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With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



## Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: [info@chipsmall.com](mailto:info@chipsmall.com) Web: [www.chipsmall.com](http://www.chipsmall.com)




Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



**PSE Technology Corporation**

***SPECIFICATION FOR APPROVAL***

CUSTOMER	_____
NOMINAL FREQUENCY	32.768 KHz
PRODUCT TYPE	<b>TYPE G5 SMD CRYSTAL</b>
SPEC. NO. ( P/N )	G53270004
CUSTOMER P/N	_____
ISSUE DATE	Mar.10,2014
VERSION	G

APPROVED	PREPARED	QA
		
APPROVED BY CUSTOMER :		AVL Status
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 G5 SMD CRYSTAL

**G53270004**

VER. G 10-Mar-14

## VERSION HISTORY

Version No.	Version Date	Customer Receipt Date	Supplier Receipt Date	Description	Notes
A	Sep.28,2009			Initial Release	
B	May.5,2010			Change Marking	
C	Jul.1,2010			Change ESR from 60KΩ to 65KΩ	
D	Sep.21,2010			New Logo & Changed Marking	
E	Jan.19,2011			Updated Dimensions drawing	
F	Jun.7,2011			Updated Dimensions drawing	
G	Mar.10,2014			Updated Dimensions drawing	

# TYPE G5 SMD CRYSTAL

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VER. G 10-Mar-14

## ELECTRICAL SPECIFICATIONS

**SRe Part Number : G53270004**

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	65	KΩ	Max.
Temperature Coefficient	K	-0.035	ppm/°C	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 )

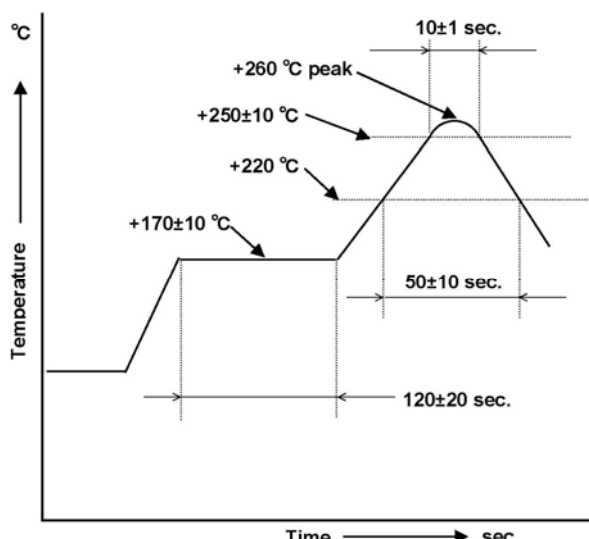
No.	Test Items	Test Method and Condition	Requirements
1	Vibration	(1) Vibration Frequency: 10 to 55Hz (2) Vibration Amplitude: 1.5mm (3) Cycle Time: 1-2min(10-55-10Hz) (4) Direction: X.Y.Z (5) Duration: 2h/each direction	Frequency Change: ±10ppm Max. Resistance Change: ±15% or 5kΩ Max.
2	Shock	3 Times 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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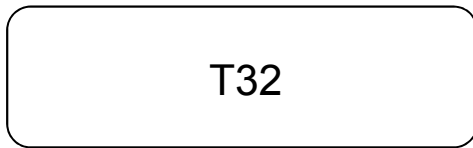
4	Reflow soldering	 <p>Note: the temperature used herein means the temperature on the circuit board. Reflow: 2 times max.</p>	<p>Frequency Change: <math>\pm 10</math>ppm Max. Frequency Change: <math>\pm 10</math>ppm Max. Resistance Change: <math>\pm 25\%</math> or 10k<math>\Omega</math> Max.</p>
5	Lead 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 abnormality
6	High Temperature Endurance	The crystal units shall be put in somewhere for 2 hrs at temperature of -85°C $\pm$ 2°C, then keep it for 1 to 2 hrs under room temperature.	<p>Frequency Change: <math>\pm 10</math>ppm Max. 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°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.	<p>The appearance shall has no abnormality and soldering is good. Frequency Change: <math>\pm 10</math>ppm Max. Resistance Change: <math>\pm 15\%</math> or 5k<math>\Omega</math> Max.</p>

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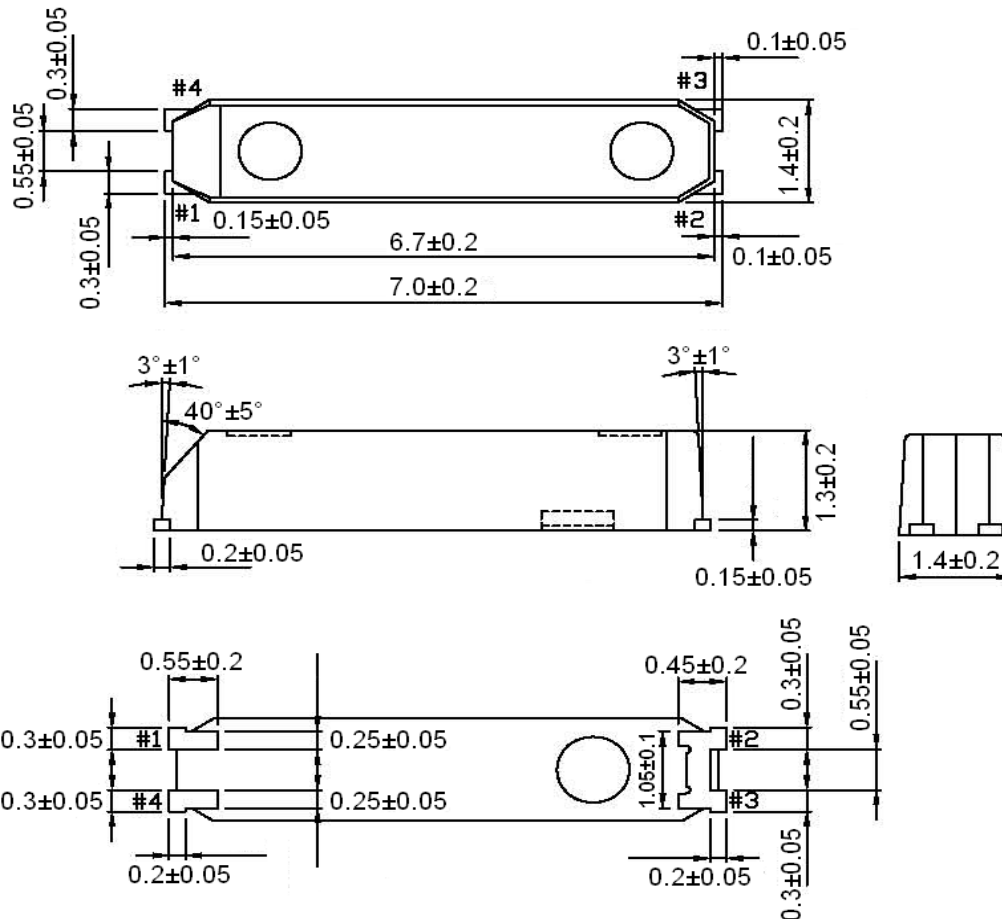
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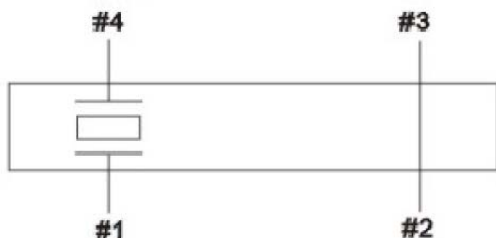
## Marking



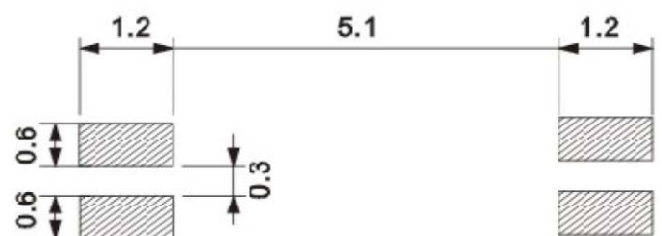
## Dimensions (Units: mm)



## Internal Lead Connection



## Recommended Soldering Patternt(unit: mm)



- Note:**
1. Do not connect #2 and #3 to external device and GND.
  2. The part of the cylinder inside resin mold may be sometimes exposed, however, it does not affect the characteristics of crystal unit.
  3. Please make sure that there is no pattern under TMXLF-130 on the circuit board.

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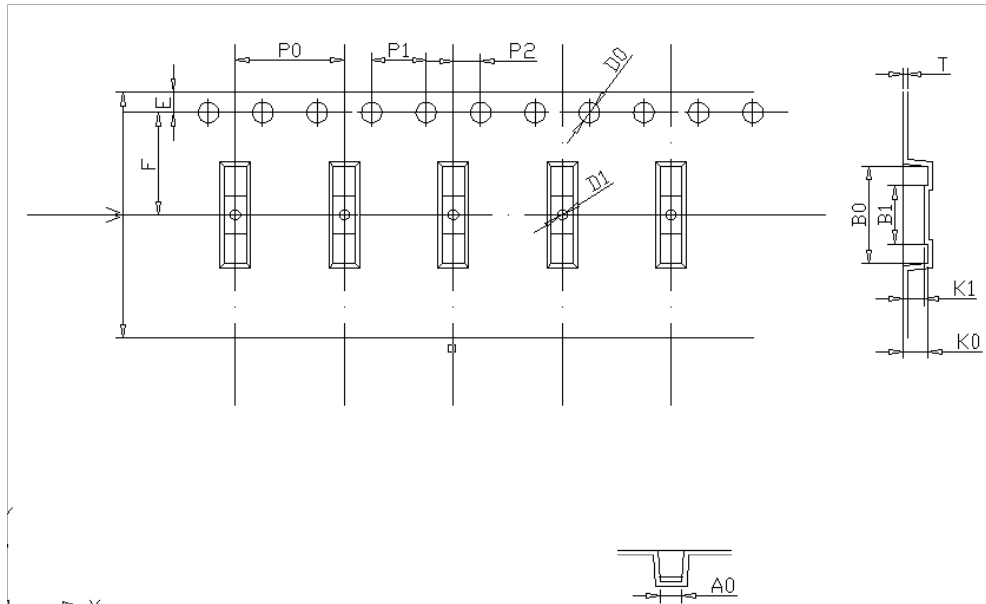
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## TAPE AND REEL SPECIFICATION

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



W	E	F	D0	D1	P0	P1	P2
16.00±0.30	1.75±0.1	7.50±0.1	1.5 <sup>+0.1</sup> <sub>-0</sub>	1.0 <sup>+0.1</sup> <sub>-0</sub>	8.00±0.1	4.00±0.1	2.00±0.05
A0	B0	B1	K0	K1	T	10*P <sub>0</sub>	
1.70±0.1	7.20±0.1	4.0±0.1	1.7±0.1	1.25±0.1	0.35±0.05	40.00±0.20	

## REEL DIMENSIONS

