250° HTXO OSCILLATOR

High Temperature Crystal Oscillator 1.5MHz to 50MHz

FEATURES

- **Extended high temperature operation up to 250°C**
- **3.3V or 5.0V supply voltages**
- **Excellent stability over temperature**
- **Fast start-up**
- **CMOS output**
- **Optional Enable/Disable function**
- **Low EMI emission**

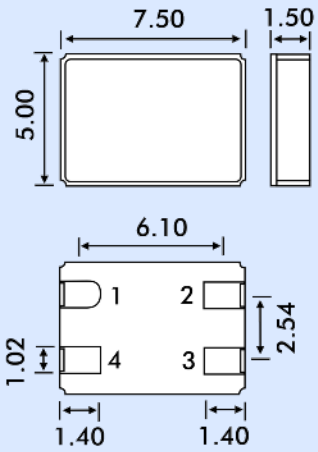
DESCRIPTION

HTXO oscillators are designed to operate at ambient temperatures <250°C.The rugged design consists of a high-shock crystal and a high temperature CMOS integrated circuit packaged in a 7.5 x 5.0mm surface-mount ceramic package. Designed and manufactured in USA by Statek Inc.

APPLICATIONS

- **Oil & gas downhole instrumentation**
- **Rotary shaft sensors**
- **Underground boring tools**
- **Avionics applications**

OUTLINE & DIMENSIONS



Pad Connections

1 Enable/Disable (T) or not connected
2 Ground
3 Output
4 Supply Voltage

SPECIFICATION

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

Frequency Range[1]:	1.5MHz to 50.0MHz
Supply Voltage:	+5.0Volts ±10% or +3.3Volts ±5%
Calibration Tolerance[2]:	±100ppm *(or tighter as required)*
Frequency Stability over Temperature[3]:	+250 ppm for 25°C to 250°C
Total Tolerance[4]:	±350ppm for 25°C to 250°C
Output Load (CMOS):	15pF
Start-up Time:	5ms max.
Rise/Fall Time:	10ns max.
Duty Cycle:	40% min., 60% max.
Shock, survival[5]:	Up to 30,000g, 0.5ms, ½ sine
Vibration, survival[6]:	20g, 10-2000Hz, swept sine
Operating Temperature Range[7]:	-55° up to 225°C

1. 30MHz maximum with 3.3V supply.
2. Does not include ageing.
3. Does not include calibration tolerance.
4. Frequency over temperature relative to nominal frequency.
5. 25°C.
6. Per MIL-STD-202G Method 204D, Condition D. Random vibration testing also available.
7. Expected life at 225°C is a minimum of 1000 hours.

PACKAGING OPTIONS

HTXO oscillators are available either tray packed (<250pcs) or tape and reel (>250 pieces). 16mm tape, 178mm or 330mm reels per EIA 418).

SUPPLY CURRENT

Current consumption typically 2mA at 8MHz, 3.3V, 250°C and CLoad = 10pF

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ABSOLUTE MAXIMUM RATINGS

Supply Voltage:	-0.5V to +6.0V (5.V V_{DD})
Storage Temperature:	-55° to +125°C

ENABLE/DISABLE OPTIONS

There are two Enable/Disable options available, T and N. The T-version has a tri-state output and oscillates internally when the output is put into the High Z state. The N-version does not have Pin 1 connected internally and has no enable/disable capability. The following table describes the Enable/Disable option T.

	T	N
	Enable (Pin 1 Low)	
Output:	Frequency Output	Frequency Output
Oscillator:	Oscillates	Oscillates
Current:	Normal	Normal
	Disable (Pin 1 High)	
Output:	High Z state	N/C
Oscillator:	Stops	N/C
Current:	Very low	N/C

HOW TO ORDER HTXO SMD CRYSTAL OSCILLATORS

HTXO 4 B S T - SM5 - 20.0M / - / - / 500 / Q

- **4** — Supply Voltage: 4 = 3.3V, 5 = 5.0V
- **B** — Shock Level: A = 5,000g, B = 10,000g, C = 20,000g, D = 30,000g
- **S** — Blank = standard, S = special or custom
- **T** — Enable/Disable option T or N
- **SM5** — Termination: Blank = SM1 = Gold plated, SM5 = Solder dipped (SM1 and SM5 are pB free)
- **20.0M** — Frequency: M = MHz
- **500** — Total Frequency Tolerance (In ppm)
- **Q** — Temp. Range: Q = +25° to +225°C, W = +25°C to 250°C, S = Customer specified temp. range