

Actual Size = 5 x 3.2mm



### Product Features

- 32.768 KHz
- 1.8V/2.5V/3.3V/CMOS compatible logic levels
- Pin-compatible with standard 5x3.2mm packages
- Designed for standard reflow and washing techniques
- Low power standby mode
- Pb-free and RoHS/Green compliant

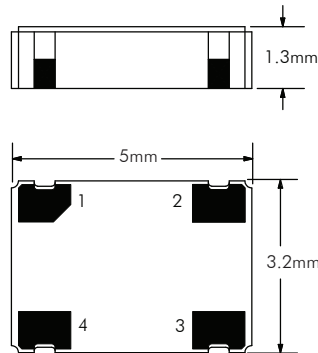
### Product Description

The KD 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 5x3.2mm 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

**KD**   **327**   **0001**   A = Product Family  
               B = Frequency Code  
 (A)   (B)   (C)   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.

### Electrical Performance

Parameter	Min.	Typ.	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			10	mA	3.3V
Supply current, standby mode			10	μA	Output Hi-Z
Frequency stability			±20 to ±50	ppM	See Note 1 below
Operating temperature	-10		+70	°C	As specified
Operating temperature (EXT)	-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%V <sub>DD</sub>
Rise and fall time			130	ns	measured 20/80% of waveform

#### 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.

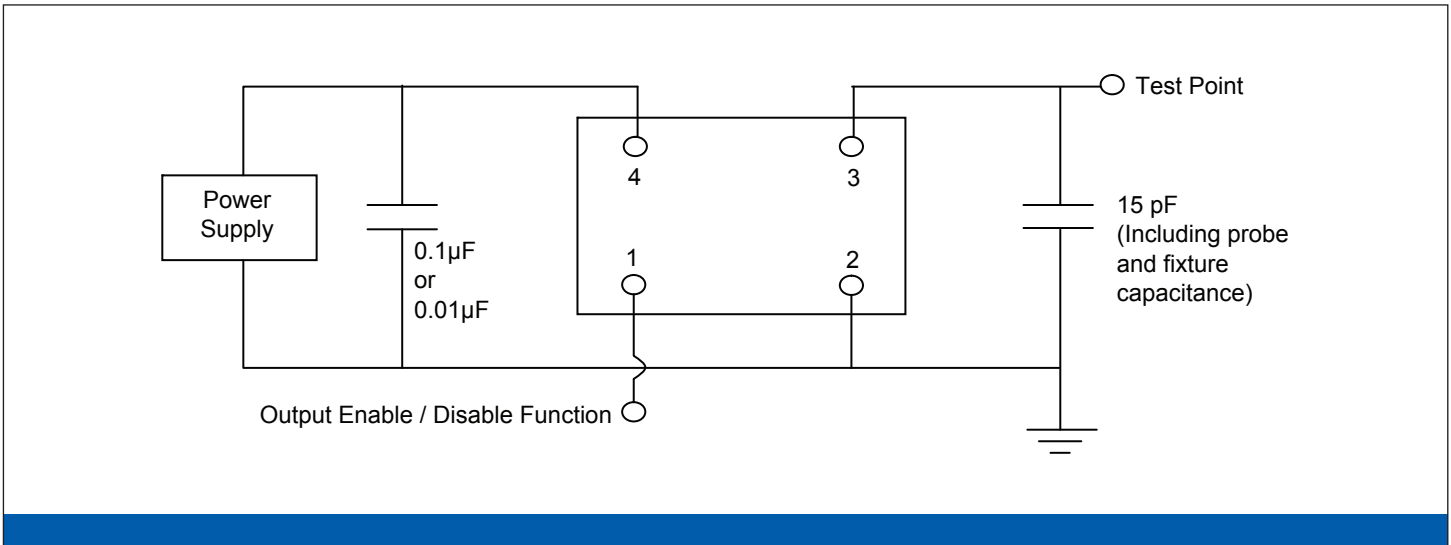
### Output Enable / Disable Function

Parameter	Min.	Typ.	Max.	Units	Notes
Input Voltage (pin 1), Output Enable	0.7 V <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	

### Absolute Maximum Ratings

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

### Test Circuit

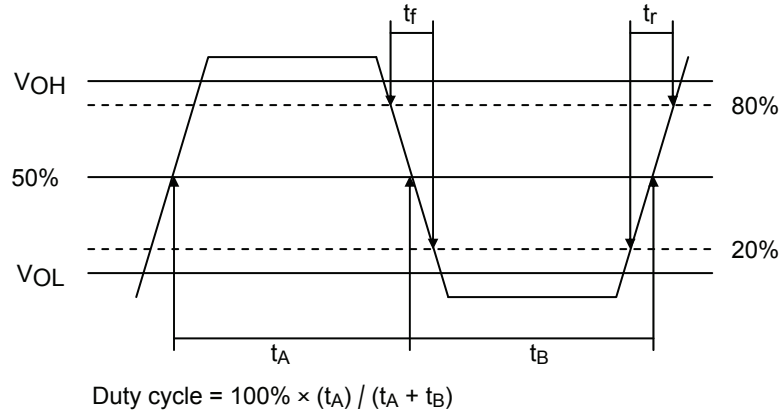


### Reliability Test Ratings

This product is rated to meet the following test conditions:

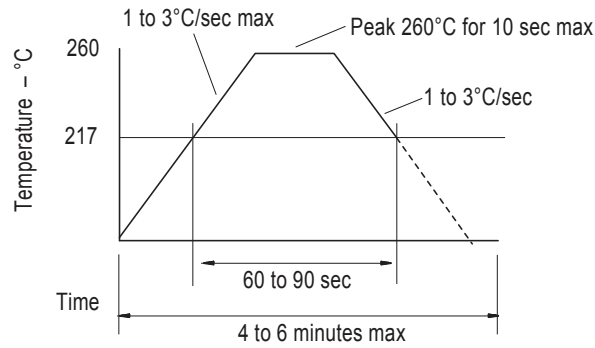
Type	Parameter	Test Condition
Mechanical	Shock	MIL-STD-883, Method 2002, Condition B
Mechanical	Solderability	JESD22-B102-D Method 2 (Preconditioning E)
Mechanical	Terminal strength	MIL-STD-883, Method 2004, Condition D
Mechanical	Gross leak	MIL-STD-883, Method 1014, Condition C
Mechanical	Fine leak	MIL-STD-883, Method 1014, Condition A2 ( $R_1 = 2 \times 10^{-8}$ 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)

**Output Waveform**

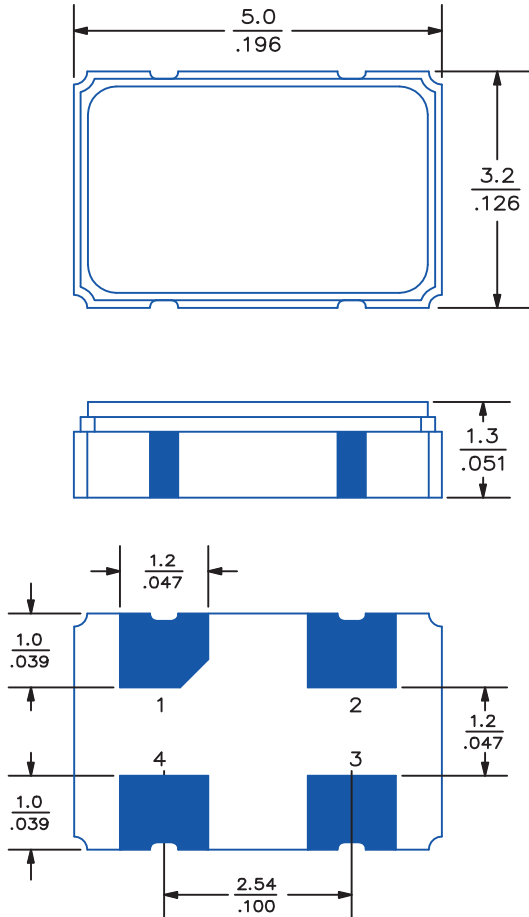


**Reflow Soldering Profile**

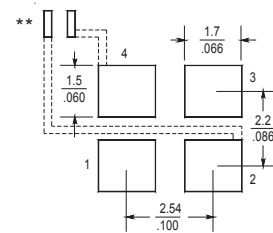
As per IPC/JEDEC J-STD-020C



**Mechanical Drawings**



**Recommended Land Pattern\***



Scale: None (Dimensions in  $\frac{\text{mm}}{\text{inches}}$ )

\*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.