



CXOL OSCILLATOR

32 kHz - 100 kHz

Ultra-Low Current, Miniature Quartz Crystal Oscillator

DESCRIPTION

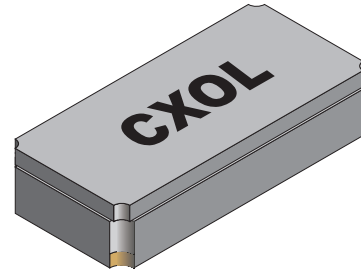
CXOL is an ultra-miniature (3.2 x 1.5mm), ultra-low current quartz crystal oscillator with a typical start-up time of 200ms. Hermetically sealed in a highly reliable ceramic housing, this oscillator is available over a wide range of input voltages (1.2 V - 5.0 V).

FEATURES

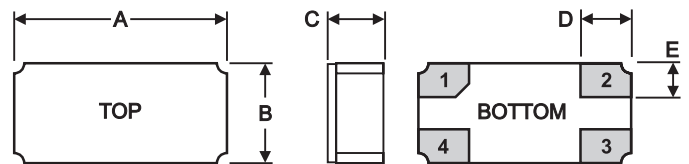
- Ultra-low current consumption
- Typical start-up time of 200ms
- Typical rise and fall times of 25ns
- Hermetically sealed ceramic package
- Optional output enable/disable with Tri-State
- Full military testing per MIL-PRF-55310 available
- Designed, manufactured, and tested in the USA

APPLICATIONS

- Medical
 - Implantable pacemakers
 - Implantable defibrillators
 - Implantable neuro devices
 - Other implantable and external medical devices
- Military
- Industrial

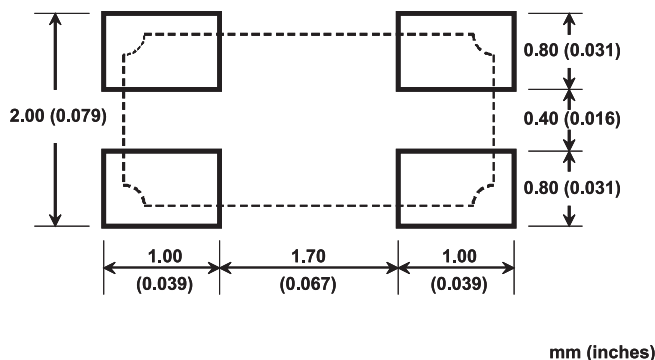


DIMENSIONS



DIM	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
D	0.029	0.75	0.030	0.77
E	0.020	0.50	0.021	0.52

SUGGESTED LAND PATTERN



PIN CONNECTIONS

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



10205 Rev A



SPECIFICATIONS: CXOL

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

Supply Voltage	1.2 V - 5.0 V ± 10%
Current Consumption	32.768 kHz (2.8 μA) ¹ 32.768 kHz (0.4 μA) ² 100.0 kHz (8.0 μA) ¹
Calibration Tolerance ³	± 20 ppm, ± 50 ppm or ± 100 ppm
Voltage Coefficient	± 1 ppm/V
Output load (CMOS) ⁴	10 pF
Aging, first year	± 2 ppm
Shock, survival	5000 g peak, 0.3 ms, 1/2 sine
Vibration, survival	20 g, 10-2000 Hz swept sine
Startup Time	200 ms
Operating Temperature	-10°C to +70°C (Commercial) -40°C to +85°C (Industrial) -55°C to +125°C (Military)

1. V_{DD} = 3.3V and 10 pF load.
2. V_{DD} = 3.3V, 10 pF load and OE is low.
3. Tighter calibration tolerances available. Please contact factory.
4. Other loads available. Please contact factory.

ABSOLUTE MAXIMUM RATINGS

Supply Voltage V _{DD}	-0.5V to 7V
Storage Temperature	-55°C to +125°C
Process Temperature	260°C, 2 min.

PACKAGING OPTIONS

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

ELECTRICAL CHARACTERISTICS

CXOL 32.768 kHz

All parameters are measured at 25°C with a 10MΩ and 10pF load with V_{DD} 3.3 V.

SYMBOL	PARAMETER	MIN.	TYP.	MAX.	UNIT
V _{OH}	Output Voltage Hi	V _{DD} -0.4	V _{DD}		V
V _{OL}	Output Voltage Lo		0	0.4	V
SYM	Duty Cycle	45	50	55	%
t _r	Rise Time (10%-90%)			50	nsec.
t _f	Fall Time (10%-90%)			50	nsec.

PIN CONNECTIONS

Pin	Connection
1	Output
2	Ground
3	Output Enable (T) or NC
4	V _{DD}

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 (Pin 3 High*)	Disable (Pin 3 Low)
Output	Frequency Output	High Z State
Internal Osc.	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 CXOL SURFACE MOUNT CRYSTAL OSCILLATORS

CXOL	3	S	N	SM3	-	32.768K	,	50	/	C
	1 = 1.8V 2 = 2.5V 3 = 3.0V 4 = 3.3V 5 = 5.0V	"S" if special or custom design. Blank if Std.	T = Tri-State N = no connection	Blank = SM1 = Gold Plated (Lead Free) SM2 = Solder Plated SM3 = Solder Dipped SM4 = Solder Plated (Lead Free) SM5 = Solder Dipped (Lead Free)		Frequency K = kHz		Calibration Tolerance @ 25°C (in PPM)		Temp. Range: C = -10°C to +70°C I = -40°C to +85°C M = -55°C to +125°C

10205 Rev A