



## **IQXO-439**

IQXO-439

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

<b>Model Name</b>	<b>Description</b>
<b>IQXO-439-25</b>	<b>2.5V Variant</b>
<b>IQXO-439-33</b>	<b>3.3V Variant</b>

ISSUE 2; May 2022

### 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

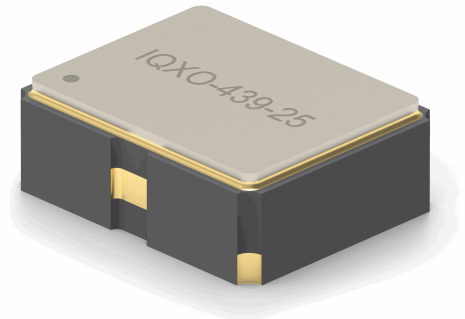
- Note: a 0.01μF capacitor should be connected as close to the oscillator as possible between +Vs and GND. A large value capacitor should also be located at the power supply.

### Ordering Information

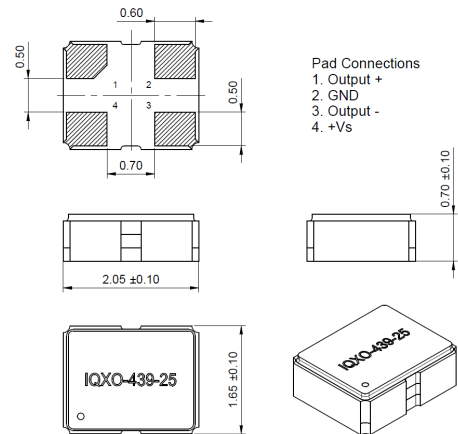
- Frequency\*
- Model\*
- Output
- Frequency Stability (over operating temperature range)\*
- Operating Temperature Range\*
- Supply Voltage (\*minimum required)
- Example: 100.0MHz IQXO-439-25 LVPECL  $\pm 50\text{ppm}$  -40 to 85C 2.5V

### Compliance

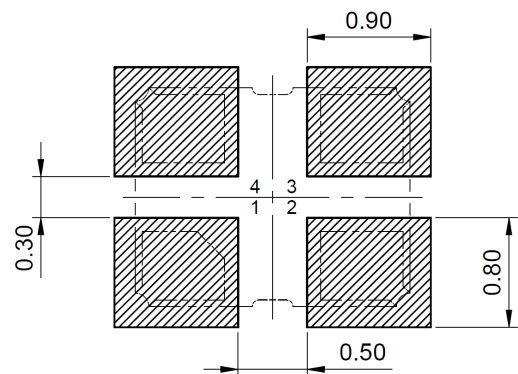
- RoHS Status (2015/863/EU): Compliant
- REACH Status: Compliant
- MSL Rating (JDEC-STD-033): 1



### 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 ±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	±50.0	35	0.6	45/55%
		-40 to 85	±50.0	35	0.6	45/55%
100.000001MHz	200.0MHz	-10 to 70	±50.0	45	0.6	45/55%
		-40 to 85	±50.0	45	0.6	45/55%
200.000001MHz	250.0MHz	-10 to 70	±50.0	52	0.6	45/55%
		-40 to 85	±50.0	52	0.6	45/55%

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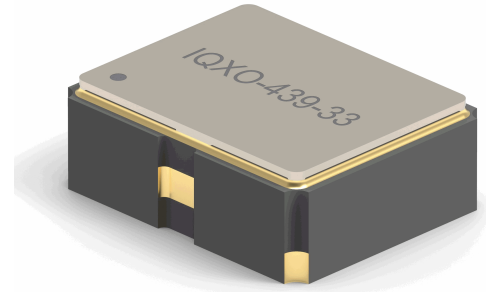
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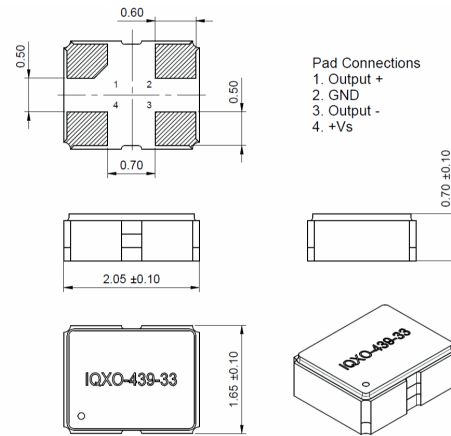
- Frequency\*
  - Model\*
  - Output
  - Frequency Stability (over operating temperature range)\*
  - Operating Temperature Range\*
  - Supply Voltage
  - (\*minimum required)
- Example
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  - LVPECL  $\pm 50\text{ppm}$  -40 to 85C 3.3V

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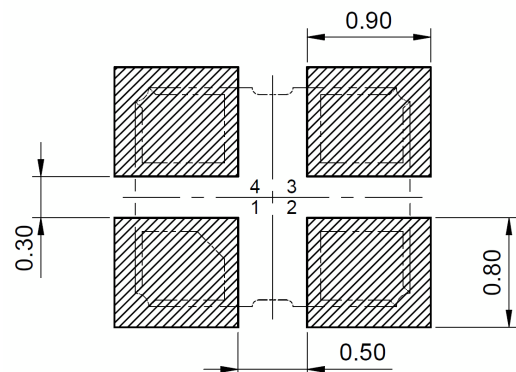
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		-40 to 85	$\pm$ 50.0	40	0.6	45/55%
100.000001MHz	200.0MHz	-10 to 70	$\pm$ 50.0	50	0.6	45/55%
		-40 to 85	$\pm$ 50.0	50	0.6	45/55%
200.000001MHz	250.0MHz	-10 to 70	$\pm$ 50.0	57	0.6	45/55%
		-40 to 85	$\pm$ 50.0	57	0.6	45/55%

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