

ISSUE 1; April 2016

### Description

- The CXOLAT 32.768kHz surface-mount oscillator achieves the low power comparable with a tuning fork design and the fast start-up and tight frequency stability attained by an AT cut crystal design. Designed for applications requiring ultra-low current (15µA), fast start-up time (15ms) and a tight frequency stability ( $\pm 30$  ppm to  $\pm 100$  ppm) over a wide temperature range (-55°C to +125°C). These oscillators are also capable of withstanding significantly higher shock than a standard tuning fork design.
- SM1 Gold Plated (RoHS)
- SM4 Solder Plated (RoHS)
- SM5 Solder Dipped (RoHS)
- FEATURES:
  - Ultra low current (typical 15µA)
  - Fast start-up (typical 15ms)
  - Tight tolerance
  - High shock resistance
  - Low ageing
  - CMOS output
  - Optional Output Enable/Disable with Tri-State
  - Hermetically sealed ceramic package
  - Full military testing available
- APPLICATIONS:
  - Military, Aerospace & Avionics -
    - Communications
    - Navigation
    - GPS
  - Industrial, Computer & Communications -
    - Handheld instrumentation
    - Transponder/Animal migration
- Please note that all data is only valid at 25°C unless otherwise stated.

### Frequency Parameters

- Frequency 32.768kHz
- Frequency Tolerance  $\pm 25.00$ ppm
- Tolerance Condition @ 25°C
- Frequency Stability  $\pm 10.00$ ppm to  $\pm 100.00$ ppm
- Ageing  $\pm 5$ ppm max in 1st year @ 25°C
- Frequency Stability does not include Frequency Tolerance @ 25°C
- All parameters are measured at 25°C with a 10MΩ and 15pF load at 3.3V
- Note: Other Frequency Tolerances and Stabilities are available - please contact an IQD Sales Office

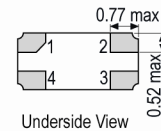
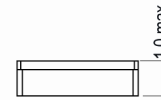
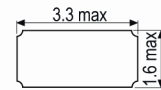
### Electrical Parameters

- Supply Voltage 1.8V  $\pm 10\%$
- Supply Current: 15µA typ
- Supply Voltage (absolute maximum rating): -0.5V to 5.0V

### Operating Temperature Ranges

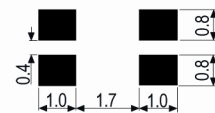
- -10 to 70°C
- -40 to 85°C
- -55 to 125°C

### Outline (mm) SM1 = Gold Plated (RoHS)



- Pad Connections
1. Output
  2. GND
  3. Enable/Disable/NC
  4. +Vs

#### Solder Pad Layout



### Sales Office Contact Details:

UK: +44 (0)1460 270200

Germany: 0800 1808 443

France: 0800 901 383

USA: +1.760.318.2824

Email: [info@iqdfrequencyproducts.com](mailto:info@iqdfrequencyproducts.com)

Web: [www.iqdfrequencyproducts.com](http://www.iqdfrequencyproducts.com)

#### Output Details

- Output Compatability CMOS
- Drive Capability 15pF
- Output Level High Voh: 90%Vs min  
Output Level Low Vol: 10%Vs max
- Rise Time (10%-90%): 2.8ns typ, 10ns max  
Fall Time (90%-10%): 2.4ns typ, 10ns max

#### Output Control

- Start-Up Time: 15ms typ

#### Environmental Parameters

- Shock: 5000G, 0.3ms, 1/2 sine
- Vibration: MIL-STD-202G, Method 204D, Condition D: 20G, 10Hz-2000Hz swept sine
- Note: Random Vibration test is also available - please contact an IQD Sales Office
- Storage Temperature Range: -55 to 125°C

#### Manufacturing Details

- Maximum Process Temperature: 260°C for 20sec max

#### Ordering Information

- Frequency\*  
Model\*  
Termination Variant\*  
Output  
Frequency Tolerance (@ 25°C)\*  
Frequency Stability (over operating temperature range)\*  
Operating Temperature Range\*  
Pad 3 Function\*  
(minimum required\*)
- Termination Variants:  
SM1 = Gold Plated  
SM4 = Solder Plated  
SM5 = Solder Dipped  
(Note: Non-RoHS compliant terminations also available - please contact an IQD Sales Office)
- Pad 3 Function Options:  
EN = Enable/Disable  
NC = No connection
- Example  
32.768kHz CXOLAT 1.8V SM1  
CMOS ±25ppm ±100ppm -40 to 85C NC

#### Compliance

- RoHS Status (2011/65/EU) Optional
- REACH Status Compliant
- MSL Rating (JEDEC-STD-033): Not Applicable

#### Packaging Details

- Pack Style: Reel Tape & reel in accordance with EIA-481-D  
Pack Size: 1,000
- Pack Style: Tray Supplied on a tray  
Pack Size: 1

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**Electrical Specification - maximum limiting values 1.80V  $\pm$ 10%**

Frequency Min	Temperature Range	Stability (Min)	Current Draw	Rise and Fall Time	Duty Cycle
	°C	ppm	mA	ns	%
32.768000kHz	-55 to 125	$\pm$ 50.00	-	-	45/55%
	-40 to 85	$\pm$ 20.00	-	-	45/55%
	-10 to 70	$\pm$ 10.00	-	-	45/55%

*This document was correct at the time of printing; please contact your local sales office for the latest version.*

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