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

产品规格书

SPECIFICATIONS FOR PRODUCT

产品类型 TYPE : **SMD3225**

产品规格 SPEC : **32.768MHz/3225/12PF/10PPM**

产品型号 P/N : **CJ13-327681210B20**

日期 DATE : **2021/05/06**

<table>
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R&D APPR. SIGNATURED</td><td rowspan="3">部门
DEPT.
频率器件事业部</td></tr>
<tr><td>拟制
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JIANGSU CHANGJING ELECTRONICS TECHNOLOGY CO., LTD

SMCE3225 4 pads Crystal Resonator

CJ13-327681210B20

1. Scope:

1.1 This specification applies to the RoHS/SONY compliance quartz crystal unit with a frequency of 32.768MHz 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):	32.768MHz
3.2	Load Capacitance(C_L):	12pF
3.3	Frequency Tolerance($\triangle f/f$):	±10ppm
3.4	Frequency Temperature Stability:	±20ppm
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}):	-40 to + 85℃
3.10	Storage Temperature Range(T_{STG}):	-55 to + 125°C
3.11	Insulation Resistance(IR):	＞500 M ohms
3.12	Aging($\triangle f_A$):	±3ppm per Year

4. Reliability Specifications

This is the quality control and quality assurance and reliability tests performance data for the RoHS/ SONYcompliance 32.768MHz 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%)

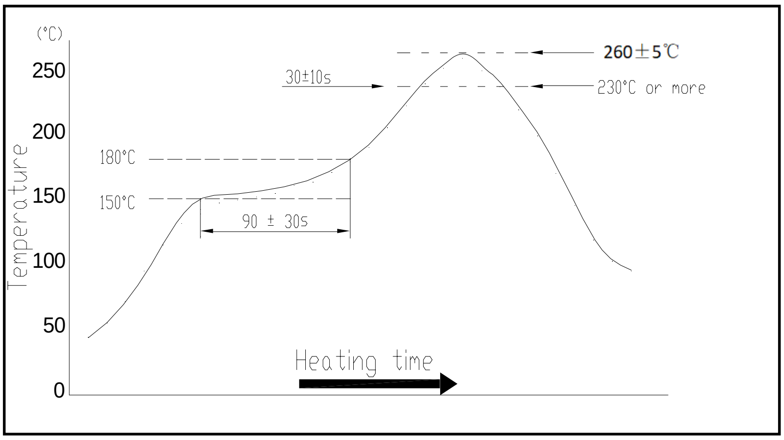
For any discrepancy in GO/NG, test will be done at TEMP.25±2°C, R.H. 65±5%.

NO.	PROCESS	SPECIFICATION	TEST METHOD
4.1	Temperature Cycle (GB/T 2423.22-2002, Method Nb)	Frequency change after test ≤± 5ppm.Resonance resistance change after test ≤10ohms.	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 ≤± 5ppm.Resonance resistance change after test ≤10ohms.	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 ≤± 5ppm.Resonance resistance change after test ≤10ohms.	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 ≤± 5ppm.Resonance resistance change after test ≤10ohms.	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 ≤± 5ppm.Resonance resistance change after test ≤10ohms.	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 ≤± 5ppm.Resonance resistance change after test ≤10ohms.and exhibit no visible damage.	Peak 1000m/s2, 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 ≤± 5ppm.Resonance resistance change after test ≤10ohms.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 betweein 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 ≤± 5ppm.Resonance resistance change after test ≤10ohms.	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		

5. Recommended Reflow soldering condition (SMD)

Solder profile

Peak: 260±5℃ Soldering zone: 230℃ or more, 30±10s. Pre-heating zone 1: 150～180℃, 90±30s

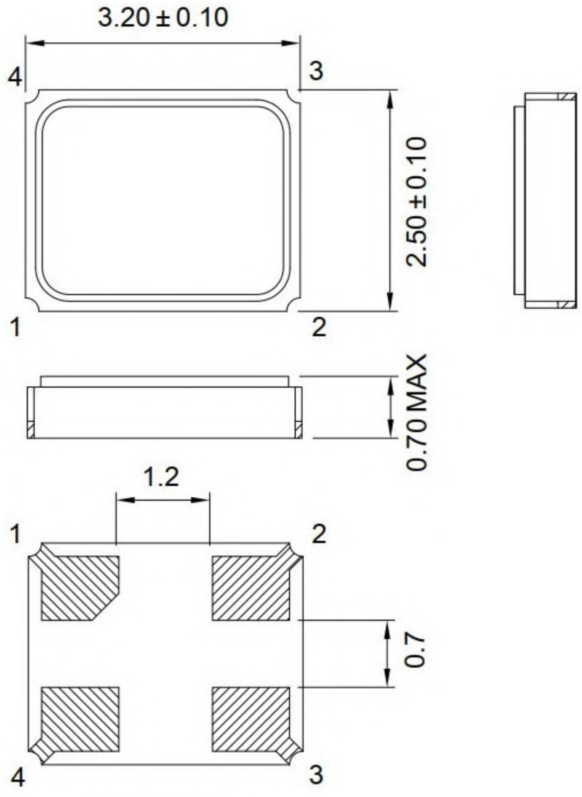


Temperature profile for reflow soldering

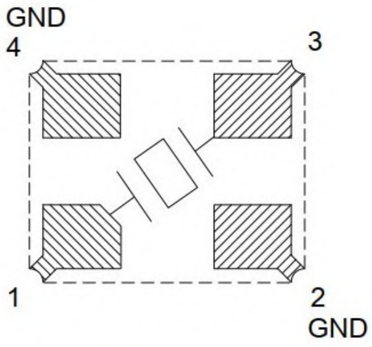
6. Soldering iron method

Bit temperature: 350±10℃ Application time of soldering iron:3+1 s. For other procedures, refer to IEC 60068-2-20.

Package Outline Dimensions

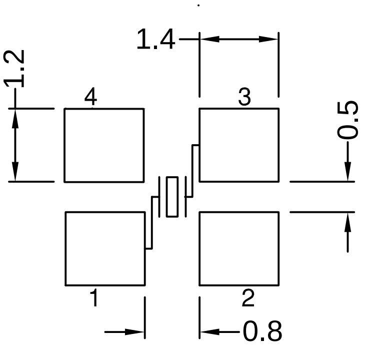


Bottom View

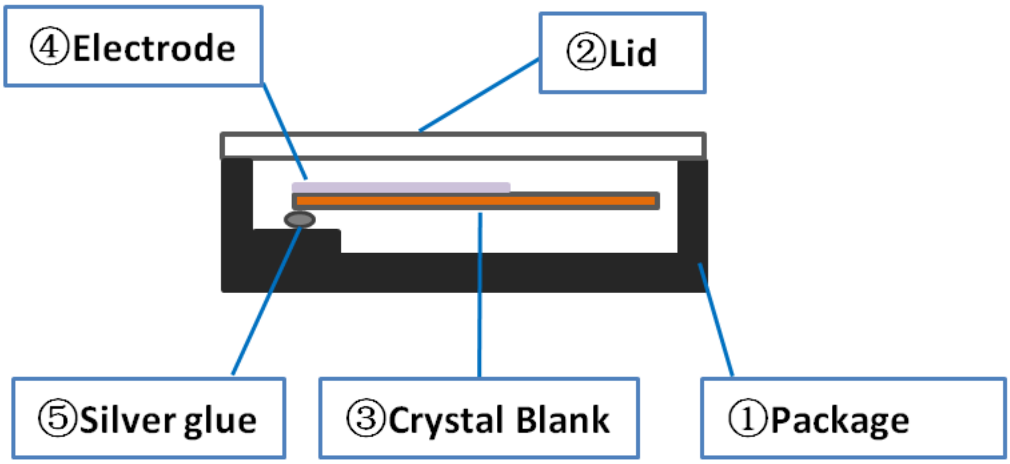


Internal View Connection

Suggested Pad Layout

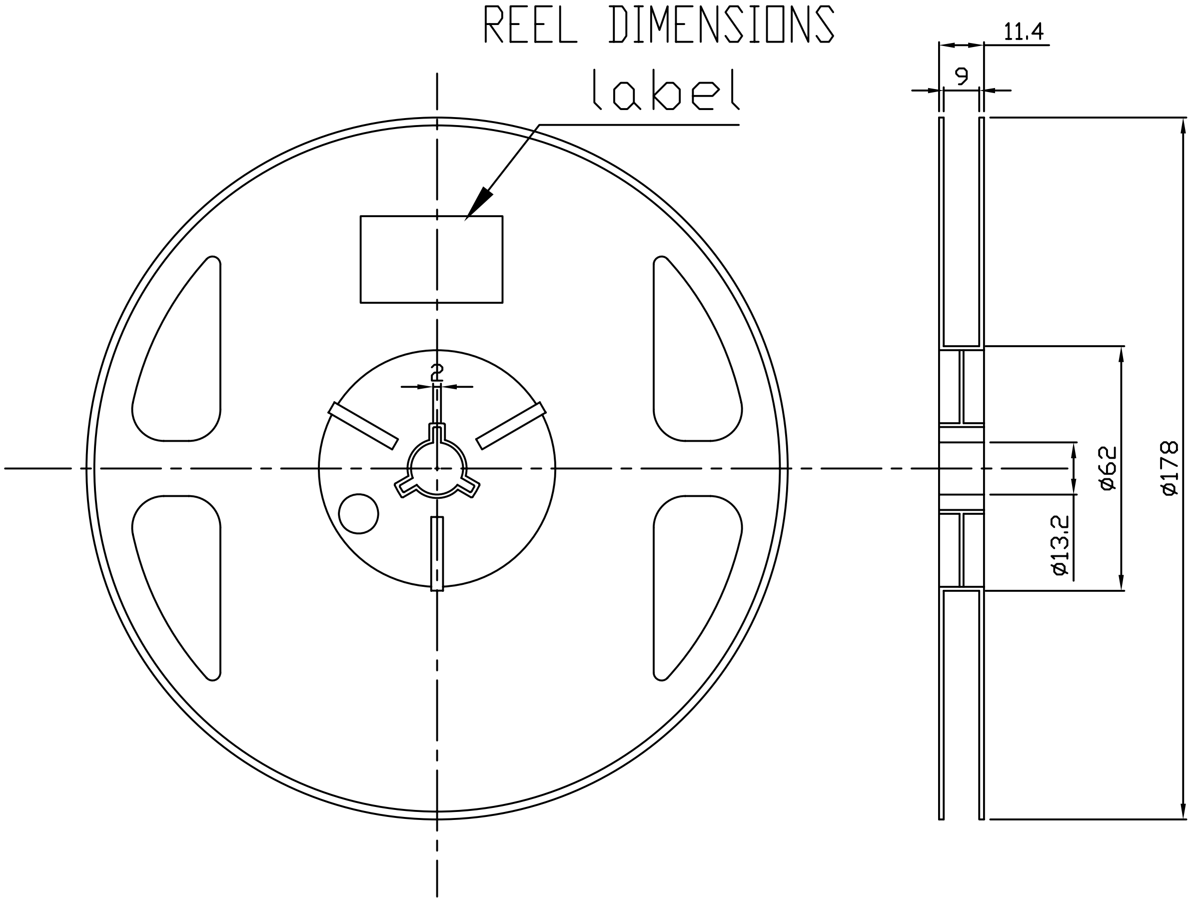


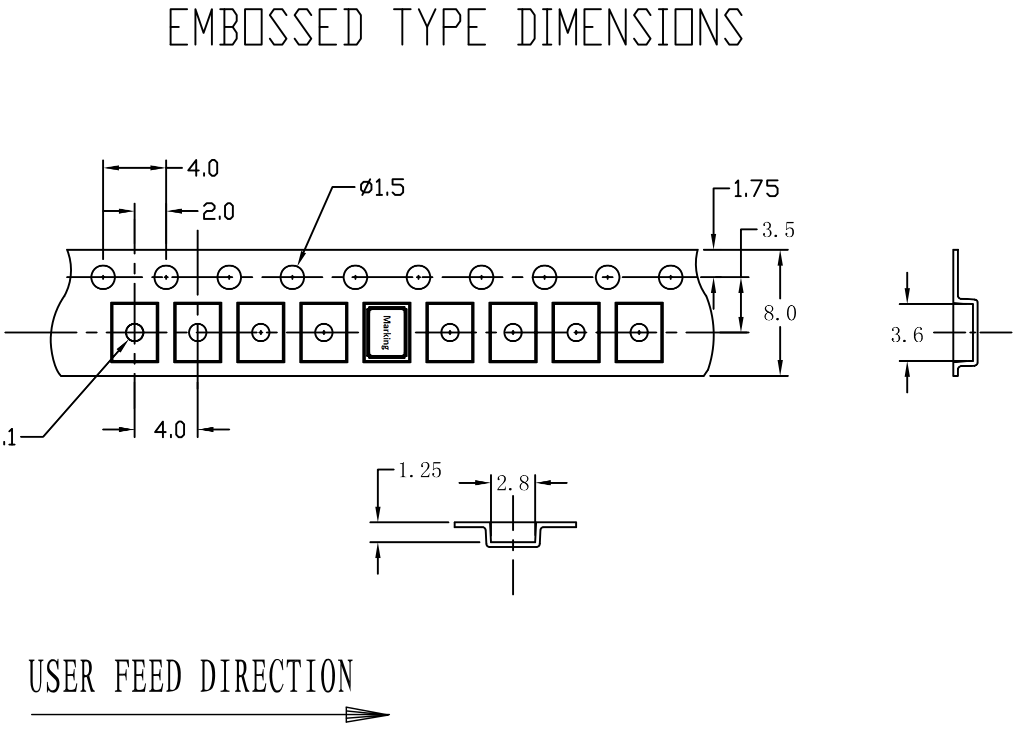
Inside Structure



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

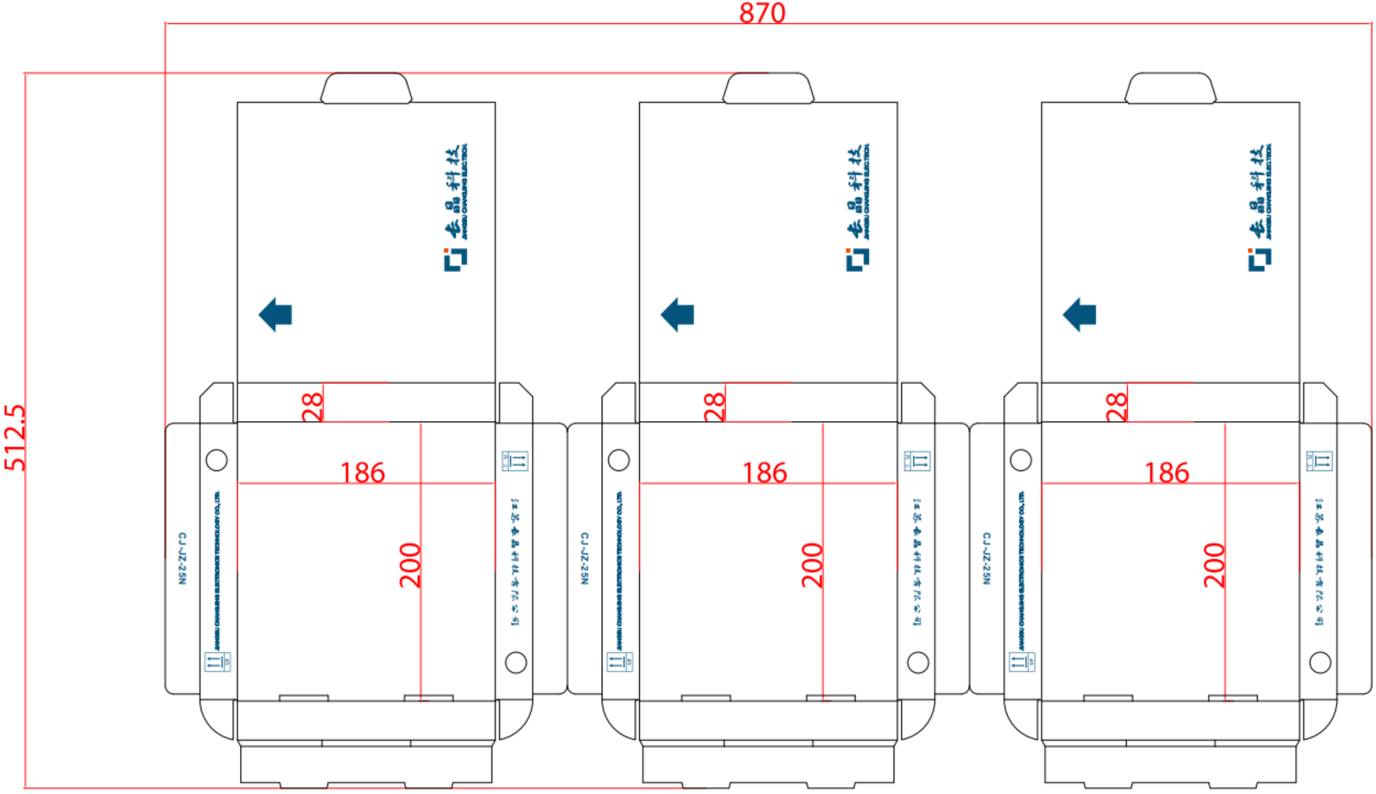
Tape and Reel



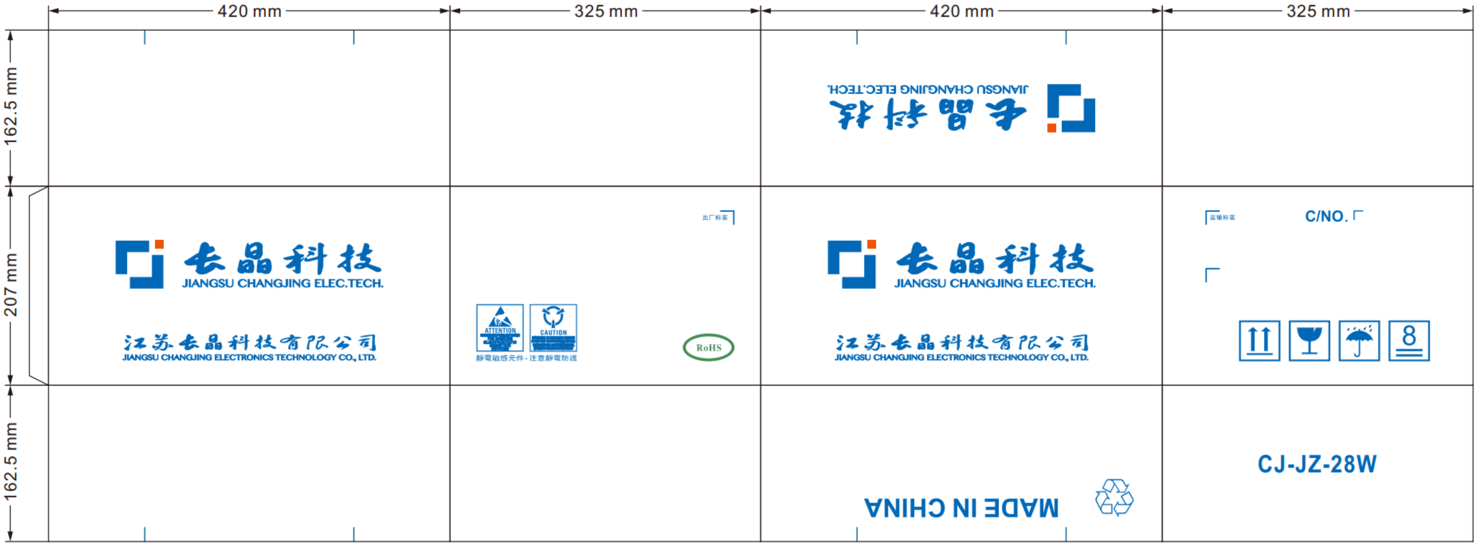


Package

Inside package



Outside package



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