



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

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!



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## PSE Technology Corporation

# **SPECIFICATION FOR APPROVAL**

CUSTOMER \_\_\_\_\_

NOMINAL FREQUENCY 32.768 KHz


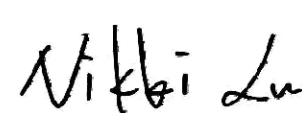

PRODUCT TYPE G2 Series Cylinder Through Hole Quartz Crystal

SPEC. NO. ( P/N ) G23270013

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

ISSUE DATE Apr.7,2011

VERSION C

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

### PSE Technology Corporation

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

VERSION HISTORY

Version No.	Version Date	Customer Receipt Date	Supplier Receipt Date	Description	Notes
A	Feb.9,2010			Initial Release	
B	Aug.9,2001			New Logo	
C	Apr.7,2011			Revised format	



# G2 Series 2.0x6.0mm Cylinder Through Hole Quartz Crystal

**G23270013**

VER. C 7-Apr-11

## ELECTRICAL SPECIFICATIONS

**SRe Part Number : G23270013**

Parameters	Symbol	Specifications	Units	Notes
Nominal Frequency	Fn	32.768	KHz	
Mode of Oscillation	MO	Fundamental		+2° X-Cut
Drive Level	DL	1	$\mu$ W	Max.
Load Capacitance	CL	12.5	pF	Typical
Frequency Tolerance	FT	$\pm 20$	ppm	at 25°C $\pm$ 5°C
Operating Temperature Range	TR	-40~85	°C	
Equivalent Series Resistance	ESR	50	K $\Omega$	Max.
Shunt Capacitance C0	C0	1.6	pF	Typical
Temperature Coefficient	K	-0.035	ppm/°C <sup>2</sup>	Typical
Aging		$\pm 3$	ppm	Max 1st year
Insulation Resistance		500	M $\Omega$	at DC 100V $\pm$ 15V

## 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: $\pm 10$ ppm Max. Resistance Change: 5kohm Max.
2	Shock	3 Times free drop from 75cm height to hard wooden board of thickness more than 30mm	Frequency Change: $\pm 10$ ppm Max. Resistance Change: 5kohm 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: $1 \times 10^{-8}$ Pa·m1/s Max.

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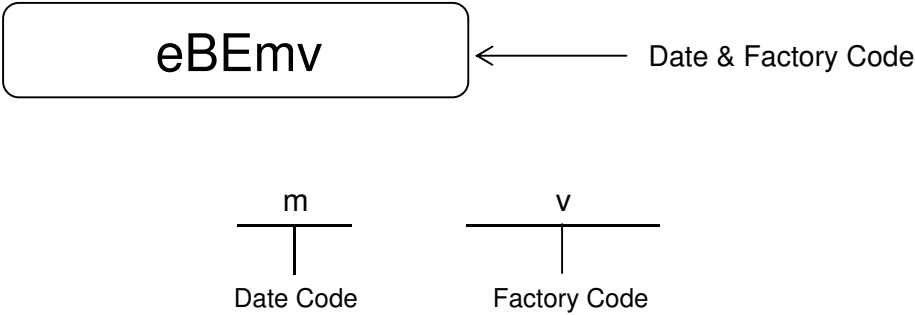
4	Lead Strength (DIP)	The crystal lead with the 0.9kg(9N) power (keep it for 30s±5s) and bend the crystal lead 90° with 0.45kg power and two times	The crystal lead is not abnormality
5	High Temperature Endurance	The crystal units shall be put in somewhere for 2 hrs at temperature of 85°C±2°C, then keep it for 1 to 2 hrs under room temperature.	Frequency Change: ±10ppm Max. Resistance Change:5kohm Max.
6	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.	
7	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.	
8	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:5kohm Max.

G2 Series 2.0x6.0mm Cylinder Through Hole Quartz Crystal

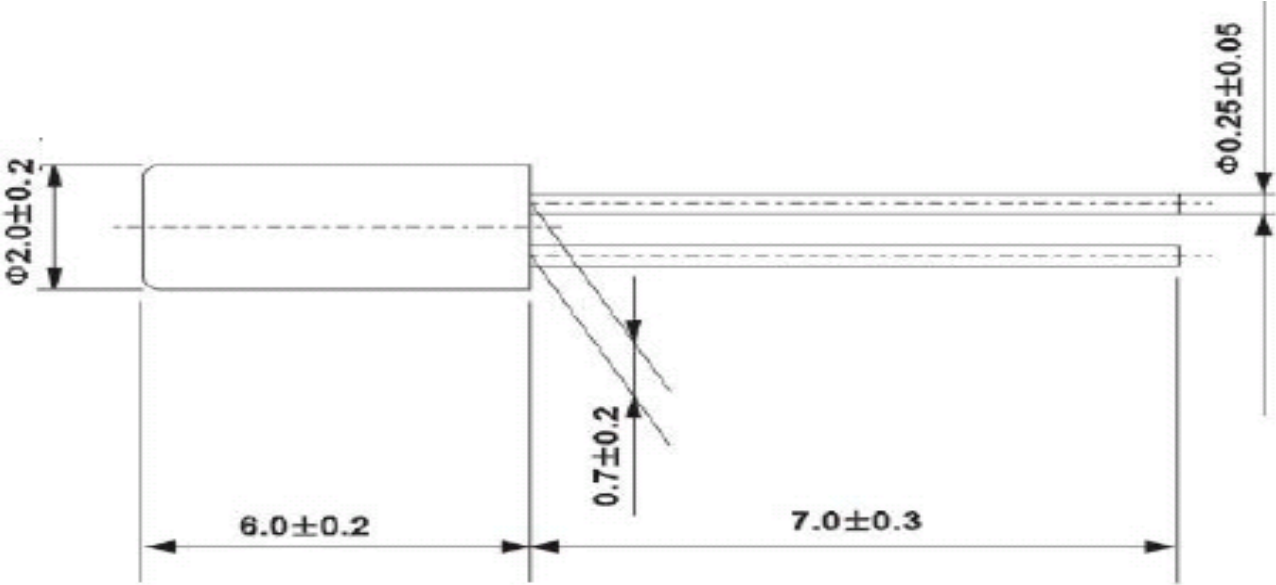
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MARKING



DIMENSIONS    (Unit:mm)



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## PACKING

