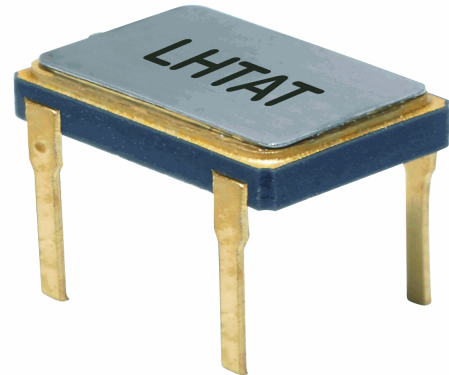


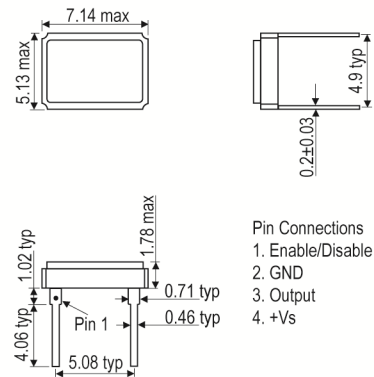
ISSUE 2; December 2020

### Description

- An increasing number of high temperature applications require the use of leaded (through-hole) ceramic packaged oscillators. For these applications IQD offers the LHTAT 7 x 5mm crystal oscillator. These oscillators are designed to operate at temperatures up to 200°C with high shock survivability.
- -A 5000G, Gold Plated (RoHS)
- -A-05 5000G, Solder Dipped (RoHS)
- -B 10000G, Gold Plated (RoHS)
- -B-05 10000G, Solder Dipped (RoHS)
- -C 20000G, Gold Plated (RoHS)
- -C-05 20000G, Solder Dipped (RoHS)
- -D 30000G, Gold Plated (RoHS)
- -D-05 30000G, Solder Dipped (RoHS)
- FEATURES
  - High temperature operation up to 200°C
  - Excellent stability over temperature
  - High shock resistance
  - CMOS output
  - Optional output enable/disable
  - Hermetically sealed ceramic package
  - Through-hole leaded package
  - Reduces mechanical and thermal mounting stresses
  - Robust lead attach-eutectic brazing process
  - Gold-plated Kovar leads
- APPLICATIONS
  - Industrial
    - Downhole instrumentation
    - Rotary shaft sensors
    - Underground boring tools
  - Avionics
- Please note that all parameters are only valid @ 25°C with a 10MΩ, 15pF load unless otherwise stated.



Outline (mm) -A = 5000G, Gold Plated (RoHS)



### Frequency Parameters

- Frequency 32.768kHz to 50.0MHz
- Frequency Stability ±150.00ppm to ±750.00ppm
- Ageing ±5ppm max 1st year @ 25°C, ±100ppm max @ 200°C.

### Electrical Parameters

- Supply Voltage 3.3V ±10%
- Absolute Maximum Supply Voltage: -0.5V to 4.0V

### Operating Temperature Ranges

- 25 to 150°C
- 25 to 175°C
- 25 to 200°C
- 25 to 225°C
- 25 to 250°C
- 25 to 275°C

### Output Details

- Output Compatibility CMOS
- Drive Capability 15pF
- Start-Up Time:
  - 32.768KHz 0.8ms typ
  - 200kHz to 50MHz 5ms max

### 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 Control

- Enable/Disable (EN):  
Logic 1 to pin 1, output enabled.  
Logic 0 to pin 1, output disabled, output goes to high impedance state, current consumption very low, internal oscillator stops.
- No Connection (NC): Pin 1 No Connection

### Environmental Parameters

- Operable Temperature Range: 25 to 275°C  
Note: Expected life @ 200°C is in excess of 1500hrs.
- Storage Temperature Range: -55 to 125°C
- Shock: Specific shock level, 0.5ms, 1/2 sine.  
Note: Shock survival applies @ -55°C to 125°C.
- Vibration: MIL-STD-202G, Method 204D, Condition D: 20G, 10Hz-2000Hz swept sine.
- Note: Random vibration testing also available - please contact an IQD Sales Office.

### Manufacturing Details

- Maximum Process Temperature: 325°C for 20sec

### Ordering Information

- Frequency\*  
Model\*  
Supply Voltage  
Shock Level\*  
Terminations\*  
Output  
Frequency Tolerance (@ 25°C)\*  
Frequency Stability (over Operating Temperature Range)\*  
Operating Temperature Range\*  
Pin 1 Function\*  
(\*minimum required)
- Shock Options:  
A - 5000G  
B - 10000G  
C - 20000G  
D - 30000G
- Termination Options:  
Gold Plated - blank  
Solder (Pb-free) Dipped - 05
- Pin 1 Function Options:  
EN = Enable/Disable  
NC = No connection
- Example  
10.0MHz LHTAT 3.3V-A-05  
CMOS ±50ppm ±150ppm 25 to 175C EN

### Compliance

- RoHS Status (2015/863/EU)      Compliant
- REACH Status                      Compliant
- MSL Rating (JDEC-STD-033):    Not Applicable

### Packaging Details

- Pack Style: Tube      Supplied in tubes  
Pack Size: 1

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Electrical Specification - maximum limiting values 3.3V ±10%

Frequency Min	Frequency Max	Temperature Range	Stability (Min)	Current Draw	Rise and Fall Time	Duty Cycle
		°C	ppm	mA	ns	%
32.768kHz	32.768kHz	25 to 150	±150.0	0.2	85	40/60%
		25 to 175	±175.0	0.2	85	40/60%
		25 to 200	±200.0	0.2	85	40/60%
		25 to 225	±350.0	0.2	85	40/60%
		25 to 250	±500.0	0.2	85	40/60%
		25 to 275	±750.0	0.2	85	40/60%
200.0kHz	50.0MHz	25 to 150	±150.0	6	10	40/60%
		25 to 175	±175.0	6	10	40/60%
		25 to 200	±200.0	6	10	40/60%
		25 to 225	±350.0	6	10	40/60%
		25 to 250	±500.0	6	10	40/60%
		25 to 275	±750.0	6	10	40/60%

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

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