



IQXO-54x

Standard 2 x 1.6mm crystal oscillator in a ceramic package with a seam sealed metal lid, hermetically sealed

Model Name	Description
IQXO-540	A 3.3V version
IQXO-541	A 2.5V version
IQXO-542	A 1.8V version

ISSUE 2; December 2017

Description

- Standard 2 x 1.6mm crystal oscillator in a ceramic package with a seam sealed metal lid, hermetically sealed



Frequency Parameters

- Frequency: 1.0MHz to 80.0MHz
- Frequency Stability: $\pm 30.00\text{ppm}$ to $\pm 100.00\text{ppm}$
- Ageing: $\pm 5\text{ppm}$

Electrical Parameters

- Supply Voltage: $3.3\text{V} \pm 10\%$
- Standby Current: $10\mu\text{A}$ max (pad 1 at logic '0')

Operating Temperature Ranges

- 20 to 70°C
- 40 to 85°C

Output Details

- Output Compatibility: CMOS
- Drive Capability: 15pF max

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

Environmental Parameters

- Impact: Weight of 10G dropped to centre of part from a height of 6mm
- Vibration: IEC 60068-2-6: 1.5mm amplitude, 10Hz-55Hz, 1min in 3 mutually perpendicular planes, duration 2hrs each plane (total 6hrs)
- Storage Temperature Range: -40 to 85°C

Ordering Information

- Frequency*
- Model*
- Output
- Frequency Stability*
- Operating Temperature Range*
- Supply Voltage
- (*minimum required)
- Example
- 10.0MHz IQXO-540
- CMOS $\pm 50\text{ppm}$ -20 to 70C 3.3V

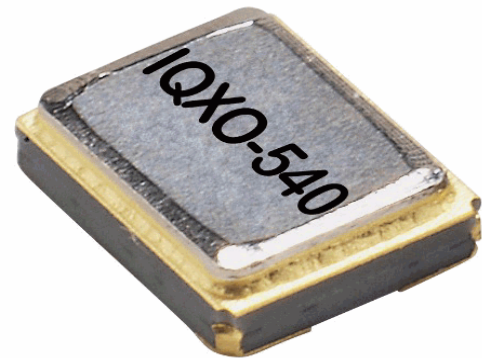
Compliance

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

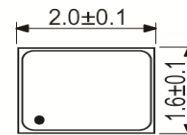
Packaging Details

- 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: 1,000

Test Circuit

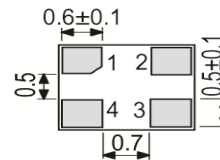
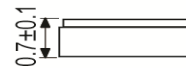


Outline (mm)



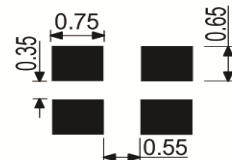
Pad Connections

- Standby Operation
- GND
- Output
- +Vs



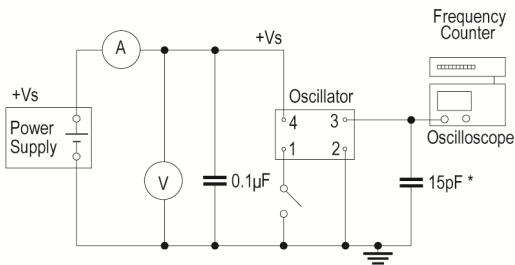
Underside View

Solder Pad Layout

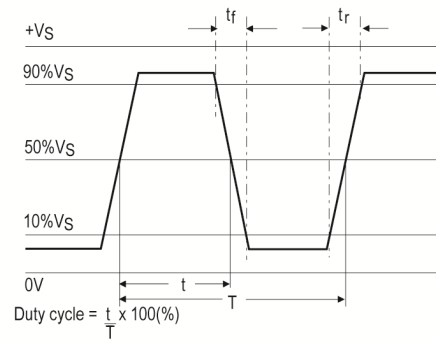


Wave Form

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* Inclusive of jigging and equipment capacitance



Electrical Specification - maximum limiting values 3.3V ±10%

Frequency Min	Frequency Max	Temperature Range	Stability (Min)	Current Draw	Rise and Fall Time	Duty Cycle
		°C	ppm	mA	ns	%
1.0MHz	19.999999MHz	-20 to 70 -40 to 85	±30.0 ±50.0	4 4	5 5	45/55% 45/55%
20.0MHz	39.999999MHz	-20 to 70 -40 to 85	±30.0 ±50.0	7 7	5 5	45/55% 45/55%
40.0MHz	59.999999MHz	-20 to 70 -40 to 85	±30.0 ±50.0	10 10	5 5	45/55% 45/55%
60.0MHz	80.0MHz	-20 to 70 -40 to 85	±30.0 ±50.0	15 15	5 5	45/55% 45/55%

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Description

- Standard 2 x 1.6mm crystal oscillator in a ceramic package with a seam sealed metal lid, hermetically sealed

Frequency Parameters

- Frequency: 1.0MHz to 80.0MHz
- Frequency Stability: $\pm 30.00\text{ppm}$ to $\pm 100.00\text{ppm}$
- Ageing: $\pm 5\text{ppm}$

Electrical Parameters

- Supply Voltage: 2.5V $\pm 10\%$
- Standby Current: 10 μA max (pad 1 at logic '0')

Operating Temperature Ranges

- 20 to 70°C
- 40 to 85°C

Output Details

- Output Compatibility: CMOS
- Drive Capability: 15pF max

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

Environmental Parameters

- Impact: Weight of 10g dropped to centre of part from a height of 6mm
- Vibration: IEC 60068-2-6: 1.5mm amplitude, 10Hz-55Hz, 1min in 3 mutually perpendicular planes, duration 2hrs each plane (total 6hrs)
- Storage Temperature Range: -40 to 85°C

Ordering Information

- Frequency*
- Model*
- Output
- Frequency Stability*
- Operating Temperature Range*
- Supply Voltage (*minimum required)
- Example
10.0MHz IQXO-541
CMOS $\pm 50\text{ppm}$ -20 to 70C 2.5V

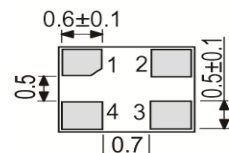
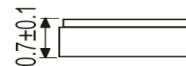
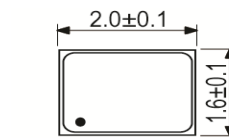
Compliance

- 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: 1,000

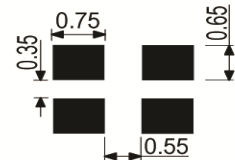
Outline (mm)



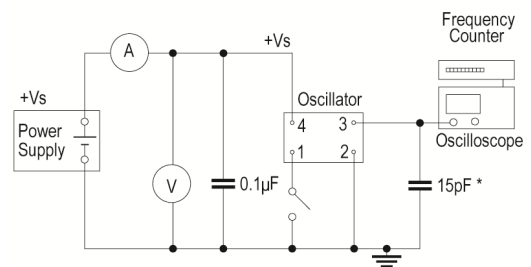
Underside View

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

Solder Pad Layout

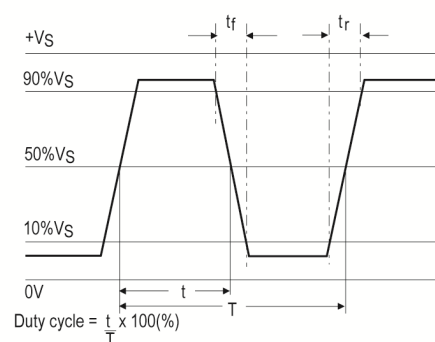


Test Circuit



* Inclusive of jigging and equipment capacitance

Wave Form





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Electrical Specification - maximum limiting values 2.5V \pm 10%

Frequency Min	Frequency Max	Temperature Range	Stability (Min)	Current Draw	Rise and Fall Time	Duty Cycle
		°C	ppm	mA	ns	%
1.0MHz	19.999999MHz	-20 to 70 -40 to 85	\pm 30.0 \pm 50.0	4 4	5 5	45/55% 45/55%
20.0MHz	39.999999MHz	-20 to 70 -40 to 85	\pm 30.0 \pm 50.0	6 6	5 5	45/55% 45/55%
40.0MHz	59.999999MHz	-20 to 70 -40 to 85	\pm 30.0 \pm 50.0	7 7	5 5	45/55% 45/55%
60.0MHz	80.0MHz	-20 to 70 -40 to 85	\pm 30.0 \pm 50.0	10 10	5 5	45/55% 45/55%

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Description

- Standard 2 x 1.6mm crystal oscillator in a ceramic package with a seam sealed metal lid, hermetically sealed

Frequency Parameters

- Frequency: 1.0MHz to 80.0MHz
- Frequency Stability: $\pm 30.00\text{ppm}$ to $\pm 100.00\text{ppm}$
- Ageing: $\pm 5\text{ppm}$

Electrical Parameters

- Supply Voltage: $1.8\text{V} \pm 10\%$
- Standby Current: $10\mu\text{A}$ max (pad 1 at logic '0')

Operating Temperature Ranges

- 20 to 70°C
- 40 to 85°C

Output Details

- Output Compatibility: CMOS
- Drive Capability: 15pF max

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

Environmental Parameters

- Impact: Weight of 10g dropped to centre of part from a height of 6mm
- Vibration: IEC 60068-2-6: 1.5mm amplitude, 10Hz-55Hz, 1min in 3 mutually perpendicular planes, duration 2hrs each plane (total 6hrs)
- Storage Temperature Range: -40 to 85°C

Ordering Information

- Frequency*
- Model*
- Output
- Frequency Stability*
- Operating Temperature Range*
- Supply Voltage (*minimum required)
- Example
10.0MHz IQXO-542
CMOS $\pm 50\text{ppm}$ -20 to 70C 1.8V

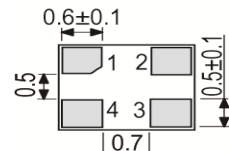
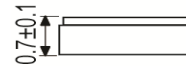
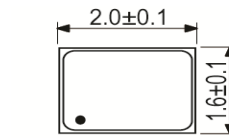
Compliance

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


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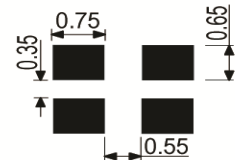
Outline (mm)



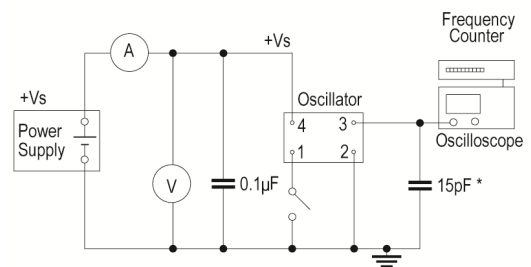
Underside View

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

Solder Pad Layout

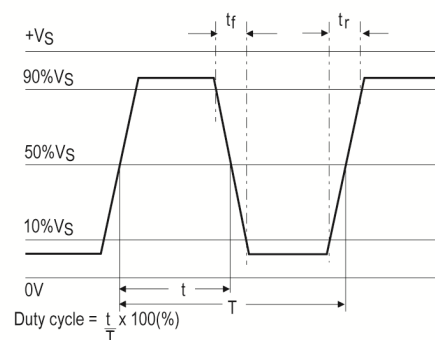


Test Circuit



* Inclusive of jigging and equipment capacitance

Wave Form



ISSUE 2; December 2017

Electrical Specification - maximum limiting values 1.8V \pm 10%

Frequency Min	Frequency Max	Temperature Range	Stability (Min)	Current Draw	Rise and Fall Time	Duty Cycle
		°C	ppm	mA	ns	%
1.0MHz	19.999999MHz	-20 to 70	\pm 30.0	3	5	45/55%
		-40 to 85	\pm 50.0	3	5	45/55%
20.0MHz	39.999999MHz	-20 to 70	\pm 30.0	5	5	45/55%
		-40 to 85	\pm 50.0	5	5	45/55%
40.0MHz	59.999999MHz	-20 to 70	\pm 30.0	6	5	45/55%
		-40 to 85	\pm 50.0	6	5	45/55%
60.0MHz	80.0MHz	-20 to 70	\pm 30.0	8	5	45/55%
		-40 to 85	\pm 50.0	8	5	45/55%

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