



IQXO-98x

1.6 x 1.2mm crystal oscillator in a ceramic package with a seam sealed metal lid, hermetically sealed

Model Name	Description
IQXO-984	A 3.3V version
IQXO-985	A 2.5V version
IQXO-986	A 1.8V version

ISSUE 1; December 2017

Description

- 1.6 x 1.2mm crystal oscillator in a ceramic package with a seam sealed metal lid, hermetically sealed



Frequency Parameters

- Frequency: 32.768kHz
- Frequency Stability: $\pm 30.00\text{ppm}$ to $\pm 100.00\text{ppm}$
- Frequency Stability: Includes Frequency Tolerance @ 25°C, operating temperature range, supply voltage variation and load variation.

Electrical Parameters

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

Operating Temperature Ranges

- 20 to 70°C
- 40 to 85°C

Output Details

- Output Compatibility: CMOS
- Drive Capability: 15pF max
- Output Voltage Levels:
 - Output Low (VoL): 10%Vs max
 - Output High (VoH): 90%Vs min
- Start Up Time: 7ms max

Output Control

- Stand-by Mode:
 - Logic '0' (30%Vs max) to pad 1 disables the oscillator output, the output goes to a high impedance state.
 - Logic '1' (70%Vs min) or no connection to pad 1 enables oscillator output.
- Stand-by Current: 1.4µA typical 3µA max

Environmental Parameters

- Storage Temperature Range: -40 to 85°C

Ordering Information

- Frequency Model* Output Frequency Stability* Operating Temperature Range* Supply Voltage (*minimum required)
- Example: 32.768kHz IQXO-984 CMOS $\pm 50\text{ppm}$ -20 to 70C 3.3V

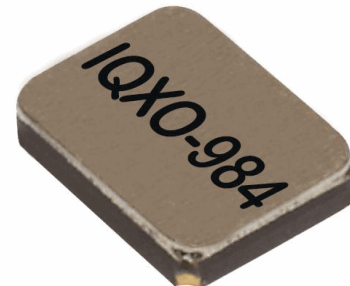
Compliance

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

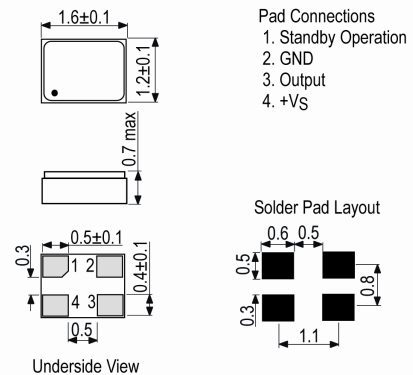
Packaging Details

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

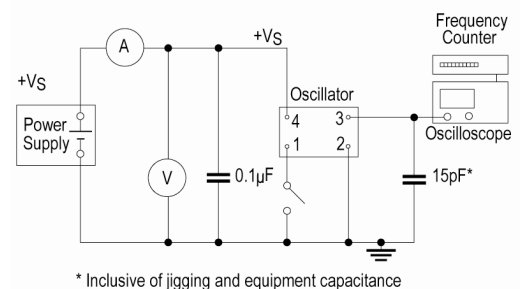
Wave Form



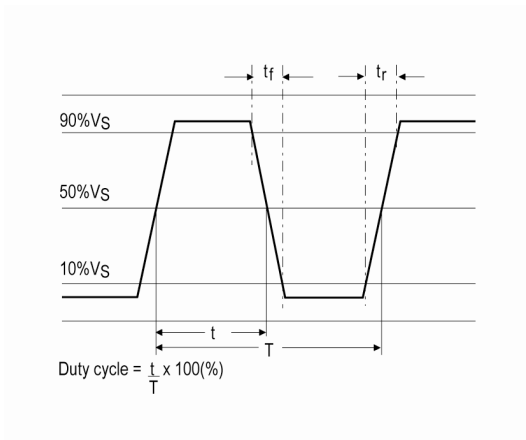
Outline (mm)



Test Circuit



ISSUE 1; December 2017



Electrical Specification - maximum limiting values 3.30V ±10%

Frequency	Temperature Range	Stability (Min)	Current [typ]	Rise and Fall Time	Duty Cycle
	°C	ppm	mA	ns	%
32.768kHz	-40 to 85	±50.00	0.025	200	45/55
	-20 to 70	±30.00	0.025	200	45/55

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Description

- 1.6 x 1.2mm crystal oscillator in a ceramic package with a seam sealed metal lid, hermetically sealed



Frequency Parameters

- Frequency: 32.768kHz
- Frequency Stability: $\pm 30.00\text{ppm}$ to $\pm 100.00\text{ppm}$
- Frequency Stability: Includes Frequency Tolerance @ 25°C, operating temperature range, supply voltage variation and load variation.

Electrical Parameters

- Supply Voltage: 2.5V $\pm 10\%$

Operating Temperature Ranges

- 20 to 70°C
- 40 to 85°C

Output Details

- Output Compatibility: CMOS
- Drive Capability: 15pF max
- Output Voltage Levels:
 - Output Low (VoL): 10%Vs max
 - Output High (VoH): 90%Vs min
- Start Up Time: TBD

Output Control

- Stand-by Mode:
 - Logic '0' (30%Vs max) to pad 1 disables the oscillator output, the output goes to a high impedance state.
 - Logic '1' (70%Vs min) or no connection to pad 1 enables oscillator output.
- Stand-by Current: 1.4µA typical 3µA max

Environmental Parameters

- Storage Temperature Range: -40 to 85°C

Ordering Information

- Frequency Model*
 - Output Frequency Stability*
 - Operating Temperature Range*
 - Supply Voltage (*minimum required)
- Example
 - 32.768kHz IQXO-985
 - CMOS $\pm 50\text{ppm}$ -20 to 70C 2.5V

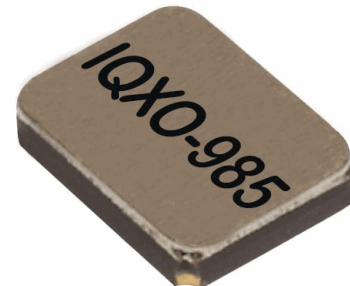
Compliance

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

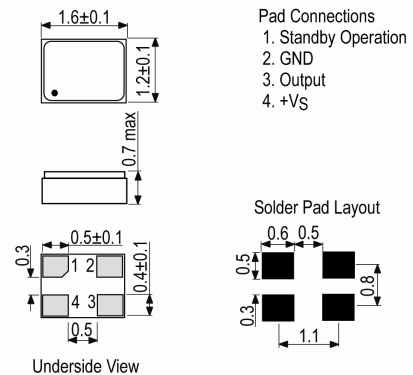
Packaging Details

- 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

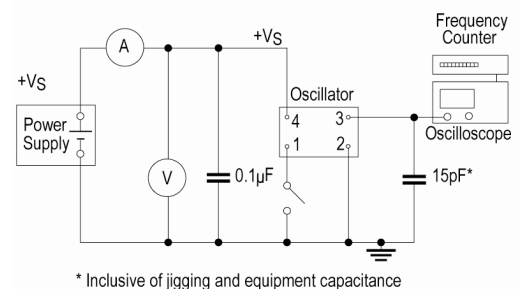
Wave Form



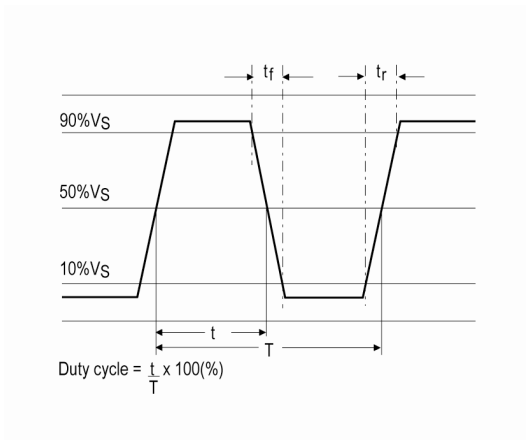
Outline (mm)



Test Circuit



ISSUE 1; December 2017



Electrical Specification - maximum limiting values 2.50V ±10%

Frequency	Temperature Range	Stability (Min)	Current [typ]	Rise and Fall Time	Duty Cycle
	°C	ppm	mA	ns	%
32.768kHz	-40 to 85	±50.00	0.025	200	45/55
	-20 to 70	±30.00	0.025	200	45/55

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Description

- 1.6 x 1.2mm crystal oscillator in a ceramic package with a seam sealed metal lid, hermetically sealed



Frequency Parameters

- Frequency: 32.768kHz
- Frequency Stability: $\pm 30.00\text{ppm}$ to $\pm 100.00\text{ppm}$
- Frequency Stability: Includes Frequency Tolerance @ 25°C, operating temperature range, supply voltage variation and load variation.

Electrical Parameters

- Supply Voltage: 1.8V $\pm 10\%$

Operating Temperature Ranges

- 20 to 70°C
- 40 to 85°C

Output Details

- Output Compatibility: CMOS
- Drive Capability: 15pF max
- Output Voltage Levels:
 - Output Low (VoL): 10%Vs max
 - Output High (VoH): 90%Vs min
- Start Up Time: 10ms max

Output Control

- Stand-by Mode:
 - Logic '0' (30%Vs max) to pad 1 disables the oscillator output, the output goes to a high impedance state.
 - Logic '1' (70%Vs min) or no connection to pad 1 enables oscillator output.
- Stand-by Current: 1.4µA typical 3µA max

Environmental Parameters

- Storage Temperature Range: -40 to 85°C

Ordering Information

- Frequency Model* Output Frequency Stability* Operating Temperature Range* Supply Voltage (*minimum required)
- Example: 32.768kHz IQXO-986 CMOS $\pm 50\text{ppm}$ -20 to 70C 1.8V

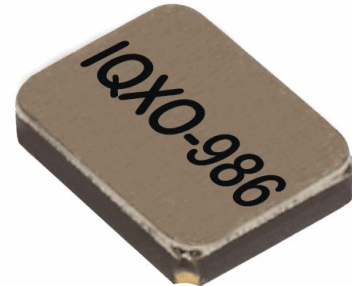
Compliance

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

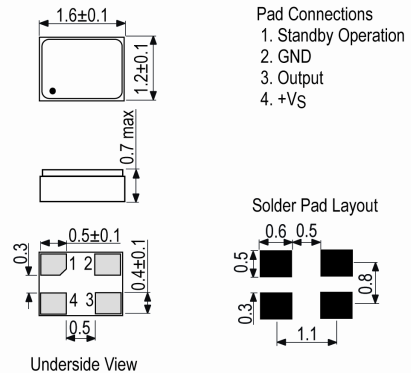
Packaging Details

- 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

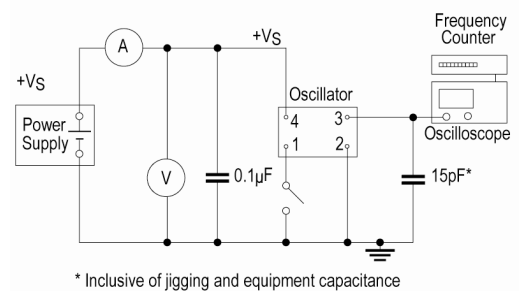
Wave Form



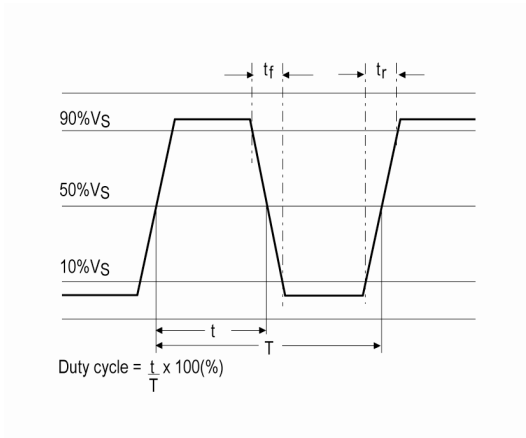
Outline (mm)



Test Circuit



ISSUE 1; December 2017



Electrical Specification - maximum limiting values 1.80V ±10%

Frequency	Temperature Range	Stability (Min)	Current [typ]	Rise and Fall Time	Duty Cycle
	°C	ppm	mA	ns	%
32.768kHz	-40 to 85	±50.00	0.024	200	45/55
	-20 to 70	±30.00	0.024	200	45/55

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