32.768 kHz
CXO3M OSCILLATOR

High Stability/Fast Start-up 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 CXO3M oscillator. A frequency stability of ±20 ppm over -40°C to +85°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 CXO3M oscillators start in 0.8 ms (typically).

Actual Size

Side View

FEATURES

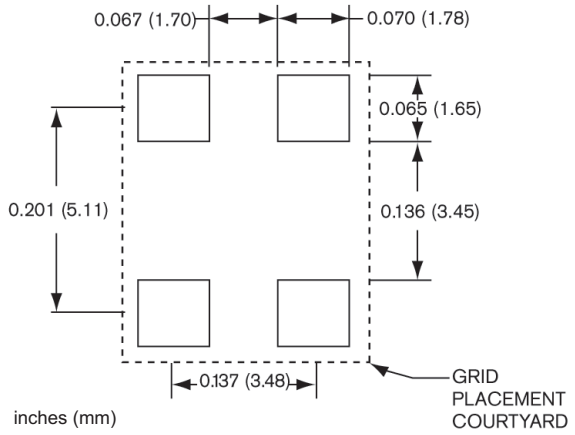
- High frequency stability over temperature
- Fast start-up
- High shock resistance
- Surface mount
- CMOS and TTL compatible
- Optional Output Enable/Disable with Tri-State
- Low EMI emission
- Hermetically sealed ceramic package
- Full military testing available

APPLICATIONS

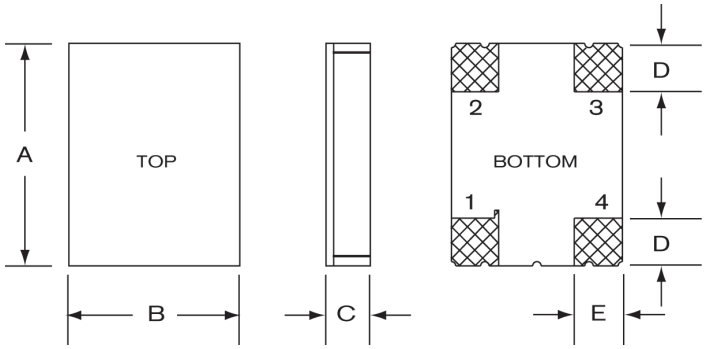
Military / Avionics

- Aircraft landing gear
- Avionics
- Smart Munitions

SUGGESTED LAND PATTERN



DIMENSIONS



	TYPICAL		MAXIMUM	
DIM	inches	mm	inches	mm
A	0.256	6.50	0.263	6.68
B	0.197	5.00	0.204	5.18
C (SM1)	0.051	1.30	0.055	1.40
C (SM3/SM5)	0.055	1.40	0.063	1.60
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 No connection (N)
2. Ground
3. Output
4. V_{DD}

STATEK CORPORATION 512 N. MAIN ST., ORANGE, CA 92868 714-639-7810 FAX: 714-997-1256 **www.statek.com**

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]	3.3 V ±10%
Calibration Tolerance[2]	±100 ppm
Frequency Stability Over Temperature[3]	±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[4]	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_{OH}	Output Voltage High	$0.9V_{DD}$			V
V_{OL}	Output Voltage Low			$0.1V_{DD}$	V
$t_{startup}$	Start-up Time		0.8		ms
t_r	Rise Time (10%-90%)		85	1000	ns
t_f	Fall Time (10%-90%)		45	1000	ns
	Duty Cycle	45	50	55	%
I_{DD}	Supply Current		500		µA

1. Other supply voltages available. Contact factory for ordering information.
2. Other tolerances available.
3. Does not include calibration tolerance. Other tolerances available.
4. 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_{DD}	-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 CXO3M, 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

CXO3M - Tray Pack

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

HOW TO ORDER 3.3 V 32.768 kHz CXO3M OSCILLATORS

CXO3M _ S _ E _ SM3 – 32.768K , 30 / 30 / — / I

- CXO3M: HG = High Shock, Blank=Standard
- S: "S" if special or custom design. Blank if Std.
- E: Enable/Disable Option E or N
- SM3: Termination — Blank = SM1; = Gold Plated (Pb Free); SM3 = Solder Dipped; SM5 = Solder Dipped (Pb Free)
- 32.768K: Frequency K = kHz
- 30: Calibration Tolerance @ 25°C (in ppm)
- 30: Frequency Stability over Temp.Range (in ppm)
- —: Temperature Range — C = -10°C to +70°C; I = -40°C to +85°C; M = -55°C to +125°C; S = Customer Specified
- I: Temperature Range — C = -10°C to +70°C; I = -40°C to +85°C; M = -55°C to +125°C; S = Customer Specified

OR

— / — / 50 / I

- 50: Total Frequency Tolerance (in ppm)
- —: Temperature Range — C = -10°C to +70°C; I = -40°C to +85°C; M = -55°C to +125°C; S = Customer Specified
- I: Temperature Range — C = -10°C to +70°C; I = -40°C to +85°C; M = -55°C to +125°C; S = Customer Specified

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