

CXOLAT OSCILLATOR

32.768 kHz

Ultra-Low Power/Fast Start-Up/Ultra-Miniature

DESCRIPTION

The CXOXLAT 32.768 kHz oscillator achieves the low power comparable with a tuning fork design and the fast start-up and tight frequency stability attained by an AT cut crystal design. Designed for applications requiring ultralow current (15 μ A), fast start-up time (15 ms), and a tight frequency stability (\pm 30 ppm to \pm 100 ppm) over a wide temperature range (-55°C to +125°C). These oscillators are also capable of withstanding significantly higher shock than a standard tuning fork design.

FEATURES

- Ultra-low current (typical 15 μA)
- Fast start-up (typical 15 ms)
- Tight tolerance
- High shock resistance
- Low aging
- CMOS output
- Optional Output Enable/Disable with Tri-State
- Hermetically sealed ceramic package
- Full military testing available
- Designed and manufactured in the USA

APPLICATIONS

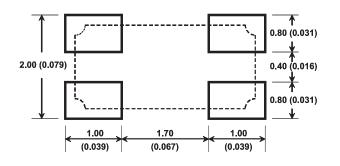
Military, Aerospace & Avionics

- Communications
- Navigation
- **GPS**

Industrial, Computer & Communications

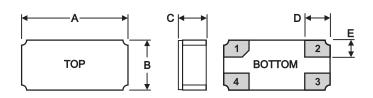
- Handheld instrumentation
- Transponder/Animal migration

SUGGESTED LAND PATTERN





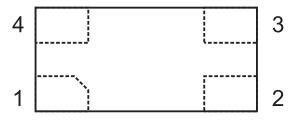
DIMENSIONS



	TYPI	CAL	MAXI	MUM
DIM	inches	mm	inches	mm
Α	0.126	3.20	0.130	3.30
В	0.059	1.50	0.063	1.60
C (SM1)	0.037	0.95	0.039	1.00
D	0.029	0.75	0.030	0.77
Е	0.020	0.50	0.021	0.52

PIN CONNECTIONS

- 1. Output
- 2. Ground
- 3. Output Enable/Disable (E) or no connection (N)
- 4. V_{DD}



mm (inches)

10217 Rev A



SPECIFICATIONS

Specifications are typical at 25°C unless otherwise noted. Specifications are subject to change without notice. Tighter specifications available (contact factory).

Supply Voltage $1.8 \text{ V to } 3.3 \text{ V} \pm 10\%$

Calibration Tolerance¹ ±25 ppm

Frequency Stability ± 10 to ± 50 ppm for Commercial ± 20 to ± 100 ppm for Industrial

 ± 50 to ± 100 ppm for Military

OutputLoad(CMOS) 15 pF Aging, first year 5 ppm

Shock 5,000 g, 0.3 ms, ½ sine

Vibration³ 20 g, 10-2,000Hz swept sine

Operating Temp. Range -10°C to 70°C (Commercial)

-40°C to 85°C (Industrial) -55°C to 125°C (Military)

- 1. Other tolerances available.
- 2. Does not include calibration tolerance. Other tolerances available.
- 3. Per MIL-STD-202G, Method 204D, Condition D. Random vibration testing also available.

ELECTRICAL CHARACTERISTICS

CXOLAT 32.768 kHz

All parameters are measured at 25°C with a $10\text{M}\Omega$ and 15pF load with V_{DD} 3.3 V.

SYMBO	DL PARAMETER	MIN	TYP	MAX	UNIT
V_{OH}	Output Voltage High	0.9V _{DD})		V
V _{OL}	Output Voltage Low			$0.1V_{DD}$, V
t _{startup}	Start-up Time		15		ms
t _r	Rise Time (10%-90%	(a)	2.8	10	ns
t_f	Fall Time (10%-90%))	2.4	10	ns
	Duty Cycle	45	50	55	%
I_{DD}	Current Consumption		15		μΑ

ABSOLUTE MAXIMUM RATINGS

Supply Voltage V_{DD} = -0.5 V to 5.0 V Storage Temperature = -55°C to 125°C Maximum Process Temperature 260°C for 20 seconds

ENABLE/DISABLE OPTIONS (E/N)

For the 32.768 kHz CXOLAT, Statek offers two enable/disable options: E and N. The E-version has a Tri-State output and stops oscillating internally when the output is put into the high Z state. The N-version does not have PIN 3 connected internally and so has no enable/disable capability. The following table summarizes the Enable/Disable option E.

ENABLE/DISABLE OPTION E FUNCTION TABLE

	Enable (Pin 3 High*)	Disable (Pin 3 Low)		
Output	Frequency Output	High Z State		
Oscillator	Oscillates	Stops		
Current	15μΑ	Less than 1µA at 25°C		

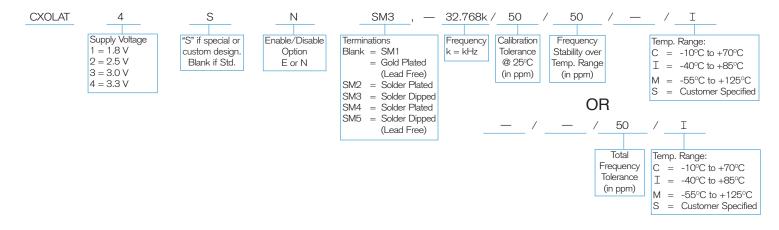
^{*}When PIN 1 is allowed to float, it is held high by an internal pull-up resistor.

PACKAGING OPTIONS

CXOLAT - Tray Pack

12 mm tape, 7" or 13" reels
(Per EIA 481)

HOW TO ORDER CXOLAT 32.768 kHz SURFACE MOUNT CRYSTAL OSCILLATORS



10217 Rev A

