

ISSUE 1; December 2020

### Description

- Simple package crystal oscillator (SPXO) in a seam sealed ceramic package with a metal lid and operates over a wide supply voltage range of 1.62V to 3.63V.
- Note: Operating temperature range -40 to 125°C is intended for industrial use and not for safety critical applications such as automotive. Please contact IQD for alternative options.



### Frequency Parameters

- Frequency: 1.0MHz to 54.0MHz
- Frequency Stability:  $\pm 20.00\text{ppm}$  to  $\pm 100.00\text{ppm}$
- Ageing:  $\pm 3\text{ppm}$  max in 1st year @ 25°C
- Frequency Stability: inclusive of frequency tolerance at 25°C  $\pm 3^\circ\text{C}$  and over the operating temperature range.

### Electrical Parameters

- Supply Voltage: 1.62V min to 3.63V max

### Operating Temperature Ranges

- 10 to 70°C
- 40 to 85°C
- 40 to 125°C

### Output Details

- Output Compatibility: CMOS
- Drive Capability: 15pF max

### Output Control

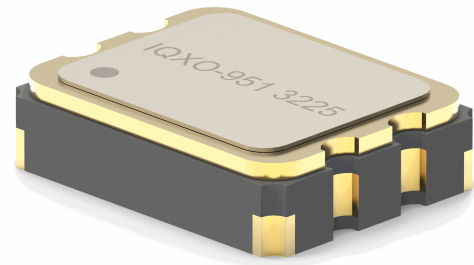
- Standby Operation:
  - Logic '1' (>70% VS) to pad 1 enables oscillator output
  - Logic '0' (<30% VS) to pad 1 disables oscillator output; when disabled the oscillator output goes to the high impedance state
  - No connection to pad 1 enables oscillator output.
- Start-up Time: 10ms max
  - 0.2ms typ to 90% of final amplitude (under ideal conditions @ 25°C)
- Standby Current: 20 $\mu\text{A}$  max, 1.5 $\mu\text{A}$  typ @ 25°C

### Noise Parameters

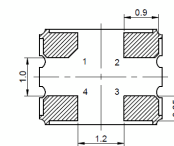
- RMS Phase Jitter (12kHz to 5MHz): 152fs typ @ 25MHz
- Phase Noise (typ @ 25MHz, 3.3V and @ 25°C):
  - 73dBc/Hz @ 10Hz
  - 107dBc/Hz @ 100Hz
  - 138dBc/Hz @ 1kHz
  - 156dBc/Hz @ 10kHz
  - 162dBc/Hz @ 100kHz
  - 162dBc/Hz @ 1MHz

### Environmental Parameters

- Storage Temperature Range: -55 to 125°C
- Shock: 1500g, 0.5ms, 6 sides, impact each side 3 times.
- Vibration: 20Hz-2000Hz, 1.52mm peak amplitude, 20g acceleration in 3 mutually perpendicular planes, 20mins per axis (total 4hrs)

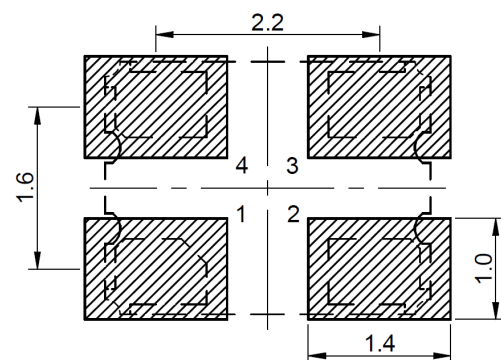
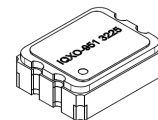
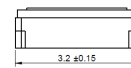


### Outline (mm)



#### Pad Connections

- Standby Operation
- GND
- Output
- Vs



### Sales Office Contact Details:

UK: +44 (0)1460 270200  
Germany: 0800 1808 443

France: 0800 901 383  
USA: +1.760.318.2824

Email: [info@iqdfrequencyproducts.com](mailto:info@iqdfrequencyproducts.com)  
Web: [www.iqdfrequencyproducts.com](http://www.iqdfrequencyproducts.com)

### Manufacturing Details

- RoHS Terminations Au
- RoHS Reflow 260°C max

### Compliance

- RoHS Status (2015/863/EU) Compliant
- REACH Status Compliant
- MSL Rating (JDEC-STD-033): 1

### Packaging Details

- Pack Style: Reel Tape and reel in accordance with  
Pack Size: 3,000 EIA-481-D
- Pack Style: Cutt Cut tape  
Pack Size: 100

### Electrical Specification - maximum limiting values

Frequency	Frequency	Temperature Range	Stability	Current	Rise and Fall Time	Duty Cycle
		°C	ppm	mA	ns	%
1.0MHz	9.999999MHz	-10 to 70	±20.0	7	7	45/55%
		-40 to 85	±20.0	7	7	45/55%
		-40 to 125	±50.0	7	7	45/55%
10.0MHz	19.999999MHz	-10 to 70	±20.0	7	7	45/55%
		-40 to 85	±20.0	7	7	45/55%
		-40 to 125	±50.0	7	7	45/55%
20.0MHz	31.999999MHz	-10 to 70	±20.0	12	6	45/55%
		-40 to 85	±20.0	12	6	45/55%
		-40 to 125	±50.0	12	6	45/55%
32.0MHz	54.0MHz	-10 to 70	±20.0	20	6	45/55%
		-40 to 85	±20.0	20	6	45/55%
		-40 to 125	±50.0	20	6	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.](#)

### Sales Office Contact Details:

UK: +44 (0)1460 270200  
Germany: 0800 1808 443

France: 0800 901 383  
USA: +1.760.318.2824

Email: [info@iqdfrequencyproducts.com](mailto:info@iqdfrequencyproducts.com)  
Web: [www.iqdfrequencyproducts.com](http://www.iqdfrequencyproducts.com)