

DTA-450 Series

Low Power Atomic Oscillator

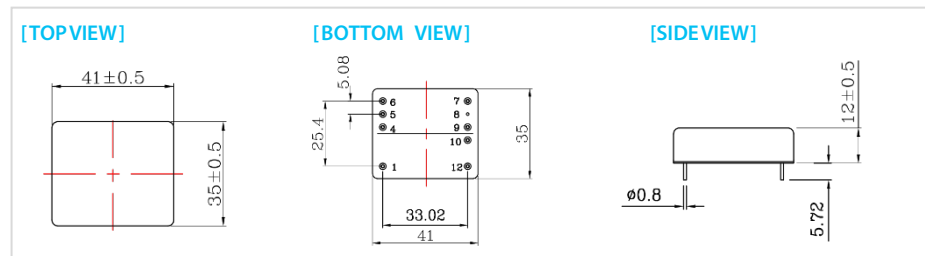
FEATURES

- 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

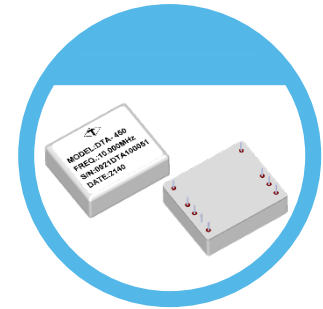
Parameter	RF OUTPUT				Test Condition
	Min.	Typ.	Max.	Unit	
Frequency Output		10.000000		MHz	(16.384MHz, 20MHz, 24.576MHz option)
Output Waveform		3.3V CMOS			
Load		10MΩ//10pF			
Rise/Fall Time			10	nS	
Output Level	V _{OL}		0.7	V	
	V _{OH}	2.2		V	
Duty Cycle	40		60	%	
Frequency Stability over Temperature			±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

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

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

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 CMOS				
Load Impedance	1M Ω				
Logic	0 = Normal Operation 1 = Alarm				

Parameter	Phase Noise (@10MHz)				Test Condition
	Min.	Typ.	Max.	Unit	
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			500	mW	
Warm up Time			180	Second	

Parameter	Digital Communication	Test Condition
	Reference Std.	
Protocol	RS202	
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	-40°C ~ 85°C	Non-operating
Vibration	7G rms, maintain lock	MIL-STD-810, Method 514.5
Humidity	0-95%, RH	MIL-STD-810, Method 507.4
Magnetic Sensitivity	<±1x10 ⁻¹⁰ /1 Gauss	Up to 2 Gauss

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

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