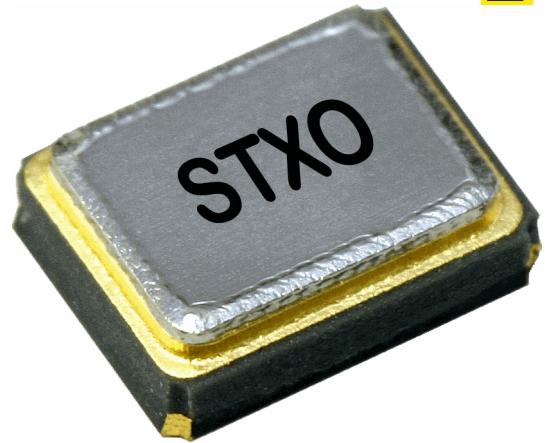


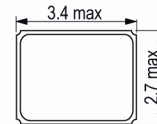
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### Description

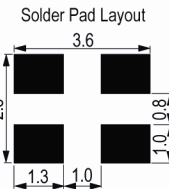
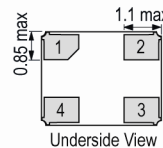
- State-of-the-art design, process, manufacturing and testing capabilities have made the development of the ultra-miniature 3.2mm x 2.5mm STXO oscillator achievable. Performance capabilities include low RMS jitter (typical <300fs), low phase noise (noise floor typical <-161dBc/Hz), tight frequency stability ( $\pm 15$  ppm total over -55 to 125°C to  $\pm 5$ 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)
- HGG-SM1 75000G (Gold plated, RoHS compliant)
- HGG-SM5 75000G (Solder dipped, RoHS compliant)
- SM1 (Gold plated, RoHS compliant)
- SM5 (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
  - Full military testing per MIL-PRF-55310 available
  - CMOS output; enable/disable with Tri-State
  - Fundamental frequency; no PLL
  - Hermetically sealed ceramic package
- APPLICATIONS:**
  - Defence and 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) -SM5 = (Solder dipped, RoHS compliant)



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



### Frequency Parameters

- Frequency: 10.0MHz to 80.0MHz
- Frequency Stability:  $\pm 5.00$ ppm to  $\pm 20.00$ ppm
- Ageing:  $\pm 2$ ppm max in 1st year @ 25°C
- Note: For tighter total frequency stabilities please contact an IQD Sales Office.

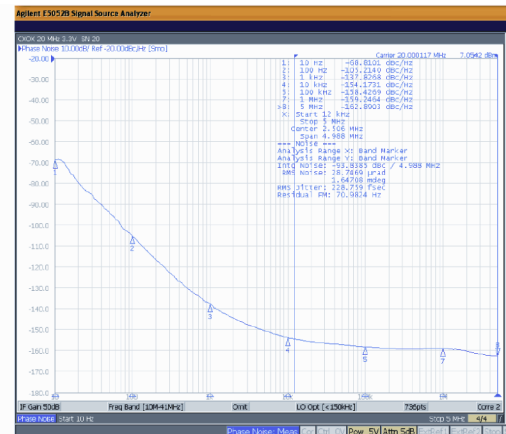
### Electrical Parameters

- Supply Voltage: 3.0V  $\pm 10\%$
- 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

### Phase Noise Performance @ 20MHz



### Sales Office Contact Details:

UK: +44 (0)1460 270200

USA: +1 760 318 2824

Email: [info@iqdfrequencyproducts.com](mailto:info@iqdfrequencyproducts.com)

Web: [www.iqdfrequencyproducts.com](http://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.
- 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: 229fs typ  
F=40MHz: 228fs typ
- RMS Period Jitter over 10000 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  
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.

### Manufacturing Details

- 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  
HGG = 75000g
- 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 3.0V-HGD-SM1  
CMOS ±10ppm -40 to 85C EN

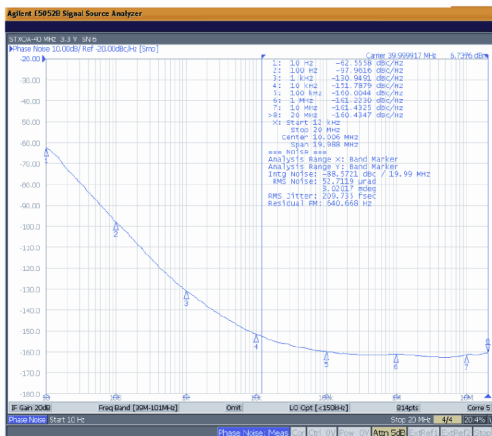
**Compliance**

- 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

**Phase Noise Performance @ 40MHz**



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Electrical Specification - maximum limiting values 3.0V  $\pm$ 10%

Frequency Min	Frequency Max	Temperature Range	Stability (Min)	Current Draw	Rise and Fall Time	Duty Cycle
		°C	ppm	mA	ns	%
10.0MHz	80.0MHz	-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.*

[Click to view latest version on our website.](#)

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