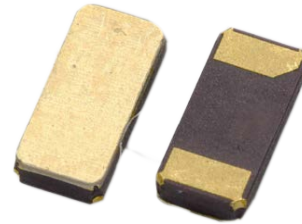


**SMD3215-2 Crystal Resonator**

**7N032768NW2**

1. Scope:

- 1.1 This specification applies to the RoHS compliance quartz crystal unit with a frequency of 32.768KHz which will be used in crystal oscillator applications.



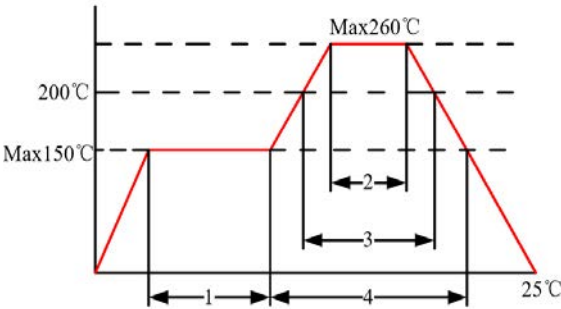
2. Construction:

- 2.1 Type of Quartz Resonator: SMD3215-2pads

3. Electrical Characteristics

3.1 Mode of Vibration :	+2°X-cut , Fundamental
3.2 Nominal frequency(F):	32.768KHz
3.3 Load Capacitance(C <sub>L</sub> ):	12.5PF
3.4 Frequency Tolerance at 25 °C	±20ppm
3.5 Frequency Temperature Stability:	-0.04* 10 <sup>-6</sup> /°C <sup>2</sup> Max
3.6 Series Resistance(R <sub>r</sub> ):	70 KΩ Max
3.7 Quality Factor(Q):	60K TYP
3.8 Turnover Temperature(T <sub>o</sub> ):	25 °C ± 5 °C
3.9 Operation Temperature:	-40 °C ~ +85 °C
3.10 Preservation Temperature:	-55 °C ~ +125 °C
3.11 Shunt Capacitance(C <sub>0</sub> ):	0.8PF Typical
3.12 Capacitance Ratio(C <sub>0</sub> /C <sub>1</sub> ):	500 Typical
3.13 Insulation Resistance:	500MΩ at DC 100V±10V
3.14 Drive Level:	0.5μW Max

# Reliability Specification

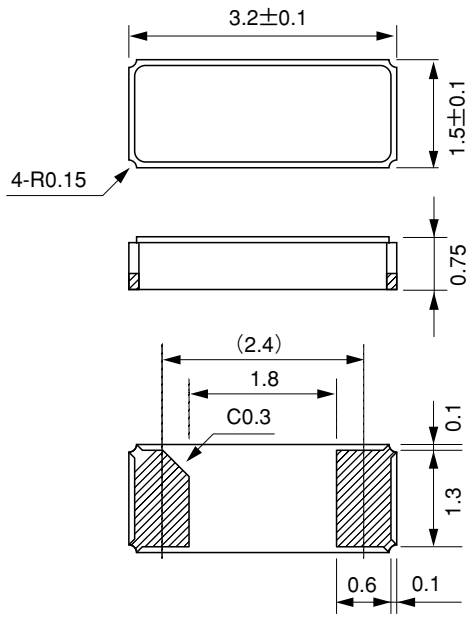
	Item	Condition	Standard
1.	Drop characteristics	Free drop from 75cm height on a hard wooden board for 3 times. (Board is thickness more than 30 mm.)	Frequency change: $\leq \pm 5\text{ppm}$ Rr as specification
2.	Mechanical shock	Device are shocked to half sine wave (1000g) three mutually perpendicular axes each 3 times	Frequency change: $\leq \pm 5\text{ppm}$ Rr as specification
3.	Shake characteristics	Shake frequency 10~55Hz, cyc1~2 minutes, swing 1.5mm, direction x/y/z, all 30 minutes, test after 1 hours.	Frequency change: $\leq \pm 5\text{ppm}$ Rr as specification
4.	Humidity characteristics	$+40 \pm 2^\circ\text{C}$ & 90%~95% R.H. 250 hours	Frequency change: $\leq \pm 5\text{ppm}$ Rr as specification
5.	Low temperature characteristics	$-40 \pm 2^\circ\text{C}$ , 250 hours, put in room temperature, test after 1 hours.	Frequency change: $\leq \pm 5\text{ppm}$ Rr as specification
6.	High temperature characteristics	$+85 \pm 2^\circ\text{C}$ , 250 hours, put in room temperature, test after 1 hours.	Frequency change: $\leq \pm 5\text{ppm}$ Rr as specification
7.	Temperature cycling	$-30 \pm 3^\circ\text{C}/30 \pm 3 \text{ min} \sim +85 \pm 2^\circ\text{C}/30 \pm 3\text{min}$ , 5 cycles	Frequency change: $\leq \pm 5\text{ppm}$ Rr as specification
8.	Refluence examination	 <p style="text-align: center;">1. Max 180sec 2. Max 10 sec 3. Max 80 sec 4. Max 90 sec</p>	Frequency change: $\leq \pm 5\text{ppm}$ Rr as specification

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## Package Outline Dimensions

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Units:mm



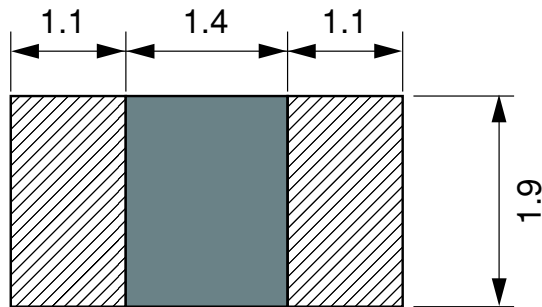
Connection



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## Suggested Pad Layout

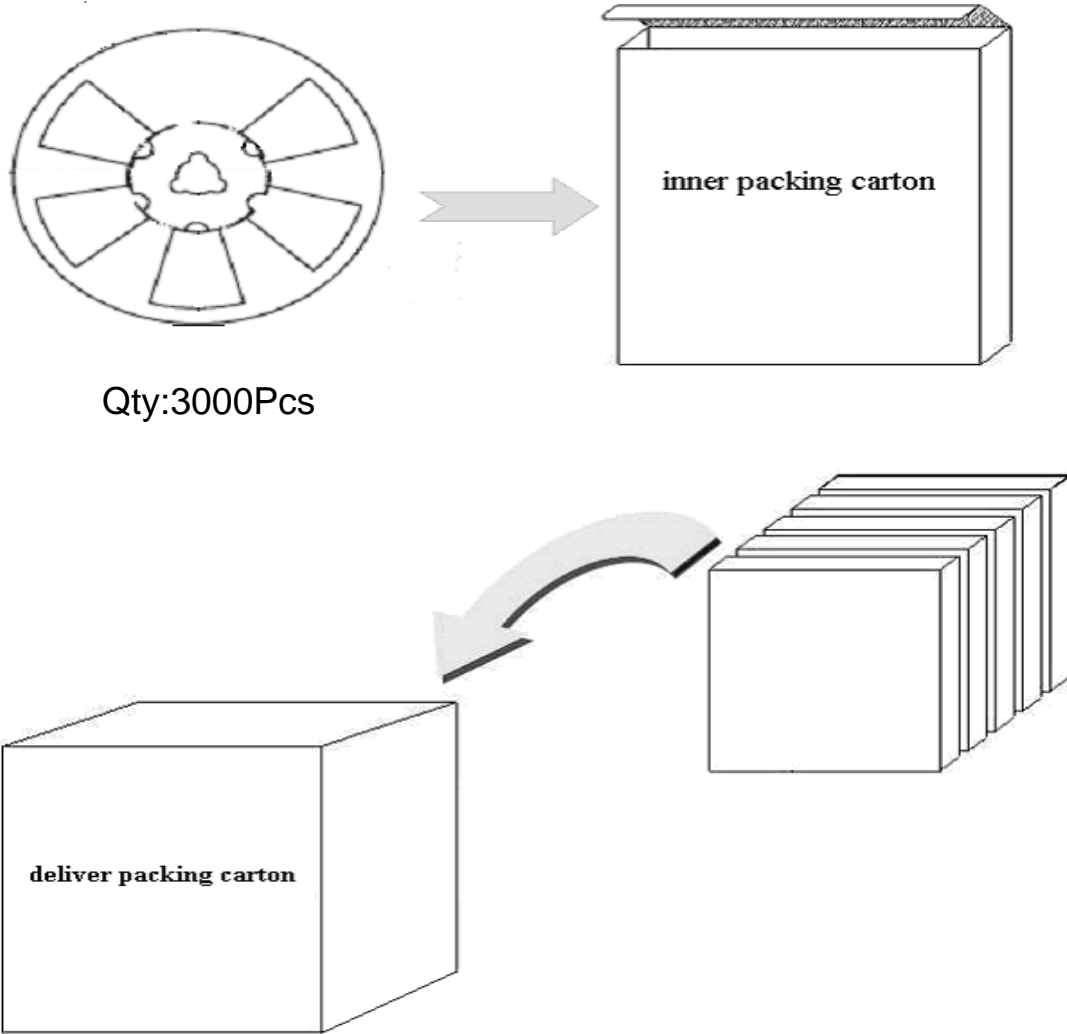
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## Packing Specification

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