



IQXO-439

IQXO-439

Simple Packaged Crystal Oscillator (SPXO) with an LVPECL output in a hermetically sealed ceramic package with a metal lid.

Model Name	Description
IQXO-439-25	2.5V Variant
IQXO-439-33	3.3V Variant

ISSUE 2; March 2021

Description

- Simple Packaged Crystal Oscillator (SPXO) with an LVPECL output in a hermetically sealed ceramic package with a metal lid.



Frequency Parameters

- Frequency: 50.0MHz to 250.0MHz
- Frequency Stability: $\pm 50.00\text{ppm}$ to $\pm 100.00\text{ppm}$
- Ageing: $\pm 5\text{ppm}$ max per year @ 25°C
- Frequency Stability: Inclusive of tolerance @ 25°C, operating temperature range, supply voltage variation, load variation and 1 year ageing.

Electrical Parameters

- Supply Voltage: 2.5V $\pm 5\%$

Operating Temperature Ranges

- 10 to 70°C
- 40 to 85°C

Output Details

- Output Compatibility: LVPECL
- Drive Capability: 50Ω Vs-2.0V
- Output Voltage Levels:
 - Level '1' VoH: Vs-1.025V to Vs-0.88V
 - Level '0' VoL: Vs-1.81V to Vs-1.62V

Output Control

- Start-Up Time: 10ms max

Noise Parameters

- Phase Jitter (12kHz to 20MHz): 0.5ps RMS max
- Clock Jitter (n=50000 cycles): 5ps RMS max

Environmental Parameters

- Storage Temperature Range: -55 to 125°C
- Drop: 30cm free drop (3 times) onto a hard wooden board.
- Vibration: MIL-STD-202F, Method 201A, frequency range 10Hz~55Hz, 1.52mm amplitude, X, Y, Z axis, 2 hours in each axis (6 hours total).

Manufacturing Details

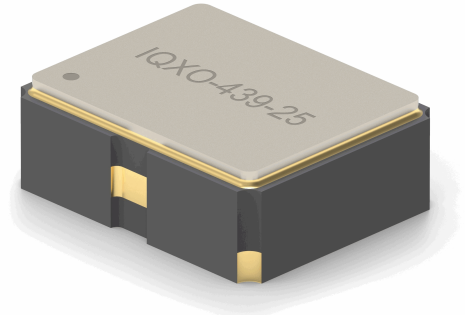
- Note: a 0.01μF capacitor should be connected as close to the oscillator as possible between +Vs and GND. A large value capacitor should also be located at the power supply.

Ordering Information

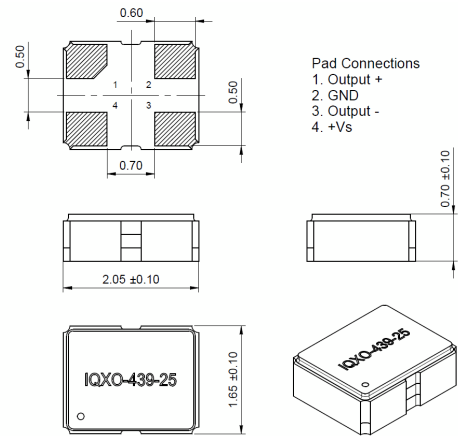
- Frequency*
- Model*
- Output
- Frequency Stability (over operating temperature range)*
- Operating Temperature Range*
- Supply Voltage (*minimum required)
- Example: 100.0MHz IQXO-439-25 LVPECL $\pm 50\text{ppm}$ -40 to 85C 2.5V

Compliance

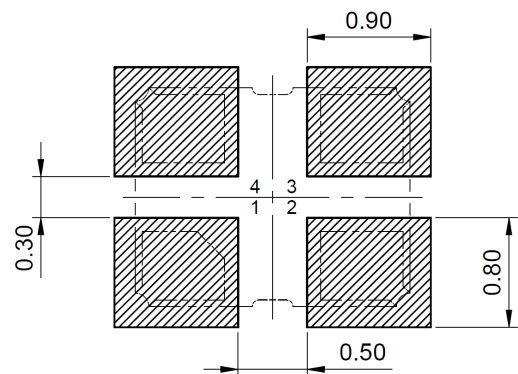
- RoHS Status (2015/863/EU): Compliant
- REACH Status: Compliant
- MSL Rating (JDEC-STD-033): 1



Outline (mm)



Recommended Solder Pad Layout



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Packaging Details

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

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

Frequency Min	Frequency Max	Temperature Range	Stability Min	Current Draw	Rise & Fall Time (20/80%)	Duty Cycle
		°C	ppm	mA	ns	%
50.0MHz	100.0MHz	-10 to 70	\pm 50.0	35	0.6	45/55%
		-40 to 85	\pm 50.0	35	0.6	45/55%
100.000001MHz	200.0MHz	-10 to 70	\pm 50.0	45	0.6	45/55%
		-40 to 85	\pm 50.0	45	0.6	45/55%
200.000001MHz	250.0MHz	-10 to 70	\pm 50.0	52	0.6	45/55%
		-40 to 85	\pm 50.0	52	0.6	45/55%

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Frequency Parameters

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- Frequency Stability: $\pm 50.00\text{ppm}$ to $\pm 100.00\text{ppm}$
- Ageing: $\pm 5\text{ppm}$ max per year @ 25°C
- Frequency Stability: Inclusive of tolerance @ 25°C, operating temperature range, supply voltage variation, load variation and 1 year ageing.

Electrical Parameters

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

Operating Temperature Ranges

- 10 to 70°C
- 40 to 85°C

Output Details

- Output Compatibility: LVPECL
- Drive Capability: 50Ω Vs-2.0V
- Output Voltage Levels:
 - Level '1' VoH: Vs-1.025V to Vs-0.88V
 - Level '0' VoL: Vs-1.81V to Vs-1.62V

Output Control

- Start-Up Time: 10ms max

Noise Parameters

- Phase Jitter (12kHz to 20MHz): 0.5ps RMS max
- Clock Jitter (n=50000 cycles): 5ps RMS max

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Manufacturing Details

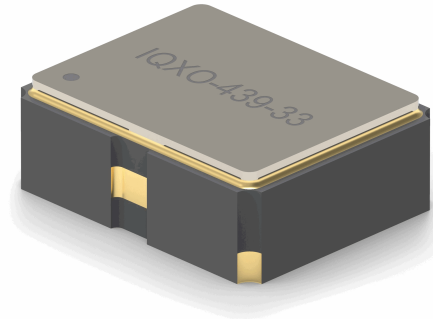
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Ordering Information

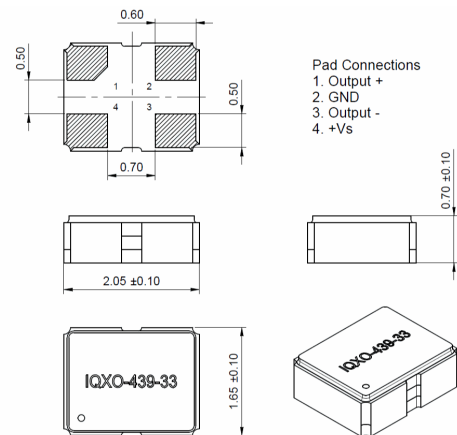
- Frequency*
Model*
Output
Frequency Stability (over operating temperature range)*
Operating Temperature Range*
Supply Voltage
(*minimum required)
- Example
100.0MHz IQXO-439-33
LVPECL $\pm 50\text{ppm}$ -40 to 85C 3.3V

Compliance

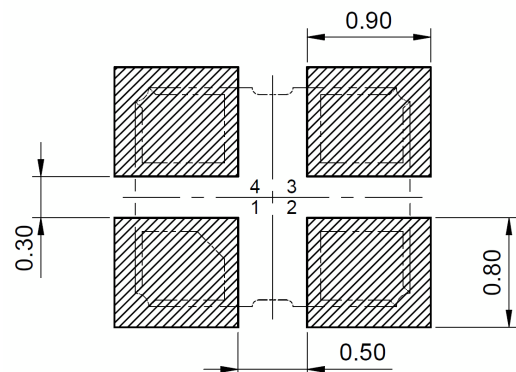
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Pack Size: 100

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Frequency Min	Frequency Max	Temperature Range	Stability Min	Current Draw	Rise & Fall Time (20/80%)	Duty Cycle
		°C	ppm	mA	ns	%
50.0MHz	100.0MHz	-10 to 70	±50.0	40	0.6	45/55%
		-40 to 85	±50.0	40	0.6	45/55%
100.000001MHz	200.0MHz	-10 to 70	±50.0	50	0.6	45/55%
		-40 to 85	±50.0	50	0.6	45/55%
200.000001MHz	250.0MHz	-10 to 70	±50.0	57	0.6	45/55%
		-40 to 85	±50.0	57	0.6	45/55%

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