

产 品 规 格 书

SPECIFICATIONS FOR PRODUCT

产品类型 TYPE : **SMD3225**

产品规格 SPEC : **50MHz/3225/12PF/10PPM**

产品型号 P/N : **CJ13-500001210B20**

日期 DATE : **2021/05/06**

| | | | |
|----------------------|---------------------|-------------------|-----------|
| 核准及签名 | | | 部门 |
| R&D APPR. SIGNATURED | | | DEPT. |
| 拟制 | 审核 | 批准 | 频率器件事业部 |
| ISSUE | CHECK | APPROVAL | |
| Ivan 2021/05/06 | Abbey 2021/05/06 | Ken 2021/05/06 | |

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SMCE3225 4 pads Crystal Resonator

CJ13-500001210B20

1. Scope:

- 1.1 This specification applies to the RoHS/SONY compliance quartz crystal unit with a frequency of 50MHz which will be used in crystal oscillator applications.

2. Construction:

- 2.1 Type of Quartz Resonator: SMCE3225 4pads

3. Electrical Characteristics

| | |
|---|----------------------|
| 3.1 Nominal Frequency(f): | 50.000MHz |
| 3.2 Load Capacitance(C_L): | 12pF |
| 3.3 Frequency Tolerance($\Delta f/f$): | ± 10 ppm |
| 3.4 Frequency Temperature Stability: | ± 20 ppm |
| 3.5 Resonance Resistance(ohm): | 20ohms Max |
| 3.6 Osc mode: | Fundamental mode |
| 3.7 Shunt Capacitance(C_0): | <2pF |
| 3.8 Drive Level(D_L): | <100 μ W |
| 3.9 Operating Temperature Range(T_{OPR}): | -40 to + 85°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 |

4. Reliability Specifications

This is the quality control and quality assurance and reliability tests performance data for the RoHS/SONY compliance 50MHz SMCE3225 4pads crystal resonators related to the specification and approval sheet provided by JSCJ .

Standard test condition (TEMP.: 20±5°C. Relative humidity: 65±20%)

For any discrepancy in GO/NG, test will be done at TEMP.25±2°C, R.H. 65±5%.

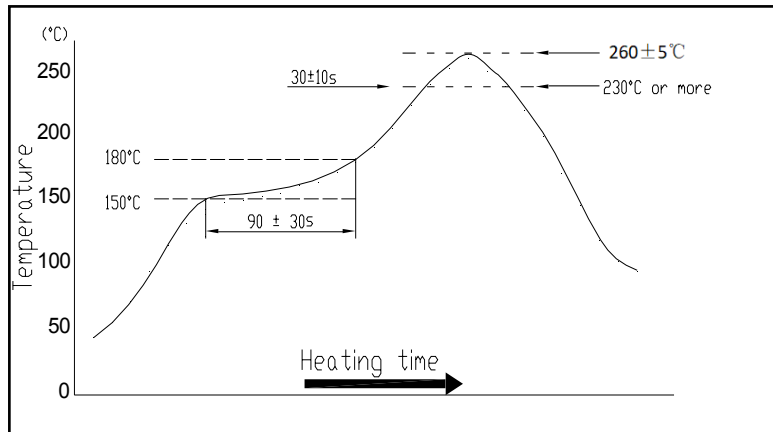
| NO. | PROCESS | SPECIFICATION | TEST METHOD |
|------|--|--|--|
| 4.1 | Temperature Cycle (GB/T 2423.22-2002, Method Nb) | Frequency change after test ± 5 ppm. Resonance resistance change after test ≤ 10 ohms. | 10 cycles from -55°C to 125°C. Measurement taken after DUT being left at room temperature for 24±2 hours. |
| 4.2 | Low Temperature Storage (GB/T 2423.1-2001, Method Aa) | Frequency change after test ± 5 ppm. Resonance resistance change after test ≤ 10 ohms. | Spending 72 hrs at -55°C±3°C constant temperature. Measurement taken after DUT being left at room temperature for 24±2 hours. |
| 4.3 | High Temperature Storage (GB/T 2423.2-2001, Method Ba) | Frequency change after test ± 5 ppm. Resonance resistance change after test ≤ 10 ohms. | Spending 72 hrs at 125°C±3°C constant temperature. Measurement taken after DUT being left at room temperature for 24±2 hours. |
| 4.4 | Humidity (GB/T 2423.3-2006, Method Cab) | Frequency change after test ± 5 ppm. Resonance resistance change after test ≤ 10 ohms. | Spending 96 hrs at 40 °C ± 3 °C, with 93 %R.H, Then keep the DUT in dry oven at 40 ± 5 °C for 24 hour. Measurement taken after DUT being left at room temperature for 1 to 2 hours. |
| 4.5 | Vibration (GB/T 2423.10-1995, Method Fc) | Frequency change after test ± 5 ppm. Resonance resistance change after test ≤ 10 ohms. | Apply 0.75mm vibration at sweep frequency 10~500 Hz, 10 cycles in each direction of 3 axis. Measurement taken after 1 hour. |
| 4.6 | Shock (GB/T 2423.5-1995, Method Ea) | Frequency change after test ± 5 ppm. Resonance resistance change after test ≤ 10 ohms. and exhibit no visible damage. | Peak 1000m/s ² , normal width 6ms half sine wave form, 3.7m/s, 3 perpendicular axis of samples, 3 cycles / direction, total 18 cycles. Measurement taken after 1 hour. |
| 4.7 | Drop (GB/T 2423.8-1995, Method Ed) | Frequency change after test ± 5 ppm. Resonance resistance change after test ≤ 10 ohms. and exhibit no visible damage. | Free drop to the steel plate with thickness of 3 mm from 1.00 m heights for 3 times. |
| 4.8 | Solderability (IEC60068-2-58, Test Td:) | Terminals shall be covered more then 95% with solder. | Passed through the re-flow oven under the following condition. Preheat 150 to 180°C for 60 to 120sec, and soldering time for 20s ± 5s at 235°C, peak soldering time for 10s ± 1s between 240 and 250°C. There is no need to do functional test. 8-12X magnifier. |
| 4.9 | Terminal Strength (JIS-C-6429 Method 1 & 2) | No visible damage | Mount on a glass-epoxy board (100x50x1.6mm), then bend to 2mm displacement (velocity 1mm/sec) and keep for 5 seconds. or pulling force 1.8kg for at least 60 seconds. |
| 4.10 | Resistance to Soldering Heat (IEC60068-2-58, Test Td: Table 4) | Frequency change after test ± 5 ppm. Resonance resistance change after test ≤ 10 ohms. | Passed through the re-flow oven under the following condition. Preheat 150 to 180°C for 60 to 120sec, and sodering time for 60s max at 235°C, peak soldering time for 20s max at 265°C max. Measurement taken after DUT being left at room temperature for at least 2 hours. |
| 4.11 | OTHERS | | |

Recommended Reflow soldering conditon

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: $150 \sim 180^\circ\text{C}$, $90 \pm 30\text{s}$

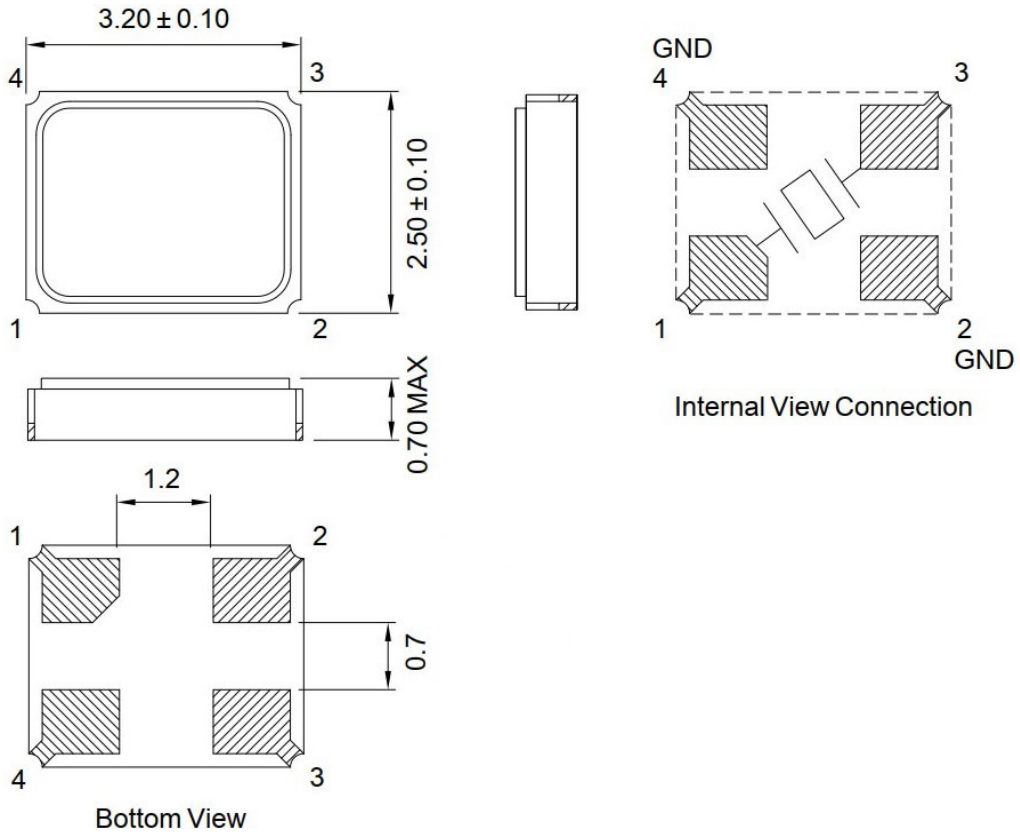


Temperature profile for reflow soldering

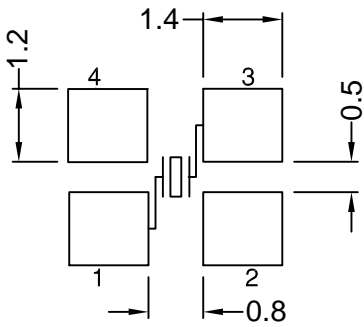
6. Soldering iron method

Bit temperature: $350 \pm 10^\circ\text{C}$ Application time of soldering iron: $3+1\text{ s}$. For other procedures, refer to IEC 60068-2-20.

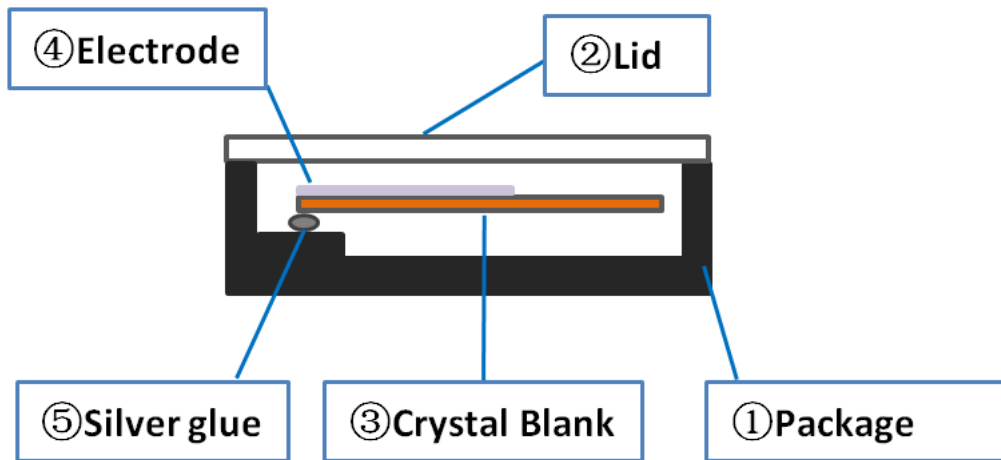
Package Outline Dimensions



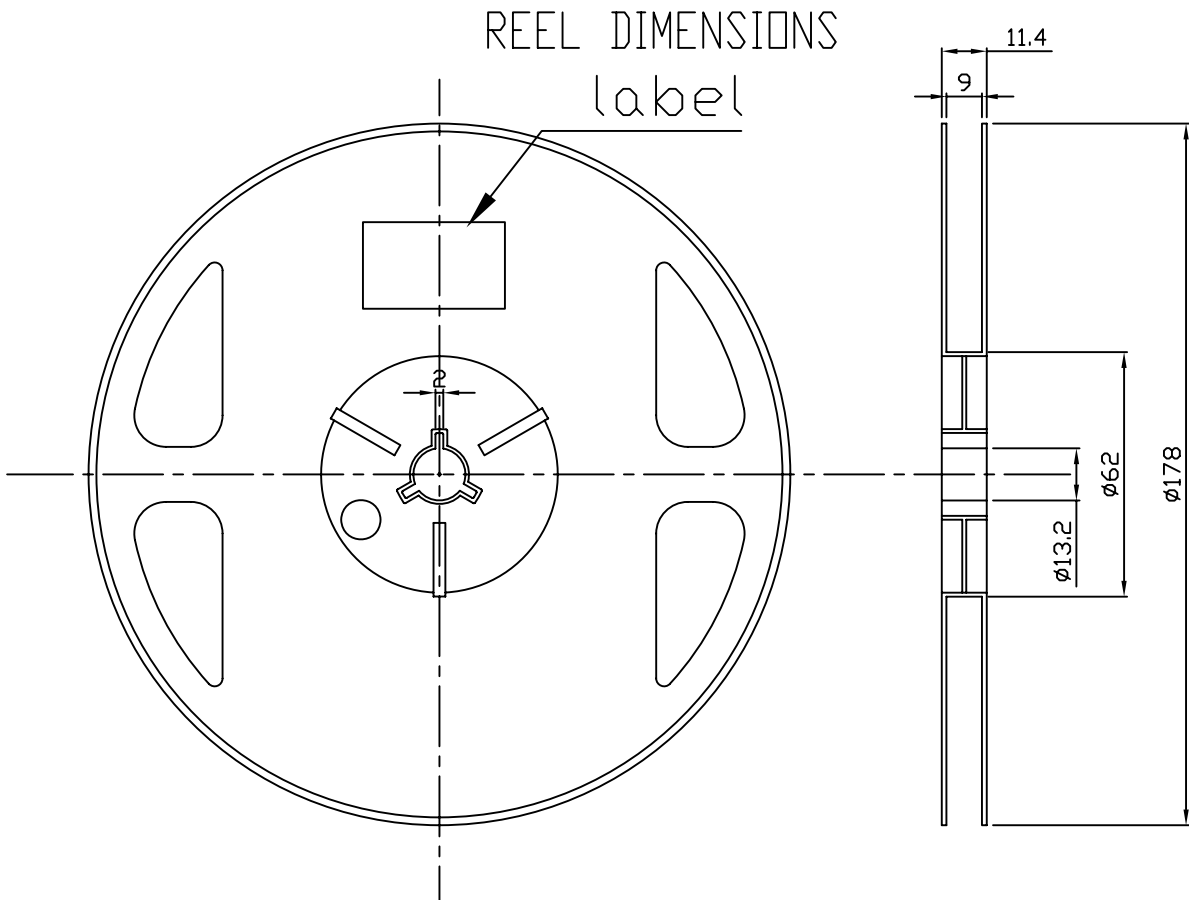
Suggested Pad Layout



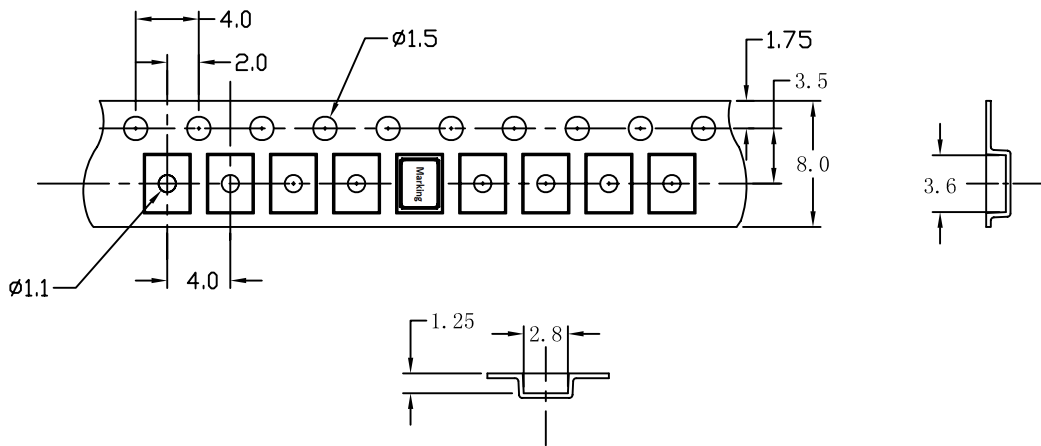
Inside Structure



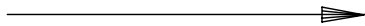
| No. | Components | Materials |
|-----|---------------|---|
| 1 | Package | Ceramic(Al_2O_3) |
| 2 | Lid | KV(Fe/Ni/Co) |
| 3 | Crystal blank | SiO_2 |
| 4 | Electrode | Ag, Cr |
| 5 | Silver glue | Ag, CH_3OH , SiO_2 |



EMBOSSED TYPE DIMENSIONS

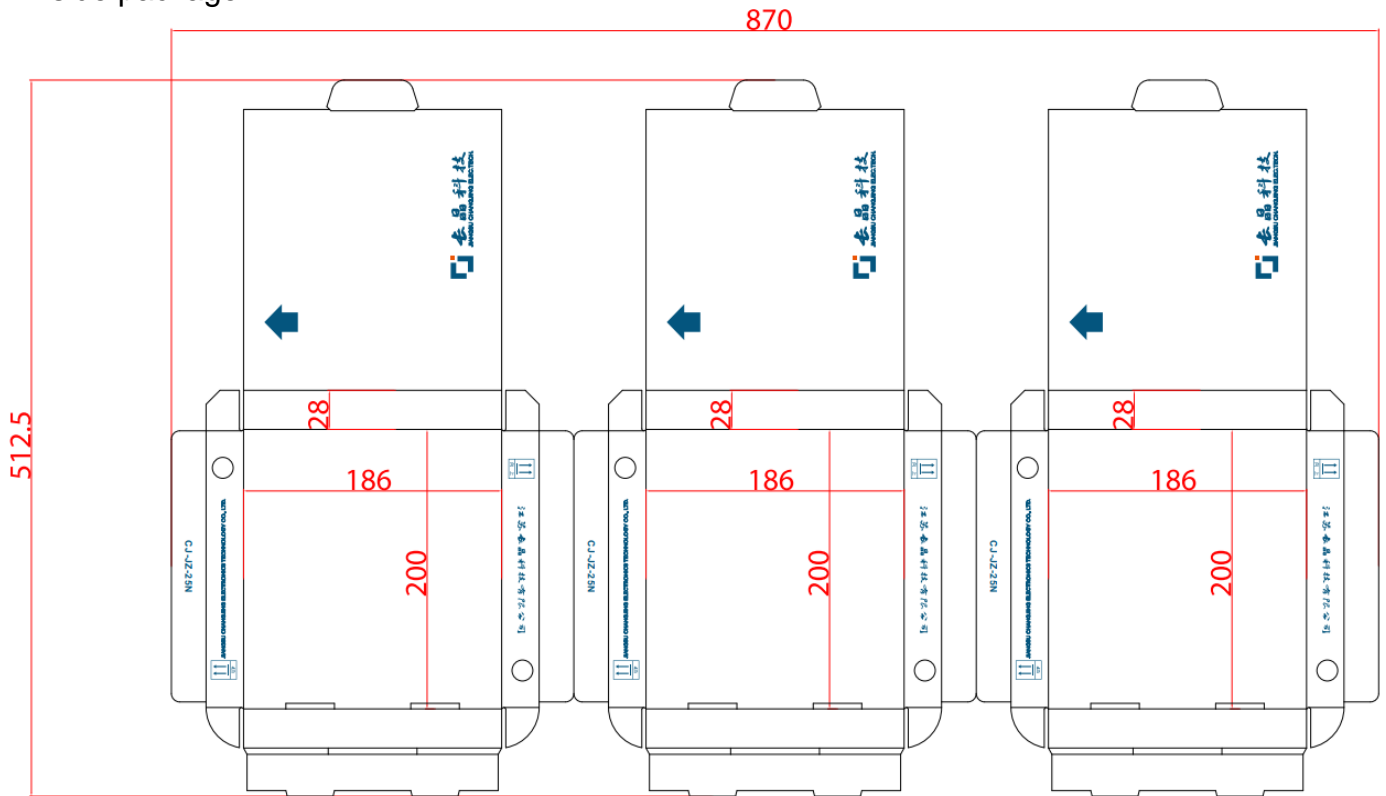


USER FEED DIRECTION

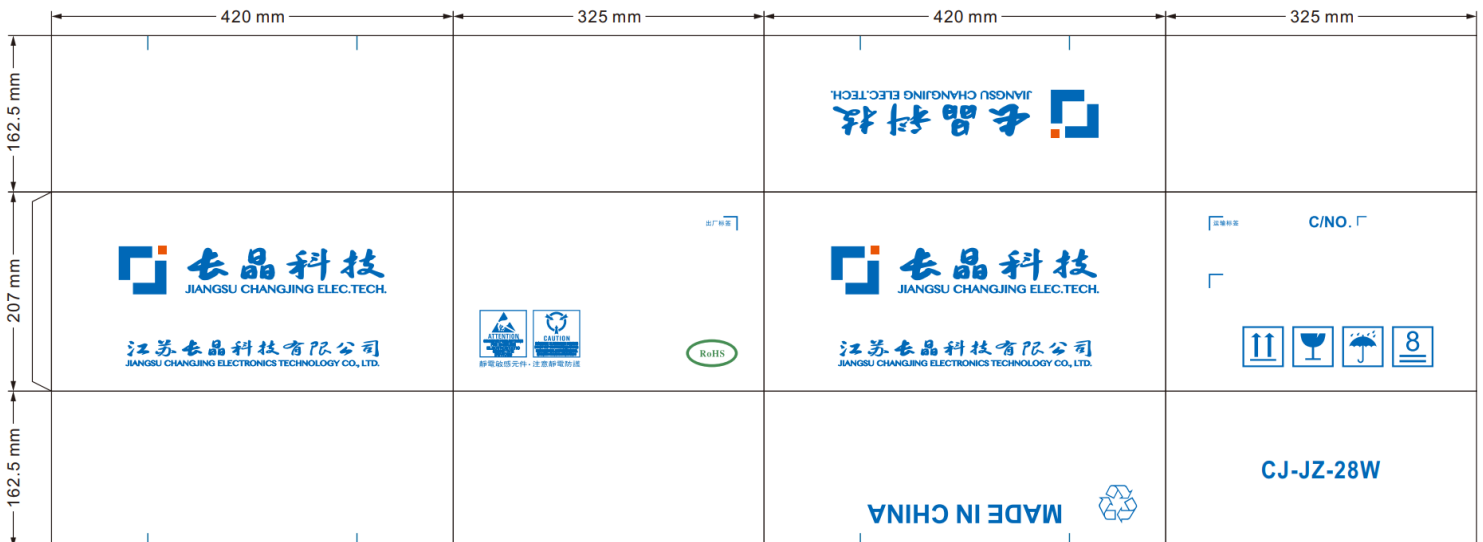


Package

Inside package



Outside package



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