

DTA-450 Series

Low Power Atomic Oscillator

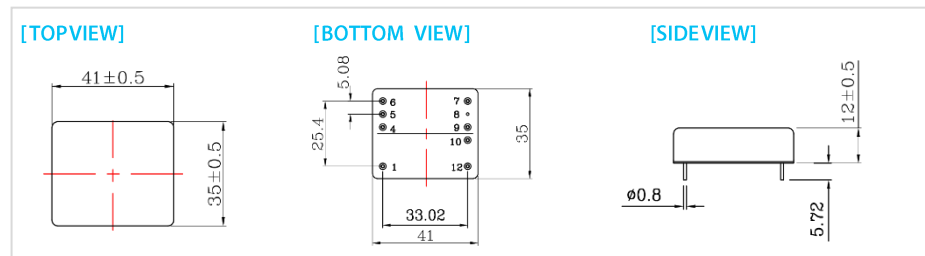
FEATURES

- Low power consumption 130mW
- 1pps input and 1pps output for timing synchronization
- Discipline to <50ns in phase and <10⁻¹² in frequency
- 1 Second continuous phase measurement and report system, resolution ≤ 1ns
- ToD(Time of Day)
- RS232 digital interface
- 10MHz HCMOS output

TYPICAL APPLICATION

- Oil and Gas Exploration, Underwater Sensor Systems
- Mining and Seismic Research, Satellite Timing and Frequency
- GPS Receivers, Backpack Radios

DIMENSION (mm)



PIN FUNCTION

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

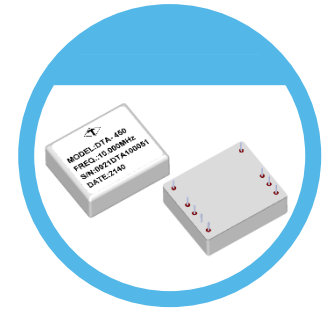
ELECTRICAL SPECIFICATION

Parameter	RF OUTPUT				Test Condition
	Min.	Typ.	Max.	Unit	
Frequency Output	10.000000			MHz	(16.384MHz, 20MHz, 24.576MHz option)
Output Waveform	3.3V CMOS				
Load	1MΩ				
Rise/Fall Time			10	nS	
Output Level	V _{OL}		0.7	V	
	V _{OH}	2.2		V	
Duty Cycle	45		55	%	
Frequency Stability over Temperature			±1x10 ⁻⁹		-10°C ~ 70°C, Temperature Slope < 0.5°C /min.
Frequency Accuracy			±5x10 ⁻¹¹		At shipment
Daily Aging			±3x10 ⁻¹¹		After 1 day of continuous operation.
Short Term(ADEV)			3x10 ⁻¹⁰		Tau=1sec
			1x10 ⁻¹⁰		Tau=10sec
			3x10 ⁻¹¹		Tau=100sec
Frequency Control	±2x10 ⁻⁸				Resolution : 1x10 ⁻¹² , Vcon 0V~2.5V

Parameter	1pps Time Output				Test Condition
	Min.	Typ.	Max.	Unit	
1pps		1		Hz	
Output Amplitude		3.3V LVTTTL		ns	
Pulse Width	1			ms	
Rise/Fall Time			10	ns	
Load	1MΩ				

Parameter	1pps Time Input				Test Condition
	Min.	Typ.	Max.	Unit	
1pps		1		Hz	
Timing Edge		Rising edge			
Low Level			0.7	V	
High Level	2.2			V	
Input Impedance	1MΩ				

Note: not all combination of options are available. Other specifications may be available upon request.
 Specifications subject to change without notice.



RoHS Compliant

Parameter	Built-In Test Equipment (BITE) Output				Test Condition
	Min.	Typ.	Max.	Unit	
Format	3.3V				
Load Impedance	1M Ω				
Logic	0 = Normal Operation 1 = Alarm				

Parameter	Phase Noise (@10MHz)				Test Condition
	Min.	Typ.	Max.	Unit	
1 Hz			-55	dBc/Hz	
10 Hz			-80	dBc/Hz	
100 Hz			-113	dBc/Hz	
1 KHz			-125	dBc/Hz	
10 KHz			-135	dBc/Hz	

Parameter	Supply Voltage				Test Condition
	Min.	Typ.	Max.	Unit	
Supply Voltage	3.2	3.3	3.4	Vdc	
Steady Power			130	mW	
Warm up Power			200	mW	
Warm up Time			180	Second	

Parameter	Digital Communication	Test Condition
	Reference Std.	
Protocol	RS232	
Logic Level	LVTTTL	
Baud Rate	57600	
Number of Data Bits	8	
Number of Stop Bits	1	
Parity	none	

Parameter	Environmental	Test Condition
	Reference Std.	
Storage Temperature	-55°C ~ 85°C	Non-operating
Vibration	Lock under below: 20Hz~80Hz,+3dB/oct; 80Hz~350Hz,0.04g2/Hz; 350Hz~2000Hz,-3dB/oct 6.06g RMS.	Navmat P9492 Acceleration
Humidity	0-95%, RH	MIL-STD-810, Method 507.4
Magnetic Sensitivity	< $\pm 9 \times 10^{-11}$ / Gauss	Up to 2 Gauss

Table1	Ordering Information
DTA-450 Series	DTA-450-A

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