



# CXOMK/CXOMKHG OSCILLATOR

## 32.768 kHz

High Stability/High Shock Crystal Oscillator

### DESCRIPTION

For those applications requiring a 32.768 kHz oscillator with high frequency stability over temperature or fast start-up, Statek offers the AT-crystal based 32.768 kHz CXOMK/CXOMKHG oscillator. A frequency stability of  $\pm 20$  ppm over  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$  is possible, compared to hundreds of parts-per-million for tuning-fork based 32.768 kHz oscillators. Whereas tuning-fork based oscillators start in hundreds of milliseconds, Statek's 32.768 kHz CXOMK/CXOMKHG oscillators start in 0.8 ms (typically).

### FEATURES

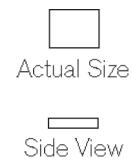
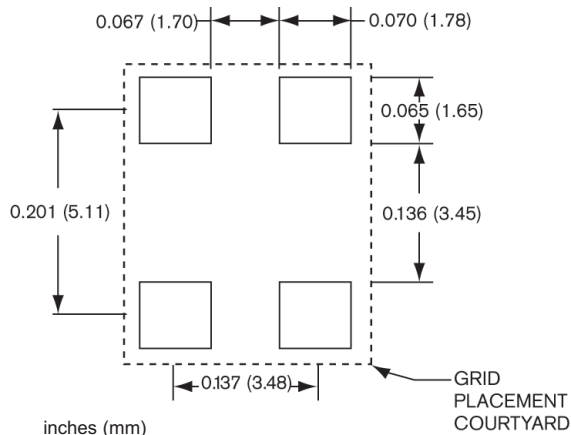
- High frequency stability over temperature
- Fast start-up
- High shock resistance
- Surface mount
- CMOS and TTL compatible
- Optional Output Enable/Disable with Tri-State
- Low EMI emission
- Hermetically sealed ceramic package
- Full military testing available

### APPLICATIONS

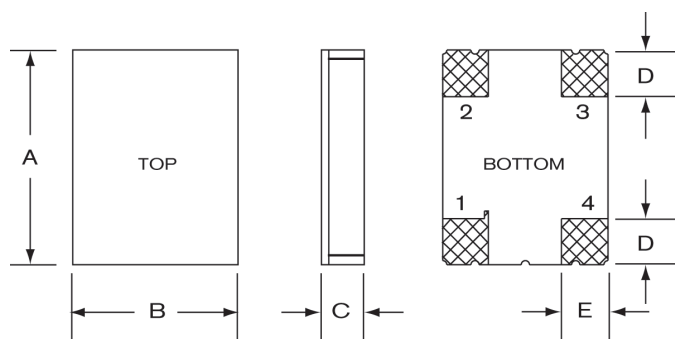
#### Military / Avionics

- Aircraft landing gear
- Avionics
- Smart Munitions

### SUGGESTED LAND PATTERN



### DIMENSIONS



DIM	TYPICAL		MAXIMUM	
	inches	mm	inches	mm
A	0.256	6.50	0.263	6.68
B	0.197	5.00	0.204	5.18
C (SM1)	0.055	1.34	0.060	1.52
C (SM3/SM5)	0.060	1.52	0.065	1.65
D	0.055	1.40	0.065	1.65
E	0.060	1.52	0.070	1.78

### PIN CONNECTIONS

1. Enable/Disable (E or T) or not connected (N)
2. Ground
3. Output
4.  $V_{DD}$

10227 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 <sup>1</sup>	0.9 to 5.0 V ±10%
Calibration Tolerance <sup>2</sup>	±100 ppm
Frequency Stability Over Temperature <sup>3</sup>	±10 to ±50 ppm for Commercial ±20 to ±100 ppm for Industrial ±30 to ±100 ppm for Military
Output Load (CMOS)	15 pF
Aging, first year	10 ppm MAX
Shock	Std: 3,000 g, 0.3 ms, ½ sine HG: 10,000 g, 0.3 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		0.8		ms
t <sub>r</sub>	Rise Time (10%-90%)		85	1000	ns
t <sub>f</sub>	Fall Time (10%-90%)		45	1000	ns
	Duty Cycle	45	50	55	%
I <sub>DD</sub>	Supply Current		500µA	1.0mA	
I <sub>DD</sub>	Static Current		3.2µA	5.0µA	

- 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 sec.

## ENABLE/DISABLE OPTIONS (E/N)

For the 32.768 kHz CXOMK, 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 SUMMARY

	Enable (Pin 1 High*)	Disable (Pin 1 Low)
Output	Frequency Output	High Z State
Oscillator	Oscillates	Stops
Current	500 µA	3.2 µA

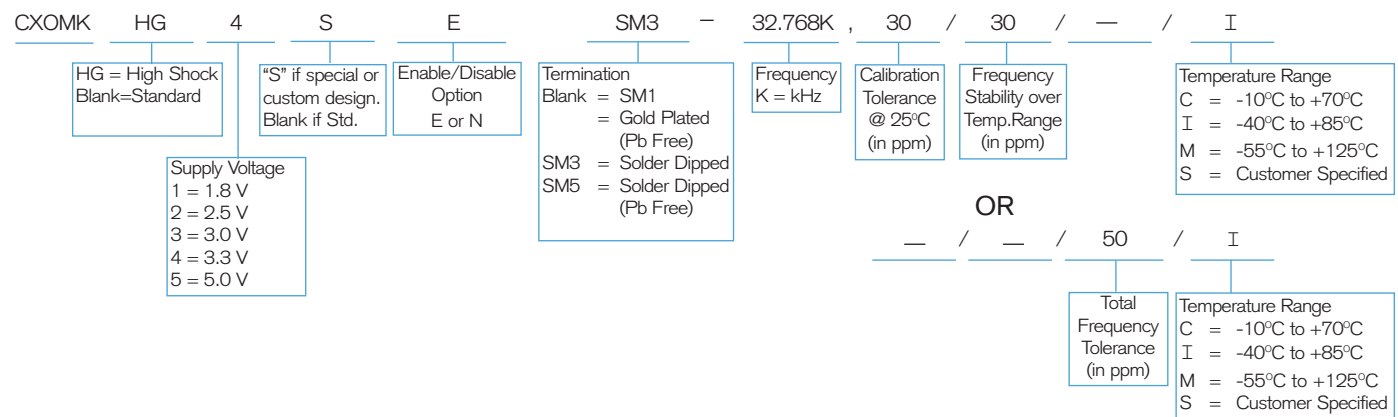
\*When PIN 1 is allowed to float, it is held high by an internal pull-up resistor.

## PACKAGING OPTIONS

CXOMK - Tray Pack

- 16 mm tape, 7" or 13" reels
- Per EIA 481 (see Tape and Reel datasheet #10109)

## HOW TO ORDER 32.768 kHz CXOMK/CXOMKHG OSCILLATOR



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