



IQXO-691 2520

Low voltage crystal oscillator (SPXO) in a hermetically sealed 2.5 x 2.0mm surface mount ceramic package.

Model Name	Description
IQXO-691 2520-09	A 0.9V version
IQXO-691 2520-12	A 1.2V version
IQXO-691 2520-15	A 1.5V version

ISSUE 1; June 2019

Description

- 0.9V low voltage oscillator in a hermetically sealed 2.5 x 2.0mm 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 μ A max

Noise Parameters

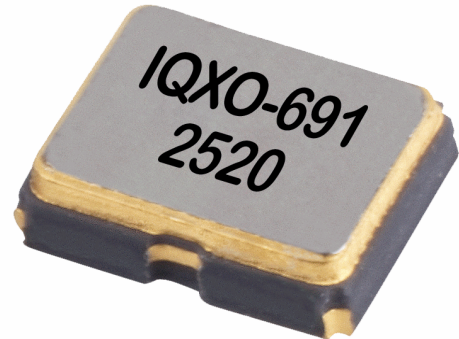
- RMS Phase Jitter (12kHz to 20MHz): 1ps max

Environmental Parameters

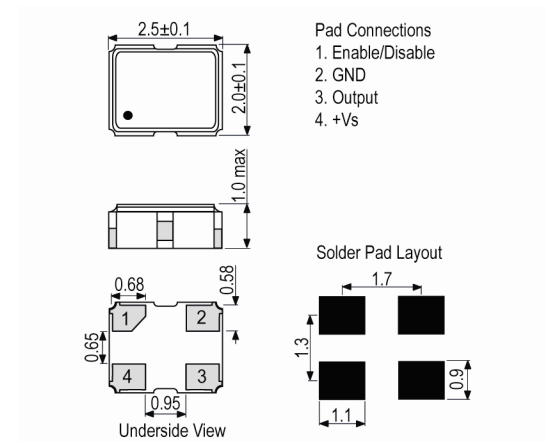
- Storage Temperature Range: -55 to 125°C
- Mechanical Shock: MIL-STD-883, Method 2002, Condition B.
- Vibration: MIL-STD-883, Method 2007, Condition A.
- Moisture Resistance: MIL-STD-883, Method 1004.
- Thermal Cycling: MIL-STD-883, Method 1010, Condition B.
- Solderability: MIL-STD-883, Method 2003.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



Outline (mm)



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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 2520-09
 - CMOS ± 50 ppm 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: 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 0.9V $\pm 5\%$

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	7	45/55%
		-20 to 70	± 20.0	10	7	45/55%
		-40 to 85	± 25.0	10	7	45/55%

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Description

- 1.2V low voltage oscillator in a hermetically sealed 2.5 x 2.0mm 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 μ A max

Noise Parameters

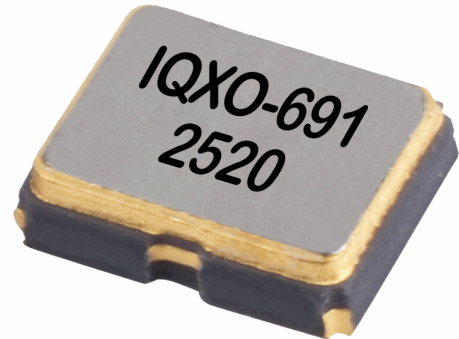
- RMS Phase Jitter (12kHz to 20MHz): 1ps max

Environmental Parameters

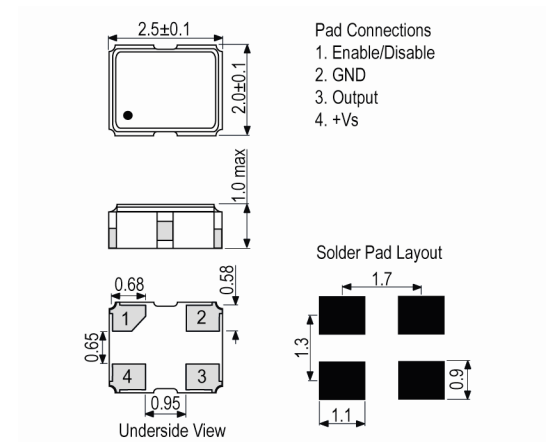
- Storage Temperature Range: -55 to 125°C
- Mechanical Shock: MIL-STD-883, Method 2002, Condition B.
- Vibration: MIL-STD-883, Method 2007, Condition A.
- Moisture Resistance: MIL-STD-883, Method 1004.
- Thermal Cycling: MIL-STD-883, Method 1010, Condition B.
- Solderability: MIL-STD-883, Method 2003.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



Outline (mm)



ISSUE 1; June 2019

Ordering Information

- Frequency*
 - Model*
 - Output
 - Frequency Stability (over operating temperature range)*
 - Operating Temperature Range*
 - Supply Voltage
 - (*minimum required)
- Example
 - 24.0MHz IQXO-691 2520-12
 - CMOS ± 50 ppm 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: 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 $\pm 5\%$

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	7	45/55%
		-20 to 70	± 20.0	10	7	45/55%
		-40 to 85	± 25.0	10	7	45/55%

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ISSUE 2; January 2020

Description

- 1.5V low voltage oscillator in a hermetically sealed 2.5 x 2.0mm 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 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).
- Stand-by Current: 100 μ A max

Noise Parameters

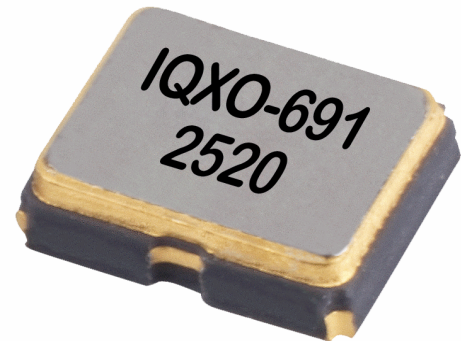
- RMS Phase Jitter (12kHz to 20MHz): 1ps max

Environmental Parameters

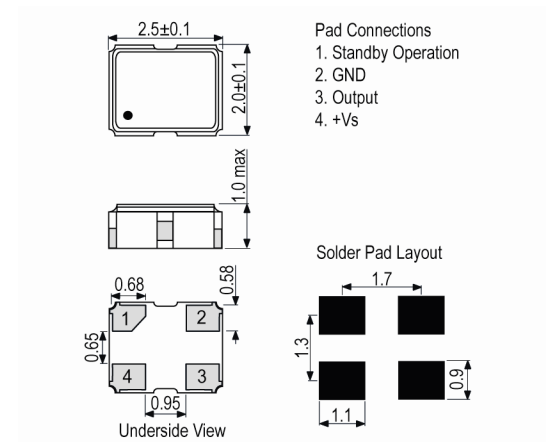
- Storage Temperature Range: -55 to 125°C
- Mechanical Shock: MIL-STD-883, Method 2002, Condition B.
- Vibration: MIL-STD-883, Method 2007, Condition A.
- Moisture Resistance: MIL-STD-883, Method 1004.
- Thermal Cycling: MIL-STD-883, Method 1010, Condition B.
- Solderability: MIL-STD-883, Method 2003.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



Outline (mm)



ISSUE 2; January 2020

Ordering Information

- Frequency*
 - Model*
 - Output
 - Frequency Stability (over operating temperature range)*
 - Operating Temperature Range*
 - Supply Voltage
 - (*minimum required)
- Example
 - 24.0MHz IQXO-691 2520-15
 - 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: 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	7	45/55%
		-20 to 70	±20.0	10	7	45/55%
		-40 to 85	±25.0	10	7	45/55%

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