

ISSUE 4; July 2024

### 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: 1.8V  $\pm 5\%$

### Operating Temperature Ranges

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

### Output Details

- Output Compatibility: CMOS
- Drive Capability: 15pF

### Output Control

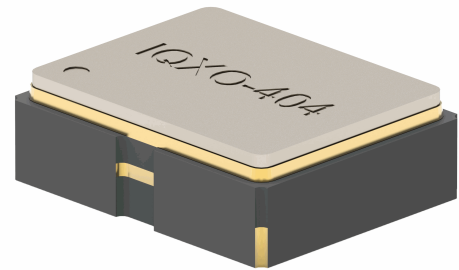
- Standby Operation:  
Logic '1' ( $\geq 70\%V_S$ ) to pad 1 enables oscillator output  
Logic '0' ( $\leq 30\%V_S$ ) to pad 1 disables oscillator output; when disabled the oscillator output goes to the high impedance state.  
No connection to pad 1 enables oscillator output.
- Standby Current:  
10 $\mu\text{A}$  max @ -40 to 85°C  
20 $\mu\text{A}$  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

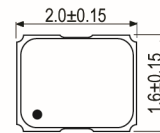
- Storage Temperature Range: -55 to 125°C
- Shock: 1500G, 0.5ms, 3 times for each surface, total 18 times.
- Vibration: Frequency range: 20~2000Hz, peak to peak amplitude 1.52mm, peak acceleration: 20G (196m/s<sup>2</sup>), 3 directions (X, Y, Z), each cycle: 20min, 4 cycles for each direction.

### Manufacturing Details

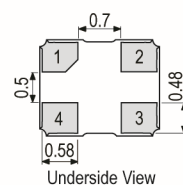
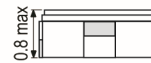
- RoHS Terminations: Au over Ni
- RoHS Reflow: 260°C max for 10s max



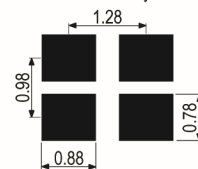
### Outline (mm)



- Pad Connections
- Standby Operation
  - GND
  - Output
  - +Vs



### 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-404  
CMOS ±30ppm -20 to 70C 1.8V

### 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 1.80V ±5%

Frequency	Temperature Range	Stability (Min)	Current Draw	Rise and Fall Time	Duty Cycle
	°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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