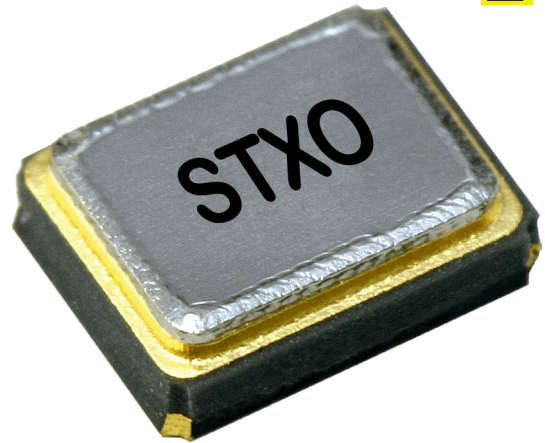


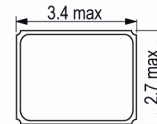
ISSUE 3; June 2021

Description

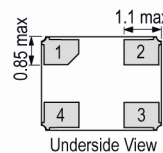
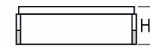
- State-of-the-art design, process, manufacturing and testing capabilities have made the development of the ultra-miniature 3.2mm x 2.5mm STXO oscillator achievable. Performance capabilities include low RMS jitter (typical <300fs), low phase noise (noise floor typical <-161dBc/Hz), tight frequency stability (± 15 ppm total over -55 to 125°C to ± 5 ppm total over -40 to 85°C).
- HGB-SM1 10000g (Gold plated, RoHS compliant)
- HGB-SM5 10000g (Solder dipped, RoHS compliant)
- HGC-SM1 20000g (Gold plated, RoHS compliant)
- HGC-SM5 20000g (Solder dipped, RoHS compliant)
- HGD-SM1 30000g (Gold plated, RoHS compliant)
- HGD-SM5 30000g (Solder dipped, RoHS compliant)
- HGF-SM1 50000g (Gold plated, RoHS compliant)
- HGF-SM5 50000g (Solder dipped, RoHS compliant)
- HGG-SM1 75000g (Gold plated, RoHS compliant)
- HGG-SM5 75000g (Solder dipped, RoHS compliant)
- SM1 5000g (Gold plated, RoHS compliant)
- SM5 5000g (Solder dipped, RoHS compliant)
- FEATURES:
 - High shock survival option up to 75000g
 - Tight frequency stability and low phase noise
 - Ultra-low Allan Deviation and RMS phase jitter
 - Ultra-low period jitter: 1.4ps RMS
 - Low current consumption
 - CMOS output; enable/disable with Tri-State
 - Fundamental frequency; no PLL
 - Hermetically sealed ceramic package
- APPLICATIONS:
 - Industrial
 - Aerospace
 - RF Telemetry
 - Master Clock
- Model STXO is available in both 3.2x2.5mm and 2.5x2.0mm packages in supply voltage options of 2.5V, 3.0V and 3.3V
- Please note that all data given is only valid @ 25°C unless otherwise stated.



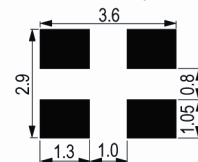
Outline (mm) -SM1 = 5000g (Gold plated, RoHS compliant)



Pad Connections	Height (H) =
1. Enable/Disable	SM1 1.35 max
2. GND	SM3 1.47 max
3. Output	SM5 1.47 max
4. +Vs	



Solder Pad Layout



Frequency Parameters

- Frequency: 10.0MHz to 70.0MHz
- Frequency Stability: ± 5.00 ppm to ± 15.00 ppm
- Ageing: ± 2 ppm max in 1st year @ 25°C
- Note: For tighter total frequency stabilities please contact an IQD Sales Office.

Electrical Parameters

- Supply Voltage: 3.3V $\pm 10\%$
- Absolute Maximum Supply Voltage Rating: -0.3 to 4.0V
Note: Operating beyond these limits may result in change or permanent damage to the oscillator.
- Current Draw (@ F=40MHz, Vs=3.3V and load=15pF): 3mA typ

Operating Temperature Ranges

- 40 to 85°C
- 40 to 105°C
- 55 to 125°C

Sales Office Contact Details:

UK: +44 (0)1460 270200

USA: +1 760 318 2824

Email: info@iqdfrequencyproducts.com

Web: www.iqdfrequencyproducts.com

Output Details

- Output Compatibility CMOS
- Drive Capability 15pF
- Output Voltage Levels:
Output Low (VoL): 0.4V max
Output High (VoH): Vs-0.4V min
- Start Up Time: 5ms max

Output Control

- Enable/Disable (EN):
Logic '0' to pad 1 disables oscillator output, output goes to high impedance state, current consumption very low, internal oscillator stops, output recovery delayed.
Logic '1' or no connection (internal pull-up resistor) to pad 1 enables oscillator output.

Noise Parameters

- Phase Noise (F=20MHz, typ @ 25°C):
-69dBc/Hz @ 10Hz
-105dBc/Hz @ 100Hz
-138dBc/Hz @ 1kHz
-154dBc/Hz @ 10kHz
-158dBc/Hz @ 100kHz
-159dBc/Hz @ 1MHz
-163dBc/Hz @ 5MHz
- Phase Noise (F=40MHz, typ @ 25°C):
-63dBc/Hz @ 10Hz
-98dBc/Hz @ 100Hz
-131dBc/Hz @ 1kHz
-152dBc/Hz @ 10kHz
-160dBc/Hz @ 100kHz
-161dBc/Hz @ 1MHz
-162dBc/Hz @ 5MHz
- Phase Noise (F=50MHz, typ @ 25°C):
-63dBc/Hz @ 10Hz
-99dBc/Hz @ 100Hz
-131dBc/Hz @ 1kHz
-151dBc/Hz @ 10kHz
-159dBc/Hz @ 100kHz
-160dBc/Hz @ 1MHz
-161dBc/Hz @ 5MHz
- RMS Phase Jitter (12kHz to 20MHz):
F=20MHz: 230fs typ
F=40MHz: 210fs typ
F=50MHz: 200fs typ
- RMS Period Jitter over 10000 cycles (F=20MHz or 50MHz):
1.4ps typ

Environmental Parameters

- Storage Temperature Range: -55 to 125°C
- Shock:
Standard: 5000g, 0.5ms, 1/2 sine
HGB: 1000g, 0.5ms, 1/2 sine
HGC: 20000g, 0.5ms, 1/2 sine
HGD: 30000g, 0.5ms, 1/2 sine
HGF: 50000g, 0.5ms, 1/2 sine
HGG: 75000g, 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.

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Manufacturing Details

- RoHS Reflow 260°C max for 20secs max

Ordering Information

- Frequency*
Model*
Supply Voltage
Shock Level*
Termination Variant*
Output
Frequency Stability (over operating temperature range)*
Operating Temperature Range*
Pad 1 Function*
(*minimum required)
- Shock Level Variants:
Blank = 5000g
HGB = 10000g
HGC = 20000g
HGD = 30000g
HGF = 50000g
HGG = 75000g
- Termination Variants:
SM1 = Gold Plated
SM5 = Solder Dipped
Note: Non-RoHS compliant terminations are available - please contact an IQD Sales Office.
- Example
40.0MHz STXO A 3.3V-HGD-SM1
CMOS ±10ppm -40 to 85C EN

Compliance

- RoHS Status (2015/863/EU) Compliant
- 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 ±10%

Frequency Min	Frequency Max	Temperature Range	Stability (Min)	Current Draw	Rise and Fall Time	Duty Cycle
		°C	ppm	mA	ns	%
10.0MHz	70.0MHz	-40 to 85	±5.0	-	5	45/55%
		-40 to 105	±10.0	-	5	45/55%
		-55 to 125	±15.0	-	5	45/55%

This document was correct at the time of printing; please contact your local sales office for the latest version.
[Click to view latest version on our website.](#)

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