



HTXO

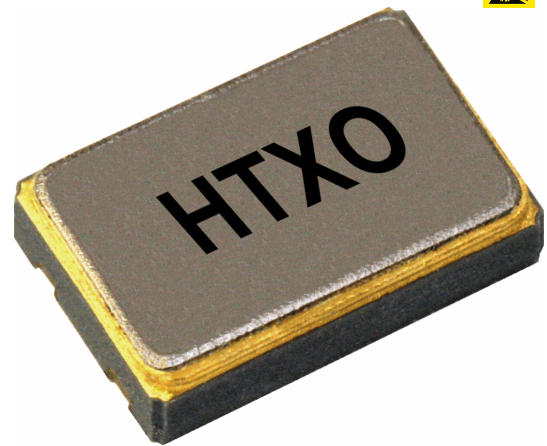
The HTXO crystal oscillator is a 225°C/250°C high temperature, rugged surface-mount oscillator. The design consists of a high-shock crystal and a high temperature CMOS integrated circuit housed in a 7.5 x 5.0mm surface-mount hermetically sealed ceramic package.

Model Name	Description
HTXO 1.8V	1.8V version
HTXO 3.3V	3.3V version
HTXO 5.0V	5.0V version

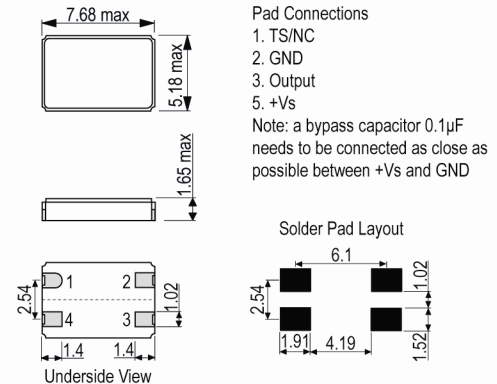
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Description

- The HTXO crystal oscillator is a 225°C high temperature, rugged surface-mount oscillator. The design consists of a high-shock crystal and a high temperature CMOS integrated circuit housed in a 7.5 x 5.0mm surface-mount hermetically sealed ceramic package.
- A-SM1 5000G Gold Plated (RoHS)
- A-SM5 5000G Solder Dipped (RoHS)
- B-SM1 10000G Gold Plated (RoHS)
- B-SM5 10000G Solder Dipped (RoHS)
- C-SM1 20000G Gold Plated (RoHS)
- C-SM5 20000G Solder Dipped (RoHS)
- D-SM1 30000G Gold Plated (RoHS)
- D-SM5 30000G Solder Dipped (RoHS)
- FEATURES:
 - High temperature operation up to 225°C
 - Excellent stability over temperature
 - Fast start-up
 - High shock and vibration resistance
 - Optional output Enable/Disable
 - Low EMI emission
- APPLICATIONS:
 - Industrial -
 - Oil & gas downhole instrumentation
 - Rotary shaft sensors
 - Underground boring tools
 - Avionics applications
- Please note that all data is only valid at 25°C unless otherwise stated.



Outline (mm) D-SM5 = 30000G Solder Dipped (RoHS)



Frequency Parameters

- Frequency 1.5MHz to 30.0MHz
- Frequency Stability ±500.00ppm
- Frequency Stability: Frequency over temperature relative to nominal frequency

Electrical Parameters

- Supply Voltage 1.8V ±5%

Operating Temperature Ranges

- 25 to 225°C

Output Details

- Output Compatibility CMOS
- Drive Capability 15pF
- Note: 45/55% Duty Cycle also available - please contact an IQD Sales Office

Output Control

- Start-Up Time: 5ms max
- No Connection (NC): Pad 1 not connected internally
- Tri State (TS):
 - Logic 1 to pad 1, output disabled, output goes to high impedance state, current consumption lower than normal, but internal oscillator continues to function hence fast start-up time.
 - Logic 0 to pad 1, output enabled.

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Environmental Parameters

- Shock (@ 25°C): Shock Requirement, 0.5ms, 1/2 sine
- Vibration: MIL-STD-202G, Method 204D, Condition D: 20G, 10-2000Hz swept sine
- Note: Random vibration testing also available - please contact an IQD Sales Office
- Operational Temperature Range: -55 to 250°C
- Expected life at 250°C is a minimum of 1000hrs
- Storage Temperature Range: -55 to 125°C

Ordering Information

- Frequency*
- Model*
- Supply Voltage
- Shock Requirement*
- Termination Variant*
- Output Compatibility
- Frequency Stability (over operating temperature range)
- Operating Temperature Range*
- Pad 1 function*
(*minimum required)
- Shock Level Options:
Code A = 5000G
Code B = 10000G
Code C = 20000G
Code D = 30000G
- Termination Variants:
SM1 = Gold Plated
SM5 = Solder Dipped
- Pad 1 Function Options:
TS = Tri State
NC = No Connection
- Example
10.0MHz HTXO 1.8V A-SM1
CMOS ±500ppm 25 to 225C TS

Compliance

- RoHS Status (2011/65/EU) Optional
- REACH Status Compliant
- MSL Rating (JDEC-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

Electrical Specification - maximum limiting values 1.8V ±5%

Frequency Min	Frequency Max	Temperature Range	Stability (Min)	Current Draw	Rise and Fall Time	Duty Cycle
		°C	ppm	mA	ns	%
1.5MHz	30.0MHz	25 to 225	±500.0	6	10	40/60%

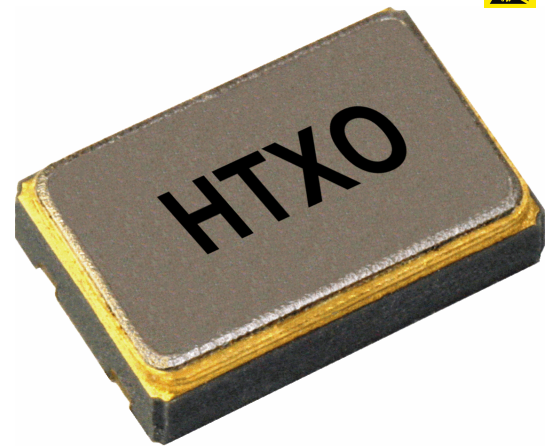
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Description

- The HTXO crystal oscillator is a 250°C high temperature, rugged surface-mount oscillator. The design consists of a high-shock crystal and a high temperature CMOS integrated circuit housed in a 7.5 x 5.0mm surface-mount hermetically sealed ceramic package.
- A-SM1 5000G Gold Plated (RoHS)
- A-SM5 5000G Solder Dipped (RoHS)
- B-SM1 10000G Gold Plated (RoHS)
- B-SM5 10000G Solder Dipped (RoHS)
- C-SM1 20000G Gold Plated (RoHS)
- C-SM5 20000G Solder Dipped (RoHS)
- D-SM1 30000G Gold Plated (RoHS)
- D-SM5 30000G Solder Dipped (RoHS)
- Please note that all data is only valid at 25°C unless otherwise stated.



Outline (mm) D-SM5 = 30000G Solder Dipped (RoHS)

Frequency Parameters

- Frequency 1.5MHz to 30.0MHz
- Frequency Stability ±500.00ppm
- Frequency Stability: Frequency over temperature relative to nominal frequency

Electrical Parameters

- Supply Voltage 3.3V ±5%
- Supply Voltage (absolute maximum rating): -0.5V to 6.0V (5V Vs only)

Operating Temperature Ranges

- 25 to 225°C
- 25 to 250°C

Output Details

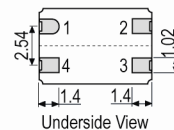
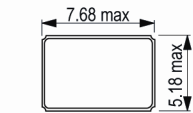
- Output Compatibility CMOS
- Drive Capability 15pF
- Note: 45/55% Duty Cycle also available - please contact an IQD Sales Office

Output Control

- Start-Up Time: 5ms max
- No Connection (NC): Pad 1 not connected internally
- Tri State (TS):
Logic 1 to pad 1, output disabled, output goes to high impedance state, current consumption low. Internal oscillator continues to function.
Logic 0 to pad 1, output enabled.

Environmental Parameters

- Shock (@ 25°C): Shock Requirement, 0.5ms, 1/2 sine
- Vibration: MIL-STD-202G, Method 204D, Condition D: 20G, 10-2000Hz swept sine
- Note: Random vibration testing also available - please contact an IQD Sales Office
- Operational Temperature Range: -55 to 250°C
- Expected life at 250°C is a minimum of 1000 hours.
- Storage Temperature Range: -55 to 125°C

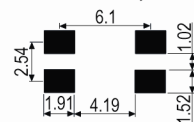


Pad Connections

1. TS/NC
2. GND
3. Output
5. +Vs

Note: a bypass capacitor 0.1µF needs to be connected as close as possible between +Vs and GND

Solder Pad Layout



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Manufacturing Details

- FEATURES:
 - High temperature operation up to 250°C
 - Excellent stability over temperature
 - Fast start-up
 - High shock and vibration resistance
 - Optional output Enable/Disable
 - Low EMI emission
- APPLICATIONS:
 - Oil & gas downhole instrumentation
 - Rotary shaft sensors
 - Underground boring tools
 - Avionics applications

Ordering Information

- Frequency*
 - Model*
 - Supply Voltage
 - Shock Requirement*
 - Termination Variant*
 - Output Compatibility
 - Frequency Stability (over operating temperature range)
 - Operating Temperature Range*
 - Pad 1 function*
 - (*minimum required)
- Shock Level Options:
 - Code A = 5000G
 - Code B = 10000G
 - Code C = 20000G
 - Code D = 30000G
- Termination Variants:
 - SM1 = Gold Plated
 - SM5 = Solder Dipped
- Pad 1 Function Options:
 - TS = Tri State
 - NC = No Connection
- Example:
 - 10.0MHz HTXO 3.3V A-SM1
 - CMOS ±500ppm 25 to 250C TS

Compliance

- RoHS Status (2011/65/EU) Optional
- REACH Status Compliant
- MSL Rating (JDEC-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

Electrical Specification - maximum limiting values 3.3V ±5%

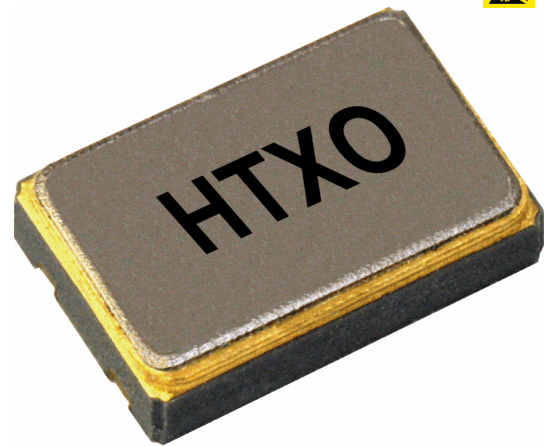
Frequency Min	Frequency Max	Temperature Range	Stability (Min)	Current Draw	Rise and Fall Time	Duty Cycle
		°C	ppm	mA	ns	%
1.5MHz	30.0MHz	25 to 250	±500.0	6	10	40/60%

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Description

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- B-SM5 10000G Solder Dipped (RoHS)
- C-SM1 20000G Gold Plated (RoHS)
- C-SM5 20000G Solder Dipped (RoHS)
- D-SM1 30000G Gold Plated (RoHS)
- D-SM5 30000G Solder Dipped (RoHS)
- Please note that all data is only valid at 25°C unless otherwise stated.



Outline (mm) D-SM5 = 30000G Solder Dipped (RoHS)

Frequency Parameters

- Frequency 1.5MHz to 50.0MHz
- Frequency Stability ± 500.00 ppm
- Frequency Stability: Frequency over temperature relative to nominal frequency

Electrical Parameters

- Supply Voltage 5.0V $\pm 10\%$
- Supply Voltage (absolute maximum rating): -0.5V to 6.0V

Operating Temperature Ranges

- 25 to 225°C
- 25 to 250°C

Output Details

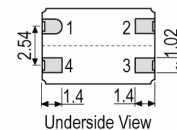
- Output Compatibility CMOS
- Drive Capability 15pF
- Note: 45/55% Duty Cycle also available - please contact an IQD Sales Office

Output Control

- Start-Up Time: 5ms max
- No Connection (NC): Pad 1 not connected internally
- Tri State (TS):
Logic 1 to pad 1, output disabled, output goes to high impedance state, current consumption low. Internal oscillator continues to function.
Logic 0 to pad 1, output enabled.

Environmental Parameters

- Shock (@ 25°C): Shock Requirement, 0.5ms, 1/2 sine
- Vibration: MIL-STD-202G, Method 204D, Condition D: 20G, 10-2000Hz swept sine
- Note: Random vibration testing also available - please contact an IQD Sales Office
- Operational Temperature Range: -55 to 250°C
- Expected life at 250°C is a minimum of 1000 hours.
- Storage Temperature Range: -55 to 125°C

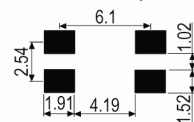


Pad Connections

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Solder Pad Layout



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Manufacturing Details

- FEATURES:
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- APPLICATIONS:
 - Oil & gas downhole instrumentation
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Ordering Information

- Frequency*
 - Model*
 - Supply Voltage
 - Shock Requirement*
 - Termination Variant*
 - Output Compatibility
 - Frequency Stability (over operating temperature range)
 - Operating Temperature Range*
 - Pad 1 function*
 - (*minimum required)
- Shock Level Options:
 - Code A = 5000G
 - Code B = 10000G
 - Code C = 20000G
 - Code D = 30000G
- Termination Variants:
 - SM1 = Gold Plated
 - SM5 = Solder Dipped
- Pad 1 Function Options:
 - TS = Tri State
 - NC = No Connection
- Example:
 - 10.0MHz HTXO 5.0V A-SM1
 - CMOS ±500ppm 25 to 250C TS

Compliance

- RoHS Status (2011/65/EU) Optional
- REACH Status Compliant
- MSL Rating (JDEC-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

Electrical Specification - maximum limiting values 5.0V ±10%

Frequency Min	Frequency Max	Temperature Range	Stability (Min)	Current Draw	Rise and Fall Time	Duty Cycle
		°C	ppm	mA	ns	%
1.5MHz	50.0MHz	25 to 250	±500.0	6	10	40/60%

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Sales Office Contact Details:

UK: +44 (0)1460 270200

France: 0800 901 383

Email: info@iqdfrequencyproducts.com

Germany: 0800 1808 443

USA: +1.760.318.2824

Web: www.iqdfrequencyproducts.com



Crystal Clock Oscillator Specification
HTXO 5.0V

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