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**

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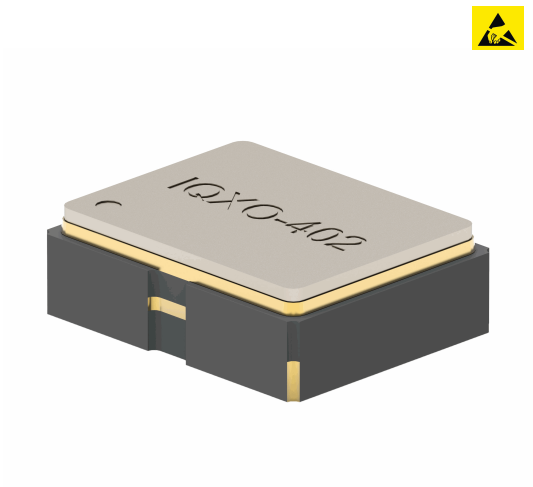
Crystal Clock Oscillator Specification
IQXO-402

ISSUE 3; October 2020

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	±25.00ppm to ±100.00ppm
Ageing	±3ppm max per year @ 25°C

Electrical Parameters

Supply Voltage	3.3V ±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

- 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.
- Standby Current:
  10µA max @ -40 to 85°C
  20µA 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.

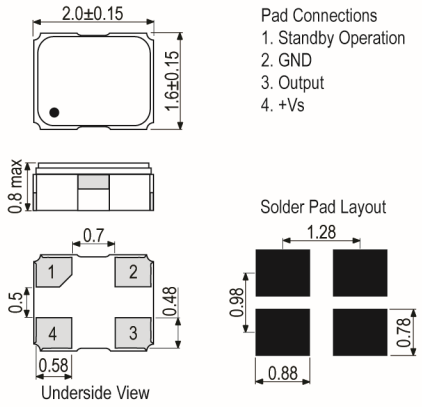
Ordering Information

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

Compliance

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

Outline (mm)



Crystal Clock Oscillator Specification
IQXO-402

ISSUE 3; October 2020

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 3.30V ±10%

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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Crystal Clock Oscillator Specification
IQXO-403

ISSUE 3; August 2020

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 ±25.00ppm to ±100.00ppm
- Ageing ±3ppm max per year @ 25°C

Electrical Parameters

- Supply Voltage 2.5V ±5%
- Start-up Time: 0.3ms typ, 10ms max

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' (≥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.
- Standby Current (pad 1 at logic '0'):
  10µA max @ -40+85°C
  20µA max @ -40+125°C

Environmental Parameters

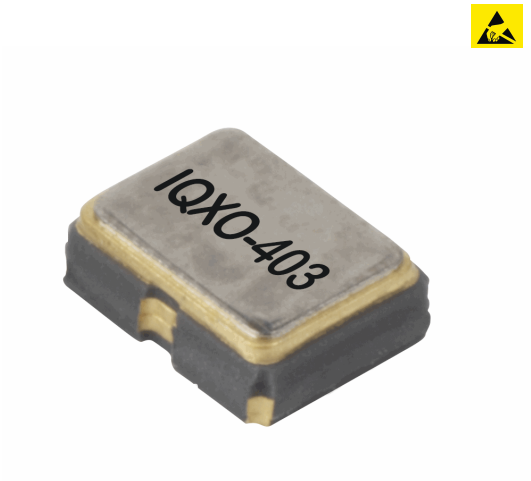
- Storage Temperature Range: –55 to 125°C
- Shock : 1500G, 0.5ms, 3 times for each surface, total 18 times.
- Vibration: Frequency range: 20~2000Hz, peak to peak amplitude 1.52mm, peak acceleration:20G (196m/s2), 3 directions (X, Y,Z), each cycle: 20min, 4 cycles for each direction.

Ordering Information

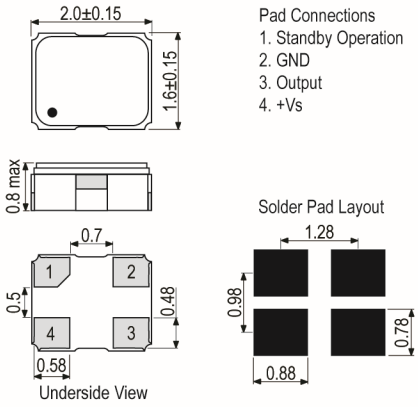
- Frequency
  Model*
  Output
  Frequency Stability*
  Operating Temperature Range*
  Supply Voltage
  (*minimum required)
- Example
  32.768kHz IQXO-403
  CMOS ±30ppm –20 to 70C 2.5V

Compliance

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



Outline (mm)



Crystal Clock Oscillator Specification
IQXO-403

ISSUE 3; August 2020

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 2.50V ±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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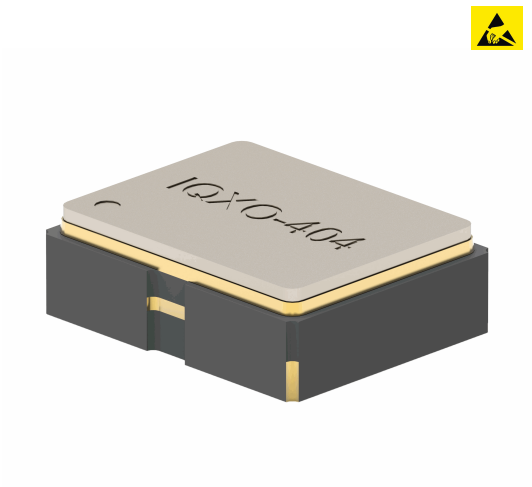
Crystal Clock Oscillator Specification
IQXO-404

ISSUE 3; October 2020

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	±25.00ppm to ±100.00ppm
Ageing	±3ppm max per year @ 25°C

Electrical Parameters

Supply Voltage	1.8V ±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' (≥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.
- Standby Current:
  10µA max @ -40 to 85°C
  20µA 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.

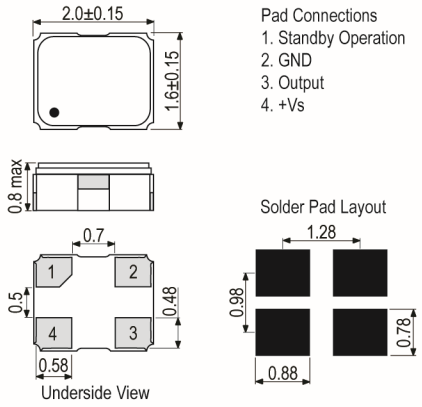
Ordering Information

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

Outline (mm)



ISSUE 3; October 2020

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 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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