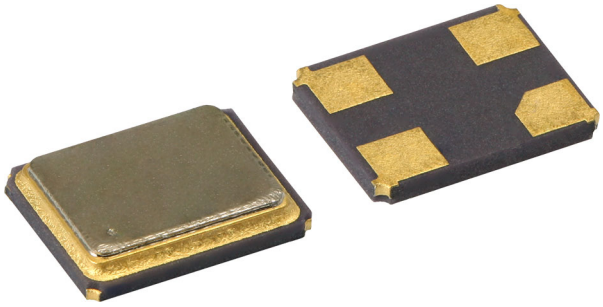
# Surface-Mount Crystal



## FEATURES

- Size: 2.0 x 1.6 x 0.55 (mm)
- Small package size
- Frequencies from 16 MHz to 60 MHz
- Tape and reel packaging
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb-free

RoHS COMPLIANT

HALOGEN FREE GREEN (5-2008)

The XT12 series is an ultra miniature package crystal with dimensions 2.0 mm x 1.6 mm x 0.55 mm. It is primarily used in notebook, mobile communications, telecom devices, industrial controls,+ and consumer platforms.

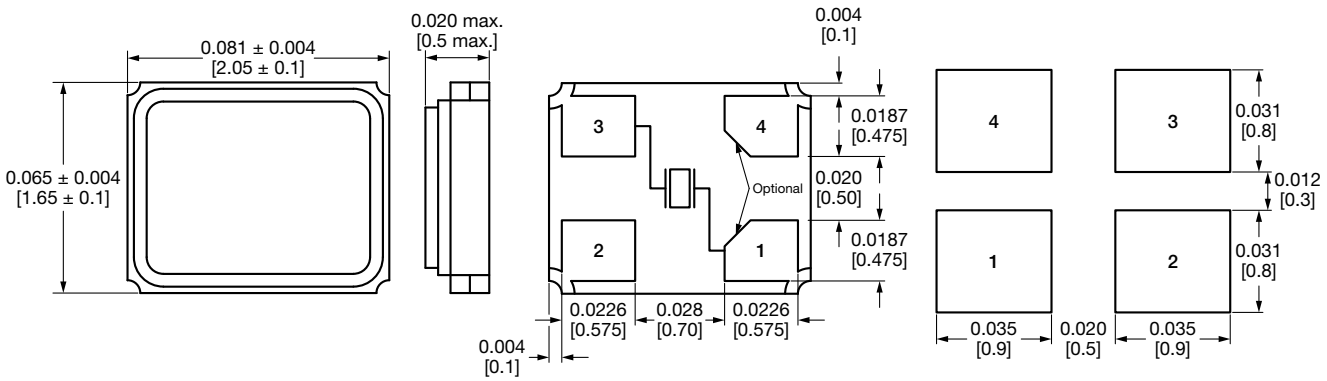
## STANDARD ELECTRICAL SPECIFICATIONS

| PARAMETER | SYMBOL | CONDITION | UNIT | MIN. | TYP. | MAX. |
|---|---|---|---|---|---|---|
| Frequency range | $F_O$ | | MHz | 16 | - | 60 |
| Frequency tolerance | $\Delta F/F_O$ | At 25 °C | ppm | - | ± 10, ± 15, ± 20, ± 25, ± 30 | - |
| Temperature stability | $T_C$ | Ref. to 25 °C | ppm | - | ± 20, ± 25, ± 30, ± 35, ± 50, ± 100 | - |
| Operating temperature range | $T_{OPR}$ | Standard | °C | 0 | - | +70 |
| | | Optional | °C | -40 | - | +85 |
| Storage temperature range | $T_{STG}$ | | °C | -55 | - | +125 |
| Shunt capacitance | $C_0$ | | pF | - | - | 3 |
| Load capacitance | $C_L$ | Customer specified | pF | 8 | - | Series |
| Insulation resistance | $I_R$ | 100 $V_{DC}$ | MΩ | 500 | - | - |
| Drive level | $D_L$ | | µW | - | 10 | 200 |
| Aging | $F_a$ | At 25 °C, per year | ppm | -3 | - | +3 |

## EQUIVALENT SERIES RESISTANCE (ESR) AND MODE OF VIBRATION (MODE)

| FREQUENCY RANGE (MHz) | MAX. ESR (Ω) |
|---|---|
| 16.000 to 19.999 | 200 |
| 20.000 to 23.999 | 100 |
| 24.000 to 60.000 | 60 |

## DIMENSIONS in inches [millimeters]




Top Side Bottom Typical pad layout

## PART NUMBER CONFIGURATIONS (to be used on **all New Designs**)

| X | T | 1 | 2 | 1 | 0 | H | J | R | G | X | 8 | M | 1 | 9 | 2 | E |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Crystal | | Package / Size | | Load Cap. | | Pack Code | Freq. Tolerance | Operating Temp. | Temp. Stability | Options | Frequency | | | | | Lead (PB)-free |
| | | **12** | | **10** = std.<br>**SE** = series | | **H** = tape and reel | **G** = ± 30 ppm<br>**E** = ± 25 ppm<br>**H** = ± 20 ppm<br>**I** = ± 15 ppm<br>**J** = ± 10 ppm | **S** = -10 °C to +70 °C<br>**R** = -40 °C to +85 °C | **C** = ± 100 ppm<br>**D** = ± 50 ppm<br>**F** = ± 35 ppm<br>**G** = ± 30 ppm<br>**E** = ± 25 ppm<br>**H** = ± 20 ppm | **X** = no options<br>Contact factory for available options | Use “M” as decimal place holder<br>Frequency must be five digits - complete with “0” at the end | | | | | **E** = lead (Pb)-free |

## PART MARKING

| | |
|---|---|
| Line 1: | V25.00 (frequency) |
| Line 2: | YYWWA (date code / factory) |

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