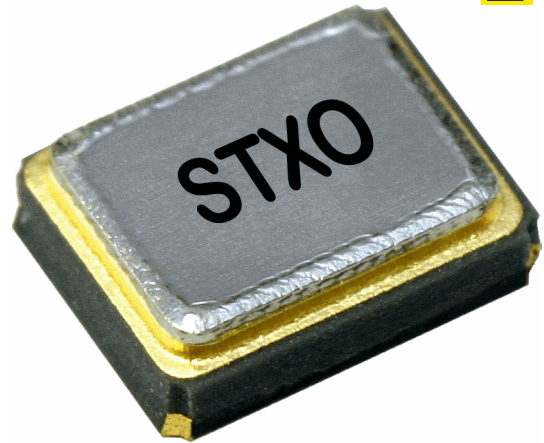


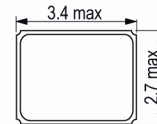
ISSUE 1; June 2019

Description

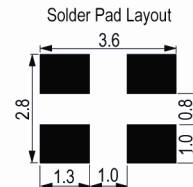
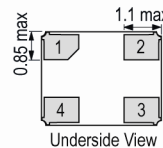
- State-of-the-art design, process, manufacturing and testing capabilities have made the development of the ultra-miniature 3.2mm x 2.5mm STXO oscillator achievable. Performance capabilities include low RMS jitter (typical <300fs), low phase noise (noise floor typical <-161dBc/Hz), tight frequency stability (± 15 ppm total over -55 to 125°C to ± 5 ppm total over -40 to 85°C).
- -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)
- -SM1 (Gold plated, RoHS compliant)
- -SM5 (Solder dipped, RoHS compliant)
- FEATURES:
 - High shock survival option up to 50000G
 - Tight frequency stability and low phase noise
 - Ultra-low Allan Deviation and RMS phase jitter
 - Ultra-low period jitter
 - Low current consumption
 - CMOS output; enable/disable with Tri-State
 - Fundamental frequency; no PLL artefacts
 - Hermetically sealed ceramic package
- APPLICATION
 - Aerospace -
 - Guidance and navigation
 - Communications
- Please note that all data given is only valid @ 25°C unless otherwise stated.



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



Pad Connections	Height (H) =
1. EN or NC	SM1 1.35 max
2. GND	SM3 1.47 max
3. Output	SM5 1.47 max
4. +Vs	



Frequency Parameters

- Frequency: 10.0MHz to 55.0MHz
- Frequency Stability: ± 5.00 ppm to ± 20.00 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: 2.5V $\pm 10\%$
- 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.
- Supply Current (@ F=40MHz, Vs=2.5V and load=15pF): 2.7mA typ

Operating Temperature Ranges

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

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

Sales Office Contact Details:

UK: +44 (0)1460 270200

USA: +1 760 318 2824

Email: info@iqdfrequencyproducts.com

Web: www.iqdfrequencyproducts.com

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.
- No Connection (NC): Pad 1 No Connection

Noise Parameters

- Phase Noise (F=20MHz, typ):
 - 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):
 - 61dBc/Hz @ 10Hz
 - 98dBc/Hz @ 100Hz
 - 131dBc/Hz @ 1kHz
 - 151dBc/Hz @ 10kHz
 - 160dBc/Hz @ 100kHz
 - 161dBc/Hz @ 1MHz
 - 161dBc/Hz @ 5MHz
- RMS Phase Jitter (12kHz to 20MHz):
 - F=20MHz: 256fs typ
 - F=40MHz: 232fs typ
- RMS Period Jitter over 1000 cycles (F=20MHz or 40MHz):
1.4ps typ

Environmental Parameters

- Storage Temperature Range: -55 to 125°C
- Shock:
 - Standard: 5000G, 0.5ms, 1/2 sine
 - HGD: 30000G, 0.5ms, 1/2 sine
 - HGF: 50000G, 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.

Manufacturing Details

- Maximum Process Temperature: 260°C for 20secs max
- RoHS Terminations Various
- RoHS Reflow 260°C max for 20secs max

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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
 - HGD = 30000G
 - HGF = 50000G
- Termination Variants:
 - SM1 = Gold Plated
 - SM5 = Solder Dipped
 Note: Non-RoHS compliant terminations are available - please contact an IQD Sales Office.
- Pad 1 Function Options:
 - EN = Enable/Disable
 - NC = No connection
- Example
 - 40.0MHz STXO A 2.5V-HGD-SM1
 - CMOS ± 10 ppm -40 to 85C EN

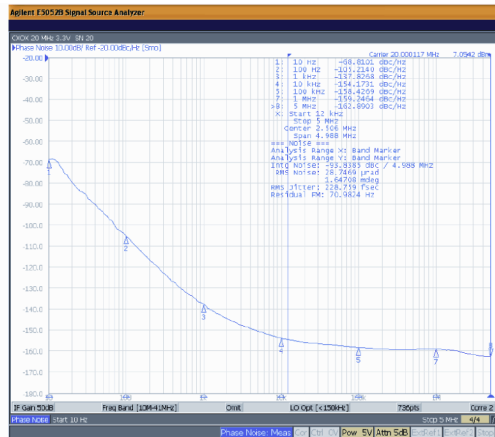
Compliance

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

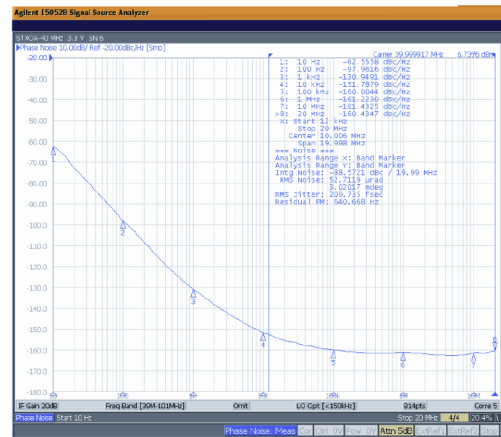
Packaging Details

- 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

Phase Noise Performance @ 20MHz



Phase Noise Performance @ 40MHz



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Electrical Specification - maximum limiting values 2.5V \pm 10%

Frequency Min	Frequency Max	Temperature Range	Stability (Min)	Current Draw	Rise and Fall Time	Duty Cycle
		°C	ppm	mA	ns	%
10.0MHz	55.0MHz	-40 to 85	\pm 5.0	-	5	45/55%
		-40 to 105	\pm 10.0	-	5	45/55%
		-55 to 125	\pm 15.0	-	5	45/55%

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

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