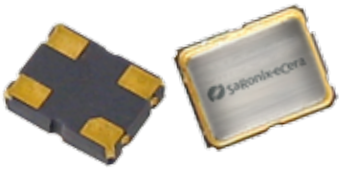
SaRonix-eCera™

Ultra Low Current KX Series Crystal Oscillator

3.2 x 2.5mm

CMOS 32.768kHz

KX321



3.2 x 2.5mm Ceramic SMD

Product Features

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

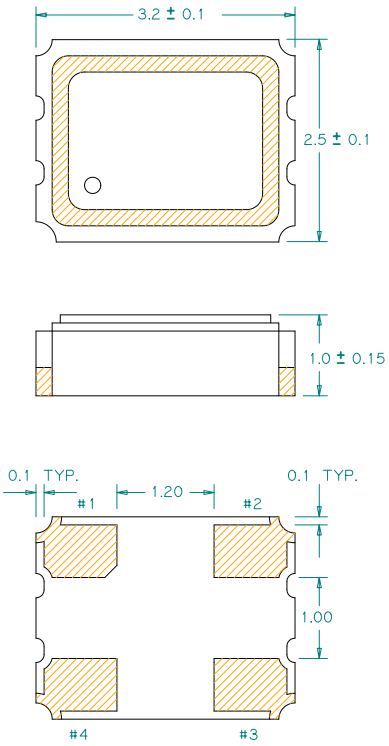
Product Description

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 10μA. 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.

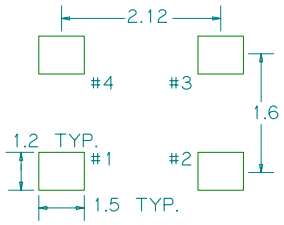
Applications

- 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

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Voltage:
1=+3.3V
2=+2.5V
3=+1.8V
B=+3.0V

Stability and Temp Range:

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	

Internal #:
0 ~ 9

Frequency:
FFF.FFFFFF
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:
1. 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.
2. 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

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Authorized Distributor

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KX3211A0032.768000 KX3213Z0032.768000 KX3213A0032.768000 KX3213D0032.768000 KX3213H0032.768000
KX3213E0032.768000 KX3211E0032.768000 KX3211D0032.768000