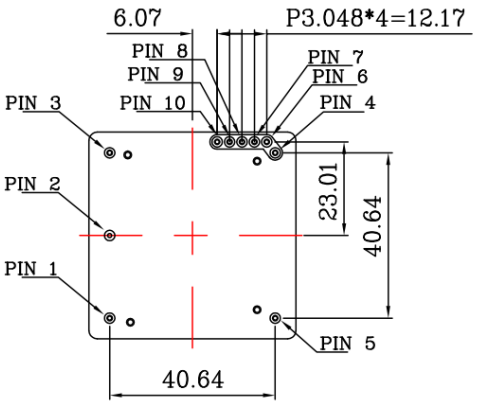
PIN#	FUNCTION
1	Tune
4	BITE
5	TX
6	RX
7	VCC
8	GND
9	1pps In
10	1pps Out
12	10MHz Out

Optional Footprint :

[TOP VIEW]



[BOTTOM VIEW]



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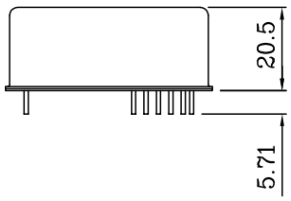

Unit: mm

PIN#	FUNCTION
1	NC
2	GND
3	RF Output
4	GND
5	+3.3V
6	Lock 0:Lock 1:Unlock
7	TX
8	RX
9	1pps In
10	1pps Out