



## **IQXO-98x**

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

<b>Model Name</b>	<b>Description</b>
<b>IQXO-984</b>	<b>A 3.3V version</b>
<b>IQXO-985</b>	<b>A 2.5V version</b>
<b>IQXO-986</b>	<b>A 1.8V version</b>

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

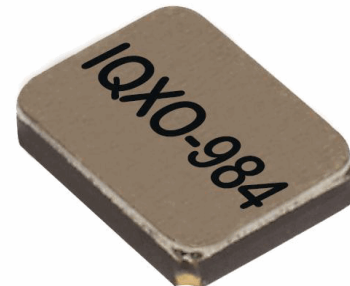
### Compliance

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

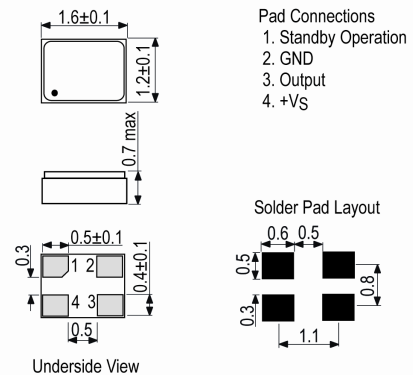
### Packaging Details

- Pack Style: 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

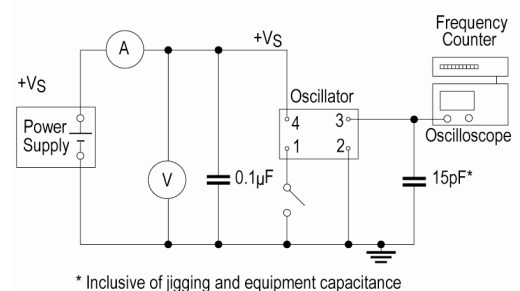
### Wave Form



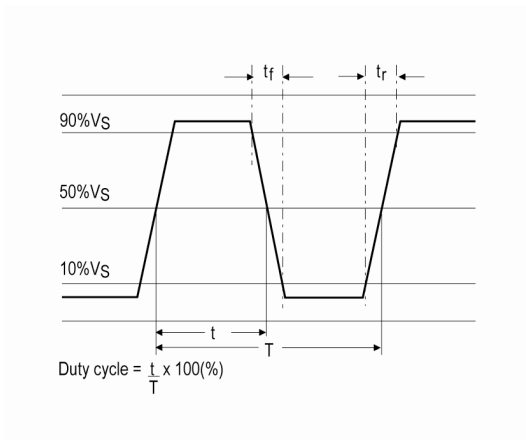
### Outline (mm)



### Test Circuit



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**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

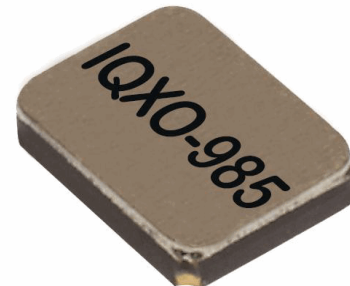
### Compliance

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

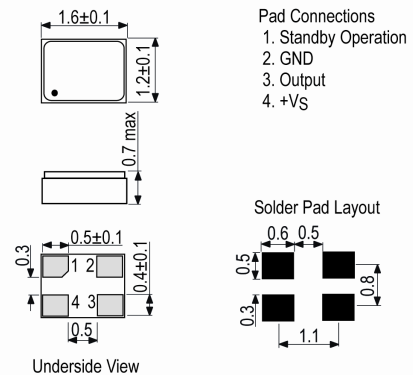
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- Pack Style: Cutt In tape, cut from a reel
  - Pack Size: 100
- Pack Style: Reel Tape & reel in accordance with EIA-481-D
  - Pack Size: 3,000

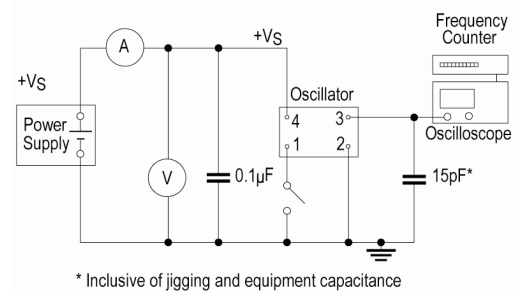
### Wave Form



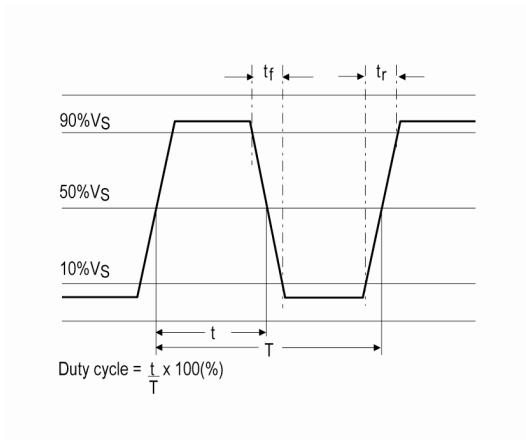
### Outline (mm)



### Test Circuit



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**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

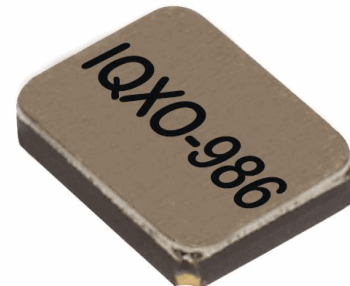
### Compliance

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

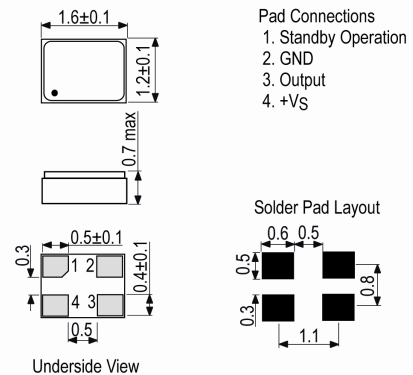
### Packaging Details

- 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

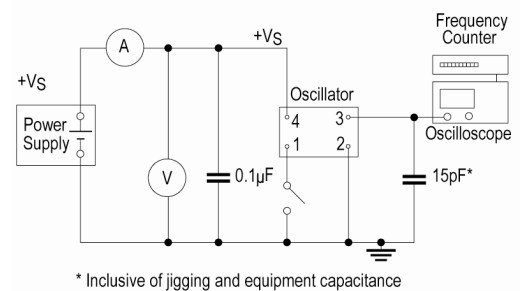
### Wave Form



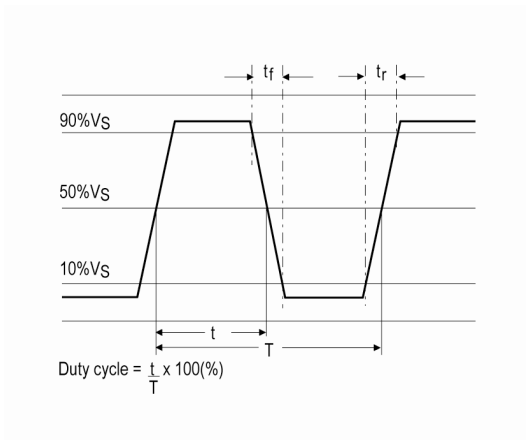
### Outline (mm)



### 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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