

2.5 x 2.0mm 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

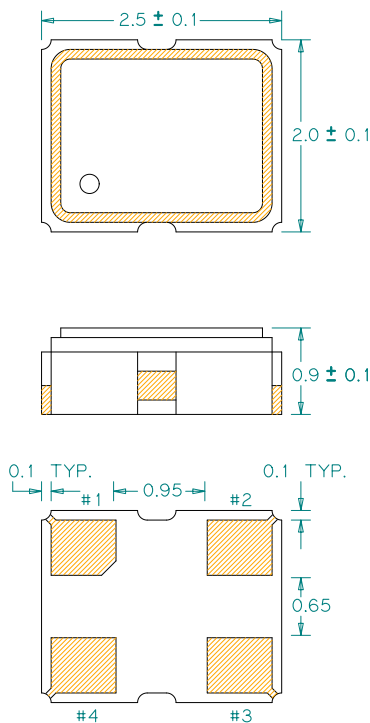
Product Description

The KX251 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 2.5 x 2.0mm surface-mount ceramic package.

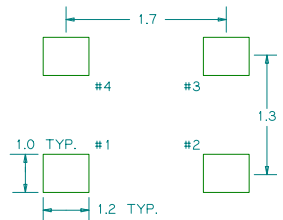
Applications

- 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 251 V I S 032.768000

| <p>Voltage: 1 = +3.3V 2 = +2.5V 3 = +1.8V B = +3.0V</p> | <p>Stability and Temp Range:</p> <table border="1"> <thead> <tr> <th>Stability</th> <th>Temp Range</th> </tr> </thead> <tbody> <tr><td>A = +/-20 ppm</td><td>-20/+70°C</td></tr> <tr><td>B = +/-25 ppm</td><td>-20/+70°C</td></tr> <tr><td>C = +/-50 ppm</td><td>-20/+70°C</td></tr> <tr><td>D = +/-25 ppm</td><td>-40/+85°C</td></tr> <tr><td>E = +/-50 ppm</td><td>-40/+85°C</td></tr> <tr><td>F = +/-20 ppm</td><td>0/+70°C</td></tr> <tr><td>G = +/-25 ppm</td><td>0/+70°C</td></tr> <tr><td>H = +/-25 ppm</td><td>0/+85°C</td></tr> <tr><td>I = +/-25 ppm</td><td>-20/+85°C</td></tr> <tr><td>Z = Reference Design</td><td></td></tr> </tbody> </table> | Stability | Temp Range | A = +/-20 ppm | -20/+70°C | B = +/-25 ppm | -20/+70°C | C = +/-50 ppm | -20/+70°C | D = +/-25 ppm | -40/+85°C | E = +/-50 ppm | -40/+85°C | F = +/-20 ppm | 0/+70°C | G = +/-25 ppm | 0/+70°C | H = +/-25 ppm | 0/+85°C | I = +/-25 ppm | -20/+85°C | Z = Reference Design | | <p>Internal #: 0 ~ 9</p> | <p>Frequency: FFFFFFFF kHz, "3 digits/decimal/6 digits" format</p> |
|--|---|-----------|------------|---------------|-----------|---------------|-----------|---------------|-----------|---------------|-----------|---------------|-----------|---------------|---------|---------------|---------|---------------|---------|---------------|-----------|----------------------|--|-------------------------------------|---|
| Stability | Temp Range | | | | | | | | | | | | | | | | | | | | | | | | |
| A = +/-20 ppm | -20/+70°C | | | | | | | | | | | | | | | | | | | | | | | | |
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| Z = Reference Design | | | | | | | | | | | | | | | | | | | | | | | | | |

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:

- 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/KX251/>

For test circuit go to: http://www.pericom.com/pdf/sre/tc_hcmos2.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_2520_xo.pdf