



## **IQXO-691 5032**

Low voltage crystal oscillator (SPXO) in a hermetically sealed 5.0 x 3.2mm surface mount ceramic package.

<b>Model Name</b>	<b>Description</b>
<b>IQXO-691 5032-09</b>	<b>A 0.9V version</b>
<b>IQXO-691 5032-12</b>	<b>A 1.2V version</b>
<b>IQXO-691 5032-15</b>	<b>A 1.5V version</b>

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### Description

- 0.9V low voltage oscillator in a hermetically sealed 5.0 x 3.2mm 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 an 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

- Output Enable:
  - 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).
- Stand-by Current: 100 $\mu$ A max

### Noise Parameters

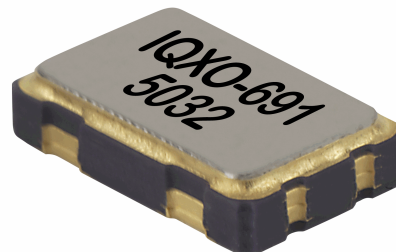
- RMS Phase Jitter (12kHz to 20MHz): 1ps max

### Environmental Parameters

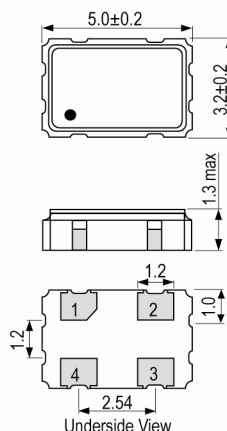
- Storage Temperature Range: -55 to 125°C
- Mechanical Shock: MIL-STD-883, Method 2002, Condition B.
- Vibration: MIL-STD-883, Method 2007, Condition A.
- Moisture Resistance: MIL-STD-883, Method 1004.
- Thermal Cycling: MIL-STD-883, Method 1010, Condition B.
- Solderability: MIL-STD-883, Method 2003.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

- Maximum Process Temperature: 260°C (10secs max)
- Note: Please connect a bypass capacitor of 0.1 $\mu$ F between +Vs and circuit ground.



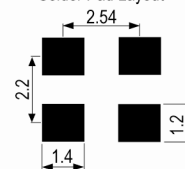
### Outline (mm)



### Pad Connections

- Enable/Disable
- GND
- Output
- +Vs

### 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 5032-09
  - CMOS ±50ppm 0 to 70C 0.9V

**Compliance**

- RoHS Status (2011/65/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: 1,000
- 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 5.0 x 3.2mm 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 an 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

- Output Enable:
  - 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).
- Stand-by Current: 100 $\mu$ A max

### Noise Parameters

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

### Environmental Parameters

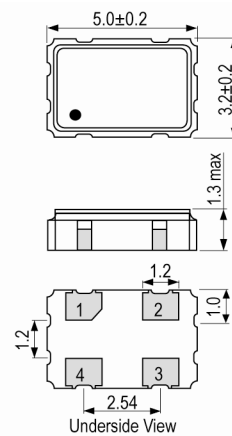
- Storage Temperature Range: -55 to 125°C
- Mechanical Shock: MIL-STD-883, Method 2002, Condition B.
- Vibration: MIL-STD-883, Method 2007, Condition A.
- Moisture Resistance: MIL-STD-883, Method 1004.
- Thermal Cycling: MIL-STD-883, Method 1010, Condition B.
- Solderability: MIL-STD-883, Method 2003.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

- Maximum Process Temperature: 260°C (10secs max)
- Note: Please connect a bypass capacitor of 0.1 $\mu$ F between +Vs and circuit ground.



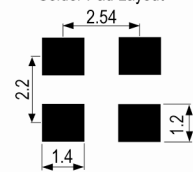
### Outline (mm)



### Pad Connections

- Enable/Disable
- GND
- Output
- +Vs

### 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 5032-12
  - CMOS ±50ppm 0 to 70C 1.2V

### Compliance

- RoHS Status (2011/65/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: 1,000
- Pack Style: Cutt      Cut tape  
Pack Size: 100

### 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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### Description

- 1.5V low voltage oscillator in a hermetically sealed 5.0 x 3.2mm 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 an 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

- Output Enable:
  - 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).
- Stand-by Current: 100 $\mu$ A max

### Noise Parameters

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

### Environmental Parameters

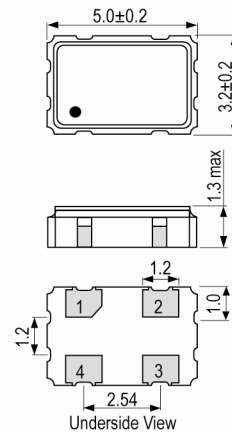
- Storage Temperature Range: -55 to 125°C
- Mechanical Shock: MIL-STD-883, Method 2002, Condition B.
- Vibration: MIL-STD-883, Method 2007, Condition A.
- Moisture Resistance: MIL-STD-883, Method 1004.
- Thermal Cycling: MIL-STD-883, Method 1010, Condition B.
- Solderability: MIL-STD-883, Method 2003.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

- Maximum Process Temperature: 260°C (10secs max)
- Note: Please connect a bypass capacitor of 0.1 $\mu$ F between +Vs and circuit ground.

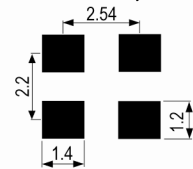


### Outline (mm)



- Pad Connections
1. Enable/Disable
  2. GND
  3. Output
  4. +Vs

### 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 5032-15
  - CMOS ±50ppm 0 to 70C 1.5V

### Compliance

- RoHS Status (2011/65/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: 1,000

### 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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