

# PSE Technology Corporation

## SPECIFICATION FOR APPROVAL

CUSTOMER \_\_\_\_\_

NOMINAL FREQUENCY \_\_\_\_\_ 32.768 KHz \_\_\_\_\_

PRODUCT TYPE \_\_\_\_\_ **TYPE G4 SMD X'TAL** \_\_\_\_\_

SPEC. NO. ( P/N ) \_\_\_\_\_ G43270019 \_\_\_\_\_

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

ISSUE DATE \_\_\_\_\_ Nov.9,2012 \_\_\_\_\_

VERSION \_\_\_\_\_ B \_\_\_\_\_

APPROVED	PREPARED	QA
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APPROVED BY CUSTOMER :		AVL Status
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

**G43270019**

VER. B 9-Nov-12

## VERSION HISTORY

Version No.	Version Date	Customer Receipt Date	Supplier Receipt Date	Description	Notes
A	Jan.21,2011			Initial Release	
B	Nov.9,2012			Changed mechanical drawing	

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## ELECTRICAL SPECIFICATIONS

SRe Part Number : G43270019

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	35	KΩ	Max.
Temperature Coefficient	K	-0.035	ppm/°C	Typ.
Shunt Capacitance	C0	1.35	pF	Typ.
Operating Temperature Range	TR	-40~85	°C	
Storage Temperature Range		-55~85	°C	
Aging		± 3	ppm	Max 1st year
Insulation Resistance		500	MΩ	Min.

\*\*RoHS Complaint Product

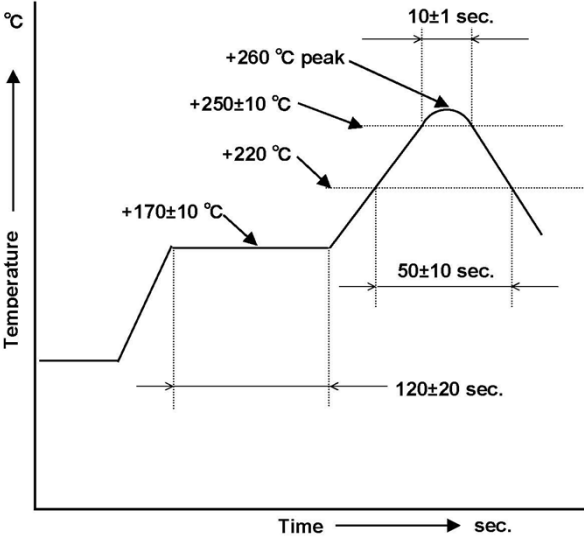
## Reliability ( Mechanical and Environmental Endurance )

No.	Test Items	Test Method and Condition	Requirements
1	Vibration	(1) Vibration Frequency: 10 to 55Hz (2) Vibration Amplitude: 1.5mm (3) Cycle Time: 1-2min(10-55-10Hz) (4) Direction: X.Y.Z (5) Duration: 2h/each direction	Frequency Change: ±10ppm Max. 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. 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; Check the leakage by a Helium leak detector	Leakage: 1x10 <sup>-8</sup> Pa·m <sup>3</sup> /s Max.

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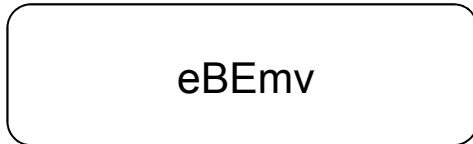
4	Reflow soldering	 <p>The graph shows a temperature profile for reflow soldering. The y-axis is Temperature in °C, and the x-axis is Time in seconds. The profile starts at a baseline, rises to a plateau at +170±10 °C for 120±20 seconds. It then rises to a peak of +260 °C, which is maintained for 10±1 seconds. The temperature then falls through +250±10 °C and +220 °C to a final plateau at +220 °C for 50±10 seconds before cooling down.</p> <p>Note: the temperature used herein means the temperature on the circuit board. Reflow: 2 times max.</p>	<p>Frequency Change: ±10ppm Max. Frequency Change: ±10ppm Max. Resistance Change: ±25% or 10kΩ Max.</p>
5	Lead Strength (DIP)	The crystal lead with the 0.9kg(9N) power (keep it for 30s±5s) and bend the crystal lead 90° with 0.45kg power and two times	The crystal lead is not abnormality
6	High Temperature Endurance	The crystal units shall be put in somewhere for 2 hrs at temperature of -85°C±2°C, then keep it for 1 to 2 hrs under room temperature.	Frequency Change: ±10ppm Max. Resistance Change:±15% or 5kΩ Max.
7	Low Temperature Endurance	The crystal units shall be put in somewhere for 2 hrs at temperature of -25°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°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°C) to high(100°C, keep 30 mins), satisfy high(100°C) to low(-40°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°C for 96 hrs. Then clean it with water and dry its surface.	The appearance shall has no abnormality and soldering is good. Frequency Change: ±10ppm Max. Resistance Change:±15% or 5kΩ Max.

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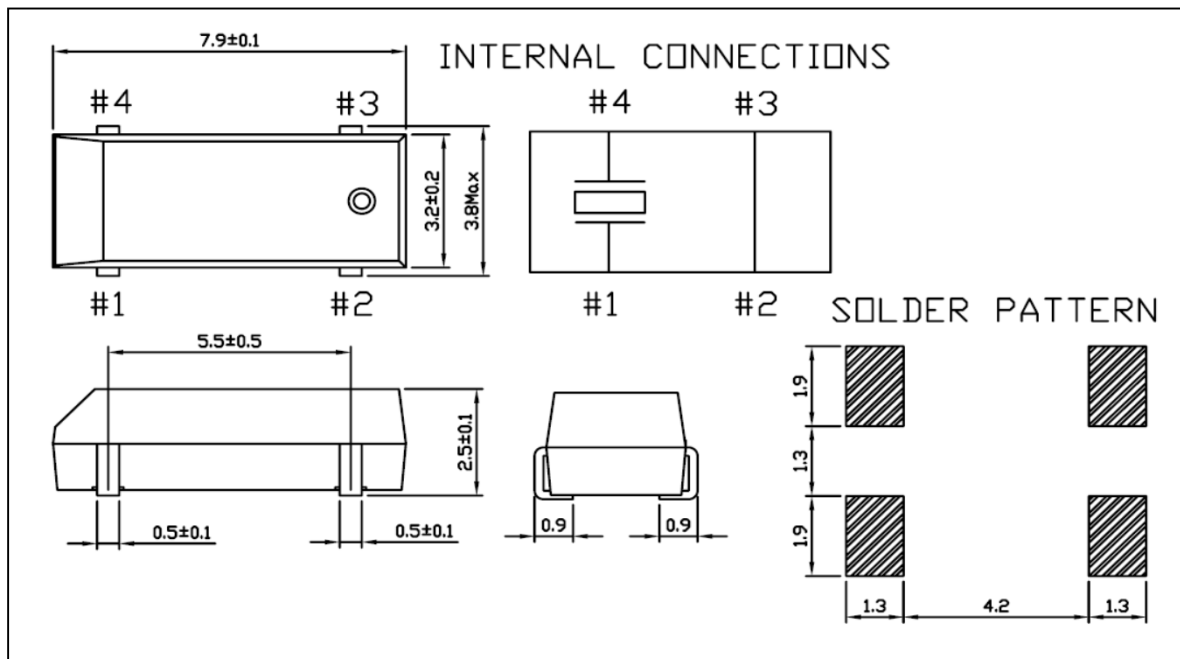
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## Marking



## Dimensions (Units: mm)



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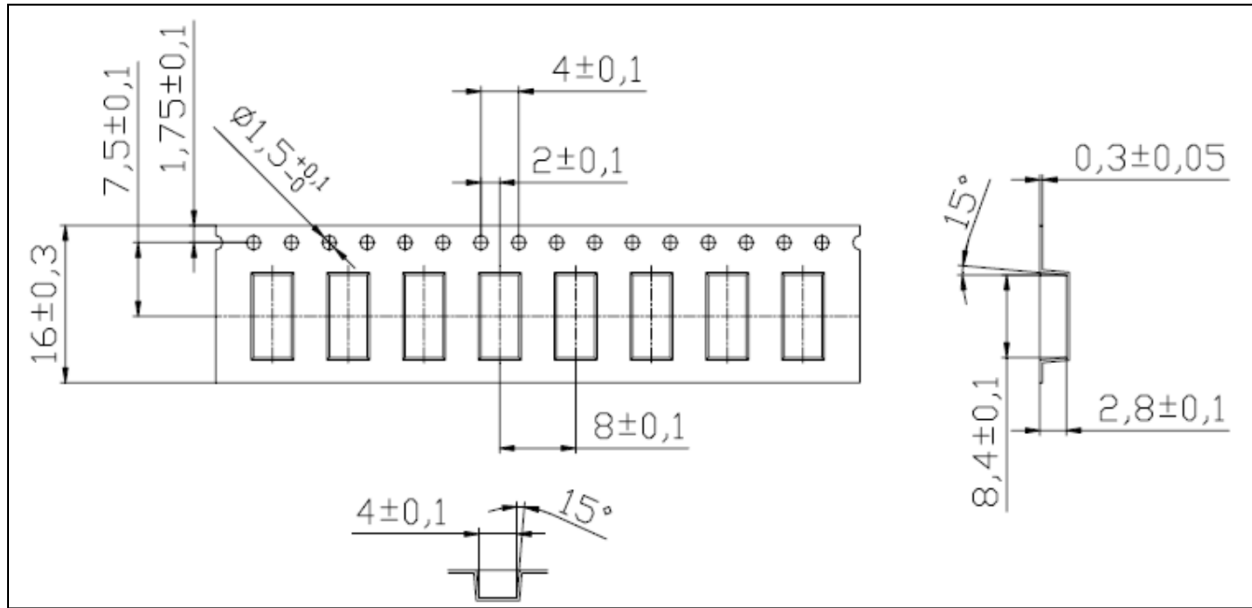
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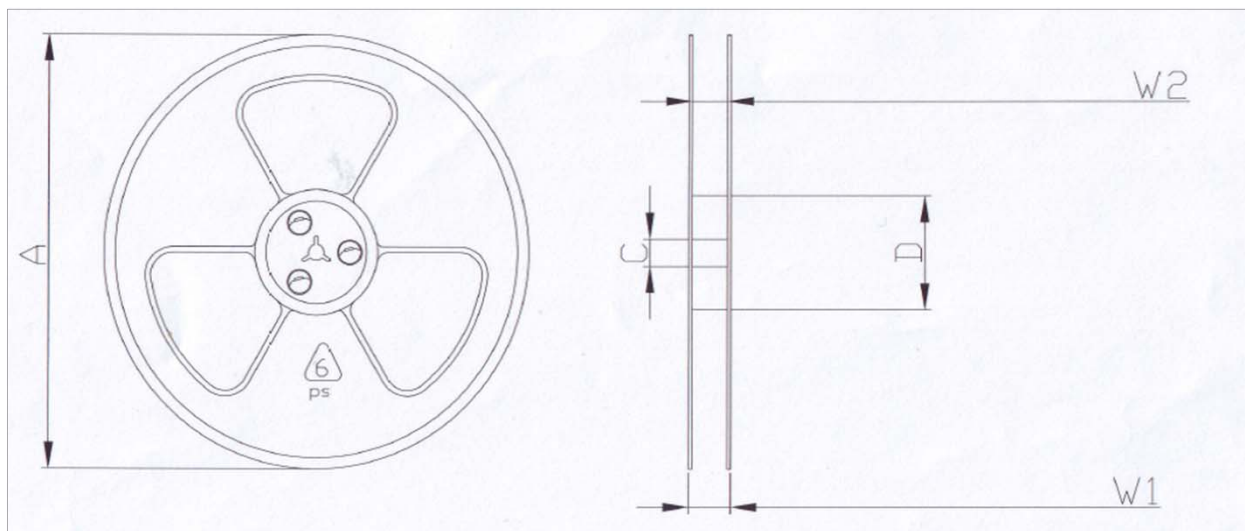
## TAPE AND REEL SPECIFICATION

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 $\pm 0.4$ W2 $\pm 0.2$
330*100*16	330	25	100	20	16