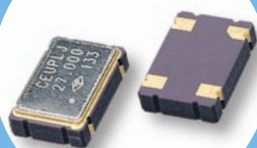


Actual Size



# OC Type Crystal Oscillator

## FEATURE

1. Typical 7.0 × 5.0 × 1.3 mm ceramic SMD package.
2. Tight symmetry (45 to 55 %) available.
3. Packing: Tape & Reel, 1000/3000 pcs per Reel.

## ORDERING INFORMATION

Select option

| XO | Package (mm) | Supply Voltage(V)                           | Tri-State Function            | Freq. Stability (ppm)                         | Temp. Range (°C)                          | Output Logic and Symmetry                                    | Oscillator Mode                                                         | Appearance | Lead Free        | Dash | Freq. (MHz) |
|----|--------------|---------------------------------------------|-------------------------------|-----------------------------------------------|-------------------------------------------|--------------------------------------------------------------|-------------------------------------------------------------------------|------------|------------------|------|-------------|
|    | 7×5          | C : 5<br>E : 2.8 ~3.3<br>J : 2.5<br>K : 1.8 | T : Fixed-Freq with Tri-State | C : ± 20<br>D : ± 25<br>G : ± 50<br>H : ± 100 | I : -10~+60<br>C : -20~+70<br>L : -40~+85 | 50±5%<br>TTL "A"<br>TTL 50pF E<br>CMOS 15pF J<br>CMOS 50pF F | -A: AT Fundamental<br>-T: AT 3rd Overtone<br>NOT SELECTABLE BY CUSTOMER | N : Normal | F:RoHS Compliant |      | XX.XXXXXX   |

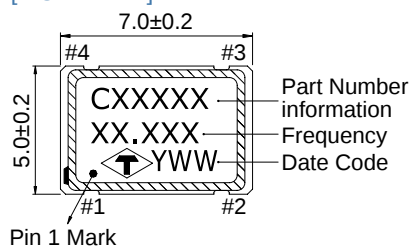
Example OCCTDCJANF-14.318180

XO C-TYPE; V<sub>DD</sub>: 5V; Fixed-Freq. with Tri-State; Freq. Stability :±25ppm; Temp. Range: -20°C to +70°C; Load :CMOS 15pF, Symmetry :50 ±5%; AT Fundamental; Normal Appearance; RoHS Compliant; Freq. 14.318180MHz.

\* Not all combinations of options are available.

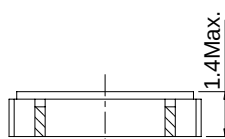
## OUTLINE DRAWING

[ TOP VIEW ]



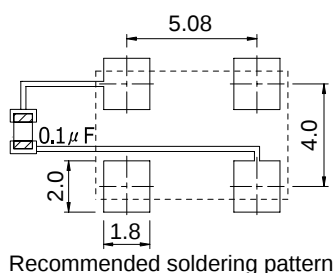
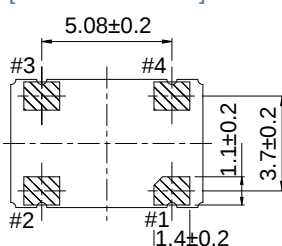
Pin 1 Mark

[ SIDE VIEW ]



UNIT:mm

[ BOTTOM VIEW ]



Recommended soldering pattern

## FREQ. STABILITY vs. TEMP. RANGE

| Temp. (°C) | ppm     | C: ±20 | D: ±25 | G: ±50 |
|------------|---------|--------|--------|--------|
| I          | -10~+60 | ○      | ○      | ○      |
| C          | -20~+70 | △      | ○      | ○      |
| L          | -40~+85 | ×      | △      | ○      |

○:Standard △:Available (case by case) ×:Not available

| Pin | Function        |
|-----|-----------------|
| #1  | Tri-State       |
| #2  | GND             |
| #3  | Output          |
| #4  | V <sub>DD</sub> |



## ELECTRICAL SPECIFICATION

| Parameter                                      | Min.                          |      |      |       | Max.                |      |      |      | Unit |
|------------------------------------------------|-------------------------------|------|------|-------|---------------------|------|------|------|------|
|                                                | 5.0                           | 3.3  | 2.5  | 1.8   | 5.0                 | 3.3  | 2.5  | 1.8  | V    |
| Supply Voltage Variation(V <sub>DD</sub> ) 10% | 4.5                           | 2.97 | 2.25 | 1.62  | 5.5                 | 3.63 | 2.75 | 1.98 | V    |
| Frequency Range                                | 0.012                         |      |      | 0.048 | 110                 | 133  | 133  | 125  | MHz  |
| Operating Temp. Range                          | Refer to Ordering Information |      |      |       |                     |      |      |      | °C   |
| Frequency Stability *                          | Refer to Ordering Information |      |      |       |                     |      |      |      | ppm  |
| Supply Current                                 |                               |      |      |       |                     |      |      |      |      |
| 0.012MHz ≤ Fo < 0.048MHz                       | —                             |      |      |       | 7                   | 5    | 5    | —    | mA   |
| 0.048MHz ≤ Fo < 1.5MHz                         | —                             |      |      |       | 7                   | 5    | 5    | 5    |      |
| 1.5MHz ≤ Fo < 20MHz                            | —                             |      |      |       | 10                  | 7    | 7    | 5    |      |
| 20MHz ≤ Fo < 50MHz                             | —                             |      |      |       | 30                  | 20   | 15   | 15   |      |
| 50MHz ≤ Fo < 70MHz                             | —                             |      |      |       | 40                  | 30   | 20   | 15   |      |
| 70MHz ≤ Fo < 125MHz                            | —                             |      |      |       | 40                  | 30   | 20   | 20   |      |
| 125MHz ≤ Fo ≤ 133MHz                           | —                             |      |      |       | —                   | 40   | 30   | —    |      |
| Output Level (CMOS)                            |                               |      |      |       |                     |      |      |      |      |
| Output High (Logic “1”)                        | 90% V <sub>DD</sub>           |      |      |       | —                   |      |      |      | V    |
| Output Low (Logic “0”)                         | —                             |      |      |       | 10% V <sub>DD</sub> |      |      |      |      |
| Transition Time:Rise/Fall Time*                |                               |      |      |       |                     |      |      |      |      |
| 0.012MHz ≤ Fo < 1.0MHz                         | —                             |      |      |       | 200                 | 200  | 200  | —    | nSec |
| 1.0MHz ≤ Fo < 20MHz                            | —                             |      |      |       | 5                   | 6    | 6    | 6    |      |
| 20MHz ≤ Fo < 50MHz                             | —                             |      |      |       | 4                   | 4    | 5    | 5    |      |
| 50MHz ≤ Fo < 70MHz                             | —                             |      |      |       | 2                   | 3    | 3    | 3    |      |
| 70MHz ≤ Fo < 125MHz                            | —                             |      |      |       | 2                   | 3    | 3    | 3    |      |
| 125MHz ≤ Fo ≤ 133MHz                           | —                             |      |      |       | —                   | 2    | 2    | —    |      |
| Start Time                                     | —                             |      |      |       | 4                   |      |      |      | mSec |
| Tri-State (Input to Pin 1)                     |                               |      |      |       |                     |      |      |      |      |
| Output Active                                  | 4.0                           | 2.0  | 1.75 | 1.26  | —                   |      |      |      | V    |
| Output in High Impedance State                 | —                             |      |      |       | 0.8                 | 0.5  | 0.5  | 0.5  |      |
| Absolute Clock Period Jitter                   | —                             |      |      |       | 40                  |      |      |      | pSec |
| Standby Current                                | —                             |      |      |       | 10                  |      |      |      | μA   |
| Storage Temp. Range                            | -55                           |      |      |       | 125                 |      |      |      | °C   |

Standard frequencies are frequencies which the crystal has been designed and does not imply a stock position.

\* Inclusive of calibration @ 25°C, operating temperature range, input voltage variation, load variation, aging, shock, and vibration.

<sup>+</sup> Transition times are measured between 10% and 90% of V<sub>DD</sub>, with an output load of 15pF.