

3.2 x 2.5mm Ceramic SMD

Product Features

- AT Cut 32.768 kHz XO
- CMOS compatible logic levels
- Ultra low active current ($< 10\mu A$)
- Very tight temperature stability
- Designed for standard reflow and washing techniques
- Pb-free and RoHS/Green compliant

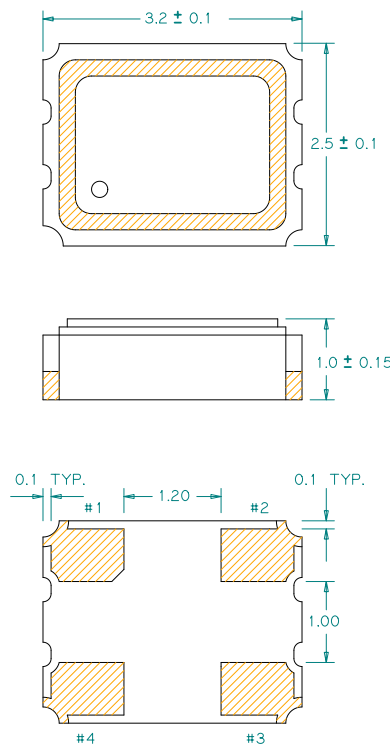
Product Description

The KX321 Series real time clock oscillator achieves superb stability over a broad range of operating conditions. It utilizes Pericom proprietary technology to achieve ultra low current less than $10\mu A$. The output clock signal is compatible with LVCMOS/LVTTL logic levels. The device, available on tape and reel, is contained in a 3.2 x 2.5mm surface-mount ceramic package.

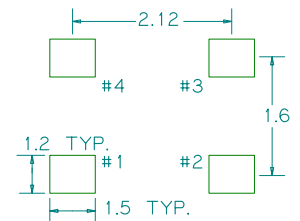
Applications

- Real-Time Clock Oscillator where low current and tight stability are needed

Package: (Scale: none; Dimensions are in mm)



Recommended Land Pattern:



Pin Functions:

| Pin | Function |
|-----|-----------------|
| 1 | OE Function |
| 2 | Ground |
| 3 | Clock Output |
| 4 | V _{DD} |

Part Ordering Information:

KX 321 V I S 032.768000

| Pin | Label | Value |
|---------------------------|-------|--|
| 1 | A | Voltage: 1 = +3.3V |
| 2 | B | Voltage: 2 = +2.5V |
| 3 | C | Voltage: 3 = +1.8V |
| 4 | D | Voltage: B = +3.0V |
| Stability and Temp Range: | | Stability: A = +/-20 ppm, B = +/-25 ppm, C = +/-50 ppm, D = +/-25 ppm, E = +/-50 ppm, F = +/-20 ppm, G = +/-25 ppm, H = +/-25 ppm, I = +/-25 ppm, Z = Reference Design |
| Temp Range: | | -20/+70°C, -20/+70°C, -20/+70°C, -40/+85°C, -40/+85°C, 0/+70°C, 0/+70°C, 0/+85°C, -20/+85°C |
| Internal #: | | 0 ~ 9 |
| Frequency: | | FFF.FFFFFFFF kHz, "3 digits/decimal/6 digits" format |

Following the above format, SaRonix-eCera part numbers will be assigned upon confirmation of exact customer requirements.

Electrical Performance

| Parameter | Min. | Typ. | Max. | Units | Notes |
|---------------------------------|---------------------|--------|---------------------|-------|---------------------------------------|
| Output Frequency | | 32.768 | | kHz | |
| Supply Voltage | +1.71 | +1.8 | +1.89 | V | See part ordering options |
| | +2.25 | +2.5 | +2.75 | V | |
| | +2.85 | +3.0 | +3.15 | V | |
| | +3.0 | +3.3 | +3.6 | V | |
| Supply Current, Output Enabled | | 10 | 15 | μA | At 15pF load |
| Supply Current, Standby Mode | | | 0.5 | μA | Output Hi-Z |
| Frequency Stability | | | ±50 | ppm | See part ordering options, and note 1 |
| Operating Temperature Range | -40 | | +85 | C | See part ordering options |
| Output Logic 0, V _{OL} | | | 0.1 V _{DD} | V | |
| Output Logic 1, V _{OH} | 0.9 V _{DD} | | | V | |
| Output Load | | | 15 | pF | See Note 2 |
| Duty Cycle | 45 | | 55 | % | measured 50% of V _{DD} |
| Rise and Fall Time | | 35 | 50 | ns | measured 20/80% of V _{DD} |
| Start-up time | | | 10 | ms | |

Notes:

- As specified. Stability includes all combinations of operating temperature, load changes, rated input (supply) voltage changes, initial calibration tolerance (25°C), aging (1 year at 25°C average effective ambient temperature), shock and vibration.
- For specifications other than those listed, please contact sales.

Output Enable / Disable Function

| Parameter | Min. | Typ. | Max. | Units | Notes |
|---|---------------------|------|---------------------|-------|----------------|
| Input Voltage (pin 1), Output Enable | 0.7 V _{DD} | | | V | or open |
| Input Voltage (pin 1), Output Disable (low power standby) | | | 0.3 V _{DD} | V | Output is Hi-Z |
| Internal Pullup Resistance | | 100 | | kΩ | |
| Output Disable Delay | | | 100 | ns | |
| Output Enable Delay | | | 10 | ms | |

Absolute Maximum Ratings

| Parameter | Min. | Typ. | Max. | Units | Notes |
|---------------------|------|------|------|-------|-------|
| Storage Temperature | -55 | | +125 | °C | |

For the latest product information visit: <http://www.pericom.com/products/timing/oscillators/KX321/>

For test circuit go to: http://www.pericom.com/pdf/sre/tc_cmos2.pdf

For soldering reflow profile and reliability test ratings go to: <http://www.pericom.com/pdf/sre/reflow.pdf>

For tape and reel information go to: http://www.pericom.com/pdf/sre/tr_3225_xo.pdf