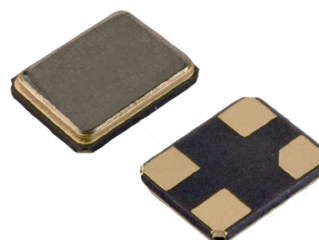


**SMD2016-4 Crystal Resonator**

**7D024000I01**

**1. Scope:**

1.1 This specification applies to the RoHS compliance quartz crystal unit with a frequency of 24.000MHz which will be used in crystal oscillator applications.



**2. Construction:**

2.1 Type of Quartz Resonator: SMD2016-4pads

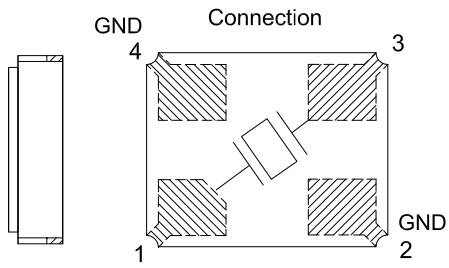
**3. Electrical Characteristics**

3.1 Nominal Frequency(f):	24.000MHz
3.2 Load Capacitance(C <sub>L</sub> ):	10pF
3.3 Frequency Tolerance(Δf/f):	±10ppm
3.4 Frequency Temperature Stability:	±20ppm
3.5 Resonance Resistance(ohm):	50 ohms Max
3.6 Osc mode:	Fundamental mode
3.7 Shunt Capacitance(C <sub>0</sub> ):	2pF Max
3.8 Drive Level(D <sub>L</sub> ):	100μW Max
3.9 Operating Temperature Range(T <sub>OPR</sub> ):	-20 to + 70°C
3.10 Storage Temperature Range(T <sub>STG</sub> ):	-55 to + 125°C
3.11 Insulation Resistance(IR):	>500M ohms
3.12 Aging(Δf <sub>A</sub> ):	±3ppm/Year Max

# Reliability Specification

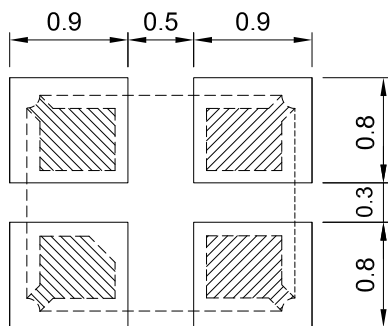
	Item	Condition	Standard
1.	Drop characteristics	Free drop from 75cm height on a hard wooden board for 3 times. (Board is thickness more than 30 mm.)	Frequency change: $\leq \pm 5\text{ppm}$ Rr as specification
2.	Mechanical shock	Device are shocked to half sine wave (1000g) three mutually perpendicular 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

## Package Outline Dimensions



引脚	功能
#1	IN
#2	GND
#3	OUT
#4	GND

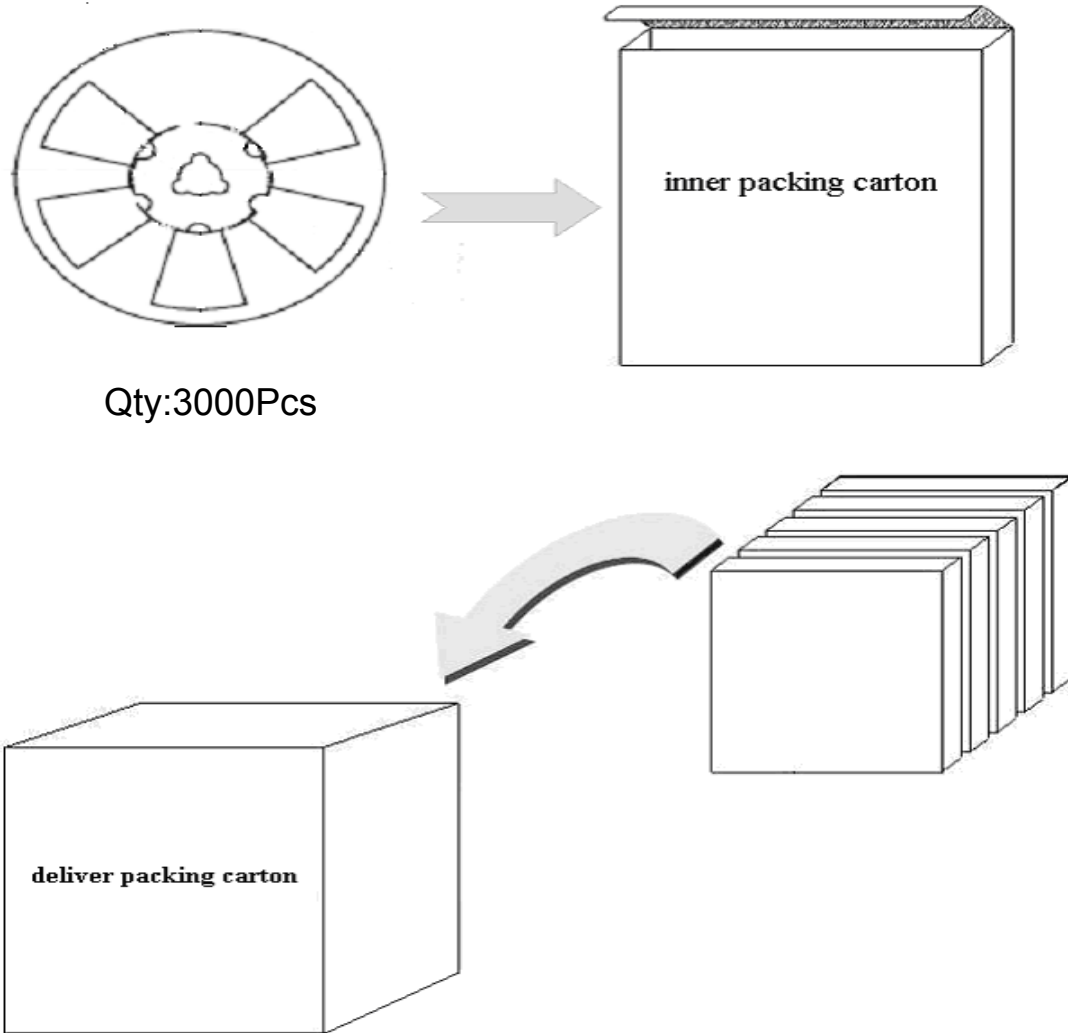
## Suggested Pad Layout



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## Packing Specificatio

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