

#### KK Series Real Time Clock Oscillator 3.2x2.5mm (XO)

## 1.8V/2.5V/3.3V CMOS 32.768KHz



#### Actual Size $= 3.2 \times 2.5$ mm

#### **Product Features**

- 32.768 KHz
- 1.8V/2.5V/3.3V/CMOS compatible logic levels
- Pin-compatible with standard 3.2x2.5mm packages
- Designed for standard reflow and washing techniques
- Low power standby mode
- Pb-free and RoHS/Green compliant

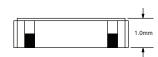
#### **Product Description**

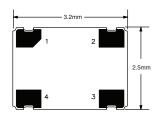
The KK Series is a real time clock oscillator that achieves superb stability over a broad range of operating conditions. The output clock signal is compatible with LVCMOS/LVTTL logic levels. The device, available on tape and reel, is contained in a 3.2x2.5mm surface-mount ceramic package.

### **Applications**

• Real Time Clock Oscillator

#### **Packaging Outline**





### Pin Functions

Pin	Function
1	OE Function
2	Ground
3	Clock Output
4	V <sub>DD</sub>

#### **New Part Number Example**

KK	327	0001	A = Product Family
			B = Frequency Code
Ø	B	©	C = Specification Code

Note: After July 1, 2007, a Saronix - eCera part number following the above format will be assigned upon confirmation of exact customer requirements.

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# 1.8V/2.5V/3.<mark>3V СМОЅ кк</mark>

# SaRonix-eCera

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#### **Electrical Performance**

Parameter	Min.	Тур.	Max.	Units	Notes
Output frequency		32.768		kHz	As specified
Supply voltage		+3.3		V	1.8V, 2.5V, 3.3V Available
Supply current, output enabled			20	mA	3.3V
Supply current, standby mode			10	μA	Output Hi-Z
Frequency stability			±20 to ±50	ррМ	See Note 1 below
Operating temperature	-10		+70	°C	As specified
<b>Operating temperature (EXT)</b>	-40		+85	°C	As specified
Output logic 0, VOL			10% V <sub>DD</sub>	V	
Output logic 1, VOH	90% V <sub>DD</sub>			V	
Output load	15 pF (max) or 10 LSTTL				
Duty cycle	45		55	%	measured 50%VDD
Rise and fall time			130	ns	measured 20/80% of waveform

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.	Тур.	Max.	Units	Notes
Input Voltage (pin 1), Output Enable	0.7 V <sub>CC</sub>			V	or open
Input voltage (pin 1), Output Disable (low power standby)			0.3 V <sub>CC</sub>	v	Output is Hi-Z
Internal pullup resistance	50			kΩ	
Output disable delay			200	ns	
Output enable delay			10	ms	

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## 1.8V/2.5V/3.3V CMOS KK

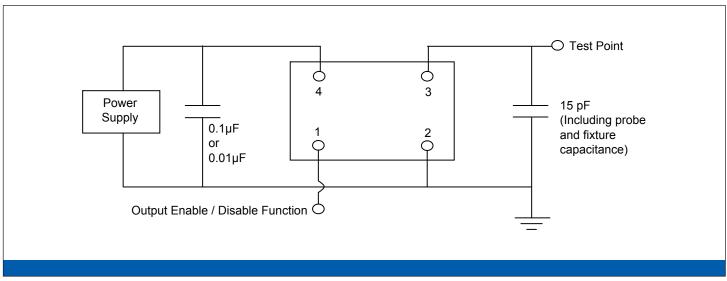
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#### **Absolute Maximum Ratings**

Parameter	Min.	Тур.	Max.	Units	Notes
Storage temperature	-55		+125	°C	

#### **Test Circuit**



#### **Reliability Test Ratings**

This product is rated to meet the following test conditions:

Туре	Parameter	Test Condition
Mechanical	Shock	MIL-STD-883, Method 2002, Condition B
Mechanical	Solderability	JESD22-B102-D Method 2 (Preconditioning E)
Mechanical	Terminal strength	MIL-STD-883, Method 2004, Condition D
Mechanical	Gross leak	MIL-STD-883, Method 1014, Condition C
Mechanical	Fine leak	MIL-STD-883, Method 1014, Condition A2 ( $R_1 = 2x10^{-8}$ atm cc/s)
Mechanical	Solvent resistance	MIL-STD-202, Method 215
Environmental	Thermal shock	MIL-STD-883, Method 1011, Condition A
Environmental	Moisture resistance	MIL-STD-883, Method 1004
Environmental	Vibration	MIL-STD-883, Method 2007, Condition A
Environmental	Resistance to soldering heat	J-STD-020C Table 5-2 Pb-free devices (2 cycles max)

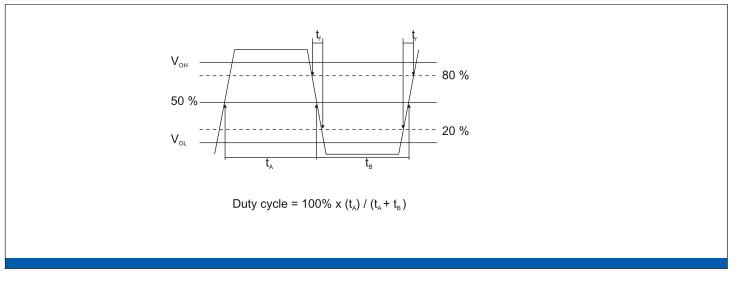
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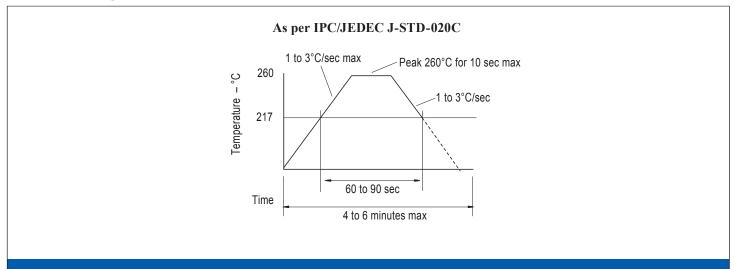


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#### **Output Waveform**



#### **Reflow Soldering Profile**



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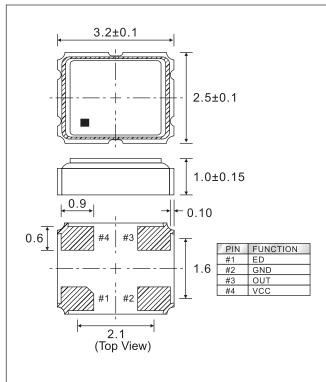


All specifications are subject to change without notice. DS 286 Rev A | 08/03/07

# 1.8V/2.5V/3.3V СМОЅ КК

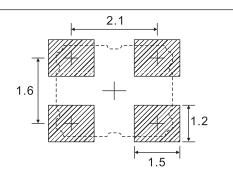
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#### **Mechanical Drawings**



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#### **Recommended Land Pattern\***



\*External high-frequency power decoupling is recommended.(see test circuit for minimum recommendation). To ensure optimal performance, do not route traces beneath the package.

Scale: None. Dimensions are in mm/inches.

