

ISSUE 1; September 2021



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: 2.0MHz to 50.0MHz
- Frequency Stability: $\pm 25.00\text{ppm}$ 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

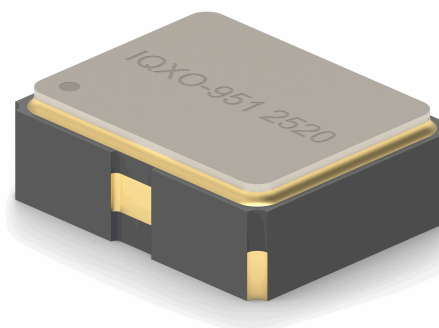
- Standby Operation:
 - Logic '1' (>70% VS) to pad 1 enables oscillator output
 - Logic '0' (<30% VS) to pad 1 disables oscillator output; when disabled the oscillator output goes to the high impedance state
 - No connection to pad 1 enables oscillator output.
- Start-up Time: 10ms max
1ms typ to 90%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

Output Levels

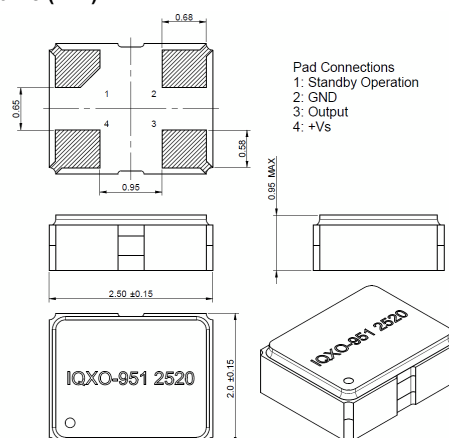
- Output Voltage Levels:
 - Output High (VoH): Vs-0.4V min
 - Output Low (VoL): 0.4V max

Noise Parameters

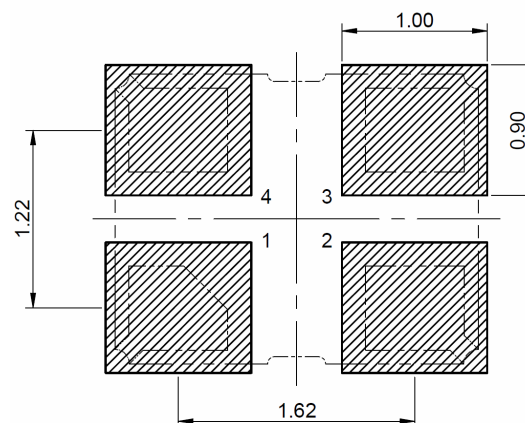
- RMS Phase Jitter (12kHz to 5MHz): 300fs typ @ 33MHz
- Phase Noise (typ @ 33MHz and @ 25°C):
 - 57dBc/Hz @ 10Hz
 - 94dBc/Hz @ 100Hz
 - 127dBc/Hz @ 1kHz
 - 145dBc/Hz @ 10kHz
 - 152dBc/Hz @ 100kHz
 - 152dBc/Hz @ 1MHz



Outline (mm)



Recommended Solder Pad Layout



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
 Web: www.iqdfrequencyproducts.com

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)

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	%
2.0MHz	9.999999MHz	-10 to 70	±100.0	7	7	45/55%
		-40 to 85	±25.0	7	7	45/55%
		-40 to 125	±50.0	7	7	45/55%
10.0MHz	19.999999MHz	-10 to 70	±50.0	7	7	45/55%
		-40 to 85	±25.0	7	7	45/55%
		-40 to 125	±50.0	7	7	45/55%
20.0MHz	31.999999MHz	-10 to 70	±50.0	12	6	45/55%
		-40 to 85	±25.0	12	6	45/55%
		-40 to 125	±50.0	12	6	45/55%
32.0MHz	50.0MHz	-10 to 70	±50.0	20	6	45/55%
		-40 to 85	±25.0	20	6	45/55%
		-40 to 125	±50.0	20	6	45/55%

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