



## 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

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### 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 $\Omega$ /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

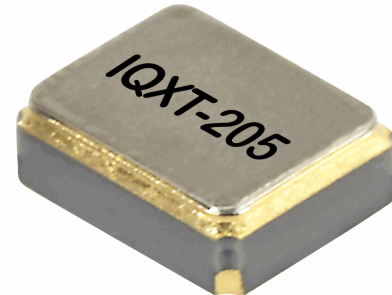
- Storage Temperature Range: -40 to 85°C

### Ordering Information

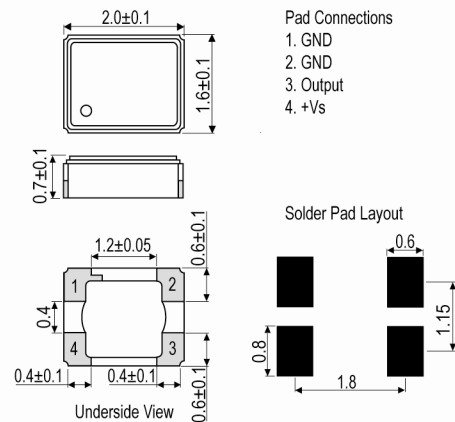
- \*Minimum info required
  - Frequency\*
  - Model\*
  - Output
  - Frequency Stability (over operating temperature range)\*
  - Operating Temperature Range\*
  - Supply Voltage
- Example
  - 20.0MHz IQXT-205-1-18
  - Clipped Sine  $\pm 0.5\text{ppm}$  -30 to 85C 1.8V

### Compliance

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



### Outline (mm)





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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 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	-	-

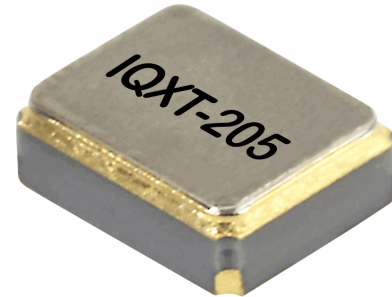
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ISSUE 1; March 2018

**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 $\Omega$ /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

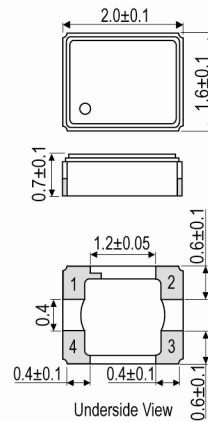
**Ordering Information**

- \*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**

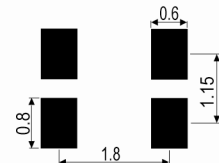
- RoHS Status (2011/65/EU) Compliant
- REACH Status Compliant
- MSL Rating (JDEC-STD-033): Not Applicable

**Outline (mm)**



- 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 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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### 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 $\Omega$ /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

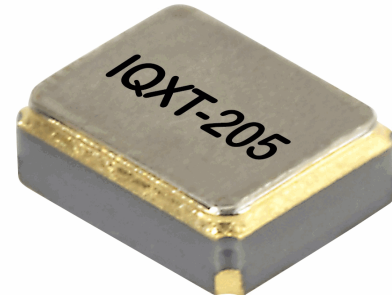
- Storage Temperature Range: -40 to 85°C

### Ordering Information

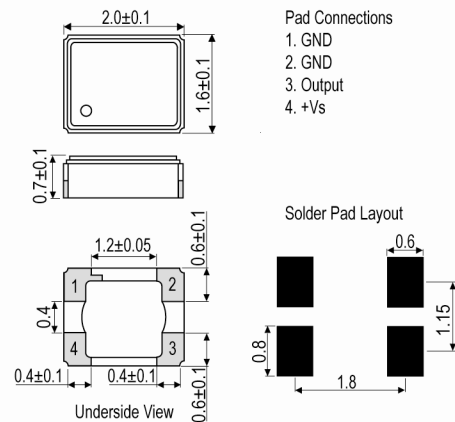
- \*Minimum info required
  - Frequency\*
  - Model\*
  - Output
  - Frequency Stability (over operating temperature range)\*
  - Operating Temperature Range\*
  - Supply Voltage
- Example
  - 20.0MHz IQXT-205-1-28
  - Clipped Sine  $\pm 0.5\text{ppm}$  -30 to 85C 2.8V

### Compliance

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



### Outline (mm)





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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 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	-	-

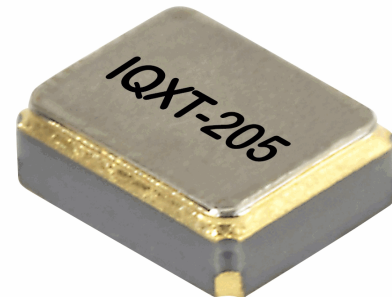
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**Description**

- 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 $\Omega$ /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

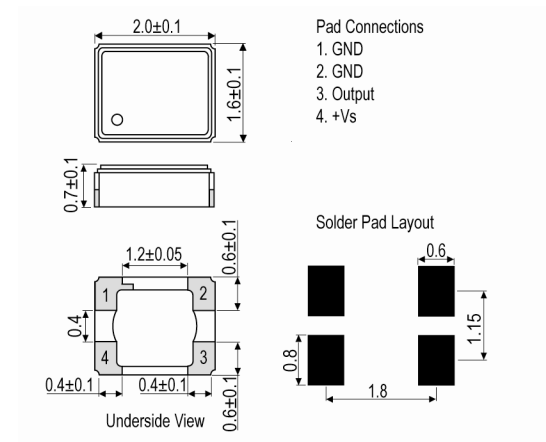
**Ordering Information**

- \*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)**





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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 3.0V  $\pm$ 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	-	-

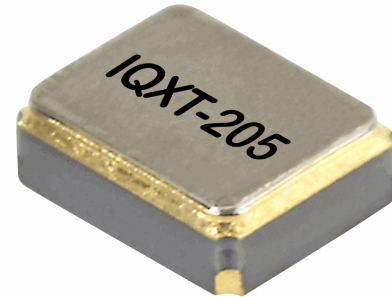
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ISSUE 1; March 2018

**Description**

- IQXT-205-1-33 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 $\Omega$ /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

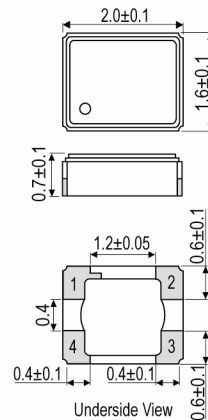
**Ordering Information**

- \*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

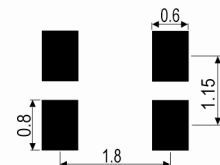
**Outline (mm)**



**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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