

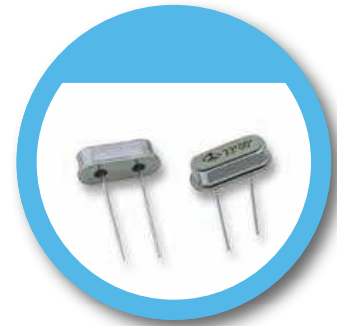
# XI Type 10.8 x 4.5 mm Crystal

## FEATURE

- Typical 10.8 x 4.5 x 3.4 mm standard footprint.
- Low profile for close PCB stacking.

## TYPICAL APPLICATION

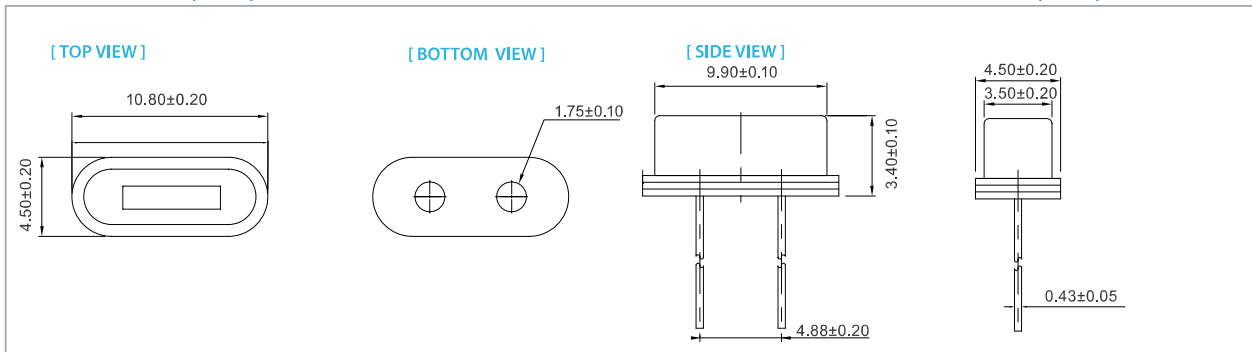
- Automotive
- Bluetooth, Wireless
- Computers, Modems, Communications
- Set-top Box, DECT/WDCT



**RoHS Compliant**

## DIMENSION (mm)

## SOLDER PAD LAYOUT (mm)



## ELECTRICAL SPECIFICATION

| Parameter              | Min.            | Typical | Max. | Unit       |
|------------------------|-----------------|---------|------|------------|
| Storage Temp. Range    | -55             | -       | 125  | °C         |
| Level of Drive         | -               | 10      | 800  | µw         |
| Shunt Capacitance (Co) | -               | -       | 7.0  | pF         |
| Insulation Resistance  | 500 MΩ @ DC100V | -       | -    |            |
| Aging                  |                 | ±5      |      | ppm / year |

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

## EQUIVALENT SERIES RESISTANCE (E.S.R)

| Frequency Range             | MODE | E.S.R  |
|-----------------------------|------|--------|
| $F_o \leq 3.58 \text{ MHz}$ | A1   | <140 Ω |
| 4 MHz < $F_o$ < 5 MHz       | A1   | <120 Ω |
| 5 MHz ≤ $F_o$ < 7 MHz       | A1   | <80 Ω  |
| 7 MHz ≤ $F_o$ < 9 MHz       | A1   | <45 Ω  |
| 9 MHz ≤ $F_o$ < 13 MHz      | A1   | <40 Ω  |
| 13 MHz ≤ $F_o$ < 16 MHz     | A1   | <35 Ω  |
| 16 MHz ≤ $F_o$ < 20 MHz     | A1   | <30 Ω  |
| 20 MHz ≤ $F_o$ < 30 MHz     | A1   | <25 Ω  |
| 30 MHz ≤ $F_o$ < 36 MHz     | A1   | <25 Ω  |
| 30 MHz ≤ $F_o$ < 36 MHz     | A3   | <80 Ω  |
| 36 MHz ≤ $F_o$ ≤ 80 MHz     | A3   | <80 Ω  |

## FREQ. STABILITY vs. LOAD CAPACITANCE

| Load Capacitance | ppm | ±5 | ±10 | ±15 | ±20 | ±30 |
|------------------|-----|----|-----|-----|-----|-----|
| 8pF              |     | X  | X   | △   | ○   | ○   |
| 10pF             |     | X  | X   | △   | ○   | ○   |
| 12pF             |     | X  | △   | ○   | ○   | ○   |
| 16pF             |     | X  | △   | ○   | ○   | ○   |
| Series           |     | △  | ○   | ○   | ○   | ○   |

\* ○: Available △: Conditional X: Not available

## FREQ. STABILITY vs. TEMP. RANGE

| Temp. (°C) | ppm | ±5 | ±10 | ±15 | ±20 |
|------------|-----|----|-----|-----|-----|
| -10 ~ +60  |     | X  | ○   | ○   | ○   |
| -20 ~ +70  |     | X  | △   | ○   | ○   |
| -40 ~ +85  |     | X  | X   | X   | ○   |

\* ○: Available △: Conditional X: Not available

**Note: not all combination of options are available. Other specifications may be available upon request.**

Rev(19)04/2015

[www.taiien.com](http://www.taiien.com)

[sales@taiien.com.tw](mailto:sales@taiien.com.tw)

# Model Numbering Guide – Crystal Units

## Available options

| Type                         | package (mm)  | Load Capacitance (pF)  | Freq. Tol. @25°C (ppm)  | Freq. Stability (ppm)  | Temp. Range(°C)  | Special Requirement   | Oscillator Mode                                     | Appearance   | Lead Free                                  | Dash | Freq. (MHz) |
|------------------------------|---|--|---|--|--|---|---|--|--|------|-------------|
| X: X'tal (MHz series)        | 3: 1.6x1.2<br>Z: 2.0x1.6<br>Y: 2.5x2.0<br>X: 3.2x2.5<br>V: 5.0x3.2 (4Pads)<br>R: 6.0x3.5<br>2: 3.2x2.5<br>S: 5.0x3.2 (2Pads)<br>Q: 8.0x4.5<br>I: 11.1x4.68 (U4)<br>J: 13.0x4.85 (U4B) | L: 6<br>O: 7<br>A: 8<br>B: 9<br>C: 10<br>D: 12<br>E: 15<br>F: 16<br>G: 18<br>H: 20<br>P: 22<br>Q: 25<br>I: 30<br>J: 32<br>K: 50<br>N: No Standard<br>S: Series | A: ±5<br>B: ±10<br>P: ±15<br>C: ±20<br>D: ±25<br>E: ±30<br>F: ±40<br>G: ±50<br>H: ±100<br>I: ±150 | A: ±5<br>B: ±10<br>P: ±15<br>C: ±20<br>D: ±25<br>E: ±30<br>F: ±40<br>G: ±50<br>H: ±100<br>I: ±150<br>Z: ±150 above | A: +10~+40<br>B: +0~-55<br>E: +0~+85<br>I: -10~+60<br>C: -20~+70<br>D: -30~+85<br>L: -40~+85<br>M: -40~+95<br>J: -40~+105<br>H: -40~+125<br>G: -40~+150<br>F: -55~+125 | A: For Automotive<br>B: Spurious<br>D: DLD<br>N: No Special<br>P: Pullability<br>S: Several | A: AT Fundamental<br>T: AT 3 <sup>rd</sup> Overtone | N: Normal  | F: RoHS Compliant                          | -    | XX.XXXXX    |
| X: X'tal (32.768 kHz series) | A: 3.0x8.0 (Dip)<br>B: 1.0x4.0 (Dip)<br>/2.0x6.0 (Dip)<br>D: 2.0x1.2 (2Pads)<br>3.2x1.5 (2Pads)<br>/4.1x1.5 (2Pads)<br>N: 6.9x1.4 (4Pads)<br>/8.0x3.8 (4Pads)                         | L: 6<br>O: 7<br>B: 9<br>M: 12.5  | C: ±20  | H: ±100<br>I: ±150<br>Z: ±150 above  | C: -20~+70<br>L: -40~+85   | N: No Special   | D: Tuning Fork                                      | N: Normal (XA 3.0x8.0 size<br>XB 2.0x6.0 size)<br>J: XB 1.0x4.0 size<br>C: XD 4.1x1.5 size<br>D: XD 3.2x1.5 size<br>M: XD 2.0x1.2 size<br>E: XN 8.0x3.8 size<br>H: XN 6.9x1.4 size | D: RoHS Compliant<br>B: Non-RoHS Compliant | -    | 0.032768    |

**X Y C D D L N A N F – 40.000000**

\*Not all combinations of options are available.

### Example: XYCDDLNANF-40.000000

|                            |                   |
|----------------------------|-------------------|
| <b>Type</b>                | X'tal             |
| <b>Package</b>             | 2.5 x 2.0 mm      |
| <b>Load Capacitance</b>    | 10 pF             |
| <b>Freq. Tol.</b>          | ±25ppm            |
| <b>Freq. Stability</b>     | ±25ppm            |
| <b>Temp Range</b>          | -40~+85 °C        |
| <b>Special Requirement</b> | No Special        |
| <b>Oscillator Mode</b>     | AT Fundamental    |
| <b>Appearance</b>          | Normal Appearance |
| <b>Lead Free</b>           | RoHS Compliant    |
| <b>Frequency</b>           | 40.000000 MHz     |