



江苏长晶科技股份有限公司
JIANGSU CHANGJING ELECTRONICS TECHNOLOGY CO., LTD.

产 品 规 格 书

SPECIFICATIONS FOR PRODUCT

产品类型 TYPE : Crystal Resonator

产品规格 SPEC : 40MHz/2016/9PF/10PPM

产品型号 P/N : CJ16-400000910A20

日期 DATE : 2024/12/02

核准及签名

R&D APPR. SIGNATURED

拟制 ISSUE	审核 CHECK	批准 APPROVAL
Ivan 2024/12/02	Abbey 2024/12/02	Ken 2024/12/02

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Specification Revision Record Sheet



SMCE2016 4 pads Crystal Resonator

CJ16-400000910A20

1. Scope:

- 1.1 This specification applies to the RoHS/HF compliance quartz crystal unit with a frequency of 40MHz which will be used in crystal resonator applications.

2. Construction:

- 2.1 Type of Quartz Resonator: SMCE2016 4pads

3. Electrical Characteristics

- | | |
|---|--------------------------|
| 3.1 Nominal Frequency(f): | 40MHz |
| 3.2 Load Capacitance(C_L): | 9pF |
| 3.3 Frequency Tolerance($\Delta f/f$): | ± 10 ppm |
| 3.4 Frequency Temperature Stability: | ± 20 ppm(Ref. @25°C) |
| 3.5 Resonance Resistance(ohm): | 40ohms Max |
| 3.6 Osc mode: | Fundamental mode |
| 3.7 Shunt Capacitance(C_0): | <2pF |
| 3.8 Drive Level(D_L): | <100μW |
| 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): | >500 M ohms |
| 3.12 Aging(Δf_A): | ± 3 ppm per Year |

Reliability Specifications

4. Reliability Specifications

This is the quality control and quality assurance and reliability tests performance data for the RoHS/HF compliance 40MHz SMCE2016 4pads crystal resonators related to the specification and approval sheet provided by JSCJ.

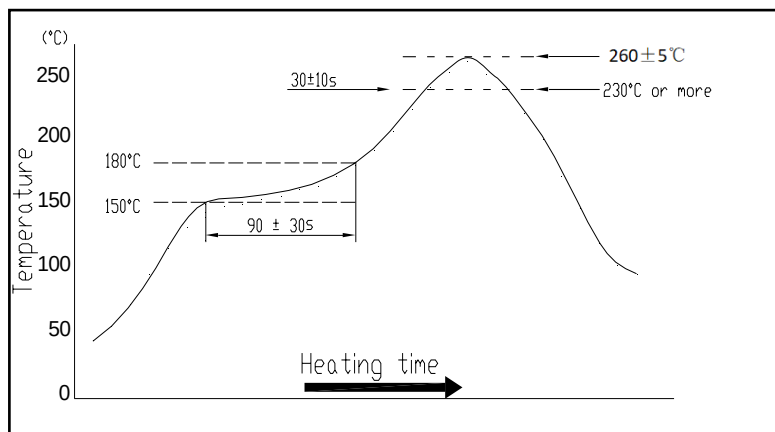
NO.	ITEM	SPECIFICATION	TEST METHOD
4.1	Free fall	$\Delta FL \leq \pm 5\text{ppm}$ $\Delta RR \leq \pm 5\Omega$ or 15%	Height: 100cm, Wooden block: 3cm, Dropping times: 3times
4.2	Vibration	$\Delta FL \leq \pm 5\text{ppm}$ $\Delta RR \leq \pm 5\Omega$ or 15%	Amplitude: 1.5mm, Frequency: 10~55Hz, Direction: X, Y, Z, Period: 2h
4.3	Resistance to soldering heat	$\Delta FL \leq \pm 5\text{ppm}$ $\Delta RR \leq \pm 5\Omega$ or 15%	Temperature: +260°C±5°C, Period: 10s±1s
4.4	High temp. and humidity	$\Delta FL \leq \pm 5\text{ppm}$ $\Delta RR \leq \pm 5\Omega$ or 15%	Temperature: 85°C±2°C, Humidity: 85%RH±3%RH, Period: 48h
4.5	Low temperature storage	$\Delta FL \leq \pm 5\text{ppm}$ $\Delta RR \leq \pm 5\Omega$ or 15%	Temperature: -40°C±2°C, Period: 2h
4.6	High temperature storage	$\Delta FL \leq \pm 5\text{ppm}$ $\Delta RR \leq \pm 5\Omega$ or 15%	Temperature: 125°C±2°C, Period: 16h
4.7	Temperature cycle	$\Delta FL \leq \pm 5\text{ppm}$ $\Delta RR \leq \pm 5\Omega$ or 15%	1cycle: -40°C(30min)→100°C(30min), 30cycle
4.8	Substrate Bending Test	$\Delta FL \leq \pm 5\text{ppm}$ $\Delta RR \leq \pm 5\Omega$ or 15%	Bend Amount: 3mm, Force: 10s by 0.5mm/s speed
4.9	Fine leak	Leakage values≤1.0E-9Pa	Helium leakage detector shall used to measure the leakage rate of gas through any faulty seal. Pressure: 500Kpa, duration: 2h
4.10	Weldability	Tin leaching rate≥95%	Temperature: +235°C±5°C, Period: 2s±0.2s
4.11	OTHERS		

Notes : The above test items and judgment standards are for reference only, and the actual reliability report shall prevail.

5. Recommended Reflow soldering condition (SMD)

Solder profile

Peak: $260 \pm 5^{\circ}\text{C}$ Soldering zone: 230°C or more, $30 \pm 10\text{s}$. Pre-heating zone 1: $150 \sim 180^{\circ}\text{C}$, $90 \pm 30\text{s}$

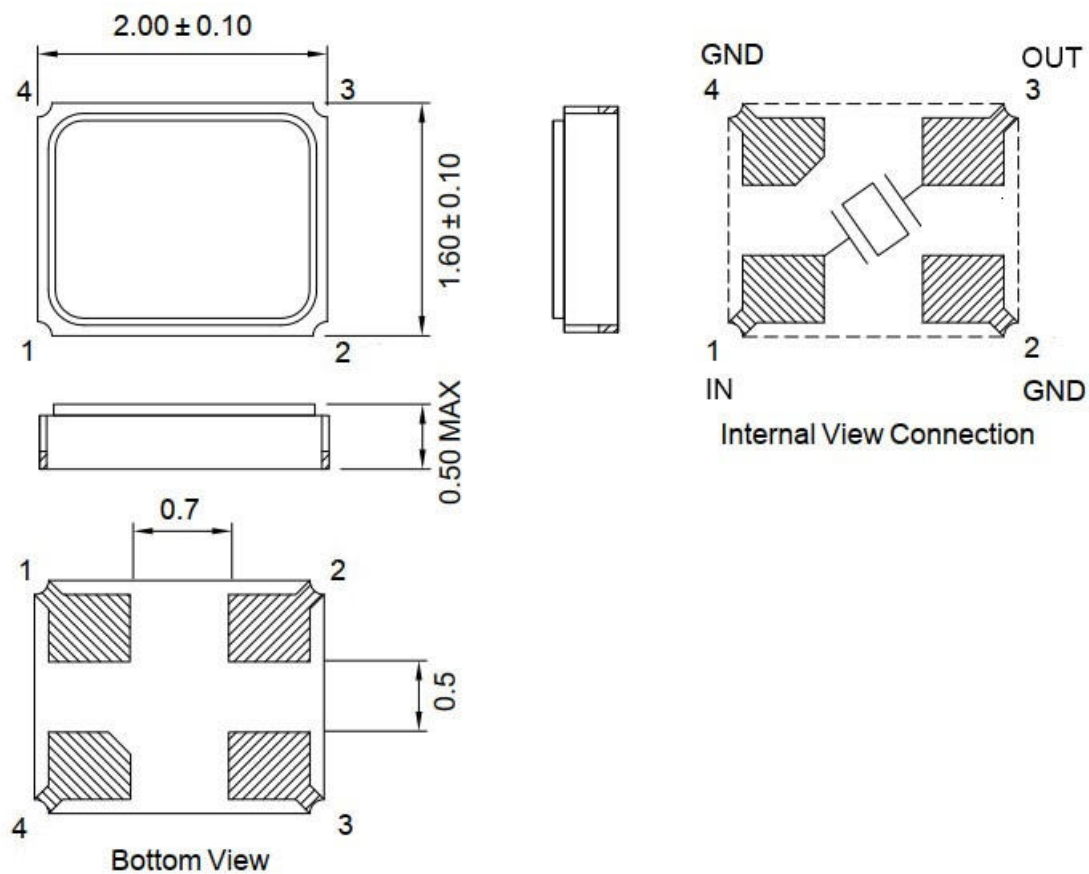


Temperature profile for reflow soldering

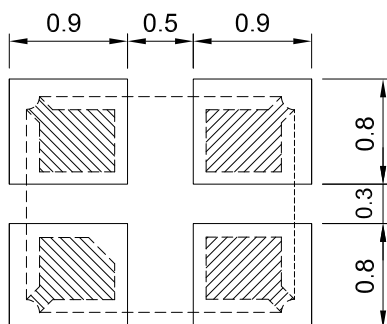
6. Soldering iron method

Bit temperature: $350 \pm 10^{\circ}\text{C}$ Application time of soldering iron: $3 \pm 1\text{s}$.

Package Outline Dimensions

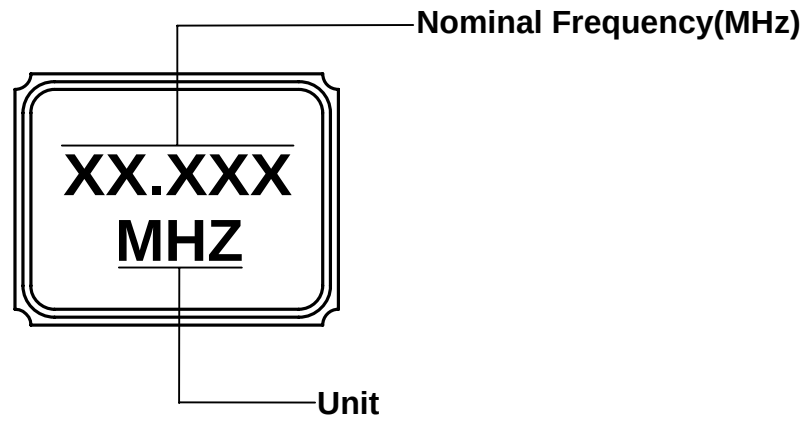


Suggested Pad Layout

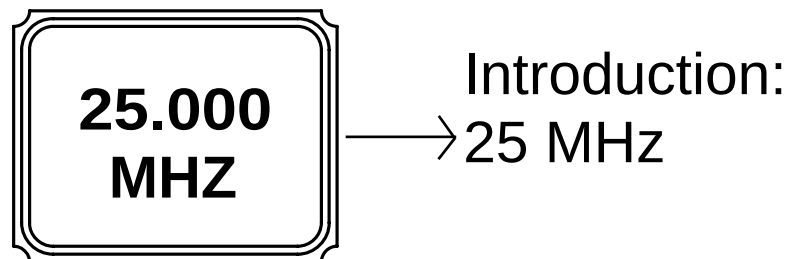


Marking

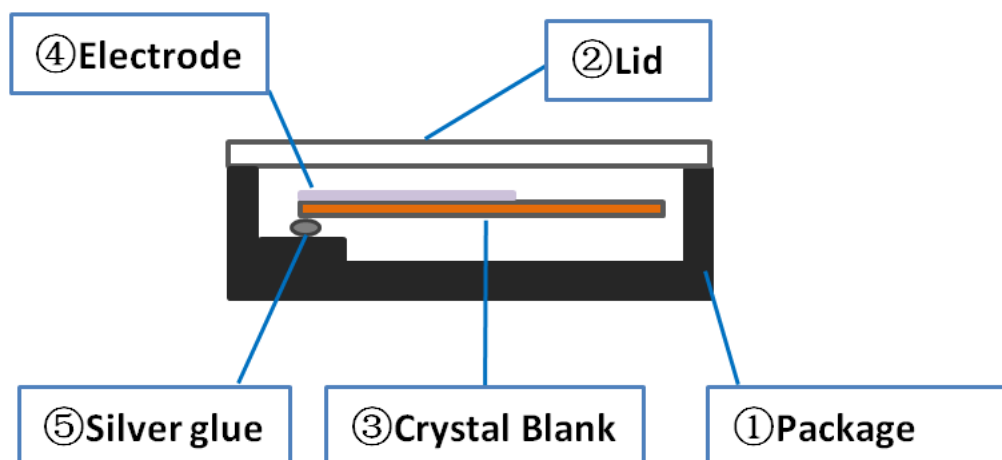
Procedure: Laser



For example:



Inside Structure

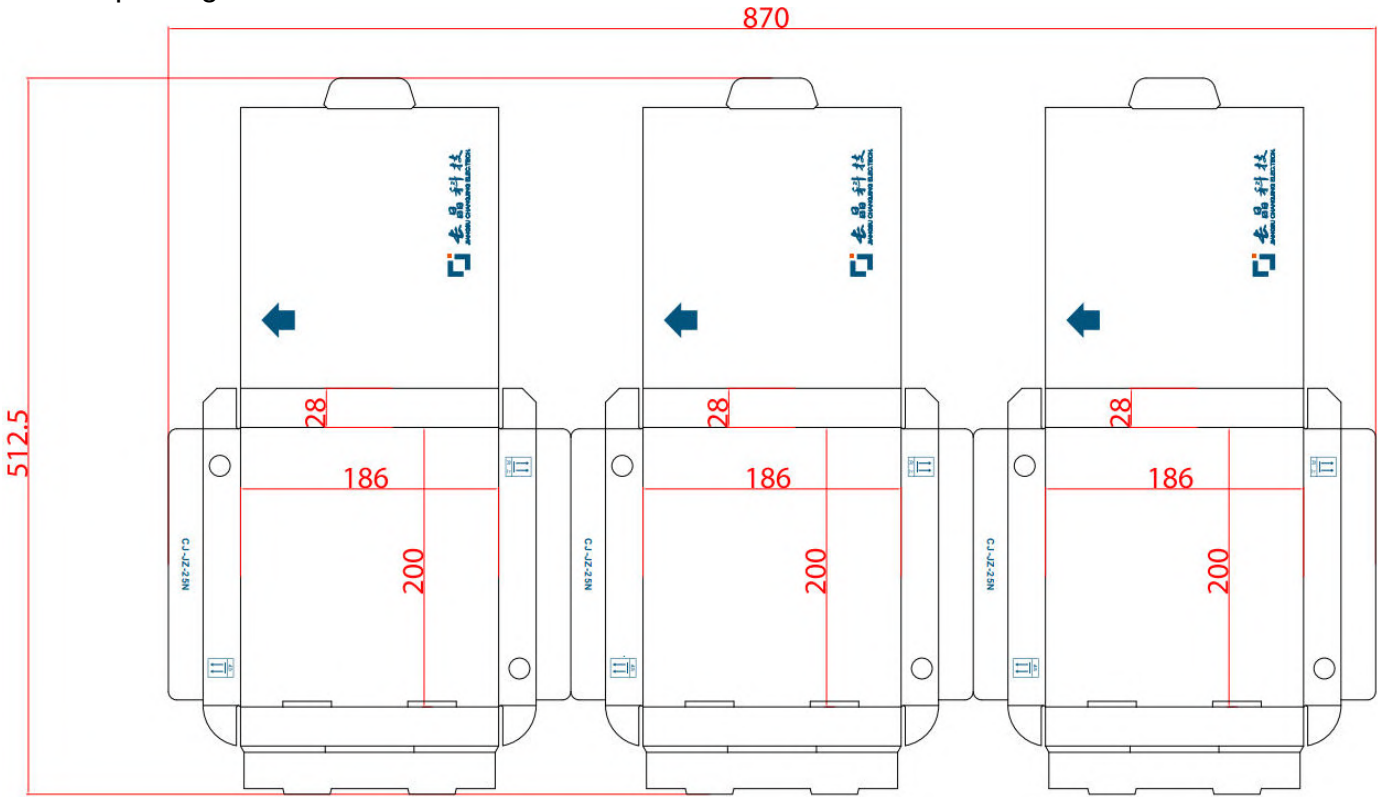


No.	Components	Materials
1	Package	Ceramic(Al_2O_3)
2	Lid	KV($\text{Fe}/\text{Ni}/\text{Co}$)
3	Crystal blank	SiO_2
4	Electrode	Ag、Cr
5	Silver glue	Resin、Ag

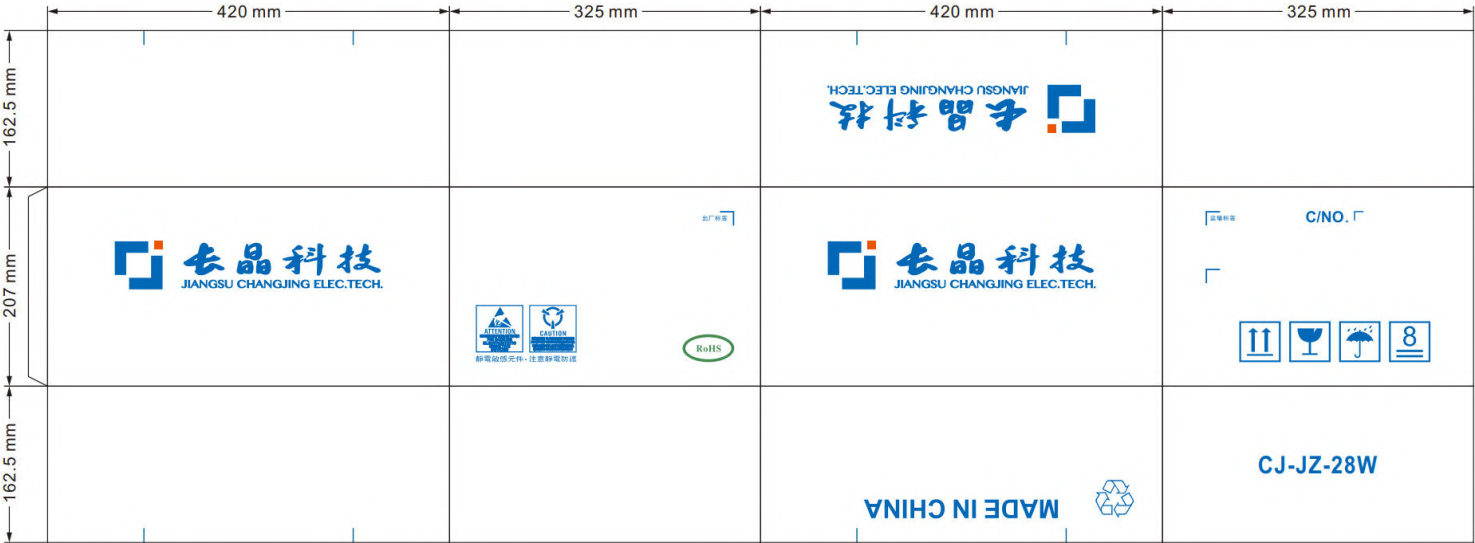


Package

Inside package



Outside package



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