



# CXOL OSCILLATOR

32 kHz to 100 kHz  
Ultra Low Power Quartz Crystal Oscillator

## DESCRIPTION

Miniature, high performance, tuning fork based quartz crystal oscillator designed and manufactured for high-reliability applications.

## FEATURES

- 3.2 x 1.5 mm hermetically sealed ceramic package
- Ultra-low current consumption
- Helium impermeable housing
- Typical start-up time of 200 ms
- Typical rise and fall times of 25 ns
- Full military testing available
- Designed, manufactured and tested in the USA

## APPLICATIONS

### Medical

- Implantable pacemakers
- Implantable defibrillators
- Implantable neuro devices

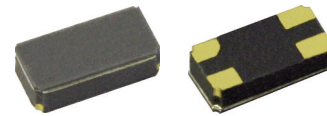
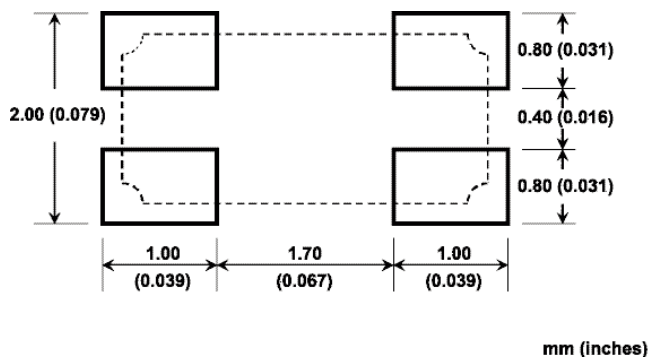
### Military & Avionics

### Industrial

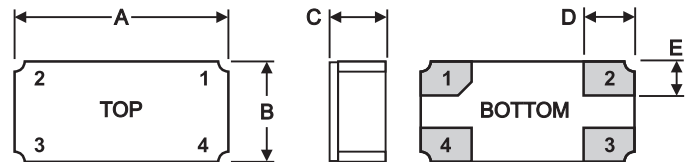
## PACKAGING OPTIONS

- Tray Pack
- Tape and Reel (per EIA 481). See Tape and Reel datasheet 10109.

## SUGGESTED LAND PATTERN



## PACKAGE DIMENSIONS



DIM	Termination	TYPICAL		MAXIMUM	
		inches	mm	inches	mm
A		0.126	3.20	0.130	3.30
B		0.059	1.50	0.063	1.60
C	SM1	0.037	0.95	0.039	1.00
	SM3/SM5	0.039	0.99	0.044	1.12
D		0.029	0.75	0.030	0.77
E		0.020	0.50	0.021	0.52

## PIN CONNECTIONS

1. Output
2. Ground
3. Output Tristate/Disable (T) or no connection (N)
4.  $V_{DD}$



10205 Rev B



## SPECIFICATIONS

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

Frequency	32 kHz to 100 kHz		
Supply Voltage	1.8V to 5.0V ± 10%		
Calibration Tolerance <sup>1</sup>	±100 ppm to ±20 ppm		
Typical Supply Current (mA)	32.768 kHz 100.0 kHz	<b>3.3V &amp; 10 pF load</b> 2.2 µA 6.5 µA	<b>3.3V, 10 pF load &amp; OE is low</b> 0.5 µA 0.5 µA
Voltage Coefficient	±1 ppm/V		
Output Load (CMOS) <sup>2</sup>	10 pF		
Start-up Time (ms)	200 TYP		
Rise/Fall Time (ns)	40 MAX		
Duty Cycle	45% MIN 55% MAX		
Aging, First Year	2 ppm MAX		
Shock Survival	5,000 g peak, 0.3 ms, 1/2 sine		
Vibration Survival <sup>3</sup>	20 g, 10-2,000 Hz swept sine		
Operating Temperature Range <sup>4</sup>	-10°C to +70°C (Commercial) -40°C to +85°C (Industrial) -55°C to +125°C (Military)		
Storage Temperature Range <sup>4</sup>	-55°C to +125°C		
Max Process Temperature	260°C for 20 seconds		
Max Supply Voltage V <sub>DD</sub>	-0.5V to 7.0V		
Moisture Sensitivity Level (MSL)	This product is hermetically sealed and is not moisture sensitive.		

1. Tighter calibration tolerances available.
2. Other loads available. Contact factory.
3. Per MIL-STD-202G, Method 204D, Condition D. Random vibration testing also available.
4. Broader temperature ranges available. Contact factory.

### TRISTATE/DISABLE OPTIONS (T/N)

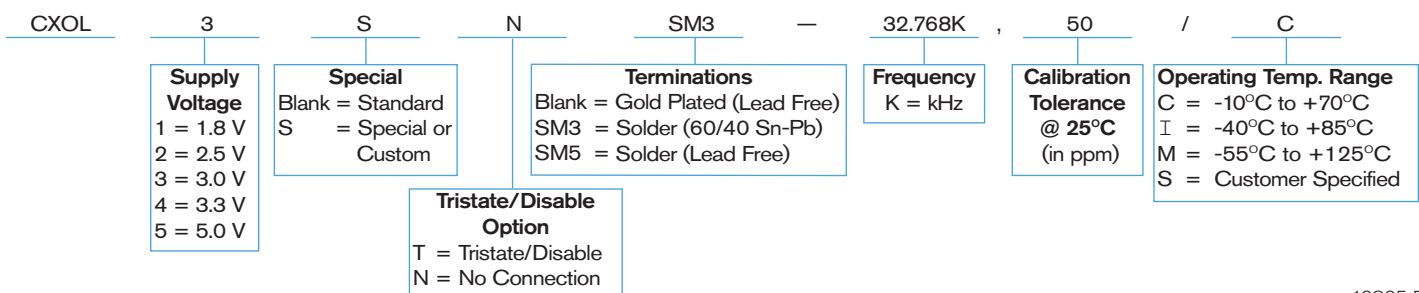
Statek offers two enable/disable options: T and N. The T-version has a Tri-State output and continues oscillating internally when the output is put into the high Z state. The N-version does not have PIN 3 connected internally and so has no Tri-State/Disable capability. The following table describes the Tri-State/Disable option T.

### TRISTATE/DISABLE OPTION T FUNCTION TABLE

	Tri-State (Pin3 High)*	Disable (Pin 3 Low)
Output	Frequency Output	High Z State
Oscillator	Oscillates	Oscillates
Current	Normal	Lower than Normal

\* When PIN 3 is allowed to float, it is held high by an internal pull-up resistor.

### HOW TO ORDER STATEK CXOL OSCILLATORS



10205 Rev B