

**SMD1612-4 Crystal Resonator**

**7E036000F01**

**1. Scope:**

1.1 This specification applies to the RoHS compliance quartz crystal unit with a frequency of 36.000MHz which will be used in crystal oscillator applications.



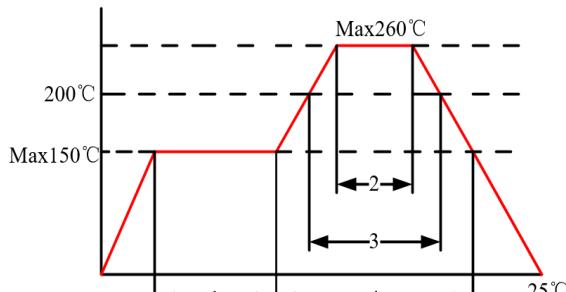
**2. Construction:**

2.1 Type of Quartz Resonator: SMD1612-4pads

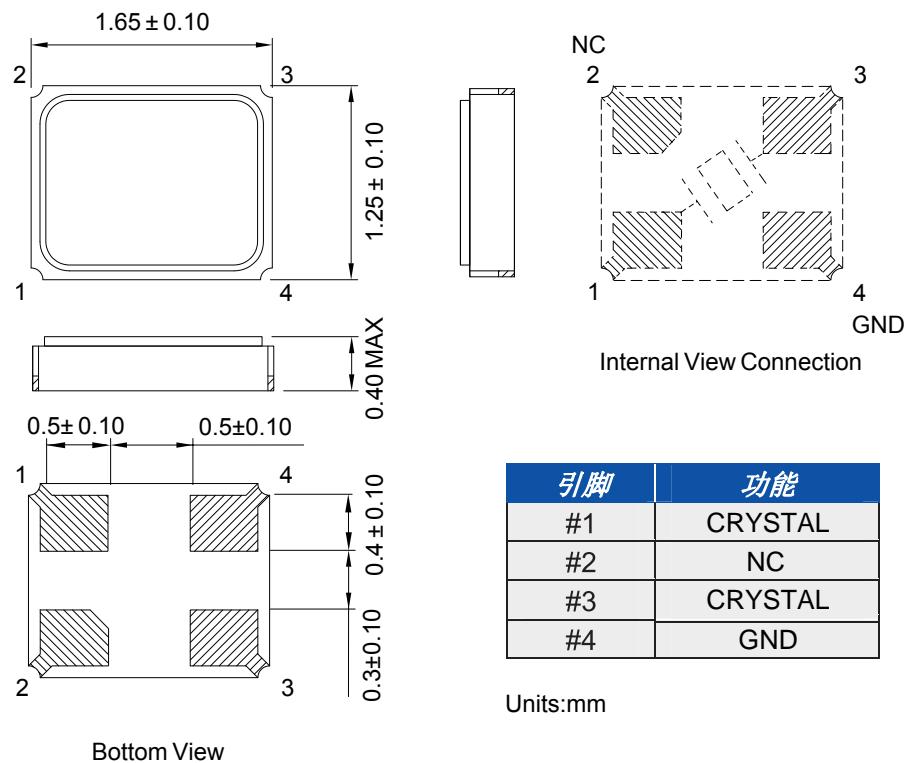
**3. Electrical Characteristics**

3.1 Nominal Frequency(f):	36.000MHz
3.2 Load Capacitance( $C_L$ ):	8pF
3.3 Frequency Tolerance( $\Delta f/f$ ):	$\pm 10\text{ppm}$
3.4 Frequency Temperature Stability:	$\pm 20\text{ppm}$
3.5 Resonance Resistance(ohm):	55 ohms Max
3.6 Osc mode:	Fundamental mode
3.7 Shunt Capacitance( $C_0$ ):	2pF Max
3.8 Drive Level( $D_L$ ):	100 $\mu\text{W}$ Max
3.9 Operating Temperature Range( $T_{OPR}$ ):	-20 to + 70°C
3.10 Storage Temperature Range( $T_{STG}$ ):	-55 to + 125°C
3.11 Insulation Resistance(IR):	>500M ohms
3.12 Aging( $\Delta f_A$ ):	$\pm 3\text{ppm/Year}$ Max

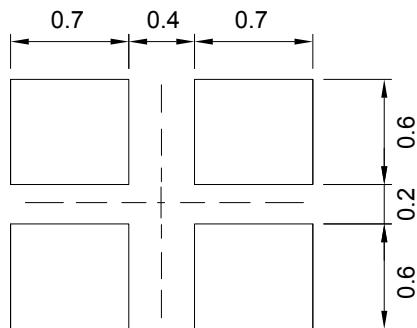
## Reliability Specification

	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: $\leq \pm 5$ ppm Rr as specification
2	Mechanical shock	Device are shocked to half sine wave (1000g) three mutually perpendicular axes each 3 times	Frequency change: $\leq \pm 5$ 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: $\leq \pm 5$ ppm Rr as specification
4.	Humidity characteristics	+40 $\pm 2$ °C & 90%~95% R.H. 250 hours	Frequency change: $\leq \pm 5$ ppm Rr as specification
5.	Low temperature characteristics	-40 $\pm 2$ °C, 250 hours, put in room temperature, test after 1 hours.	Frequency change: $\leq \pm 5$ ppm Rr as specification
6.	High temperature characteristics	+85 $\pm 2$ °C, 250 hours, put in room temperature, test after 1 hours.	Frequency change: $\leq \pm 5$ ppm Rr as specification
7.	Temperature cycling	-30 $\pm 3$ °C/30 $\pm 3$ min~+85 $\pm 2$ °C/30 $\pm 3$ min, 5 cycles	Frequency change: $\leq \pm 5$ ppm Rr as specification
8.	Refluence examination	 <p>1. Max 180sec 2. Max 10 sec 3. Max 80 sec 4. Max 90 sec</p>	Frequency change: $\leq \pm 5$ ppm Rr as specification

## Package Outline Dimensions



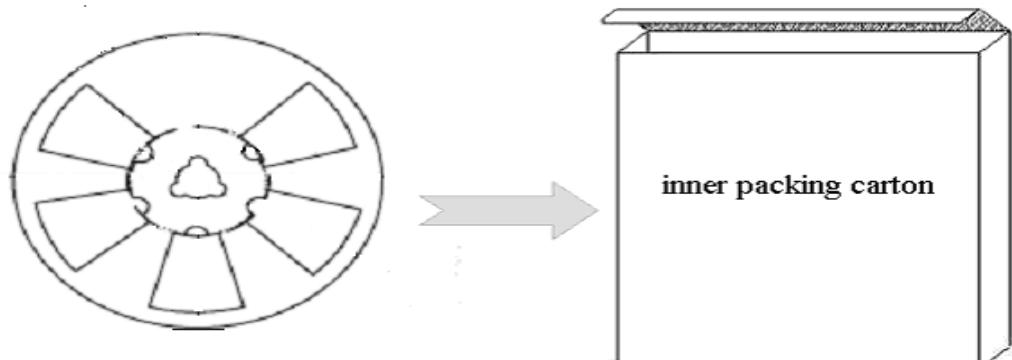
## Suggested Pad Layout



Units:mm

## Packing Specification

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Qty:3000Pcs

