




# 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 )	G43270009
CUSTOMER P/N	_____
ISSUE DATE	Mar.18,2011
VERSION	D

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

### PSE Technology Corporation

No.2, Tzu-Chiang 5th Rd, Chung Li Industrial Park,  
 Chung Li City, Taoyuan County, Taiwan (R.O.C.)  
 TEL: 886-3-451-8888  
 FAX: 886-3-461-3865  
<http://www.saronix-ecera.com.tw>

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

# TYPE G4 SMD X'TAL

**G43270009**

VER. D 18-Mar-11

## VERSION HISTORY

Version No.	Version Date	Customer Receipt Date	Supplier Receipt Date	Description	Notes
A	Mar.1,2010			Initial Release	
B	Mar.2,2010			Cancel Pb-free	
C	Sep.24,2010			New Logo	
D	Mar.18,2011			Revised Format	

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## ELECTRICAL SPECIFICATIONS

SRe Part Number : G43270009

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	ppm/°C <sup>2</sup>	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.

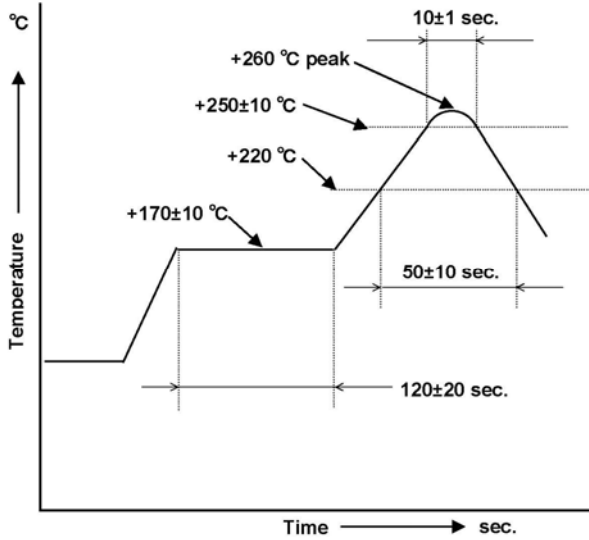
## Reliability ( Mechanical and Environmental Endurance )

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>Note: the temperature used herein means the temperature on the circuit board. Reflow: 2 times max.</p>	<p>Frequency Change: <math>\pm 10</math>ppm Max. Frequency Change: <math>\pm 10</math>ppm Max. Resistance Change: <math>\pm 25\%</math> or <math>10k\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 $90^\circ$ 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 $-85^\circ\text{C} \pm 2^\circ\text{C}$ , then keep it for 1 to 2 hrs under room temperature.	Frequency Change: $\pm 10$ ppm Max. Resistance Change: $\pm 15\%$ or $5k\Omega$ Max.
7	Low Temperature Endurance	The crystal units shall be put in somewhere for 2 hrs at temperature of $-25^\circ\text{C}$ , then keep it for 1 to 2 hrs under room temperature.	
8	Humidity Endurance	The crystal units shall be put in somewhere at $40^\circ\text{C}$ 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( $-40^\circ\text{C}$ ) to high( $100^\circ\text{C}$ , keep 30 mins), satisfy high( $100^\circ\text{C}$ ) to low( $-40^\circ\text{C}$ , 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 $35^\circ\text{C}$ for 96 hrs. Then clean it with water and dry its surface.	The appearance shall has no abnormality and soldering is good. Frequency Change: $\pm 10$ ppm Max. Resistance Change: $\pm 15\%$ or $5k\Omega$ Max.

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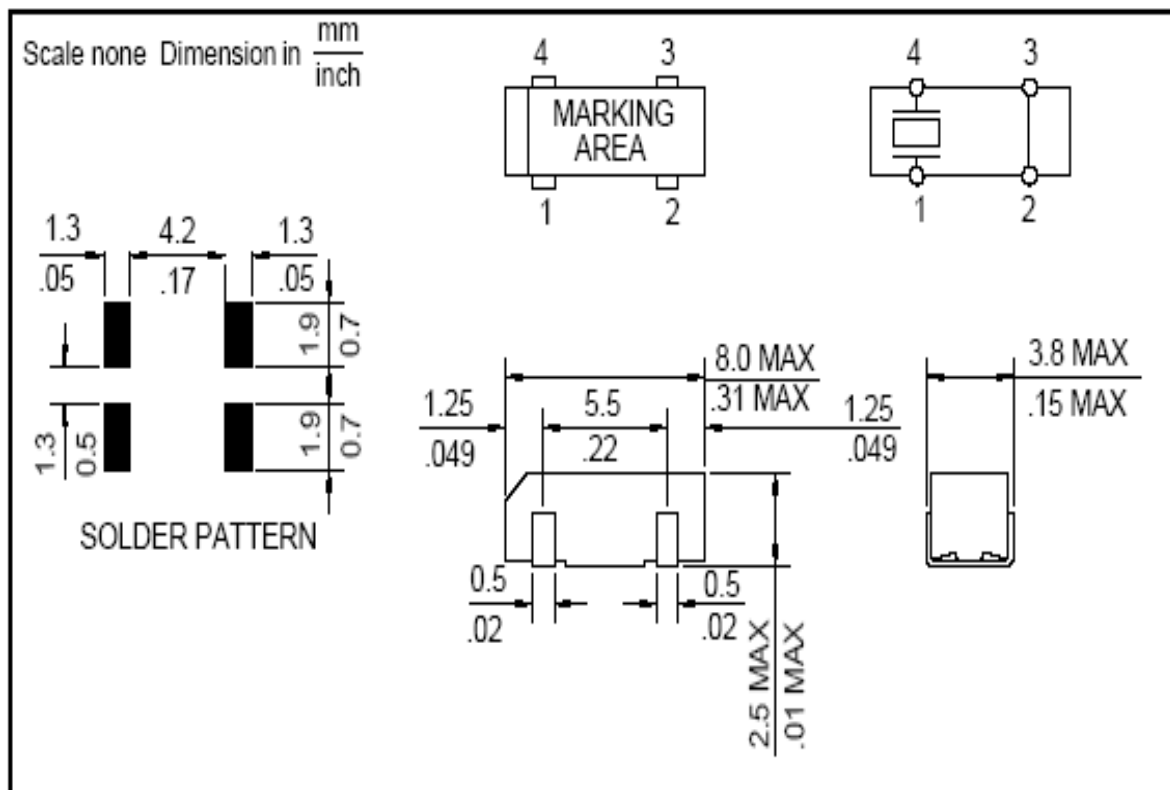
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## Marking

32768

## Dimensions (Units: mm)

### ● OUTLINE DRAWING



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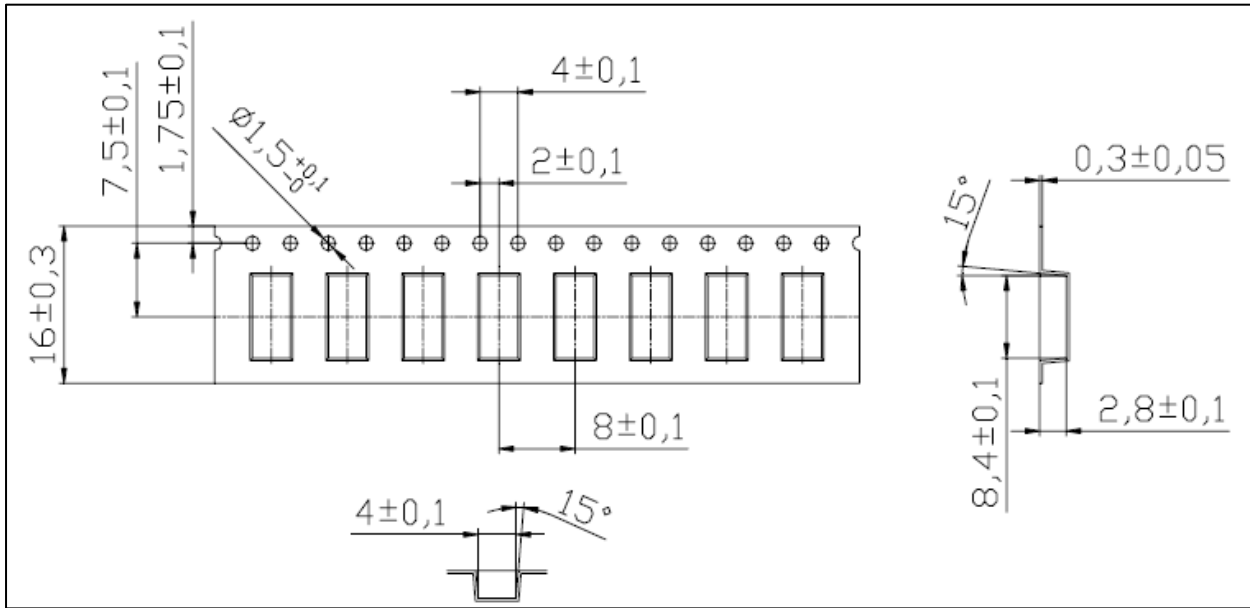
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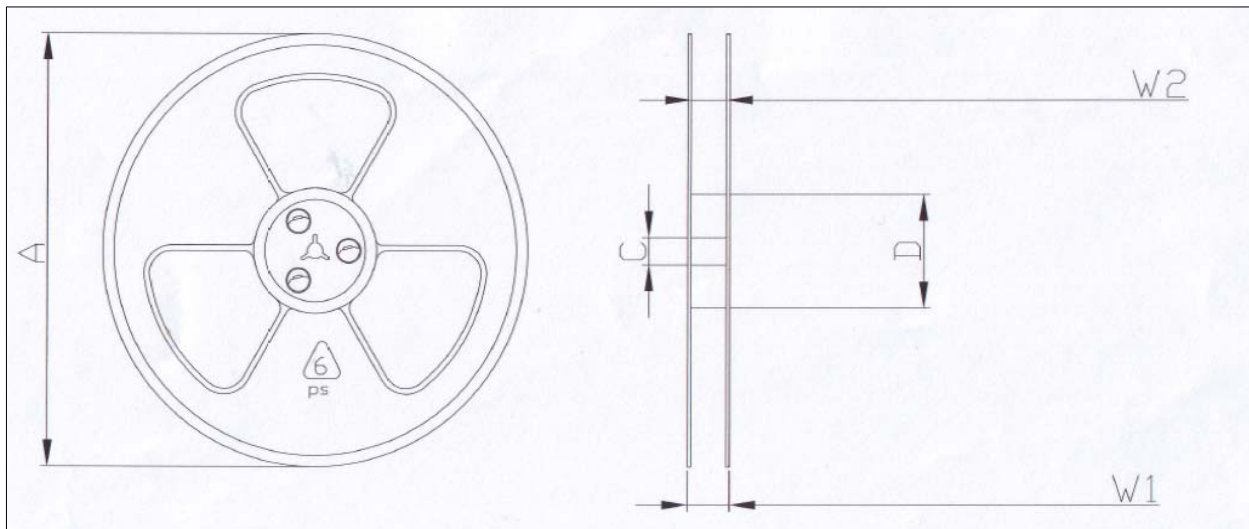
## TAPE AND REEL SPECIFICATION

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 $\begin{smallmatrix} +0,4 \\ -0,2 \end{smallmatrix}$
330*100*16	330	25	100	20	16