

2.5 x 2.0mm Ceramic SMD

Product Features

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

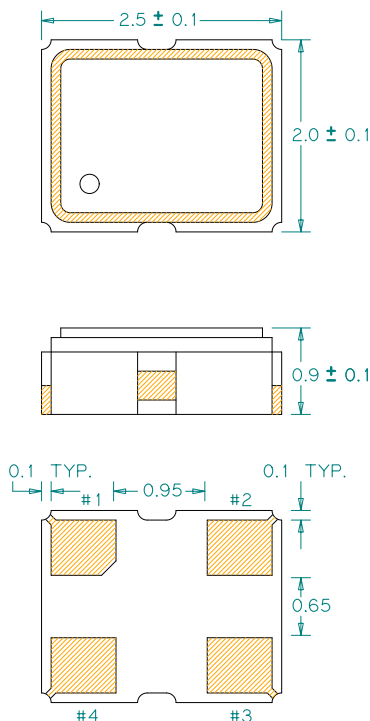
Product Description

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 $10\mu\text{A}$. 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.

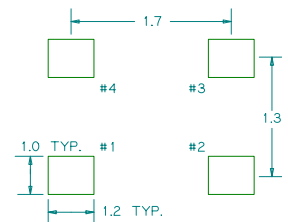
Applications

- 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

	<div><div>A</div><div>B</div><div>C</div><div>D</div></div>																								
Voltage:	Stability and Temp Range:	Internal #:	Frequency:																						
1 = +3.3V	<table><tr><th>Stability</th><th>Temp Range</th></tr><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></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		0 ~ 9	FFFFFFFF
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																									
2 = +2.5V			kHz, "3 digits/decimal/6 digits" format																						
3 = +1.8V																									
B = +3.0V																									

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		7.5	10	μA	No 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_hcm052.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