



## IQXO-691 3225

IQXO-691 3225

Low voltage crystal oscillator (SPXO) in a hermetically sealed 3.2 x 2.5mm surface mount ceramic package.

Model Name	Description
IQXO-691 3225-09	A 0.9V version
IQXO-691 3225-12	A 1.2V version
IQXO-691 3225-15	A 1.5V version

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### Description

- 0.9V low voltage oscillator in a hermetically sealed 3.2 x 2.5mm surface mount ceramic package.



### Frequency Parameters

- Frequency: 10.0MHz to 50.0MHz
- Frequency Stability:  $\pm 20.00\text{ppm}$  to  $\pm 100.00\text{ppm}$
- Ageing:  $\pm 3\text{ppm}$  max in 1st year @ 25°C

### Electrical Parameters

- Supply Voltage: 0.9V  $\pm 5\%$
- Note: Other Supply Voltages are available - please contact IQD Sales Office.

### Operating Temperature Ranges

- 20 to 70°C
- 0 to 70°C
- 40 to 85°C

### Output Details

- Output Compatibility: CMOS
- Drive Capability: 15pF max
- Output Voltage Levels:
  - Output Low (VoL): 10%Vs max
  - Output High (VoH): 90%Vs min
- Start Up Time: 10ms 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 (internal pull-up resistor).
- Standby Current: 100 $\mu$ A max

### Noise Parameters

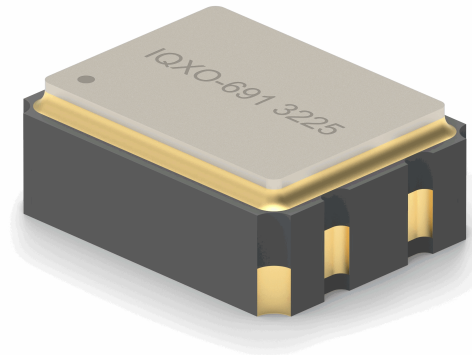
- RMS Phase Jitter (12kHz to 20MHz): 1ps max

### Environmental Parameters

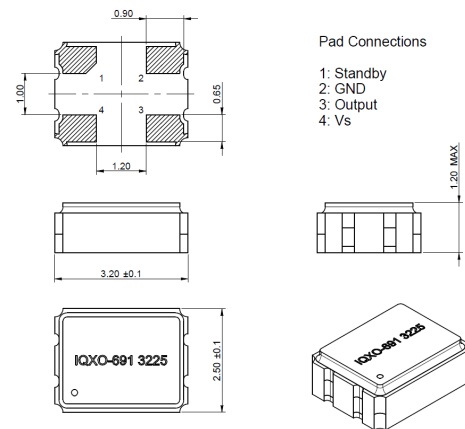
- Storage Temperature Range: -55 to 125°C
- Mechanical Shock: MIL-STD-883, Method 2002, Condition B.
- Vibration: MIL-STD-883, Method 2007, Condition A.
- Moisture Resistance: MIL-STD-883, Method 1004.
- Thermal Cycling: MIL-STD-883, Method 1010, Condition B.
- Solderability: MIL-STD-883, Method 2003.
- Resistance to Soldering Heat: MIL-STD-202, Method 210, Condition K.
- Fine Leak Test: MIL-STD-883, Method 1014, Condition A.
- Gross Leak Test: MIL-STD-883, Method 1014, Condition C.

### Manufacturing Details

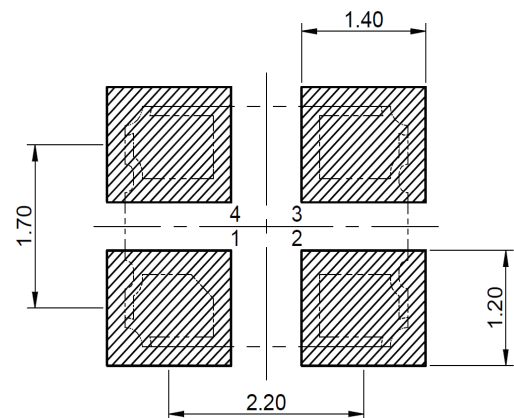
- Note: Please connect a bypass capacitor of 0.1 $\mu$ F between +Vs and circuit ground.



### Outline (mm)



### Recommended Solder Pad Layout



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### Ordering Information

- Frequency\*
  - Model\*
  - Output
  - Frequency Stability (over operating temperature range)\*
  - Operating Temperature Range\*
  - Supply Voltage
  - (\*minimum required)
- Example
  - 24.0MHz IQXO-691 3225-09
  - CMOS ±25ppm -40 to 85C 0.9V

### Compliance

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

### Packaging Details

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

Electrical Specification - maximum limiting values 0.9V ±5%

Frequency Min	Frequency Max	Temperature Range	Stability (Min)	Current Draw	Rise and Fall Time	Duty Cycle
		°C	ppm	mA	ns	%
10.0MHz	50.0MHz	0 to 70	±20.0	10	5	45/55%
		-20 to 70	±20.0	10	5	45/55%
		-40 to 85	±25.0	10	5	45/55%

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### Description

- 1.2V low voltage oscillator in a hermetically sealed 3.2 x 2.5mm surface mount ceramic package.



### Frequency Parameters

- Frequency: 10.0MHz to 50.0MHz
- Frequency Stability:  $\pm 20.00\text{ppm}$  to  $\pm 100.00\text{ppm}$
- Ageing:  $\pm 3\text{ppm}$  max in 1st year @ 25°C

### Electrical Parameters

- Supply Voltage: 1.2V  $\pm 5\%$
- Note: Other Supply Voltages are available - please contact IQD Sales Office.

### Operating Temperature Ranges

- 20 to 70°C
- 0 to 70°C
- 40 to 85°C

### Output Details

- Output Compatibility: CMOS
- Drive Capability: 15pF max
- Output Voltage Levels:
  - Output Low (VoL): 10%Vs max
  - Output High (VoH): 90%Vs min
- Start Up Time: 10ms 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 (internal pull-up resistor).
- Standby Current: 100 $\mu$ A max

### Noise Parameters

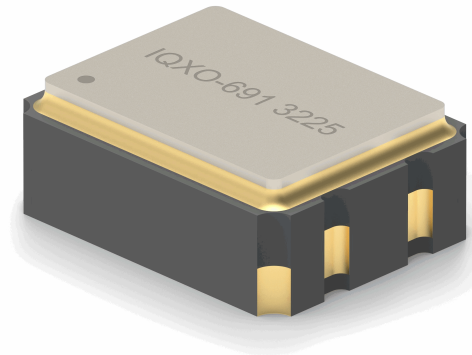
- RMS Phase Jitter (12kHz to 20MHz): 1ps max

### Environmental Parameters

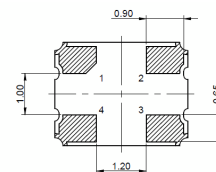
- Storage Temperature Range: -55 to 125°C
- Mechanical Shock: MIL-STD-883, Method 2002, Condition B.
- Vibration: MIL-STD-883, Method 2007, Condition A.
- Moisture Resistance: MIL-STD-883, Method 1004.
- Thermal Cycling: MIL-STD-883, Method 1010, Condition B.
- Solderability: MIL-STD-883, Method 2003.
- Resistance to Soldering Heat: MIL-STD-202, Method 210, Condition K.
- Fine Leak Test: MIL-STD-883, Method 1014, Condition A.
- Gross Leak Test: MIL-STD-883, Method 1014, Condition C.

### Manufacturing Details

- Note: Please connect a bypass capacitor of 0.1 $\mu$ F between +Vs and circuit ground.

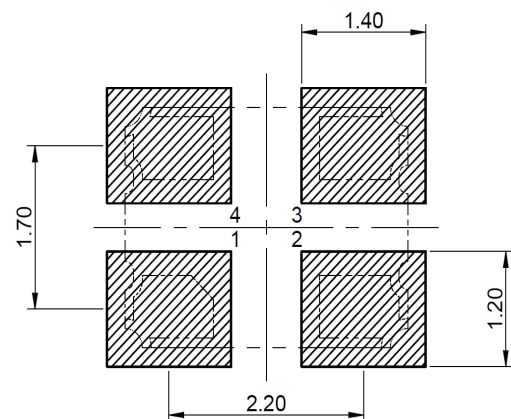
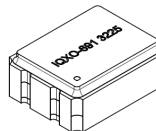
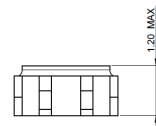
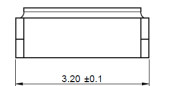


### Outline (mm)



### Pad Connections

- Standby
- GND
- Output
- Vs



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### Ordering Information

- Frequency\*
  - Model\*
  - Output
  - Frequency Stability (over operating temperature range)\*
  - Operating Temperature Range\*
  - Supply Voltage
  - (\*minimum required)
- Example
  - 24.0MHz IQXO-691 3225-12
  - CMOS ±25ppm -40 to 85C 1.2V

### Compliance

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

### Packaging Details

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

### Electrical Specification - maximum limiting values 1.2V ±5%

Frequency Min	Frequency Max	Temperature Range	Stability (Min)	Current Draw	Rise and Fall Time	Duty Cycle
		°C	ppm	mA	ns	%
10.0MHz	50.0MHz	0 to 70	±20.0	10	5	45/55%
		-20 to 70	±20.0	10	5	45/55%
		-40 to 85	±25.0	10	5	45/55%

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ISSUE 2; April 2021

### Description

- 1.5V low voltage oscillator in a hermetically sealed 3.2 x 2.5mm surface mount ceramic package.



### Frequency Parameters

- Frequency: 10.0MHz to 50.0MHz
- Frequency Stability:  $\pm 20.00\text{ppm}$  to  $\pm 100.00\text{ppm}$
- Ageing:  $\pm 3\text{ppm}$  max in 1st year @ 25°C

### Electrical Parameters

- Supply Voltage: 1.5V  $\pm 5\%$
- Note: Other Supply Voltages are available - please contact IQD Sales Office.

### Operating Temperature Ranges

- 20 to 70°C
- 0 to 70°C
- 40 to 85°C

### Output Details

- Output Compatibility: CMOS
- Drive Capability: 15pF
- Output Voltage Levels:
  - Output Low (VoL): 10%Vs max
  - Output High (VoH): 90%Vs min
- Start Up Time: 10ms 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 (internal pull-up resistor).
- Standby Current: 100 $\mu$ A max

### Noise Parameters

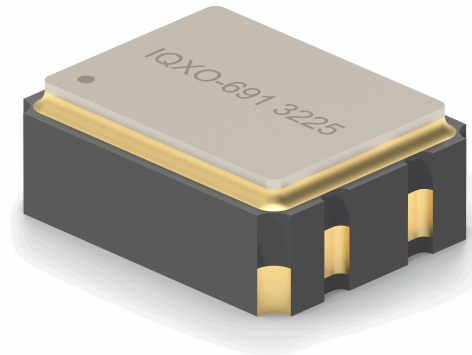
- RMS Phase Jitter (12kHz to 20MHz): 1ps max

### Environmental Parameters

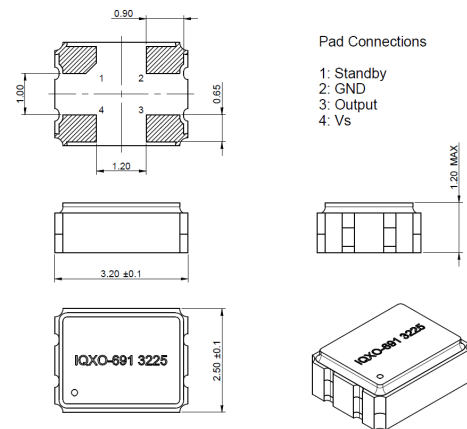
- Storage Temperature Range: -55 to 125°C
- Mechanical Shock: MIL-STD-883, Method 2002, Condition B.
- Vibration: MIL-STD-883, Method 2007, Condition A.
- Moisture Resistance: MIL-STD-883, Method 1004.
- Thermal Cycling: MIL-STD-883, Method 1010, Condition B.
- Solderability: MIL-STD-883, Method 2003.
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### Manufacturing Details

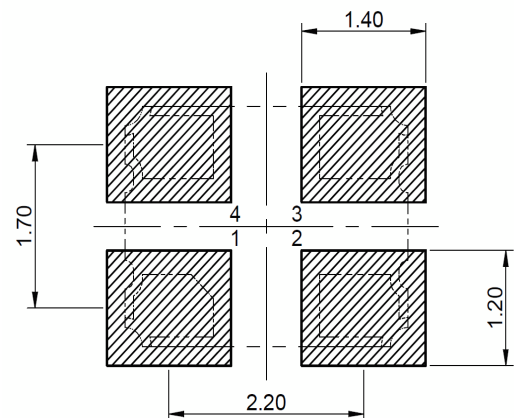
- Note: Please connect a bypass capacitor of 0.1 $\mu$ F between +Vs and circuit ground.



### Outline (mm)



### Recommended Solder Pad Layout



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### Ordering Information

- Frequency\*
  - Model\*
  - Output
  - Frequency Stability (over operating temperature range)\*
  - Operating Temperature Range\*
  - Supply Voltage
  - (\*minimum required)
- Example
  - 24.0MHz IQXO-691 3225-15
  - CMOS ±25ppm -40 to 85C 1.5V

### Compliance

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

### Packaging Details

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

### Electrical Specification - maximum limiting values 1.5V ±5%

Frequency Min	Frequency Max	Temperature Range	Stability (Min)	Current Draw	Rise and Fall Time	Duty Cycle
		°C	ppm	mA	ns	%
10.0MHz	50.0MHz	0 to 70	±20.0	10	5	45/55%
		-20 to 70	±20.0	10	5	45/55%
		-40 to 85	±25.0	10	5	45/55%

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