



HIGH TEMPERATURE OSCILLATOR

Leaded High Temperature/High Shock

DESCRIPTION

An increasing number of high temperature applications require the use of leaded (through hole) ceramic packaged oscillators. For these applications, Statek offers the LHTAT 5x7mm oscillator. These oscillators are designed to operate at temperatures up to 200°C with high shock survivability.

FEATURES

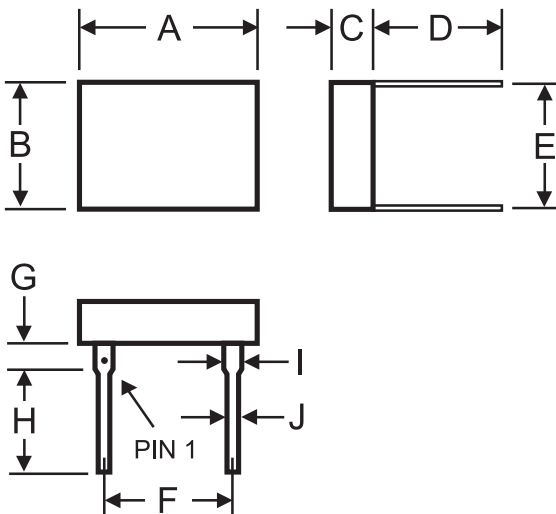
- High temperature operation up to 200°C
- Excellent stability over temperature
- High shock resistance
- CMOS output
- Optional output enable/disable
- Hermetically sealed ceramic package - 5x7mm
- Through-hole leaded package
- Reduces mechanical and thermal mounting stresses
- Robust lead attach-eutectic brazing process
- Gold Plated Kovar Leads

APPLICATIONS

Industrial

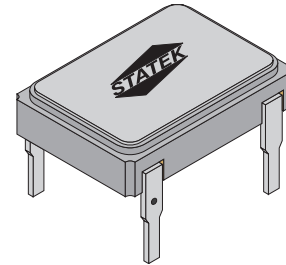
- Downhole instrumentation
- Rotary shaft sensors
- Underground boring tools
- Avionics applications

PACKAGE DIMENSIONS LHTAT



LHTAT

320 kHz - 50 MHz



PIN CONNECTIONS

1. Enable/Disable (E) or No Connection (N)
2. Ground
3. Output
4. V_{DD}

DIMENSIONS

| DIM | TYPICAL | | MAX | |
|-----|---------|------|--------|------|
| | inches | mm | inches | mm |
| A | 0.276 | 7.00 | .281 | 7.14 |
| B | 0.197 | 5.00 | .202 | 5.13 |
| C | 0.065 | 1.65 | .070 | 1.78 |
| D | 0.200 | 5.08 | .205 | 5.20 |
| E | 0.195 | 4.90 | .205 | 5.20 |
| F | 0.200 | 5.08 | .205 | 5.20 |
| G | 0.040 | 1.02 | — | — |
| H | 0.160 | 4.06 | — | — |
| I | 0.028 | 0.71 | — | — |
| J | 0.018 | 0.46 | 0.021 | 0.53 |

Lead Thickness: 0.008 ±0.001 (0.20mm ±0.03)
Lead Plating: Gold/Nickel over Kovar

LHTAT 10204 Rev B



SPECIFICATIONS

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

| | |
|-----------------------------------|--|
| Supply Voltage ¹ | 3.3 V ± 10% |
| Calibration Tolerance | ± 50 ppm, or tighter as required |
| Frequency Stability | ± 100 ppm for 25°C to 150°C |
| Over Temperature | ± 150 ppm for 25°C to 175°C ± 175 ppm for 25°C to 200°C |
| Total Tolerance ² | ± 200 ppm for 25°C to 200°C |
| Supply Current (Typical) | <u>3.3 V</u> |
| | 24 MHz 3.0 mA |
| | 32 MHz 5.0 mA |
| | 50 MHz 6.0 mA |
| Output Load (CMOS) | 15 pF |
| Start-up Time | 5 ms MAX |
| Rise/Fall Time | 10 ns MAX |
| Duty Cycle | 40% MIN, 60% MAX |
| Aging, first year | 5 ppm MAX at 25°C |
| Aging | 100 ppm MAX at 200°C |
| Shock, survival ³ | Std: 5,000 g, 0.5 ms, 1/2 sine HG: up to 30,000 g, 0.5 ms, 1/2 sine |
| Vibration, survival ⁴ | 20 g, 10-2,000 Hz swept sine |
| Operating Temp Range ⁵ | -55°C up to 200°C |

1. All frequencies, voltages, temperature ranges and enable/disable options may not be available. Contact factory.
 2. Total Tolerance = Calibration Tolerance + Frequency Stability over temperature.
 3. Shock survival applies at -55°C to +125°C.
 4. Per MIL-STD-202G, Method 204D, Condition D. Random vibration testing available.
- Note: All parameters are measured at ambient temperature with a 10 MΩ, 15 pF load.
5. Expected life at 200°C is in excess of 1,500 hours.

ABSOLUTE MAXIMUM RATINGS

| | |
|--------------------------------|----------------------|
| Supply Voltage V _{DD} | -0.5 V to 4.0 V |
| Storage Temperature | -55°C to 125°C |
| Maximum Process Temperature | 260°C for 20 seconds |

ENABLE/DISABLE OPTIONS (E/N)

Statek offers two enable/disable options: E and N. The E-version has a Tri-State output and stops oscillating internally when the output is put into the high Z state. The N-version does not have PIN 1 connected internally and so has no enable/disable capability. The following table describes the Enable/Disable option E.

ENABLE/DISABLE OPTION E FUNCTION TABLE

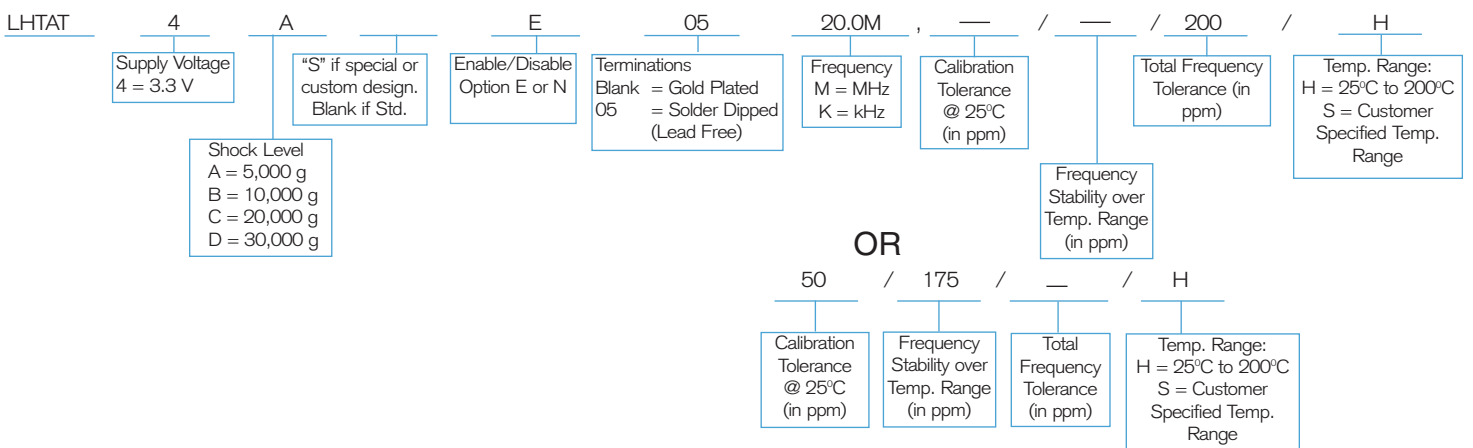
| | Enable (Pin 1 High*) | Disable (Pin 1 Low) |
|------------|----------------------|---------------------|
| Output | Frequency Output | High Z State |
| Oscillator | Oscillates | Stops |
| Current | Normal | Very Low |

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

PACKAGING OPTIONS

LHTAT - Tube Pack (Standard)

HOW TO ORDER LHTAT OSCILLATORS



LHTAT 10204 Rev B