# PSE Technology Corporation

# SPECIFICATION FOR APPROVAL

| | |
|---|---|
| CUSTOMER | |
| NOMINAL FREQUENCY | **16.000000 MHz** |
| PRODUCT TYPE | **TYPE FL 3.2x2.5 SEAM SEALED CRYSTAL** |
| PART NUMBER | **FL1600087** |
| CUSTOMER P/N | |
| ISSUE DATE | **May 2, 2012** |
| VERSION | **F** |

| APPROVED | PREPARED | QA |
|---|---|---|
|  |  |  |
| APPROVED BY CUSTOMER | | |
| | | 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**

## VERSION HISTORY

| Version No. | Version Date | Customer Receipt Date | Supplier Receipt Date | Description | Notes |
|---|---|---|---|---|---|
| A | Apr. 9, 2012 | | | Initial Release | |
| B | Apr. 13, 2012 | | | Added individual specs in the note for Frequency Stability | |
| C | Apr. 18, 2012 | | | Change note of aging spec from 6 years to 10 years | |
| D | Apr. 24, 2012 | | | Changed Operating Temperature Range from 0~50°C to 0~85°C & updated the note | |
| E | Apr. 25, 2012 | | | Added note of Calibration tolerance:Including ±0.1pF CL changes | |
| F | May. 2, 2012 | | | Revised note of Calibration Tolerance: Including ±1pF CL changes | |

# TYPE FL 3.2x2.5 SEAM SEALED CRYSTAL

## *FL1600087*

VER.F 02-MAY-12

## ELECTRICAL SPECIFICATIONS

| Item | Symbol | Specifications | Units | Notes |
|---|---|---|---|---|
| Nominal Frequency | Fn | 16.000000 | MHz | |
| Mode of Oscillation | MO | AT Cut-Fundamental | | |
| Calibration Load Capacitance | CL | 20 | pF | |
| Calibration Tolerance | FL | ± 15 | ppm | at 25°C±3°C. Including ±1pF CL changes |
| Operating Temperature Range | TR | 0 to 85 | °C | |
| Frequency Stability(Frequency Deviation over the Operating Temperature Range) | F/T | ± 15 | ppm | Reference to the Frequency at 25°C |
| Operating Drive Level | | 10 | µW | |
| Maximum Drive Level | | 250 | µW | |
| Equivalent Series Resistance | ESR | 28.9 | Ω | Max. |
| Shunt Capacitance | C0 | 1.5 | pF | Max. |
| Aging at 25°C | | ± 3 | ppm | Max, 1st year |
| Aging at 25°C | | ± 10 | ppm | Max, 10 years |
| Storage Temperature | | -55 to +125 | °C | |
| Insulation Resistance | | 500 | MΩ | Min |
| ** 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). | | | | |

Note: The Overall Frequency Deviation is the sum of Calibration Tolerance, Frequency Stability over the Operating Temperature Range and the Aging.

## RELIABILITY SPECIFICATIONS

MECHANICAL AND ENVIRONMENTAL RATINGS:

a)FINE LEAK TEST: JESD22-A109 (Condition 1A)

b)GROSS LEAK TEST: JESD22-A109 (Condition C)

c)MOISTURE RESISTANCE: JESD22-A113

d)SHOCK: JESD22-B104 (Condition B)

e)SOLDERABILITY : (RoHS version): J-STD-002

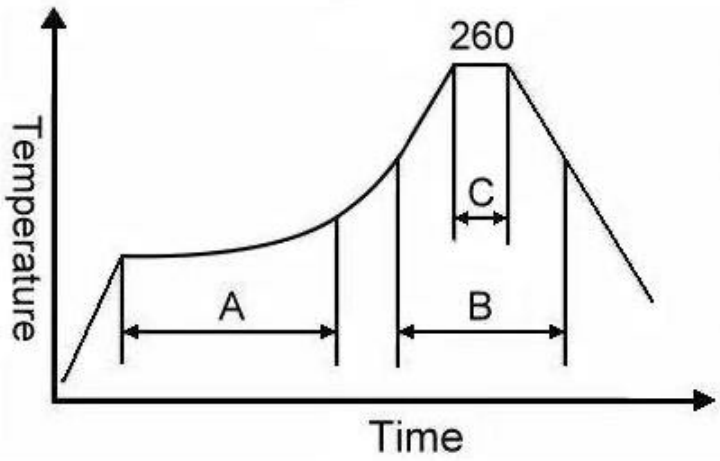
f)VIBRATION: JESD22-B103

g)SOLVENT RESISTANCE: JESD22-B107

h)RESISTANCE TO SOLDERING HEAT (RoHS version): J-STD-020D Table 5.2 Pb free devices (3 cycles max)

## SUGGESTED IR REFLOW PROFILE

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

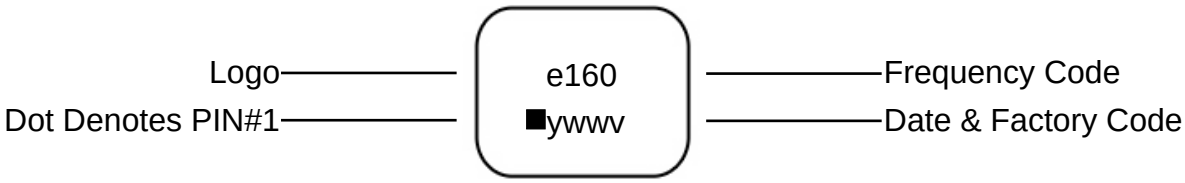


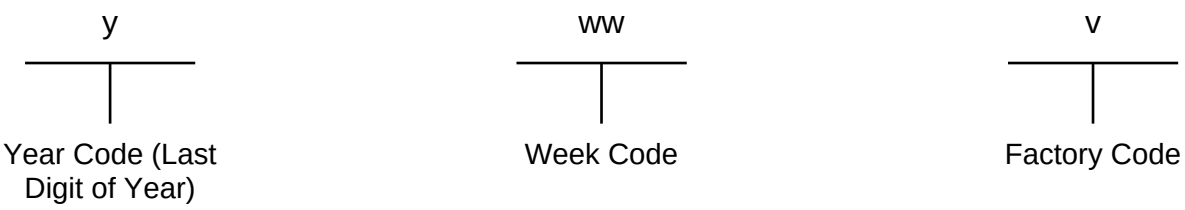

Note:

| | 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 |

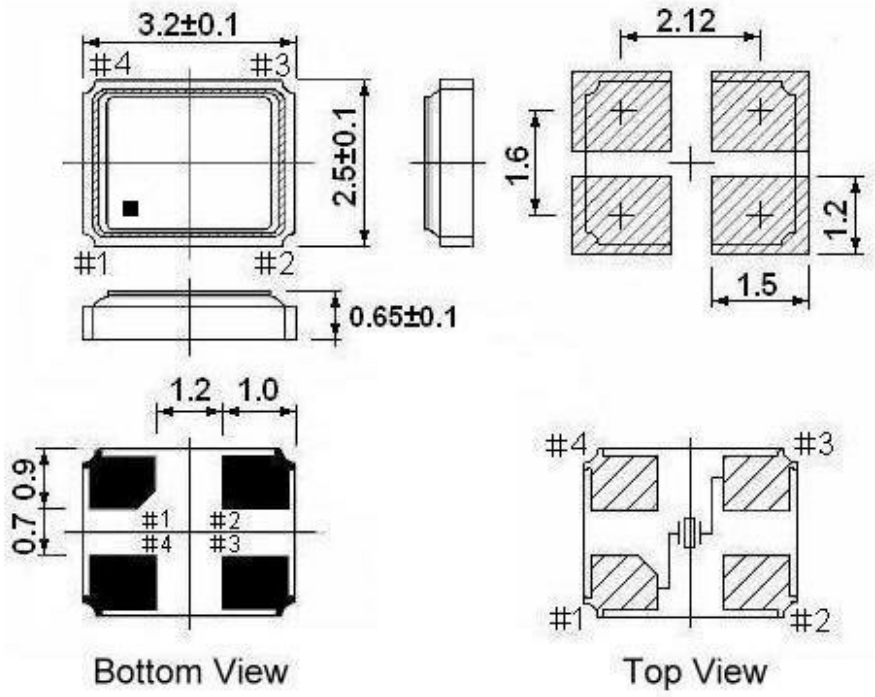
For soldering reflow profile and reliability test ratings go to: http://www.pericom.com/pdf/sre/reflow.pdf

## MARKING



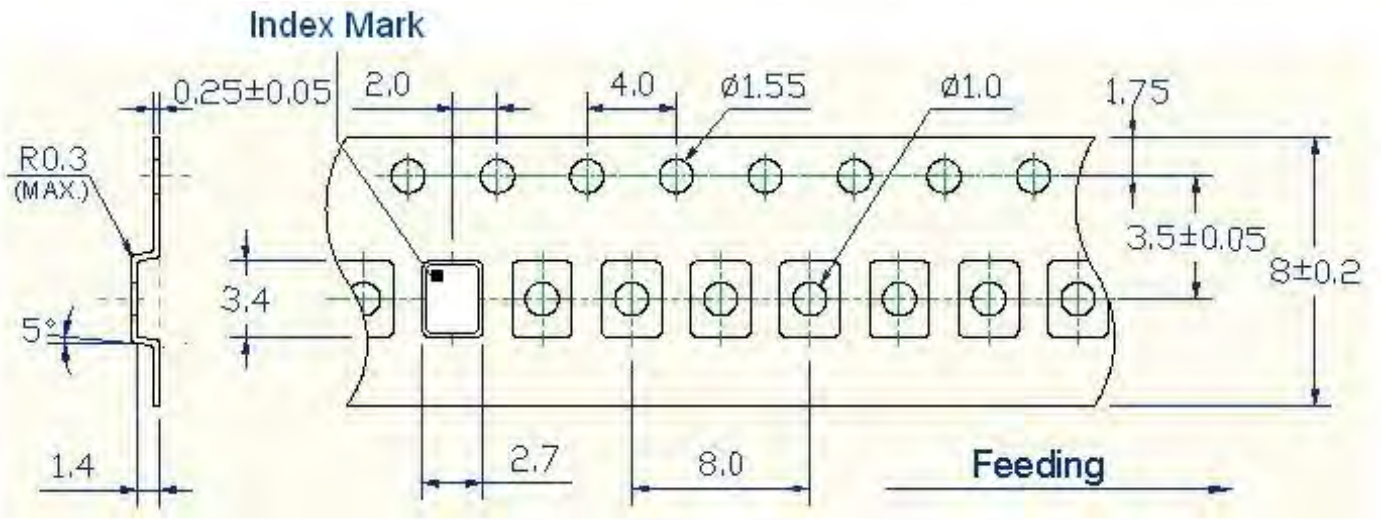

## MECHANICAL DRAWINGS ( Scale: None. Dimensions are in mm.)

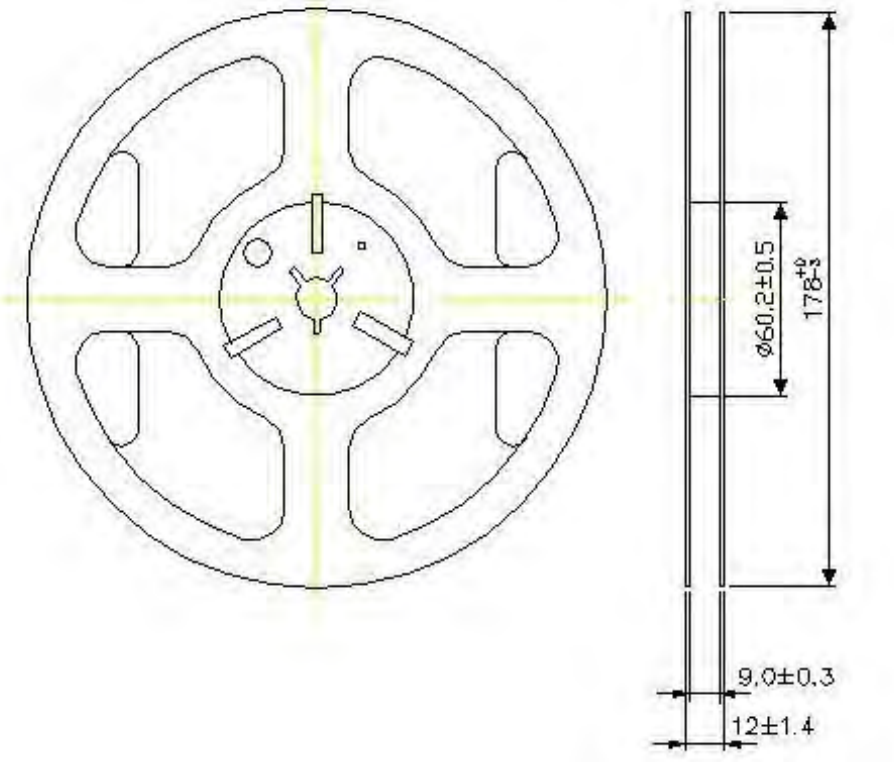



** Recommended - Pin 1 & 3 : CRYSTAL
Pin 2 & 4 : GND

**Note:**
**1. The marking dot denotes Pin#1.**
**2. Pin positions of the drawing is only for reference, and the Pin with chamfer is based on the real product.**

## Tape & Reel




1. 230mm minimum leafer 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.

## PACKING