



Specifications For Product

TYPE : Quartz Crystal Resonator
SPEC : 1612/40.000M/10PF
P/N : 7E040000I01
VER : B/1

R&D APPR. SIGNATURED			DEPT. 
ISSUE	CHECK	APPROVAL	
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Product Description

7E040000I01

1. Scope:

- 1.1 This specification applies to the RoHS compliance quartz crystal unit with a frequency of 40.000MHz which will be used in crystal oscillator applications.



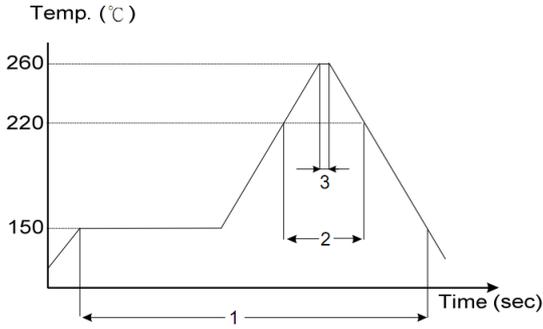
2. Construction:

- 2.1 Type of Quartz Resonator: SMD1612-4pads

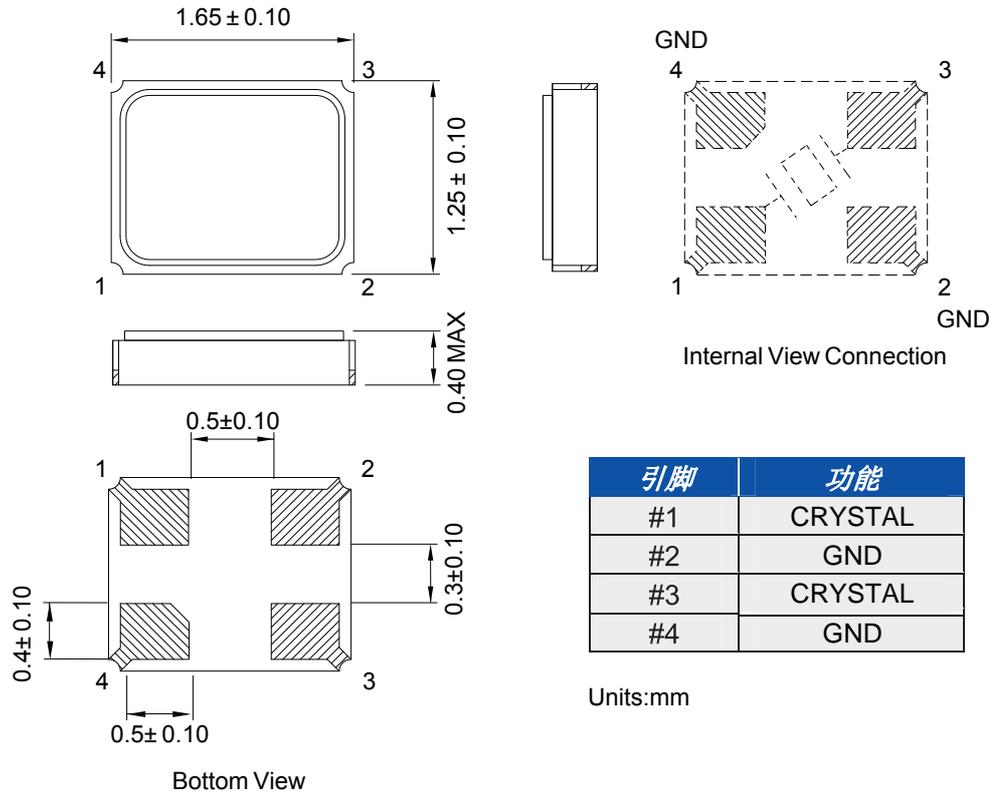
3. Electrical Characteristics

No.	Items	Electrical Spec					Remarks
		Symbol	Min	Typ	Max	Units	
1	Nominal Frequency	FL	40.000000			MHz	
2	Load Capacitance	CL	10.0			pF	
3	Frequency Tolerance	$\Delta f/f$	± 10			ppm	at 25 $\pm 2^{\circ}\text{C}$
4	Frequency Stability	-	± 20			ppm	at -20~ 70 $^{\circ}\text{C}$ (reference 25)
5	Resonance Resistance	ESR	-	-	60	ohms	
6	Oscillation Mode	-	Fundamental			-	
7	Shunt Capacitance	C0	-	-	2	pF	
8	Drive Level	DL	-	-	100	μW	
9	Operatin Temperature	-	-20	-	70	$^{\circ}\text{C}$	
10	Storage Temperature	-	-55	-	125	$^{\circ}\text{C}$	
11	Insulation Resistance	IR	500	-	-	M-ohms	at DC 100V
12	Aging (/1 year)	ΔfA	± 3			ppm/year	at 25 $\pm 2^{\circ}\text{C}$

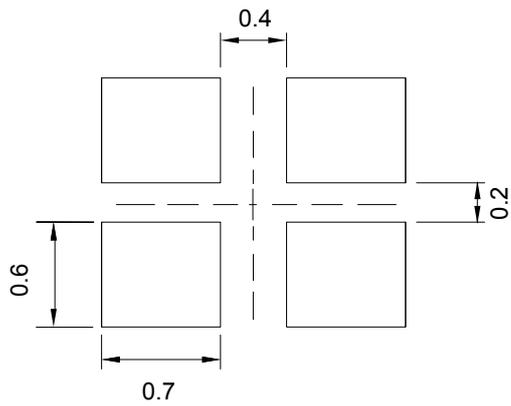
Reliability Specification

	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	$-40 \pm 2^\circ\text{C}/30 \pm 3 \text{ min} \sim +85 \pm 2^\circ\text{C}/30 \pm 3 \text{ min}$, 5 cycles	Frequency change: $\leq \pm 5\text{ppm}$ Rr as specification
8.	Refluence examination	 <p style="text-align: center;">1. Max 200 sec 2. Max 80 sec 3. Max 10 sec</p>	Frequency change: $\leq \pm 5\text{ppm}$ Rr as specification

Package Outline Dimensions



Suggested Pad Layout



Units:mm

Packing Specification

