



IQXO-40x

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

| Model Name | Description |
|-------------------|-----------------------|
| IQXO-402 | A 3.3V version |
| IQXO-403 | A 2.5V version |
| IQXO-404 | A 1.8V version |
| | |
| | |

ISSUE 2; March 2018

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

Output Control

- E/D 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 (pad 1 at logic '0'):
 - 10 μA max @ -40+85°C
 - 20 μA max @ -40+125°C

Environmental Parameters

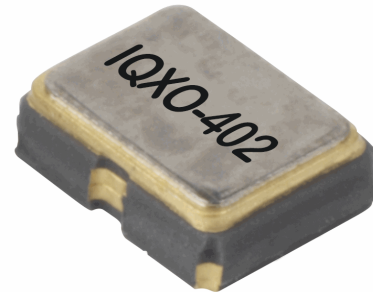
- Storage Temperature Range: -55 to 125°C
- Shock: 1500G, 0.5ms, 3 times for each surface, total 18 times.
- Vibration: Frequency range: 20~2000Hz, peak to peak amplitude 1.52mm, peak acceleration: 20G (196m/s²), 3 directions (X, Y, Z), each cycle: 20min, 4 cycles for each direction.

Ordering Information

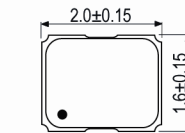
- Frequency
 - Model*
 - Output
 - Frequency Stability*
 - Operating Temperature Range*
 - Supply Voltage
 - (*minimum required)
- Example
 - 32.768kHz IQXO-402
 - CMOS $\pm 30\text{ppm}$ -20 to 70C 3.3V

Compliance

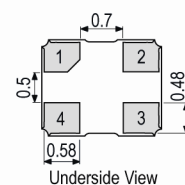
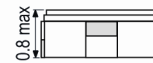
- RoHS Status (2011/65/EU): Compliant
- REACH Status: Compliant
- MSL Rating (JDEC-STD-033): Not Applicable



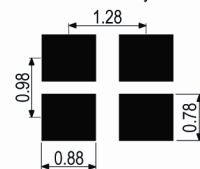
Outline (mm)



- Pad Connections
1. Enable/Disable
 2. GND
 3. Output
 4. +Vs



Solder Pad Layout



ISSUE 2; March 2018

Packaging Details

- Pack Style: Reel Tape & reel in accordance with EIA-481-D
Pack Size: 3,000
- Pack Style: Cutt In tape, cut from a reel
Pack Size: 100

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

| Frequency | Temperature Range | Stability (Min) | Current Draw | Rise and Fall Time | Duty Cycle |
|-----------|-------------------|-----------------|--------------|--------------------|------------|
| | °C | ppm | mA | ns | % |
| 32.768kHz | -40 to 85 | \pm 30.00 | 0.2 | 100 | 40/60% |
| | -40 to 125 | \pm 100.00 | 0.2 | 100 | 40/60% |
| | -20 to 70 | \pm 25.00 | 0.2 | 100 | 40/60% |

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.](#)

ISSUE 2; March 2018

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: 2.5V $\pm 5\%$

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

- E/D 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 (pad 1 at logic '0'):
 - 10 μA max @ -40+85°C
 - 20 μA max @ -40+125°C

Environmental Parameters

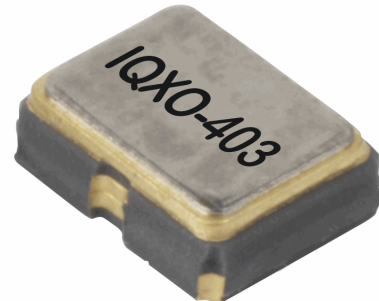
- Storage Temperature Range: -55 to 125°C
- Shock: 1500G, 0.5ms, 3 times for each surface, total 18 times.
- Vibration: Frequency range: 20~2000Hz, peak to peak amplitude 1.52mm, peak acceleration: 20G (196m/s²), 3 directions (X, Y, Z), each cycle: 20min, 4 cycles for each direction.

Ordering Information

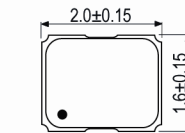
- Frequency
 - Model*
 - Output
 - Frequency Stability*
 - Operating Temperature Range*
 - Supply Voltage
 - (*minimum required)
- Example
 - 32.768kHz IQXO-403
 - CMOS $\pm 30\text{ppm}$ -20 to 70C 2.5V

Compliance

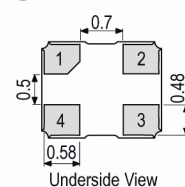
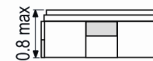
- RoHS Status (2011/65/EU): Compliant
- REACH Status: Compliant
- MSL Rating (JDEC-STD-033): Not Applicable



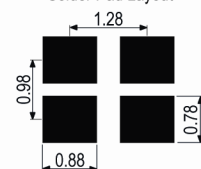
Outline (mm)



- Pad Connections
1. Enable/Disable
 2. GND
 3. Output
 4. +Vs



Solder Pad Layout



ISSUE 2; March 2018

Packaging Details

- Pack Style: Cutt In tape, cut from a reel
Pack Size: 100
- Pack Style: Reel Tape & reel in accordance with EIA-481-D
Pack Size: 3,000

Electrical Specification - maximum limiting values 2.50V \pm 5%

| Frequency | Temperature Range | Stability (Min) | Current Draw | Rise and Fall Time | Duty Cycle |
|-----------|-------------------|-----------------|--------------|--------------------|------------|
| | °C | ppm | mA | ns | % |
| 32.768kHz | -40 to 85 | \pm 30.00 | 0.2 | 100 | 40/60% |
| | -40 to 125 | \pm 100.00 | 0.2 | 100 | 40/60% |
| | -20 to 70 | \pm 25.00 | 0.2 | 100 | 40/60% |

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.](#)

ISSUE 2; March 2018

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

- E/D 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 (pad 1 at logic '0'):
 - 10 μA max @ -40+85°C
 - 20 μA max @ -40+125°C

Environmental Parameters

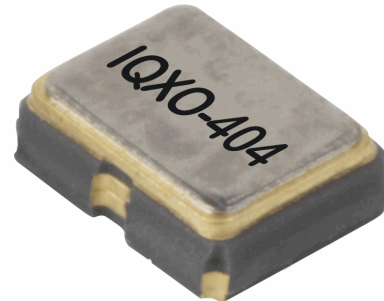
- Storage Temperature Range: -55 to 125°C
- Shock: 1500G, 0.5ms, 3 times for each surface, total 18 times.
- Vibration: Frequency range: 20~2000Hz, peak to peak amplitude 1.52mm, peak acceleration: 20G (196m/s²), 3 directions (X, Y, Z), each cycle: 20min, 4 cycles for each direction.

Ordering Information

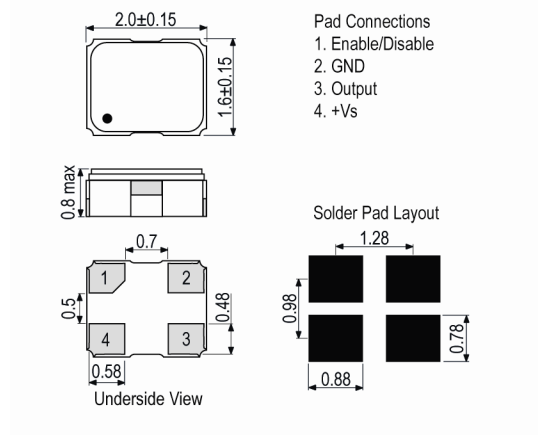
- Frequency
 - Model*
 - Output
 - Frequency Stability*
 - Operating Temperature Range*
 - Supply Voltage
 - (*minimum required)
- Example
 - 32.768kHz IQXO-404
 - CMOS $\pm 30\text{ppm}$ -20 to 70C 1.8V

Compliance

- RoHS Status (2011/65/EU): Compliant
- REACH Status: Compliant
- MSL Rating (JDEC-STD-033): Not Applicable



Outline (mm)



ISSUE 2; March 2018

Packaging Details

- Pack Style: Reel Tape & reel in accordance with EIA-481-D
Pack Size: 3,000
- Pack Style: Cutt In tape, cut from a reel
Pack Size: 100

Electrical Specification - maximum limiting values 1.80V \pm 5%

| Frequency | Temperature Range | Stability (Min) | Current Draw | Rise and Fall Time | Duty Cycle |
|-----------|-------------------|-----------------|--------------|--------------------|------------|
| | °C | ppm | mA | ns | % |
| 32.768kHz | -40 to 85 | \pm 30.00 | 0.2 | 100 | 40/60% |
| | -40 to 125 | \pm 100.00 | 0.2 | 100 | 40/60% |
| | -20 to 70 | \pm 25.00 | 0.2 | 100 | 40/60% |

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

Web: www.iqdfrequencyproducts.com