



CXOU OSCILLATOR

32 kHz to 100 kHz
Ultra-Low Power Quartz Crystal Oscillator

DESCRIPTION

Miniature, high performance quartz crystal oscillators designed and manufactured for high-reliability applications.

FEATURES

- 2.0 x 1.2 mm helium impermeable ceramic package and lid
- Ultra-low current consumption
- Non-magnetic housing
- Typical start-up time of 200 ms
- Typical rise and fall times of 30 ns
- Full military testing available
- Designed, manufactured and tested in the USA

APPLICATIONS

Medical

- Implantable pacemakers
- Implantable defibrillators
- Implantable neuro devices
- Other implantable and external medical devices

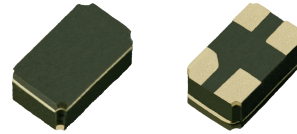
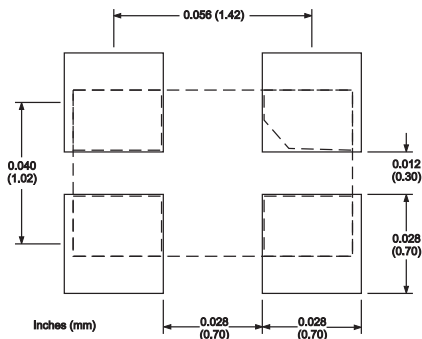
Military

Industrial

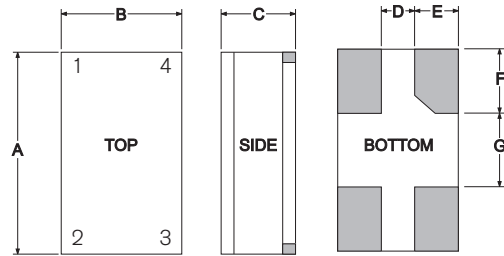
PACKAGING OPTIONS

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

SUGGESTED LAND PATTERN



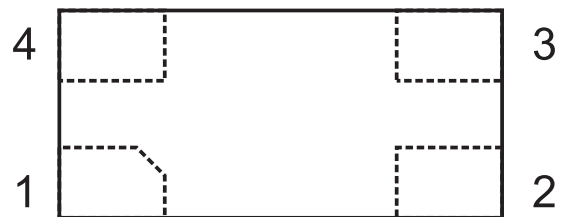
PACKAGE DIMENSIONS



DIM	TYPICAL		MAXIMUM	
	inches	mm	inches	mm
A	0.079	2.00	0.082	2.08
B	0.047	1.20	0.050	1.27
C	0.030	0.76	0.032	0.81
D	0.013	0.33	—	
E	0.017	0.43	0.021	0.53
F	0.025	0.64	0.029	0.74
G	0.029	0.73	—	

PIN CONNECTIONS

1. Output
2. Ground
3. Output Enable/Disable (T)
4. V_{DD}



SPECIFICATIONS

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

Frequency Range	32 kHz to 100 kHz		
Supply Voltage	1.2V to 5.0V ± 10%		
Calibration Tolerance ¹	±50 ppm to ±20 ppm		
Typical Supply Current (µA)	32.768 kHz 100.0 kHz	1.7V & 10 pF load 1.75 3.9	1.7V, 10 pF load & OE is low 0.4 0.5
Output Voltage Levels	V _{OH} : V _{DD} - 0.4V MIN. V _{OL} : 0.4V MAX.		
Voltage Coefficient	±1 ppm/V		
Output Load (CMOS) ²	10 pF		
Start-up Time (ms)	200		
Rise/Fall Time (ns)	50 MAX.		
Duty Cycle (32 kHz)	45% MIN. 55% MAX.		
Aging, First Year	2 ppm		
Shock Survival	5,000 g, 0.3 ms, 1/2 sine		
Vibration Survival ³	20 g, 10-2,000 Hz swept sine		
Operating Temperature Range ⁴	-10°C to +70°C (Commercial) -40°C to +85°C (Industrial) -55°C to +125°C (Military)		
Storage Temperature Range ⁴	-55°C to +125°C		
Max Process Temperature	260°C for 20 seconds		
Max Supply Voltage V _{DD}	-0.5V to 6.0V		
Moisture Sensitivity Level (MSL)	This product is hermetically sealed and is not moisture sensitive.		

1. Tighter tolerances available. Contact factory.

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 FUNCTION TABLE

	Tri-State (Pin 3 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 CXOU OSCILLATORS

CXOU	3	S	T	-	32.768K	,	50	/	M
Supply Voltage 1 = 1.2V - 1.7V 2 = 2.5V 3 = 3.0V 4 = 3.3V 5 = 5.0V	Special Blank = Standard S = Special or Custom	Termination Blank = Gold Plated (Lead Free)	Frequency K = kHz	Calibration Tolerance @ 25°C (in ppm)	Operating Temp. Range C = -10°C to +70°C I = -40°C to +85°C M = -55°C to +125°C S = Customer Specified				