



IQXT-205-1

IQXT-205-1 is a 2.0 x 1.6mm SMD Temperature Compensated Crystal Oscillator (TCXO) in a hermetically sealed package.

Model Name	Description
IQXT-205-1-18	A 1.8V version
IQXT-205-1-25	A 2.5V version
IQXT-205-1-28	A 2.8V version
IQXT-205-1-30	A 3.0V version
IQXT-205-1-33	A 3.3V version

ISSUE 1; March 2018

Description

- IQXT-205-1-18 is a 2.0 x 1.6mm SMD Temperature Compensated Crystal Oscillator (TCXO) in a hermetically sealed package.
- Developed frequencies: 16.2, 16.368, 16.369, 19.2, 20.0, 24.0, 25.0, 26.0, 27.456, 28.925, 28.974, 30.0, 32.0, 33.6, 38.4, 48.0, 50.0 and 52.0MHz



Frequency Parameters

- Frequency 13.0MHz to 52.0MHz
- Frequency Tolerance Max $\pm 1.50\text{ppm}$
- Tolerance Condition @ 25°C $\pm 2^\circ\text{C}$
- Frequency Stability $\pm 0.50\text{ppm}$
- Ageing $\pm 1\text{ppm}$ max per year @ 25°C $\pm 3^\circ\text{C}$
- Frequency Tolerance: Referred to nominal frequency before reflow soldering.
- Supply Voltage Variation (@ $\pm 5\%$ change): $\pm 0.1\text{ppm}$ max
- Load Variation (@ $\pm 10\%$ change): $\pm 0.1\text{ppm}$ max
- Short Term Stability (Allan variance): $\pm 1\text{ppb}$ max (Tau = 0.1s)
- IR Reflow Resistance (ref to frequency before reflow): $\pm 1\text{ppm}$ max

Electrical Parameters

- Supply Voltage 1.8V $\pm 5\%$
- Absolute Maximum Ratings: Supply Voltage: -0.6V to 4.6V

Operating Temperature Ranges

- -30 to 85°C

Output Details

- Output Compatibility Clipped Sine
- Drive Capability 10k Ω /10pF
- Output: DC coupled
- Output Level: 0.8V pk-pk min
- Start Up Time (90% of V pk-pk): 2ms max
- Start Up Time (within $\pm 0.5\text{ppm}$): 2ms max

Noise Parameters

- Phase Noise (typ): -135dBc/Hz @ 1kHz
- Harmonic Distortion: -5.0dBc max

Environmental Parameters

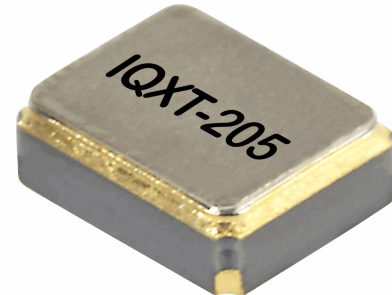
- Storage Temperature Range: -40 to 85°C

Ordering Information

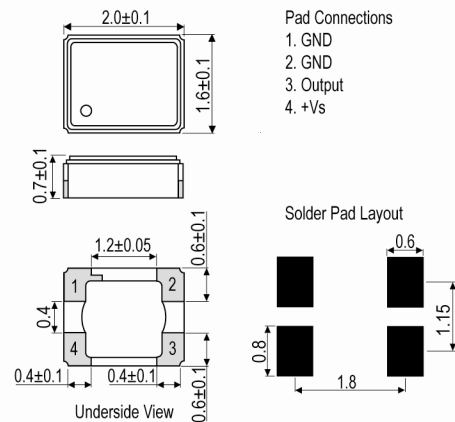
- *Minimum info required
 - Frequency*
 - Model*
 - Output
 - Frequency Stability (over operating temperature range)*
 - Operating Temperature Range*
 - Supply Voltage
- Example
 - 20.0MHz IQXT-205-1-18
 - Clipped Sine $\pm 0.5\text{ppm}$ -30 to 85C 1.8V

Compliance

- RoHS Status (2011/65/EU) Compliant
- REACH Status Compliant
- MSL Rating (JDEC-STD-033): Not Applicable



Outline (mm)





ISSUE 1; March 2018

Packaging Details

- Pack Style: Reel Tape & reel in accordance with EIA-481-D
Pack Size: 2,000

Electrical Specification - maximum limiting values 1.8V ±5%

Frequency Min	Frequency Max	Temperature Range	Stability (Min)	Current Draw	Rise and Fall Time	Duty Cycle
		°C	ppm	mA	ns	%
13.0MHz	29.999999MHz	-30 to 85	±0.5	1.5	-	-
30.0MHz	39.999999MHz	-30 to 85	±0.5	1.7	-	-
40.0MHz	52.0MHz	-30 to 85	±0.5	2	-	-

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ISSUE 1; March 2018

Description

- IQXT-205-1-25 is a 2.0 x 1.6mm SMD Temperature Compensated Crystal Oscillator (TCXO) in a hermetically sealed package.
- Developed frequencies: 16.2, 16.368, 16.369, 19.2, 20.0, 24.0, 25.0, 26.0, 27.456, 28.925, 28.974, 30.0, 32.0, 33.6, 38.4, 48.0, 50.0 and 52.0MHz



Frequency Parameters

- Frequency 13.0MHz to 52.0MHz
- Frequency Tolerance Max $\pm 1.50\text{ppm}$
- Tolerance Condition @ 25°C $\pm 2^\circ\text{C}$
- Frequency Stability $\pm 0.50\text{ppm}$
- Ageing $\pm 1\text{ppm}$ max per year @ 25°C $\pm 3^\circ\text{C}$
- Frequency Tolerance: Referred to nominal frequency before reflow soldering.
- Supply Voltage Variation (@ $\pm 5\%$ change): $\pm 0.1\text{ppm}$ max
- Load Variation (@ $\pm 10\%$ change): $\pm 0.1\text{ppm}$ max
- Short Term Stability (Allan variance): $\pm 1\text{ppb}$ max (Tau = 0.1s)
- IR Reflow Resistance (ref to frequency before reflow): $\pm 1\text{ppm}$ max

Electrical Parameters

- Supply Voltage 2.5V $\pm 5\%$
- Absolute Maximum Ratings: Supply Voltage: -0.6V to 4.6V

Operating Temperature Ranges

- -30 to 85°C

Output Details

- Output Compatibility Clipped Sine
- Drive Capability 10k Ω /10pF
- Output: DC coupled
- Output Level: 0.8V pk-pk min
- Start Up Time (90% of V pk-pk): 2ms max
- Start Up Time (within $\pm 0.5\text{ppm}$): 2ms max

Noise Parameters

- Phase Noise (typ): -135dBc/Hz @ 1kHz
- Harmonic Distortion: -5.0dBc max

Environmental Parameters

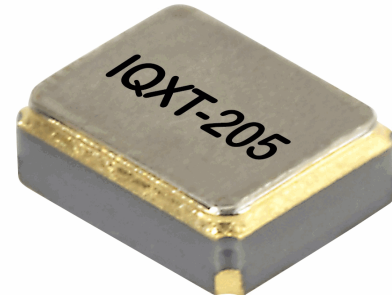
- Storage Temperature Range: -40 to 85°C

Ordering Information

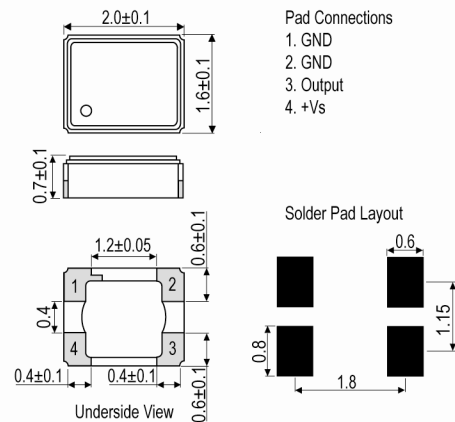
- *Minimum info required
 - Frequency*
 - Model*
 - Output
 - Frequency Stability (over operating temperature range)*
 - Operating Temperature Range*
 - Supply Voltage
- Example
 - 20.0MHz IQXT-205-1-25
 - Clipped Sine $\pm 0.5\text{ppm}$ -30 to 85C 2.5V

Compliance

- RoHS Status (2011/65/EU) Compliant
- REACH Status Compliant
- MSL Rating (JDEC-STD-033): Not Applicable



Outline (mm)





ISSUE 1; March 2018

Packaging Details

- Pack Style: Reel Tape & reel in accordance with EIA-481-D
Pack Size: 2,000

Electrical Specification - maximum limiting values 2.5V ±5%

Frequency Min	Frequency Max	Temperature Range	Stability (Min)	Current Draw	Rise and Fall Time	Duty Cycle
		°C	ppm	mA	ns	%
13.0MHz	29.999999MHz	-30 to 85	±0.5	1.5	-	-
30.0MHz	39.999999MHz	-30 to 85	±0.5	1.7	-	-
40.0MHz	52.0MHz	-30 to 85	±0.5	2	-	-

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ISSUE 1; March 2018

Description

- IQXT-205-1-28 is a 2.0 x 1.6mm SMD Temperature Compensated Crystal Oscillator (TCXO) in a hermetically sealed package.
- Developed frequencies: 16.2, 16.368, 16.369, 19.2, 20.0, 24.0, 25.0, 26.0, 27.456, 28.925, 28.974, 30.0, 32.0, 33.6, 38.4, 48.0, 50.0 and 52.0MHz



Frequency Parameters

- Frequency 13.0MHz to 52.0MHz
- Frequency Tolerance Max $\pm 1.50\text{ppm}$
- Tolerance Condition @ 25°C $\pm 2^\circ\text{C}$
- Frequency Stability $\pm 0.50\text{ppm}$
- Ageing $\pm 1\text{ppm}$ max per year @ 25°C $\pm 3^\circ\text{C}$
- Frequency Tolerance: Referred to nominal frequency before reflow soldering.
- Supply Voltage Variation (@ $\pm 5\%$ change): $\pm 0.1\text{ppm}$ max
- Load Variation (@ $\pm 10\%$ change): $\pm 0.1\text{ppm}$ max
- Short Term Stability (Allan variance): $\pm 1\text{ppb}$ max (Tau = 0.1s)
- IR Reflow Resistance (ref to frequency before reflow): $\pm 1\text{ppm}$ max

Electrical Parameters

- Supply Voltage 2.8V $\pm 5\%$
- Absolute Maximum Ratings: Supply Voltage: -0.6V to 4.6V

Operating Temperature Ranges

- -30 to 85°C

Output Details

- Output Compatibility Clipped Sine
- Drive Capability 10k Ω /10pF
- Output: DC coupled
- Output Level: 0.8V pk-pk min
- Start Up Time (90% of V pk-pk): 2ms max
- Start Up Time (within $\pm 0.5\text{ppm}$): 2ms max

Noise Parameters

- Phase Noise (typ): -135dBc/Hz @ 1kHz
- Harmonic Distortion: -5.0dBc max

Environmental Parameters

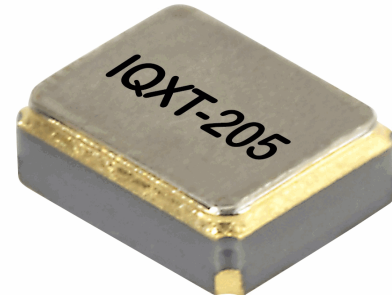
- Storage Temperature Range: -40 to 85°C

Ordering Information

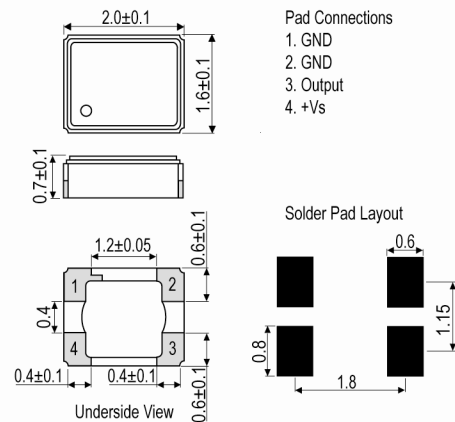
- *Minimum info required
 - Frequency*
 - Model*
 - Output
 - Frequency Stability (over operating temperature range)*
 - Operating Temperature Range*
 - Supply Voltage
- Example
 - 20.0MHz IQXT-205-1-28
 - Clipped Sine $\pm 0.5\text{ppm}$ -30 to 85C 2.8V

Compliance

- RoHS Status (2011/65/EU) Compliant
- REACH Status Compliant
- MSL Rating (JDEC-STD-033): Not Applicable



Outline (mm)





ISSUE 1; March 2018

Packaging Details

- Pack Style: Reel Tape & reel in accordance with EIA-481-D
Pack Size: 2,000

Electrical Specification - maximum limiting values 2.8V \pm 5%

Frequency Min	Frequency Max	Temperature Range	Stability (Min)	Current Draw	Rise and Fall Time	Duty Cycle
		°C	ppm	mA	ns	%
13.0MHz	29.999999MHz	-30 to 85	\pm 0.5	1.5	-	-
30.0MHz	39.999999MHz	-30 to 85	\pm 0.5	1.7	-	-
40.0MHz	52.0MHz	-30 to 85	\pm 0.5	2	-	-

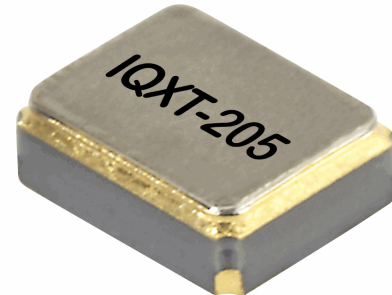
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ISSUE 1; March 2018

Description

- IQXT-205-1-30 is a 2.0 x 1.6mm SMD Temperature Compensated Crystal Oscillator (TCXO) in a hermetically sealed package.
- Developed frequencies: 16.2, 16.368, 16.369, 19.2, 20.0, 24.0, 25.0, 26.0, 27.456, 28.925, 28.974, 30.0, 32.0, 33.6, 38.4, 48.0, 50.0 and 52.0MHz



Frequency Parameters

- Frequency 13.0MHz to 52.0MHz
- Frequency Tolerance Max $\pm 1.50\text{ppm}$
- Tolerance Condition @ 25°C $\pm 2^\circ\text{C}$
- Frequency Stability $\pm 0.50\text{ppm}$
- Ageing $\pm 1\text{ppm}$ max per year @ 25°C $\pm 3^\circ\text{C}$
- Frequency Tolerance: Referred to nominal frequency before reflow soldering.
- Supply Voltage Variation (@ $\pm 5\%$ change): $\pm 0.1\text{ppm}$ max
- Load Variation (@ $\pm 10\%$ change): $\pm 0.1\text{ppm}$ max
- Short Term Stability (Allan variance): $\pm 1\text{ppb}$ max (Tau = 0.1s)
- IR Reflow Resistance (ref to frequency before reflow): $\pm 1\text{ppm}$ max

Electrical Parameters

- Supply Voltage 3.0V $\pm 5\%$
- Absolute Maximum Ratings: Supply Voltage: -0.6V to 4.6V

Operating Temperature Ranges

- -30 to 85°C

Output Details

- Output Compatibility Clipped Sine
- Drive Capability 10k Ω /10pF
- Output: DC coupled
- Output Level: 0.8V pk-pk min
- Start Up Time (90% of V pk-pk): 2ms max
- Start Up Time (within $\pm 0.5\text{ppm}$): 2ms max

Noise Parameters

- Phase Noise (typ): -135dBc/Hz @ 1kHz
- Harmonic Distortion: -5.0dBc max

Environmental Parameters

- Storage Temperature Range: -40 to 85°C

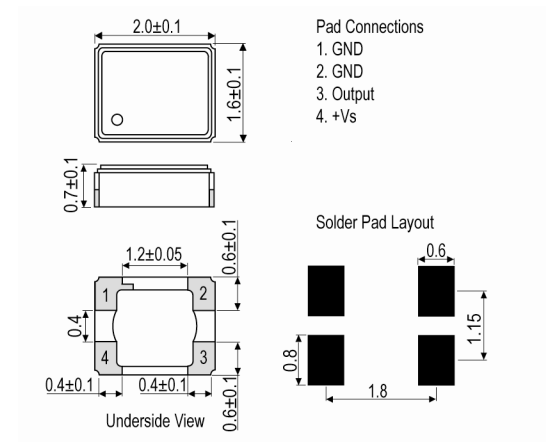
Ordering Information

- *Minimum info required
 - Frequency*
 - Model*
 - Output
 - Frequency Stability (over operating temperature range)*
 - Operating Temperature Range*
 - Supply Voltage
- Example
 - 20.0MHz IQXT-205-1-30
 - Clipped Sine $\pm 0.5\text{ppm}$ -30 to 85C 3.0V

Compliance

- RoHS Status (2011/65/EU) Compliant
- REACH Status Compliant
- MSL Rating (JDEC-STD-033): Not Applicable

Outline (mm)





ISSUE 1; March 2018

Packaging Details

- Pack Style: Reel Tape & reel in accordance with EIA-481-D
Pack Size: 2,000

Electrical Specification - maximum limiting values 3.0V ±5%

Frequency Min	Frequency Max	Temperature Range	Stability (Min)	Current Draw	Rise and Fall Time	Duty Cycle
		°C	ppm	mA	ns	%
13.0MHz	29.999999MHz	-30 to 85	±0.5	1.5	-	-
30.0MHz	39.999999MHz	-30 to 85	±0.5	1.7	-	-
40.0MHz	52.0MHz	-30 to 85	±0.5	2	-	-

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ISSUE 1; March 2018

Description

- IQXT-205-1-33 is a 2.0 x 1.6mm SMD Temperature Compensated Crystal Oscillator (TCXO) in a hermetically sealed package.
- Developed frequencies: 16.2, 16.368, 16.369, 19.2, 20.0, 24.0, 25.0, 26.0, 27.456, 28.925, 28.974, 30.0, 32.0, 33.6, 38.4, 48.0, 50.0 and 52.0MHz



Frequency Parameters

- Frequency 13.0MHz to 52.0MHz
- Frequency Tolerance Max $\pm 1.50\text{ppm}$
- Tolerance Condition @ 25°C $\pm 2^\circ\text{C}$
- Frequency Stability $\pm 0.50\text{ppm}$
- Ageing $\pm 1\text{ppm}$ max per year @ 25°C $\pm 3^\circ\text{C}$
- Frequency Tolerance: Referred to nominal frequency before reflow soldering.
- Supply Voltage Variation (@ $\pm 5\%$ change): $\pm 0.1\text{ppm}$ max
- Load Variation (@ $\pm 10\%$ change): $\pm 0.1\text{ppm}$ max
- Short Term Stability (Allan variance): $\pm 1\text{ppb}$ max (Tau = 0.1s)
- IR Reflow Resistance (ref to frequency before reflow): $\pm 1\text{ppm}$ max

Electrical Parameters

- Supply Voltage 3.3V $\pm 5\%$
- Absolute Maximum Ratings: Supply Voltage: -0.6V to 4.6V

Operating Temperature Ranges

- -30 to 85°C

Output Details

- Output Compatibility Clipped Sine
- Drive Capability 10k Ω /10pF
- Output: DC coupled
- Output Level: 0.8V pk-pk min
- Start Up Time (90% of V pk-pk): 2ms max
- Start Up Time (within $\pm 0.5\text{ppm}$): 2ms max

Noise Parameters

- Phase Noise (typ): -135dBc/Hz @ 1kHz
- Harmonic Distortion: -5.0dBc max

Environmental Parameters

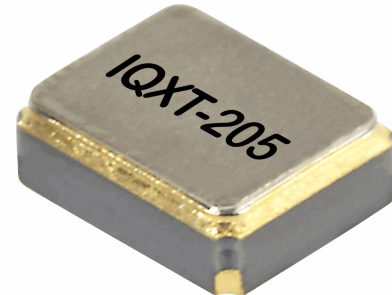
- Storage Temperature Range: -40 to 85°C

Ordering Information

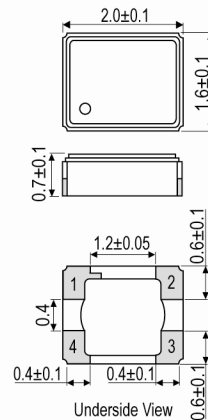
- *Minimum info required
 - Frequency*
 - Model*
 - Output
 - Frequency Stability (over operating temperature range)*
 - Operating Temperature Range*
 - Supply Voltage
- Example
 - 20.0MHz IQXT-205-1-33
 - Clipped Sine $\pm 0.5\text{ppm}$ -30 to 85C 3.3V

Compliance

- RoHS Status (2011/65/EU) Compliant
- REACH Status Compliant
- MSL Rating (JDEC-STD-033): Not Applicable

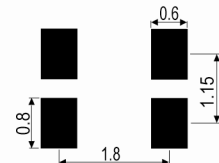


Outline (mm)



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

Solder Pad Layout



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Packaging Details

- Pack Style: Reel Tape & reel in accordance with EIA-481-D
Pack Size: 2,000

Electrical Specification - maximum limiting values 3.3V ±5%

Frequency Min	Frequency Max	Temperature Range	Stability (Min)	Current Draw	Rise and Fall Time	Duty Cycle
		°C	ppm	mA	ns	%
13.0MHz	29.999999MHz	-30 to 85	±0.5	1.5	-	-
30.0MHz	39.999999MHz	-30 to 85	±0.5	1.7	-	-
40.0MHz	52.0MHz	-30 to 85	±0.5	2	-	-

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