

ISSUE 5; January 2025

Description

- 32.768kHz miniature 2 x 1.6mm crystal oscillator in an hermetically sealed ceramic package with a seam sealed metal lid.

Frequency Parameters

- Frequency: 32.768kHz
- Frequency Stability: $\pm 25.00\text{ppm}$ to $\pm 100.00\text{ppm}$
- Ageing: $\pm 3\text{ppm}$ max per year @ 25°C

Electrical Parameters

- Supply Voltage: 3.3V $\pm 10\%$

Operating Temperature Ranges

- 20 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' ($\geq 70\%V_s$) to pad 1 enables oscillator output
Logic '0' ($\leq 30\%V_s$) 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.
- Standby Current:
10 μA max @ -40 to 85°C
20 μA max @ -40 to 125°C
- Start-up Time: 10ms max
0.3ms typ to 90% of final amplitude (under ideal conditions @ 25°C)

Environmental Parameters

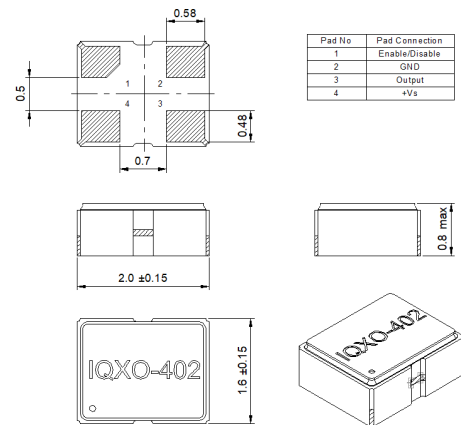
- Storage Temperature Range: -55 to 125°C
- Shock: 1500G, 0.5ms, 3 times for each surface, total 18 times.
- Vibration: Frequency range: 20~2000Hz, peak to peak amplitude 1.52mm, peak acceleration: 20g (196m/s²), 3 directions (X, Y, Z), each cycle: 20min, 4 cycles for each direction.

Manufacturing Details

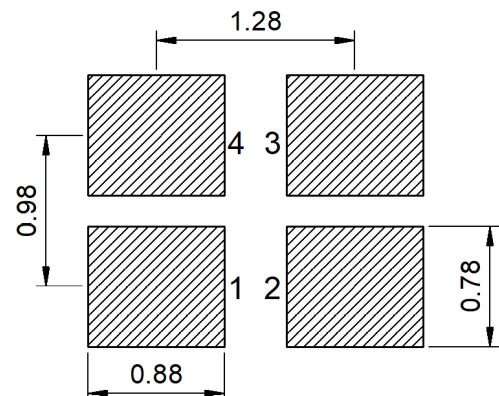
- RoHS Terminations: Au over Ni
- RoHS Reflow: 260°C max for 10s max



Outline (mm)



Recommended Solder Pad Layout



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Ordering Information

- Frequency
- Model*
- Output
- Frequency Stability*
- Operating Temperature Range*
- Supply Voltage
- (*minimum required)
- Example
- 32.768kHz IQXO-402
- CMOS ± 30 ppm -20 to 70°C 3.3V

Compliance

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

Packaging Details

- Tape & reel in accordance with EIA-481
- Quantities below the standard reel size to be supplied on cut tape.
- Standard Pack Quantity: 3,000

Electrical Specification - maximum limiting values 3.30V $\pm 10\%$

Frequency	Temperature Range	Stability (Min)	Current Draw	Rise and Fall Time	Duty Cycle
	$^{\circ}\text{C}$	ppm	mA	ns	%
32.768kHz	-40 to 85	± 30.00	0.2	100	40/60%
	-40 to 125	± 100.00	0.2	100	40/60%
	-20 to 70	± 25.00	0.2	100	40/60%

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