# EURO QUARTZ

# **CXOXULP OSCILLATORS**

Top

View

Actual Size

□ Side

View

32.768kHz

# Ultra-Low Power/Fast Start-Up/High Shock

### **FEATURES**

- Ultra-low current consumption (typically 15μA)
- Fast start-up (typically 15ms)
- Tight Tolerance
- High Shock Resistance
- Low Ageing
- Full military testing available

## DESCRIPTION

The CXOXULP 32.768kHz oscillator achieves low power consumption comparable witht a tuning fork design and the fast start up and tight stability obtainable with AT-cut crystal designs. Designed for applications requiring ultra-low current and fast start-upthe part offers stability of  $\pm 30$ ppm to  $\pm 100$ ppm over -55° to  $\pm 125$ °C; this being achieved while being able to withstand significantly higher shock than a tuning fork design.

## SPECIFICATION

Specifications are typical at 25°C unless otherwise indicated. Tighter specifications are available, contact Euroquartz technical sales.

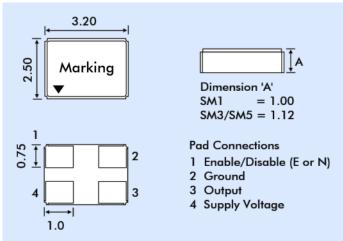
Frequency Range:	32.7680kHz			
Supply Voltage:	1.8V to +3.3 Volts ±10%			
Calibration Tolerance:	±25ppm			
Frequency Stability				
over Operating Temperature Range				
Commercial ( $0^{\circ} \sim +70^{\circ}$ C):	±10 to ±50ppm			
Industrial(-40° ~ +85°C):	±20 to ±100ppm			
Military (-55° ~ +125°C):	±50 to ±100ppm			
Output Load (CMOS):	15pF			
Ageing:	±5ppm first year			
Shock, Survival:	Standard: 5000g, 0.3ms, ½ sine			
	HG: 10,000g, 0.3ms, ½ sine			
Vibration Survival:	20g, 10~2000Hz swept sine			
Rise and Fall Time:	6ns maximum			

#### **ABSOLUTE MAXIMUM RATINGS**

Supply Voltage:	-0.3V to 5.0V
Storage Temperature:	-55° † +125°C
Maximum Process Temperature:	260°C for 20 seconds

Symbol	Parameter	Min.	Тур.	Max.	Unit
V <sub>OH</sub>	Output Voltage High	0.9Vdd			V
VoL	Output Voltage Low			0.1Vdd	V
t <sub>startup</sub>	Start-up Time:		15		ms
tr	Rise Time (10%~90%)		85	160	ns
t <sub>f</sub>	Fall Time (10%~90%)		45	100	ns
	Duty Cycle	45	50	55	%
IDD	Input Current		15		μA

# **OUTLINE & DIMENSIONS**



### **ENABLE/DISABLE OPTIONS**

There are two Enable/Disable options available, 'E' and 'N'. The 'E' option stops oscillating when the output is put into the High Z state. the 'N' version does not have Pad 1 connected internally. The table below describes the 'E' Enable/Disable option.

	Enable (Pad 1 High)	Disable (Pad 1 Low)
Output	Frequency Output	High Z state
Oscillator	Oscillates	Stops
Current	15μA	4.0µA at 25°C

When Pad 1 is allowed to float it is held high by an internal pull-up resistor.

## **PACKAGING OPTIONS**

CXOXULP oscillators are available either tray packed (<250pcs) or tape and reel (>250 pieces). 12mm tape, 178mm or 330mm reels (EIA 418).

# HOW TO ORDER CXOXULP CRYSTAL OSCILLATORS

