



IQXO-618

LVDS output crystal oscillator in a hermetically sealed ceramic package with a seam sealed metal lid.

Model Name	Description
IQXO-618-25	A 2.5V version
IQXO-618-33	A 3.3V version

ISSUE 1; June 2018

Description

- LVDS output crystal oscillator in a hermetically sealed ceramic package with a seam sealed metal lid.



Frequency Parameters

- Frequency: 100.0MHz to 125.0MHz
- Frequency Stability: $\pm 30.00\text{ppm}$ to $\pm 70.00\text{ppm}$
- Ageing: $\pm 3\text{ppm}$ max per year at 25°C

Electrical Parameters

- Supply Voltage: 2.5V $\pm 5\%$
- Start-Up Time: 10ms max

Operating Temperature Ranges

- -40 to 105°C
- -40 to 125°C

Output Details

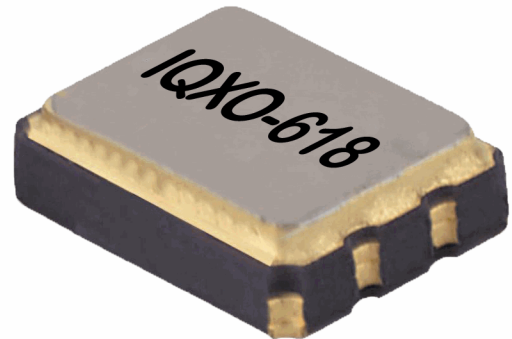
- Output Compatibility: LVDS
- Drive Capability: 100Ω
- Differential Output Voltage (VoD): 0.25V min, 0.45V max
- Offset Voltage (VOS): 1.125V min, 1.250V typ, 1.375V max.
- Output Voltage Levels:
 - Output Low (VoL): 0.9V min
 - Output High (VoH): 1.6V max

Output Control

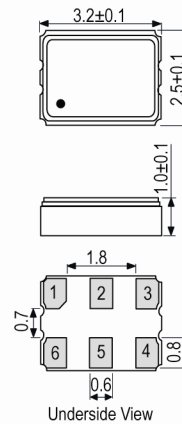
- Enable/Disable:
 - Logic '1' ($\geq 70\%$ Vs) to pad 1 enables oscillator output.
 - Logic '0' ($\leq 30\%$ Vs) to pad 1 disables oscillator output; when disabled the oscillator output goes to the high impedance state.
 - No connection to pad 1 enables oscillator output.
 - Standby Current: 10μA max
- Output Enable Delay Time: 2ms max
- Output Disable Delay Time: 200ns max

Noise Parameters

- Phase Jitter (12kHz to 20MHz): 1ps rms max

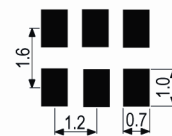


Outline (mm)



- #### Pad Connections
1. Enable/Disable
 2. N/C
 3. GND
 4. Output +
 5. Output -
 6. +Vs

Solder Pad Layout



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Environmental Parameters

- Storage Temperature Range: -55 to 125°C
- Drop Test (JIS-C0044): the specimen is measured for frequency before the test. It is then dropped from a height of 100cm min as a free fall object onto a hard wooden plate of thickness 30mm min.
- Vibration (MIL-STD-883F : 2007.3): the specimen is measured for frequency before the test. Test in X,Y and Z axes for the vibration test. Frequency range: 20~2000Hz, peak to peak amplitude: 1.52mm, peak acceleration: 20G, sweep time: 20 minute/axis, pendicular total test time: 4 hours.
- Low Temp Exposure (JIS-C0020): the specimen is measured for frequency before the test. Expose device to -40°C±3°C for 168±6 hours. Measure electrical performance after leaving 1~2 hours at room temperature.
- Ageing Test (JIS-C0021): the specimen is measured for frequency before the test. Expose device to +125°C±3°C for 720±48 hours. Measure electrical performance after leaving 1~2 hours at room temperature.
- High Temperature and Humidity (MIL-STD-883F : 1004.7): the specimen is measured for frequency before the test. Expose device to +85°C±5°C and 85±5% humidity for 168±6 hours. Measure electrical performance after leaving 1~2 hours at room temperature.
- Temperature Cycle Test (MIL-STD-883F : 1010.8): the specimen is measured for frequency before the test. Expose device to 100 cycles of:
 - Low temp: -55°C±3°C for 15±3 min
 - Ramp up to high temp: 2-3 mins
 - High temp: +125°C±3°C for 15±3 min
 - Ramp down to low temp: 2-3 mins
 Measure electrical performance after leaving 1~2 hours at room temperature.

Compliance

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

Packaging Details

- Pack Style: Bulk Loose in bulk pack
Pack Size: 100
- Pack Style: Reel Tape & reel in accordance with EIA-481-D
Pack Size: 1,000

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	%
100.0MHz	-40 to 105	±30.00	40	1	45/55%
	-40 to 125	±70.00	40	1	45/55%
125.0MHz	-40 to 105	±50.00	40	1	45/55%

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Description

- LVDS output crystal oscillator in a hermetically sealed ceramic package with a seam sealed metal lid.
- Developed Frequencies:
25.0MHz, 50.0MHz, 80.0MHz, 100.0MHz, 125.0MHz,
133.333MHz, 148.5MHz and 156.25MHz



Frequency Parameters

- Frequency 13.5MHz to 156.25MHz
- Frequency Stability $\pm 25.00\text{ppm}$ to $\pm 100.00\text{ppm}$
- Ageing $\pm 3\text{ppm}$ max per year at 25°C

Electrical Parameters

- Supply Voltage 3.3V $\pm 5\%$

Operating Temperature Ranges

- -10 to 70°C
- -40 to 85°C

Output Details

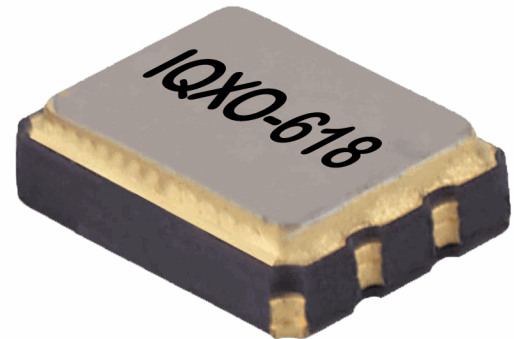
- Output Compatibility LVDS
- Drive Capability 100Ω
- Differential Output Voltage (VoD): 0.247V min, 0.33V typ, 0.454V max
- Offset Voltage (VOS): 1.125V min, 1.25V typ, 1.375V max.
- Output Voltage Levels:
Output Low (VoL): 0.9V min
Output High (VoH): 1.6V max

Output Control

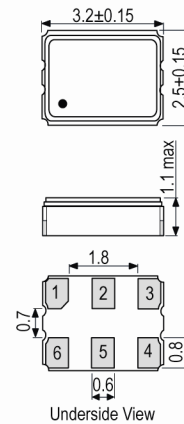
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Logic '1' ($\geq 70\%$ Vs) to pad 1 enables oscillator output.
Logic '0' ($\leq 30\%$ Vs) to pad 1 disables oscillator output; when disabled the oscillator output goes to the high impedance state.
No connection to pad 1 enables oscillator output.

Noise Parameters

- Phase Jitter (12kHz to 20MHz): 1ps rms max

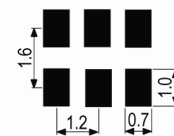


Outline (mm)



- #### Pad Connections
1. Enable/Disable
 2. N/C
 3. GND
 4. Output +
 5. Output -
 6. +Vs

Solder Pad Layout



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Environmental Parameters

- Storage Temperature Range: -55 to 125°C
- Drop Test (JIS-C0044): the specimen is measured for frequency before the test. It is then dropped from a height of 100cm min as a free fall object onto a hard wooden plate of thickness 30mm min.
- Vibration (MIL-STD-883F : 2007.3): the specimen is measured for frequency before the test. Test in X,Y and Z axes for the vibration test. Frequency range: 20~2000Hz, peak to peak amplitude: 1.52mm, peak acceleration: 20G, sweep time: 20 minute/axis, pendicular total test time: 4 hours.
- Low Temp Exposure (JIS-C0020): the specimen is measured for frequency before the test. Expose device to -40°C±3°C for 168±6 hours. Measure electrical performance after leaving 1~2 hours at room temperature.
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 - Low temp: -55°C±3°C for 15±3 min
 - Ramp up to high temp: 2-3 mins
 - High temp: +125°C±3°C for 15±3 min
 - Ramp down to low temp: 2-3 minsMeasure electrical performance after leaving 1~2 hours at room temperature.

Ordering Information

- *Minimum info required
 - Frequency*
 - Model*
 - Output
 - Frequency Stability (over operating temperature range)*
 - Operating Temperature Range*
 - Supply Voltage
- Example
 - 20.0MHz IQXO-618-33
 - LVDS ±30ppm -40 to 85C 3.3

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: 1,000
- Pack Style: Cutt Cut tape
Pack Size: 100

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Electrical Specification - maximum limiting values 3.3V \pm 5%

Frequency	Frequency Max	Temperature Range	Stability Min	Current Draw	Rise and Fall Time	Duty Cycle
		°C	ppm	mA	ns	%
13.5MHz	99.999999MHz	-10 to 70 -40 to 85	\pm 25.0 \pm 30.0	50 50	1 1	45/55% 45/55%
100.0MHz	156.25MHz	-10 to 70 -40 to 85	\pm 25.0 \pm 30.0	50 50	0.5 0.5	45/55% 45/55%

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