
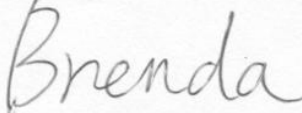



# PSE Technology Corporation

## SPECIFICATION FOR APPROVAL

|                   |                          |
|-------------------|--------------------------|
| CUSTOMER          | _____                    |
| NOMINAL FREQUENCY | 32.768 KHz               |
| PRODUCT TYPE      | <b>TYPE G4 SMD X'TAL</b> |
| SPEC. NO. ( P/N ) | G43270021                |
| CUSTOMER P/N      | _____                    |
| ISSUE DATE        | Nov.8,2012               |
| VERSION           | B                        |

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

### PSE Technology Corporation

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\*RoHS Exception  
 \*HF-Halogen Free  
 \*REACH Compliant



# TYPE G4 SMD X'TAL

G43270021

VER. B 8-Nov-12

## ELECTRICAL SPECIFICATIONS

SRe Part Number : G43270021

| Parameters                   | Symbol | Specifications | Units               | Notes           |
|------------------------------|--------|----------------|---------------------|-----------------|
| Nominal Frequency            | Fn     | 32.768         | KHz                 |                 |
| Frequency Tolerance          | FT     | ± 20           | ppm                 | at 25 °C ± 5 °C |
| Load Capacitance             | CL     | 12.5           | pF                  | Typ.            |
| Drive Level                  | DL     | 1              | μW                  | Max.            |
| Equivalent Series Resistance | ESR    | 50             | KΩ                  | Max.            |
| Temperature Coefficient      | K      | -0.035 ± 0.01  | ppm/°C <sup>2</sup> |                 |
| Shunt Capacitance            | C0     | 1.6            | pF                  | Typ.            |
| Operating Temperature Range  | TR     | -40~85         | °C                  |                 |
| Storage Temperature Range    |        | -55~85         | °C                  |                 |
| Aging                        |        | ± 5            | ppm                 | Max 1st year    |
| Insulation Resistance        |        | 500            | MΩ                  | Min.            |

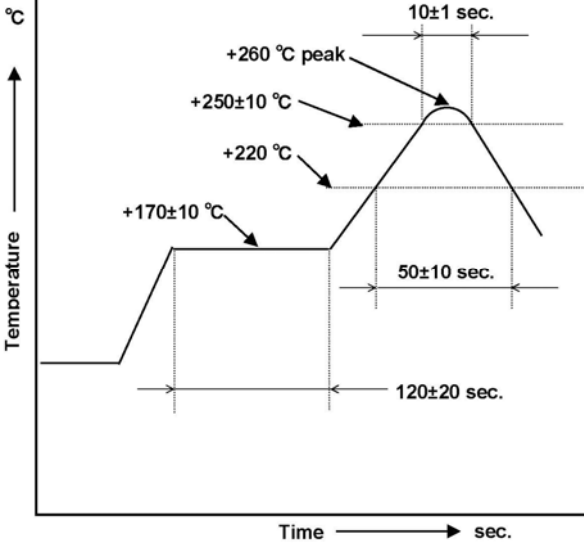
## Reliability ( Mechanical and Environmental Endurance )

| No. | Test Items | Test Method and Condition  | Requirements   |
|-----|------------|--|--|
| 1   | Vibration  | (1) Vibration Frequency: 10 to 55Hz<br>(2) Vibration Amplitude: 1.5mm<br>(3) Cycle Time: 1-2min(10-55-10Hz)<br>(4) Direction: X.Y.Z<br>(5) Duration: 2h/each direction | Frequency Change: ±10ppm Max.<br>Resistance Change: ±15% or 5kΩ Max. |
| 2   | Shock      | 3 Times free drop from 75cm height to hard wooden board of thickness more than 30mm  | Frequency Change: ±10ppm Max.<br>Resistance Change: ±15% or 5kΩ Max. |
| 3   | Leakage    | Put crystal units into a hermetic container and Helium for 0.5-0.6Mpa, and keep it for 1h;<br>Check the leakage by a Helium leak detector                              | Leakage: 1x10 <sup>-8</sup> Pa·m <sup>3</sup> /s Max.                |

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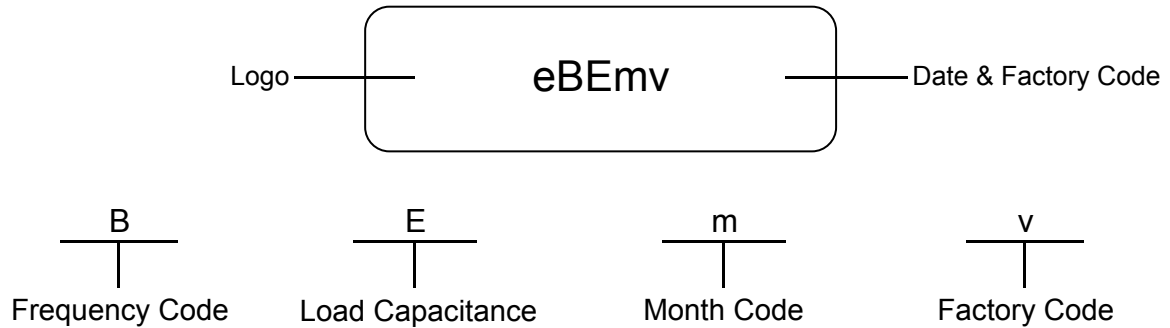
|    |                            |   |  |
|----|----------------------------|---|--|
| 4  | Reflow soldering           |  <p>Note: the temperature used herein means the temperature on the circuit board.<br/>Reflow: 2 times max.</p>          | <p>Frequency Change: <math>\pm 10</math>ppm Max.<br/>Frequency Change: <math>\pm 10</math>ppm Max.<br/>Resistance Change: <math>\pm 25\%</math> or 10k<math>\Omega</math> Max.</p>               |
| 5  | Lead Strength (DIP)        | The crystal lead with the 0.9kg(9N) power (keep it for 30s $\pm$ 5s) and bend the crystal lead 90° with 0.45kg power and two times  | The crystal lead is not abnormity  |
| 6  | High Temperature Endurance | The crystal units shall be put in somewhere for 2 hrs at temperature of -85 $^{\circ}$ C $\pm$ 2 $^{\circ}$ C, then keep it for 1 to 2 hrs under room temperature.  | <p>Frequency Change: <math>\pm 10</math>ppm Max.<br/>Resistance Change: <math>\pm 15\%</math> or 5k<math>\Omega</math> Max.</p>  |
| 7  | Low Temperature Endurance  | The crystal units shall be put in somewhere for 2 hrs at temperature of -25 $^{\circ}$ C, then keep it for 1 to 2 hrs under room temperature.   |  |
| 8  | Humidity Endurance         | The crystal units shall be put in somewhere at 40 $^{\circ}$ C in relative humidity of 90-95% for 48 hrs, then keep it for one or two hours under room temperature.                                       |  |
| 9  | Temperature Cycle          | Temperature shift from low(-40 $^{\circ}$ C) to high(100 $^{\circ}$ C, keep 30 mins), satisfy high(100 $^{\circ}$ C) to low(-40 $^{\circ}$ C, keep 30 mins), then go up to room temperature for 5 cycles. |  |
| 10 | Salt Spray Test            | Put the crystal units in the salt spray room (salt density: 5%) at the temperature of 35 $^{\circ}$ C for 96 hrs. Then clean it with water and dry its surface.   | <p>The appearance shall has no abnormity and soldering is good.<br/>Frequency Change: <math>\pm 10</math>ppm Max.<br/>Resistance Change: <math>\pm 15\%</math> or 5k<math>\Omega</math> Max.</p> |

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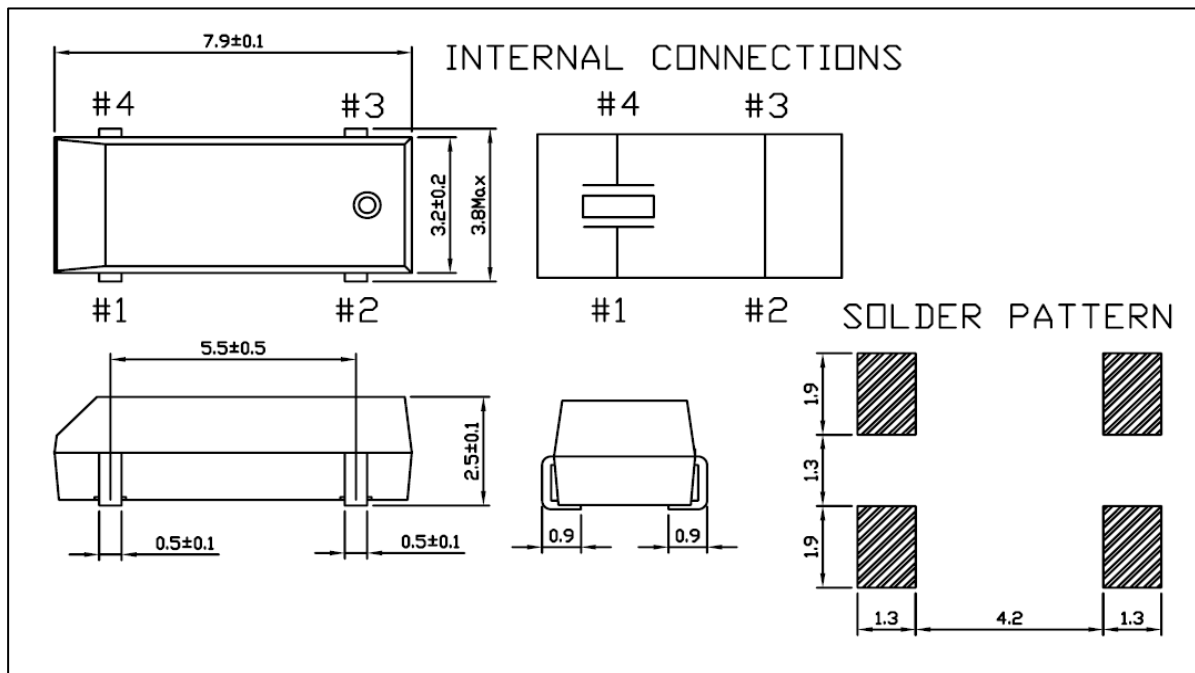
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## Marking



## Dimensions (Units: mm)



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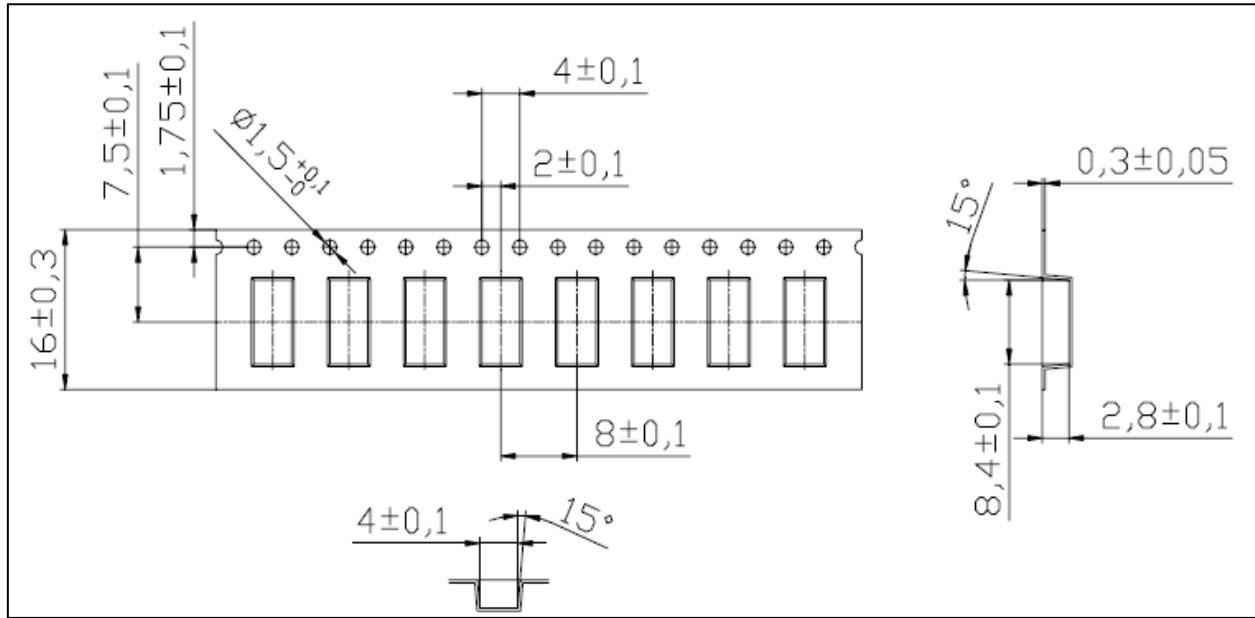
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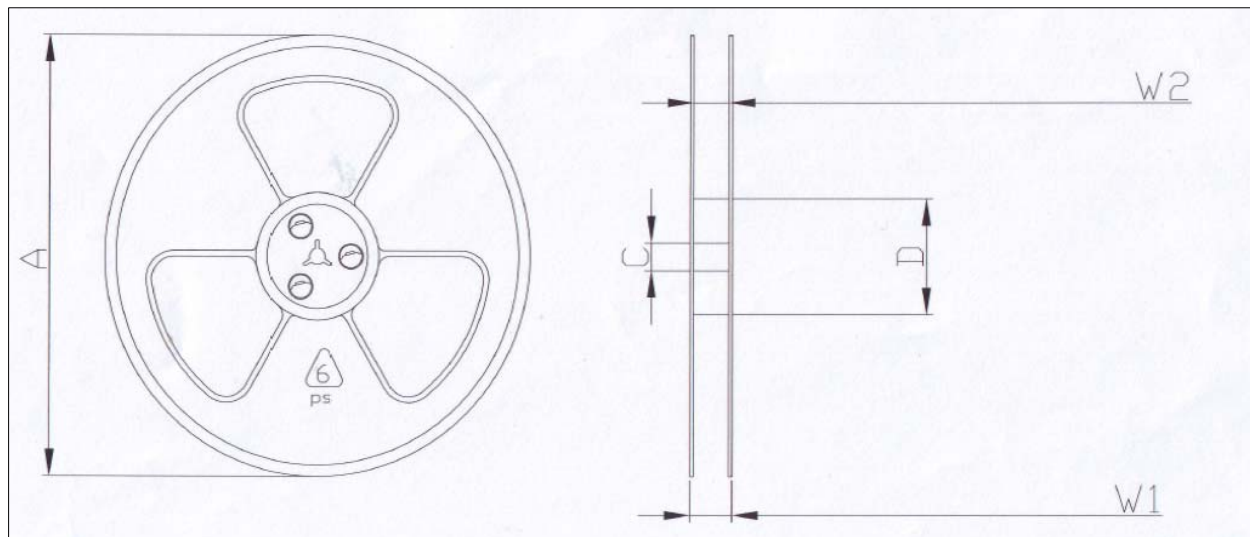
## TAPE AND REEL SPECIFICATION

1. Tape and Reel form conform to EIA-481-B
2. The quantity of crystal units per reel shall be 3000PCS.
3. A "LABEL" on which necessary information is clearly written is on the surface of packing box and the reel.

## CARRIER TAPE DIMENSIONS



## REEL DIMENSIONS



| 規格         | A $\pm 0.5$ | C $\pm 0.2$ | D $\pm 0.3$ | W1 $\pm 0.2$ | W2 $^{+0.4}_{+0.2}$ |
|------------|-------------|-------------|-------------|--------------|---------------------|
| 330*100*16 | 330         | 25          | 100         | 20           | 16                  |