

## DESCRIPTION

Designed for applications requiring a fast start-up time (0.6 ms) and a tight frequency stability ( $\pm -30$  to  $\pm -100$  ppm) over a wide temperature range (-55 C to +125 C). They are also capable of withstanding significantly higher shock than a standard tuning fork design.

## FEATURES

- Fast start-up
- Tight tolerance
- High shock resistance
- Low aging
- CMOS and TTL compatible
- Optional Output Enable/Disable with Tri-State
- Low EMI emission
- Hermetically sealed ceramic package
- Full military testing available
- Designed and manufactured in the USA

## APPLICATIONS

### Aerospace & Avionics

- Communications
- Navigation
- GPS

### Industrial, Computer & Communications

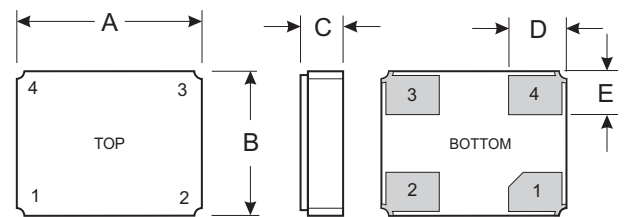
- Miniature clock oscillator
- Handheld instrumentation
- Transponder/Animal migration

### Medical

- Test & diagnostic equipment
- Handheld devices



## DIMENSIONS

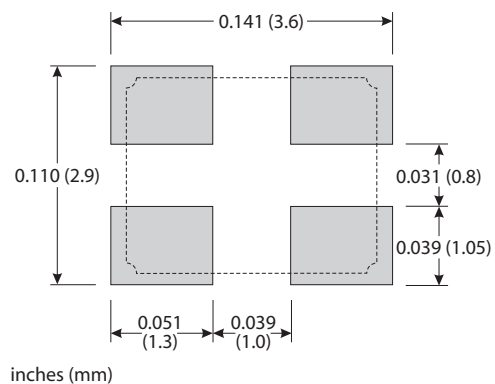


DIM	TYPICAL		MAXIMUM	
	inches	mm	inches	mm
A	0.126	3.20	0.136	3.40
B	0.099	2.50	0.107	2.70
C (SM1)	0.039	1.00	0.043	1.09
C (SM3/SM5)	0.044	1.12	0.048	1.21
D	0.040	1.00	0.041	1.10
E	0.030	0.75	0.031	0.85

## PIN CONNECTIONS

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

## SUGGESTED LAND PATTERN



## SPECIFICATIONS

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

Supply Voltage <sup>1</sup>	3.3 V and 5.0 V ±10%
Calibration Tolerance <sup>2</sup>	±25 ppm
Frequency Stability Over Temperature <sup>3</sup>	±10 to ±50 ppm for Commercial ±20 to ±100 ppm for Industrial ±50 to ±100 ppm for Military
Output Load (CMOS)	15 pF
Aging, first year	5 ppm
Shock	Std: 5,000 g, 0.3 ms, ½ sine HG: 30,000 g, 0.5 ms, ½ sine
Vibration <sup>4</sup>	20 g, 10-2,000 Hz swept sine
Operating Temp. Range	-10°C to 70°C (Commercial) -40°C to 85°C (Industrial) -55°C to 125°C (Military)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNIT
V <sub>OH</sub>	Output Voltage High	0.9V <sub>DD</sub>			V
V <sub>OL</sub>	Output Voltage Low			0.1V <sub>DD</sub>	V
t <sub>startup</sub>	Start-up Time		0.6		ms
t <sub>r</sub>	Rise Time (10%-90%)		85	160	ns
t <sub>f</sub>	Fall Time (10%-90%)		45	100	ns
	Duty Cycle	45	50	55	%
I <sub>DD</sub>	Input Current		650		µA

- Other supply voltages available. Contact factory for ordering information.
  - Other tolerances available.
  - Does not include calibration tolerance. Other tolerances available.
  - Per MIL-STD-202G, Method 204D, Condition D. Random vibration testing also available.
- Note: All parameters are measured at ambient temperature with a 10 MΩ, 15 pF load.

## ABSOLUTE MAXIMUM RATINGS

Supply Voltage V <sub>DD</sub>	-0.3 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 CXOX, 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 1 connected internally and so has no enable/disable capability. The following table summarizes the Enable/Disable option E.

### ENABLE/DISABLE OPTION E FUNCTION TABLE

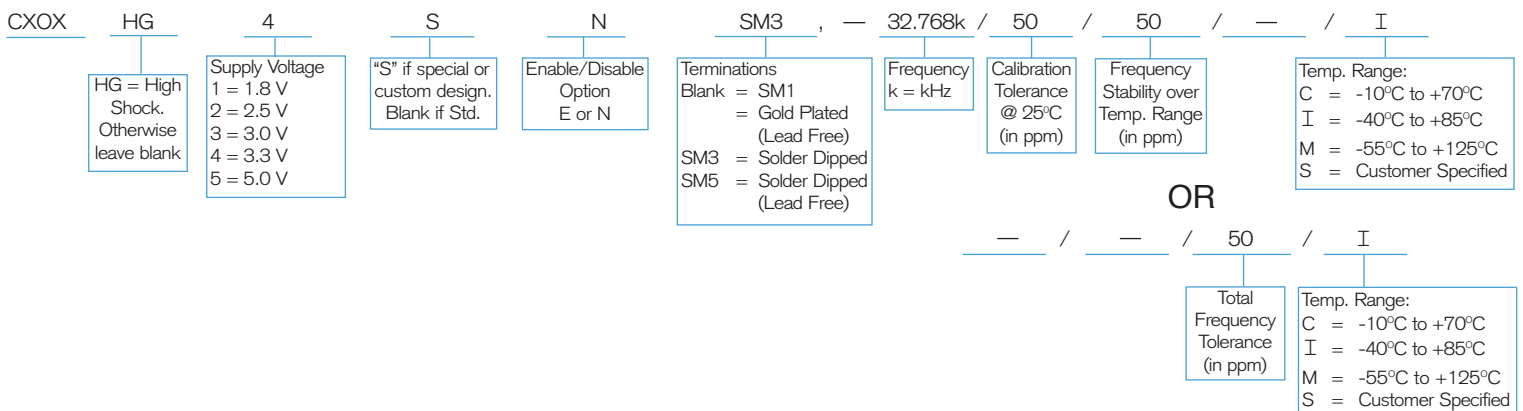
	Enable (Pin 1 High*)	Disable (Pin 1 Low)
Output	Frequency Output	High Z State
Oscillator	Oscillates	Stops
Current	650µA	4.0µA at 25°C

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

## PACKAGING OPTIONS

- CXOX - Tray Pack  
 - 12 mm tape, 7" or 13" reels  
 Per EIA 481 (see Tape and Reel data sheet #10109)

## HOW TO ORDER CXOX 32.768 kHz SURFACE MOUNT CRYSTAL OSCILLATORS



10203 Rev B