



IQXO-618

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 2; February 2022

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, 133.3330MHz, 148.50MHz and 156.250MHz
- Note: Operating temperature ranges -40 to 105°C and -40 to 125°C are intended for industrial use and not for safety critical applications such as automotive. Please contact IQD for alternative options.



Frequency Parameters

- Frequency 13.50MHz to 156.250MHz
- 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 2.5V $\pm 5\%$

Operating Temperature Ranges

- -10 to 70°C
- -40 to 85°C
- -40 to 105°C
- -40 to 125°C

Output Details

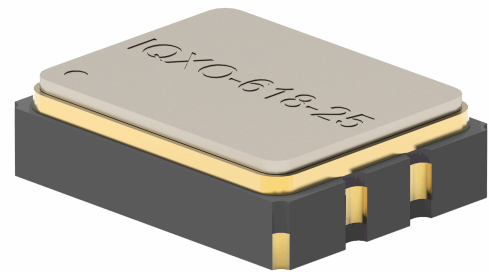
- Output Compatibility LVDS
- Drive Capability 100Ω
- Differential Output Voltage (VOD): 0.247V min, 0.33V typ, 0.454V max
- Offset Voltage (VOS): 1.125V min, 1.250V typ, 1.375V max.
- Output Voltage Levels:
Output Low (VOL): 0.9V min
Output High (VOH): 1.6V max

Output Control

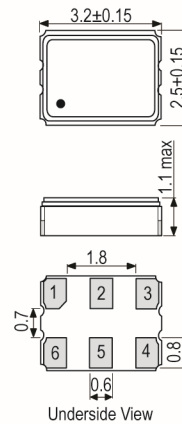
- Standby Operation:
Logic '1' ($\geq 70\%$ Vs) to pad 1 enables oscillator output.
Logic '0' ($\leq 30\%$ Vs) to pad 1 disables oscillator output; when disabled the oscillator output goes to the high impedance state.
No connection to pad 1 enables oscillator output.
- Start-Up Time: 10ms max
- Standby Current: 10μA max

Noise Parameters

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

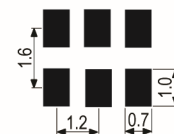


Outline (mm)

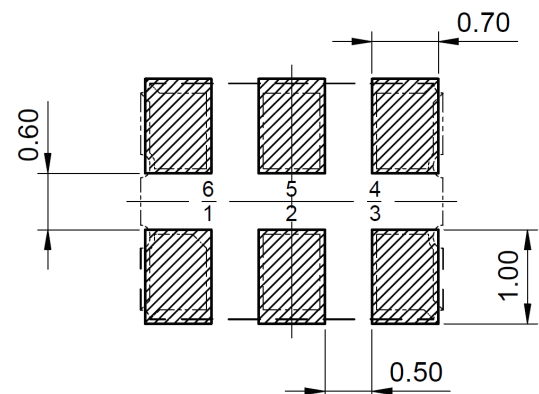


- Pad Connections
1. Standby Operation
 2. N/C
 3. GND
 4. Output +
 5. Output -
 6. +Vs

Solder Pad Layout



Recommended 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.

Ordering Information

- *Minimum info required
Frequency*
Model*
Output
Frequency Stability (over operating temperature range)*
Operating Temperature Range*
Supply Voltage
- Example
20.0MHz IQXO-618-25
LVDS ±30ppm -40 to 85C 2.5V

Compliance

- RoHS Status (2015/863/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: RL3K Tape & reel in accordance with EIA-481-D
Pack Size: 3,000



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Electrical Specification - maximum limiting values 2.5V \pm 5%

Frequency	Frequency Max	Temperature Range	Stability Min	Current Draw	Rise and Fall Time (20-80%)	Duty Cycle
		°C	ppm	mA	ns	%
13.5MHz	99.999999MHz	-10 to 70	\pm 25.0	50	1	45/55%
		-40 to 85	\pm 30.0	50	1	45/55%
		-40 to 125	\pm 70.0	50	1	45/55%
		-40 to 105	\pm 50.0	50	1	45/55%
100.0MHz	156.25MHz	-10 to 70	\pm 25.0	50	0.5	45/55%
		-40 to 85	\pm 30.0	50	0.5	45/55%
		-40 to 125	\pm 70.0	50	0.5	45/55%
		-40 to 105	\pm 50.0	50	0.5	45/55%

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- Note: Operating temperature ranges -40 to 105°C and -40 to 125°C are intended for industrial use and not for safety critical applications such as automotive. Please contact IQD for alternative options.



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Electrical Parameters

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

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Output Details

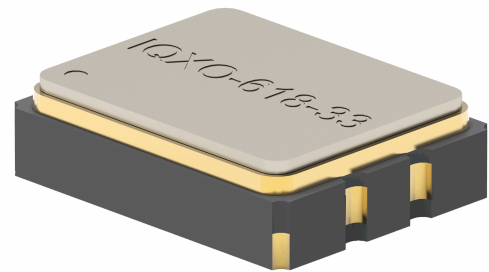
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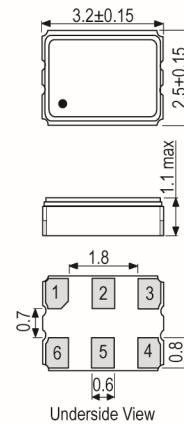
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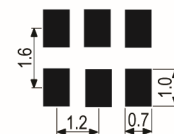


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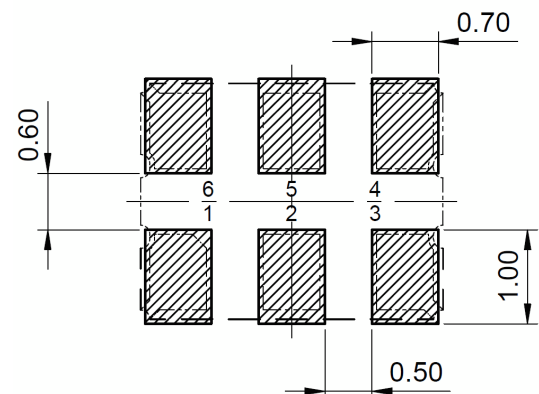


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Output
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Operating Temperature Range*
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- Example
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		-40 to 105	\pm 50.0	50	1	45/55%
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		-40 to 125	\pm 70.0	50	0.5	45/55%
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