



**PSE Technology Corporation**

**SPECIFICATION FOR APPROVAL**

CUSTOMER \_\_\_\_\_

NOMINAL FREQUENCY 32.768000 KHz

PRODUCT TYPE TYPE KJ 2.5x2.0 SEAM SEALED CRYSTAL CLOCK OSCILLATOR

SPEC. NO. ( P/N ) KJ3270004Z

CUSTOMER P/N \_\_\_\_\_

ISSUE DATE November 27, 2014

VERSION C

| APPROVED                                       | PREPARED     | QA           |
|--|--------------|--------------|
| <i>Brenda</i>                                  | <i>Clair</i> | <i>Becky</i> |
| APPROVED BY CUSTOMER :                         |              | AVL Status   |
| Please return one copy with approval to PSE-TW |              |              |

**PSE Technology Corporation**

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- \*Pb-free
- \*RoHS Compliant
- \*HF-Halogen Free
- \*REACH Compliant

\*\*\* A company of  **PERICOM Semiconductor Corporation** \*\*\*



# TYPE KJ 2.5x2.0 SEAM SEALED CRYSTAL CLOCK OSCILLATOR

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### ELECTRICAL SPECIFICATIONS

SRe Part Number : KJ3270004Z

| Item                            | Symbol                         | Specifications      | Units | Notes                              |
|---------------------------------|--------------------------------|---------------------|-------|------------------------------------|
| Nominal Frequency               | Fo                             | 32.768000           | KHz   |                                    |
| Frequency Stability             | FT                             | ± 50                | ppm   | **See note                         |
| Operating Temperature Range     | TR                             | -20 to +70          | °C    |                                    |
| Supply Voltage                  | V <sub>DD</sub>                | +1.8V ± 5%          | V     |                                    |
| Logic Type                      | LT                             | LVC MOS             |       |                                    |
| Supply Current, Output Enabled  | I <sub>DD</sub> /OE            | 15                  | µA    | Max                                |
| Supply Current, Output Disabled | I <sub>DD</sub> /OD            | 0.5                 | µA    | Max                                |
| Duty Cycle (Symmetry)           | DC/SY                          | 45 / 55             | %     | Measured 50% of Waveform           |
| Rise / Fall Time                | T <sub>R</sub> /T <sub>F</sub> | 50                  | ns    | Max. measured 10 / 90% of Waveform |
| Output Voltage "0" Level        | V <sub>OL</sub>                | 10% V <sub>DD</sub> | V     | Max                                |
| Output Voltage "1" Level        | V <sub>OH</sub>                | 90% V <sub>DD</sub> | V     | Min                                |
| Output Load                     | CL                             | 15                  | pF    | Max                                |
| Start Up Time                   |                                | 10                  | ms    | Max.                               |
| Storage Temperature Range       |                                | -55 to +125         | °C    |                                    |

※ This product doesn't include harmful substance that stipulated by SONY SS-00259 Level 1 and S-AT2-001 Level 1 standard. RoHS Compliant (Pb - Free).

\*\*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.

#### Output Enable / Disable Function

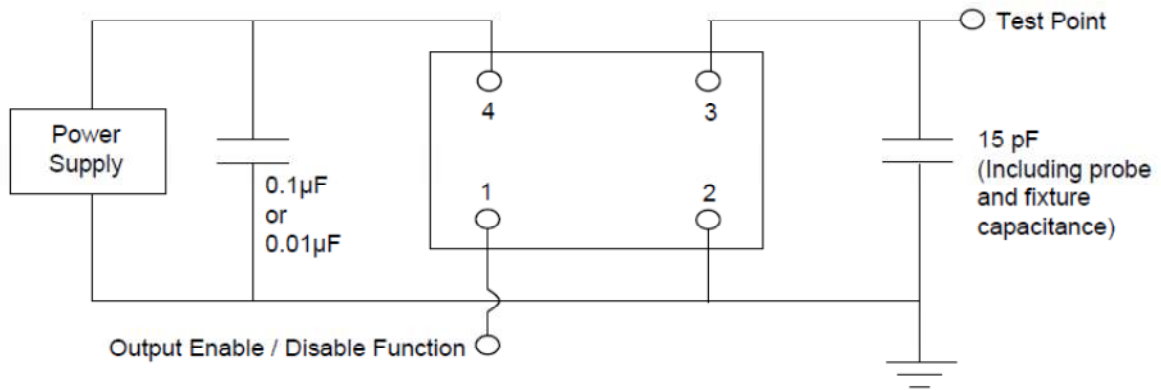
| Parameter  | Min.               | Typ. | Max.               | Units | Notes          |
|--|--------------------|------|--------------------|-------|----------------|
| Input Voltage (Pin1), Output Enable                      | 0.7V <sub>DD</sub> |      |                    | V     | Or Open        |
| Input Voltage (Pin1), Output Disable (low power standby) |                    |      | 0.3V <sub>DD</sub> | V     | Output is Hi-Z |
| Internal Pullup Resistance                               |                    | 100  |                    | KΩ    |                |
| Output Disable Delay                                     |                    |      | 100                | ns    |                |
| Output Enable Delay                                      |                    |      | 10                 | ms    |                |

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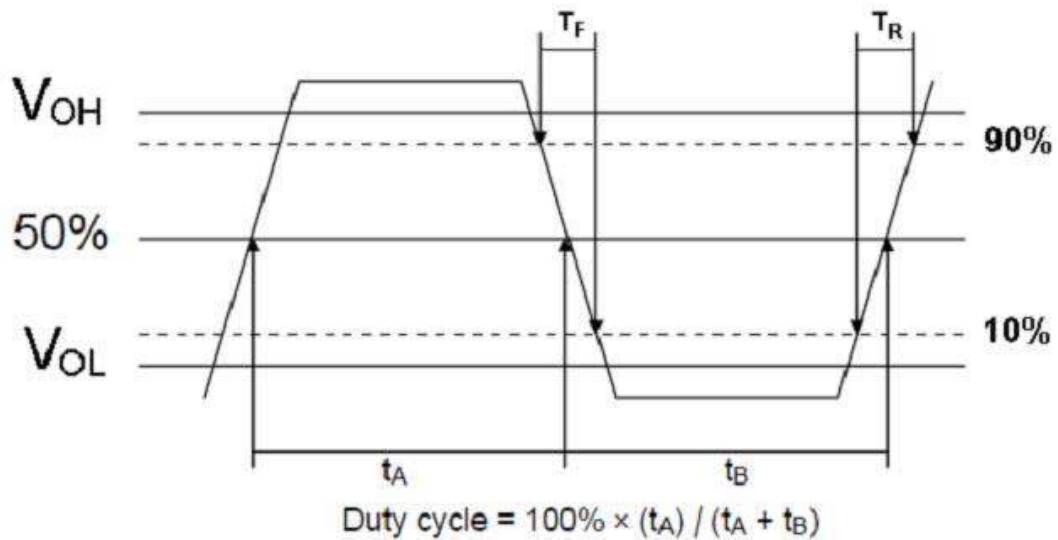
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### TEST CIRCUIT



### OUTPUT WAVEFORM



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## RELIABILITY SPECIFICATIONS

### ENVIRONMENTAL:

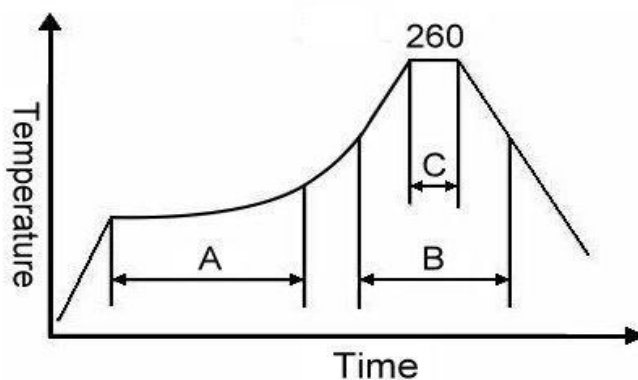
- a) THERMAL SHOCK: MIL-STD-883, Method 1011, Condition A
- b) MOISTURE RESISTANCE: MIL-STD-883, Method 1004
- c) VIBRATION: MIL-STD-883, Method 2007, Condition A
- d) RESISTANCE TO SOLDERING HEAT: J-STD-020D Table 5-2 Pb-free devices (except 2 cycles max)
- e) HAZARDOUS SUBSTANCE: Pb - free and RoHS/Green Compliant.

### MECHANICAL:

- a) SHOCK: MIL-STD-883, Method 2002, Condition B
- b) SOLDERABILITY: JESD22-B102-D Method 2 (Preconditioning E)
- c) TERMINAL STRENGTH: MIL-STD-883, Method 2004, Test Condition D
- d) GROSS LEAK: MIL-STD-883, Method 1014, Condition C
- e) FINE LEAK: MIL-STD-883, Method 1014, Condition A2,  $R1=2 \times 10^{-8}$  atm cc/s
- f) SOLVENT RESISTANCE: MIL-STD-202, Method 215

## SUGGESTED IR REFLOW PROFILE

\*As per IPC-JEDEC J-STD-020D



Note:

|   | Stage        | Temperature | Time       |
|---|--------------|-------------|------------|
| A | Preheat      | 150~200°C   | 60~120 Sec |
| B | Primary Heat | 217°C       | 60~150 Sec |
| C | Peak         | 260°C       | 10 Sec     |

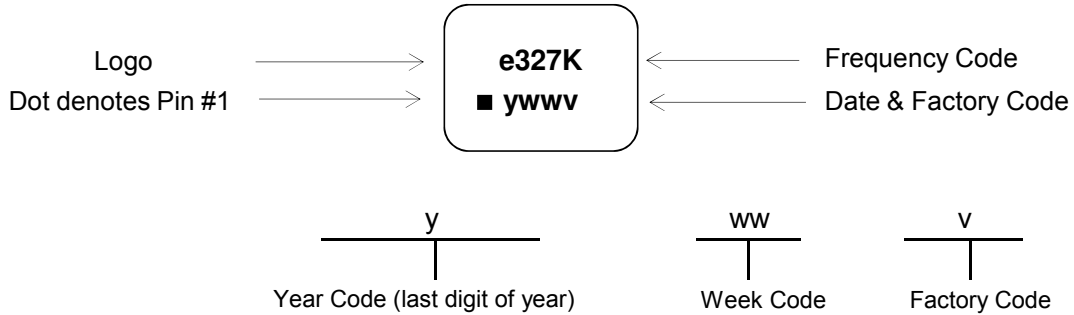
For soldering reflow profile and reliability test ratings go to: <http://www.pericom.com/pdf/sre/reflow.pdf>

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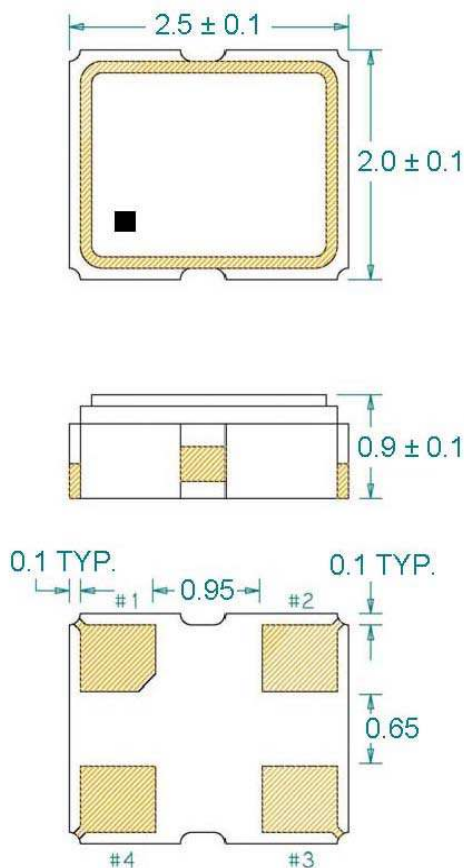
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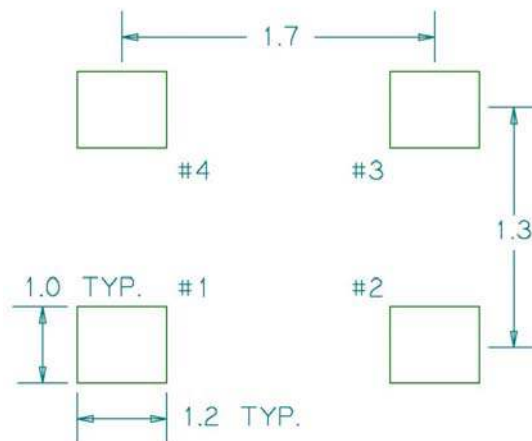
## MARKING



## MECHANICAL DRAWINGS ( Scale:None. Dimensions are in mm.)



### 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.

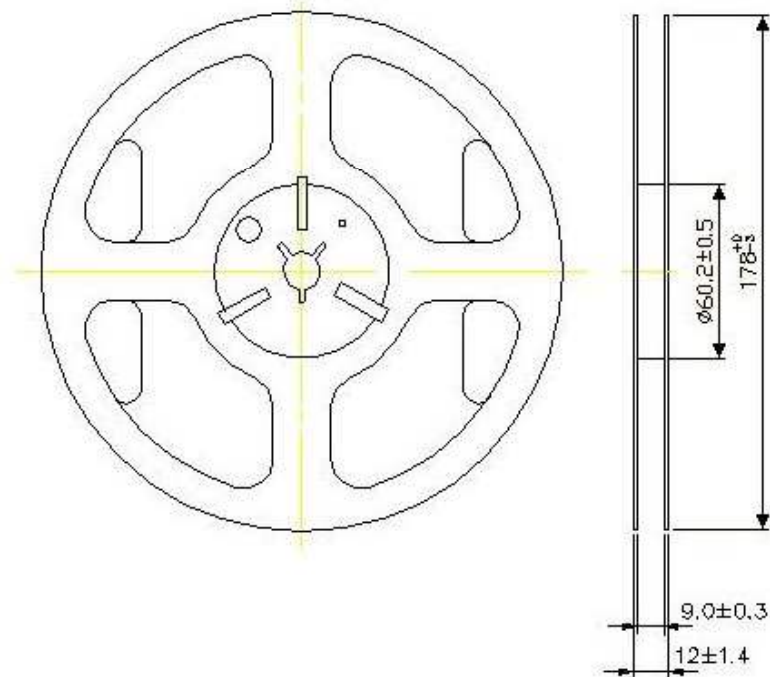
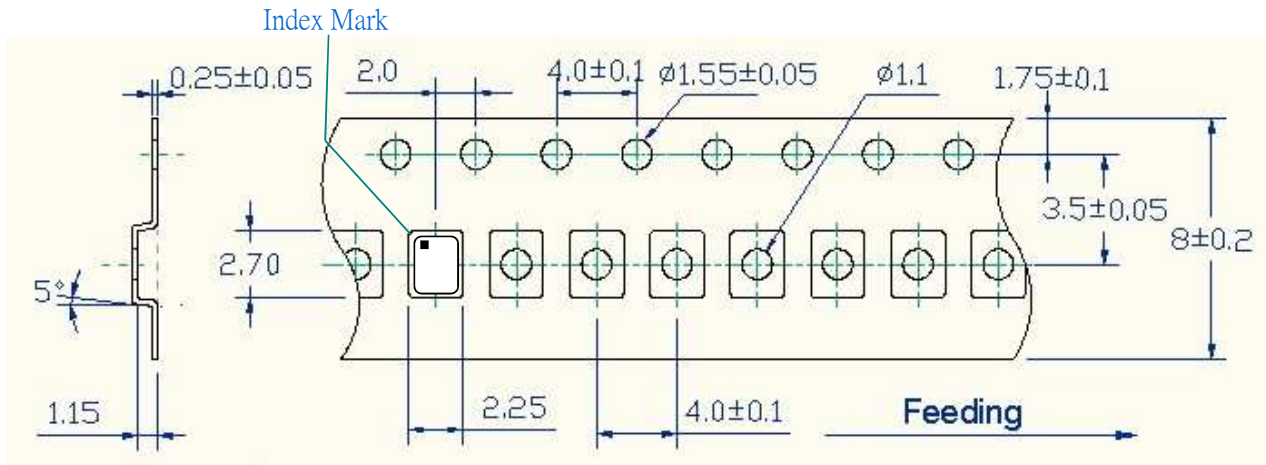
| Pin | Function        |
|-----|-----------------|
| 1   | OE              |
| 2   | Ground          |
| 3   | Clock Output    |
| 4   | V <sub>DD</sub> |

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## TAPE & REEL



1. 230mm minimum leader which consist of carrier and/or tape followed by a minimum of 160mm of empty carrier tape sealed with cover tape.
2. 160mm minimum trailer of empty carrier tape sealed with cover tape.

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## PACKING

