



# LX01 OSCILLATOR

10 kHz to 2.1 MHz

Low Power Crystal Oscillator

## DESCRIPTION

The LX01 oscillator has the highest accuracy, stability and lowest current of all STATEK oscillators. The design consists of a CMOS-compatible hybrid circuit, packaged in a hermetically-sealed metal DIP. Permanent, precision tuning of the oscillator is accomplished by laser trimming the crystal after it has been hermetically sealed in a ceramic package and connected to the oscillator circuit. This method of fine tuning allows for very tight calibration tolerance and eliminates the need for a trimming capacitor, a major source of long-term frequency drift. The specifications and characteristics of the LX01 vary with frequency. The characteristics of the 32.768 kHz model are presented in this data sheet.



## FEATURES

- Low power consumption
- Low aging
- CMOS compatible
- Double hermetically sealed package
- Full military testing available
- 5 V operation standard
- 3.3 V and 5 V operation available
- Optional Tri-State

## APPLICATIONS

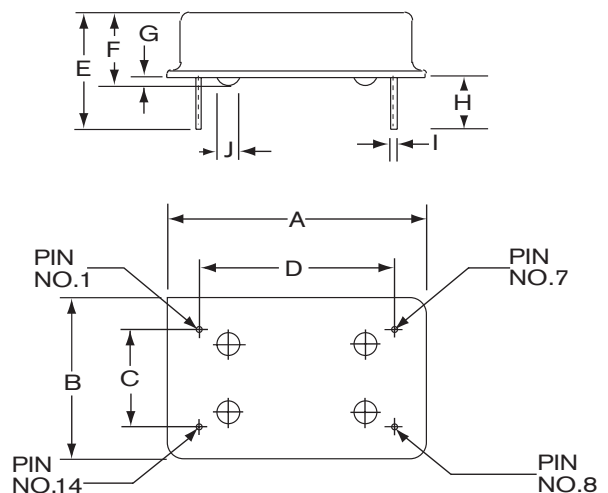
Industrial, Computer & Communications

- General purpose clock oscillator
- Data Logger
- Remote sensor
- Liquid level sensing
- Medical test and diagnostics

Military

- Portable field communication
- Military high speed modem
- Flight recorder

## PACKAGE DIMENSIONS



DIM	inches	mm
A	0.810 MAX.	20.57 MAX.
B	0.510 MAX.	12.95 MAX.
C	0.300 ± 0.005	7.62 ± 0.13
D	0.600 ± 0.005	15.24 ± 0.13
E	0.430 TYP.	10.92 TYP.
F	0.240 MAX.	6.10 MAX.
G	0.040 TYP.	1.02 TYP.
H	0.150 MIN.	3.81 MIN.
I	0.018 ± 0.002	0.46 ± 0.05
J	0.070 TYP.	1.78 TYP.

\* Position of bumps for reference only



## SPECIFICATIONS: LXO1 32.768 kHz

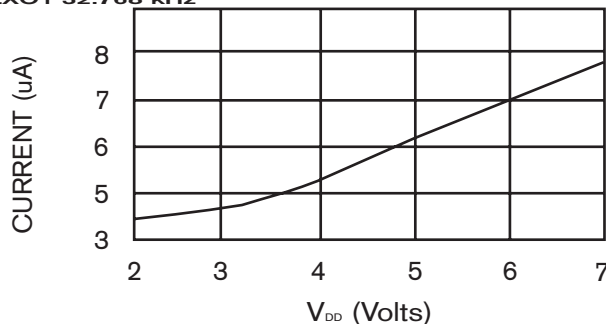
Specifications are typical at 25°C unless otherwise noted.  
Specifications are subject to change without notice.

Supply Voltage ( $V_{DD}$ )	5 V $\pm$ 10% (standard) (3.3 V operation also available)	
Calibration Tolerance <sup>1</sup>	$\pm$ 10 ppm (0.001%) $\pm$ 25 ppm (0.0025%) $\pm$ 100 ppm (0.01%)	
Frequency Stability <sup>2</sup>		
0°C to +50°C	$\pm$ 25 ppm Typ. (0.0025%) $\pm$ 40 ppm MAX. (0.004%)	
-20°C to +70°C	$\pm$ 70 ppm Typ. (0.007%) $\pm$ 100 ppm MAX. (0.01%)	
Voltage Coefficient	$\pm$ 1 ppm/V Typ. $\pm$ 3 ppm/V MAX.	
Aging	$\pm$ 1 ppm/year Typ. $\pm$ 3 ppm/year MAX.	
Shock	1000 g, 1 ms, 1/2 sine $\pm$ 3 ppm MAX.	
Vibration	10 g RMS, 10-2000 Hz $\pm$ 3 ppm MAX.	
Frequency Change vs. 10% Output Load Change	$\pm$ 1 ppm MAX.	
Operating Temp. Range	-10°C to +70°C (Commercial) -40°C to +85°C (Industrial) -55°C to +125°C (Military)	

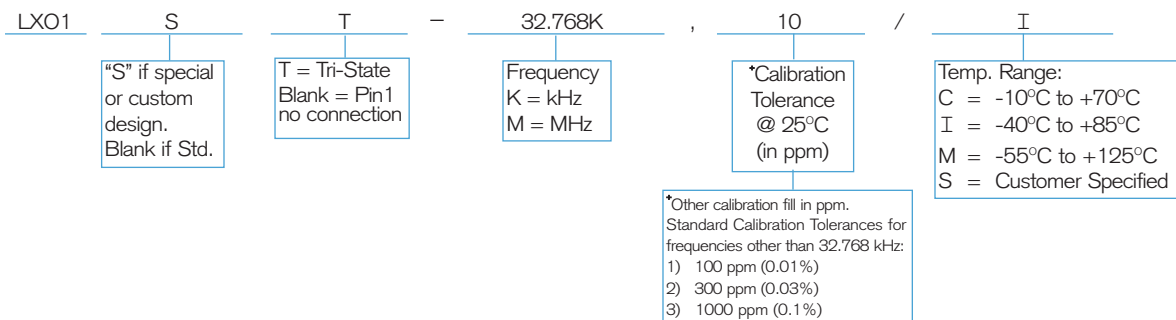
1. Tighter tolerances available
2. Does not include calibration tolerance. Positive variations small compared to negative variations.

## TYPICAL CURRENT CONSUMPTION

LXO1 32.768 kHz



## HOW TO ORDER LXO1 CRYSTAL OSCILLATORS



## ABSOLUTE MAXIMUM RATINGS

Supply Voltage	-0.3 V to 7 V
Storage Temperature	-55°C to +125°C

## ELECTRICAL CHARACTERISTICS

### LXO-1 32.768 kHz

All parameters are measured at ambient temperature with a 10M $\Omega$  and 10pF load at 5V.

SYMBOL	PARAMETER	MIN.	TYP.	MAX.	UNIT
V <sub>OH</sub>	Output Voltage Hi	4.8	4.95		V
V <sub>OL</sub>	Output Voltage Lo		0.05	0.2	V
t <sub>r</sub>	Rise Time (10%-90%)		12	25	ns
t <sub>f</sub>	Fall Time (10%-90%)		12	25	ns
SYM	Duty Cycle	40	50	60	%
I <sub>DD</sub>	Supply Current				
	V <sub>DD</sub> =5 V		6.5	12	$\mu$ A
	V <sub>DD</sub> =3 V		5	10	$\mu$ A

## PIN CONNECTIONS

Pin	Connection
1	INH (Tri-State) or NC
7	V <sub>SS</sub> (Gnd)
8	Output
14	V <sub>DD</sub>

## PACKAGING

LXO1 -Tube Pack

## OUTPUT WAVE FORM

