



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 : SMD3225

产品规格 SPEC : 32.768MHz/3225/10PF/10PPM AEC-Q200

产品型号 P/N : AD-CJ13-327681010C30

日期 DATE : 2022/04/02

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 2022/04/02	Abbey 2022/04/02	Ken 2022/04/02	

江 苏 长 晶 科 技 股 份 有 限 公 司

JIANGSU CHANGJING ELECTRONICS TECHNOLOGY CO., LTD.

地址：中国江苏省南京江北新区产业技术研创园江淼路88号腾飞大厦C座13楼

Add: 13Th Floor, C Block, Tengfei Building, No. 88 Jiangmiao Rd. Pukou

District, Nanjing City, Jiangsu Province, China



SMCE3225 4 pads Crystal Resonator

AD-CJ13-327681010C30

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.
- 1.2 AEC-Q200 qualified

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): 10pF
- 3.3 Frequency Tolerance($\Delta f/f$): ± 10 ppm
- 3.4 Frequency Temperature Stability: ± 30 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): <100 μ W
- 3.9 Operating Temperature Range(T_{OPR}): -40 to + 105
- 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/

AEC-Q200 compliance 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%)

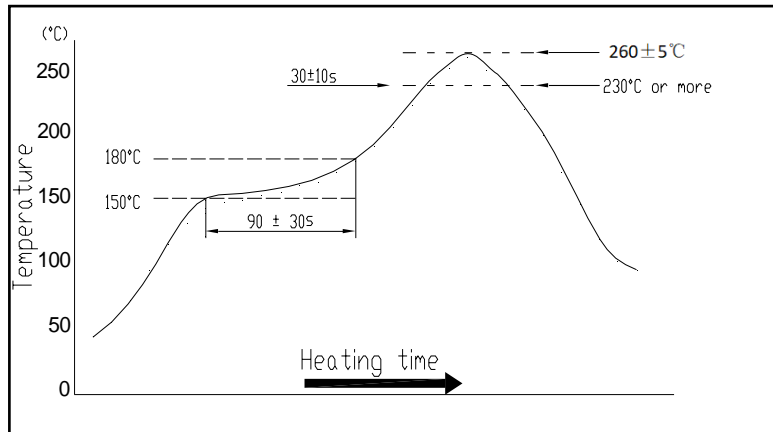
For any discrepancy in GO/NG, test will be done at TEMP.25±2°C, R.H. 65±5%.

NO.	PROCESS	SPECIFICATION	TEST METHOD
4.1	Temperature Cycle	Frequency change after test ± 5 ppm.Resonance resistance change after test ≤ 5 ohms.	1000 cycles from -40°C to 125°C. Measurement taken after DUT being left at room temperature for 24±2 hours.
4.2	High Temperature Storage	Frequency change after test ± 5 ppm.Resonance resistance change after test ≤ 5 ohms.	Spending 1000 hrs at 85°C±3°C constant temperature. Measurement taken after DUT being left at room temperature for 24±2 hours.
4.3	Biased Humidity	Frequency change after test ± 5 ppm.Resonance resistance change after test ≤ 5 ohms.	Spending 1000 hrs at 85 °C ± 3 °C, with 85%R.H, Then keep the DUT in dry oven at 25 ± 5 °C for 24 hour. Measurement taken after DUT being left at room temperature for 1 to 2 hours.
4.4	Operational Life	Frequency change after test ± 5 ppm.Resonance resistance change after test ≤ 5 ohms.	Spending 1000 hrs at 125°C±3°C constant temperature. Measurement taken after DUT being left at room temperature for 24±2 hours.
4.5	Vibration	Frequency change after test ± 5 ppm.Resonance resistance change after test ≤ 5 ohms.	Apply 1.52mm vibration at sweep frequency 10~2000Hz, 5g's for 20min 12 cycles in each direction of 3 axis. Measurement taken after 1 hour.
4.6	Mechanical Shock	Frequency change after test ± 5 ppm.Resonance resistance change after test ≤ 5 ohms.and exhibit no visible damage.	Peak 100gal, normal width 6ms half sine wave form, 3.7m/s, 3 cycles / direction. Measurement taken after 1 hour.
4.7	Solderability	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 5s ±0.5s between 240 and 250°C. There is no need to do functional test. 8-12X magnifier.
4.8	Terminal Strength	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.
4.9	Resistance to Soldering Heat	Frequency change after test ± 5 ppm.Resonance resistance change after test ≤ 5 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 10s max at 265°C max. Measurement taken after DUT being left at room temperature for at least 2 hours.
4.10	OTHERS		

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

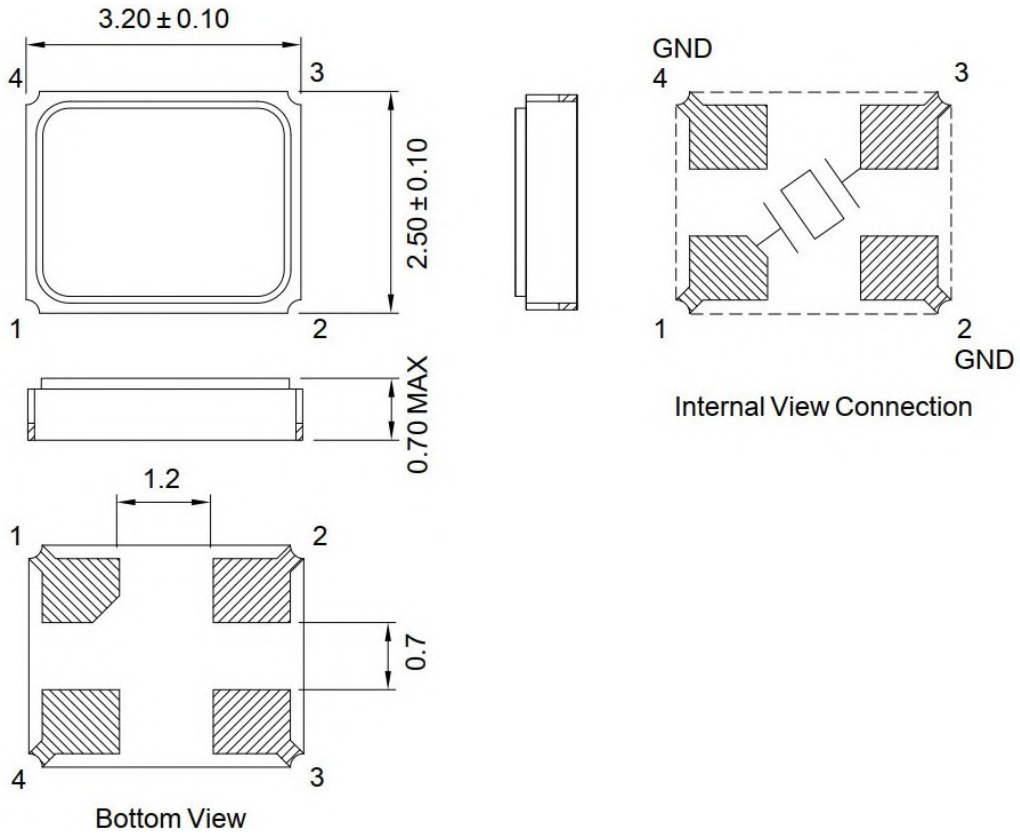


Temperature profile for reflow soldering

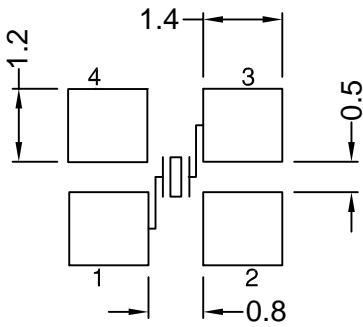
6. Soldering iron method

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

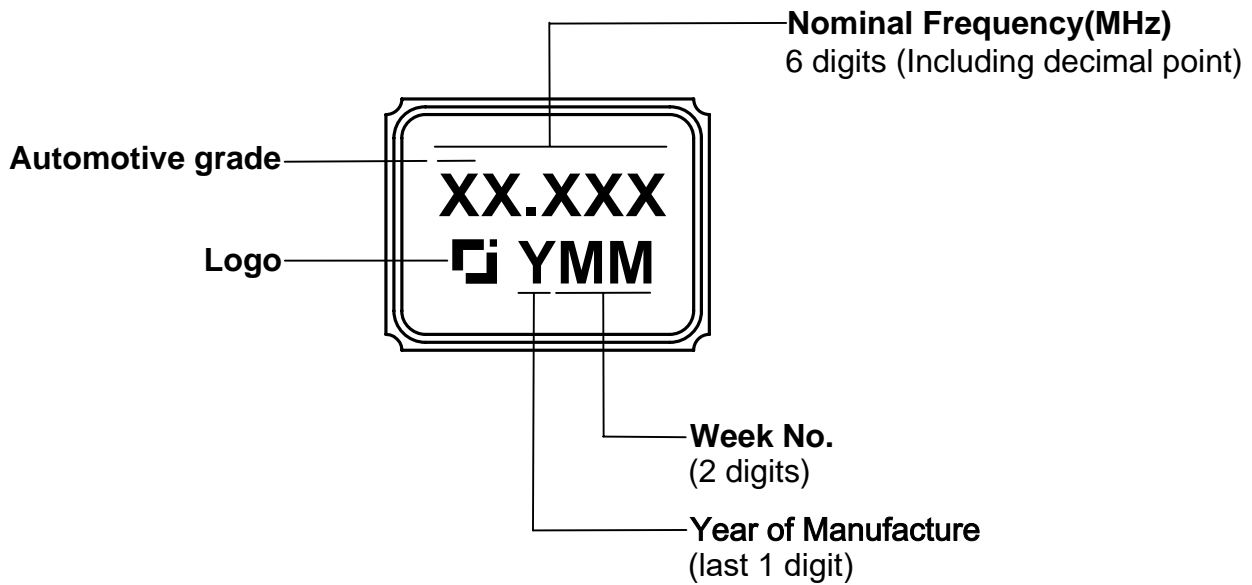


Suggested Pad Layout

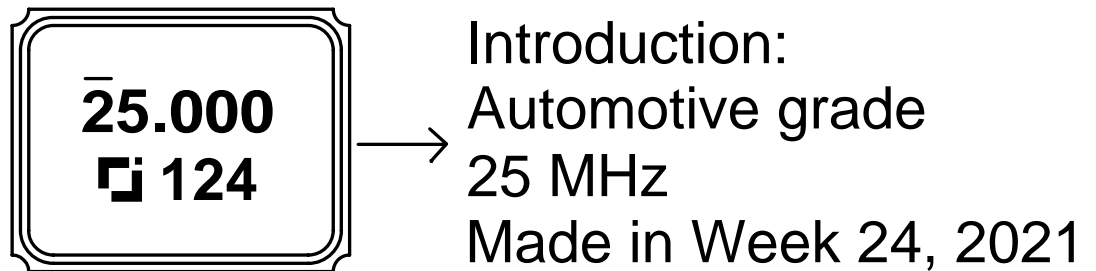


Marking

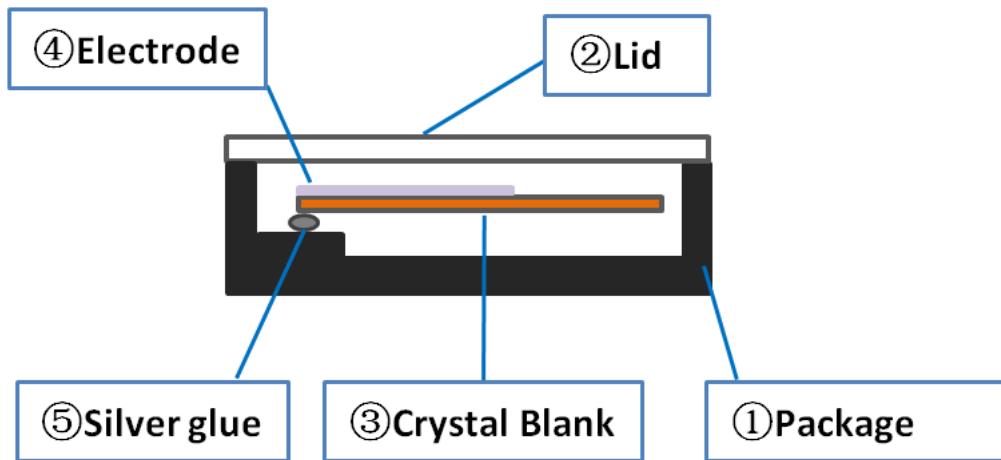
Procedure: Laser



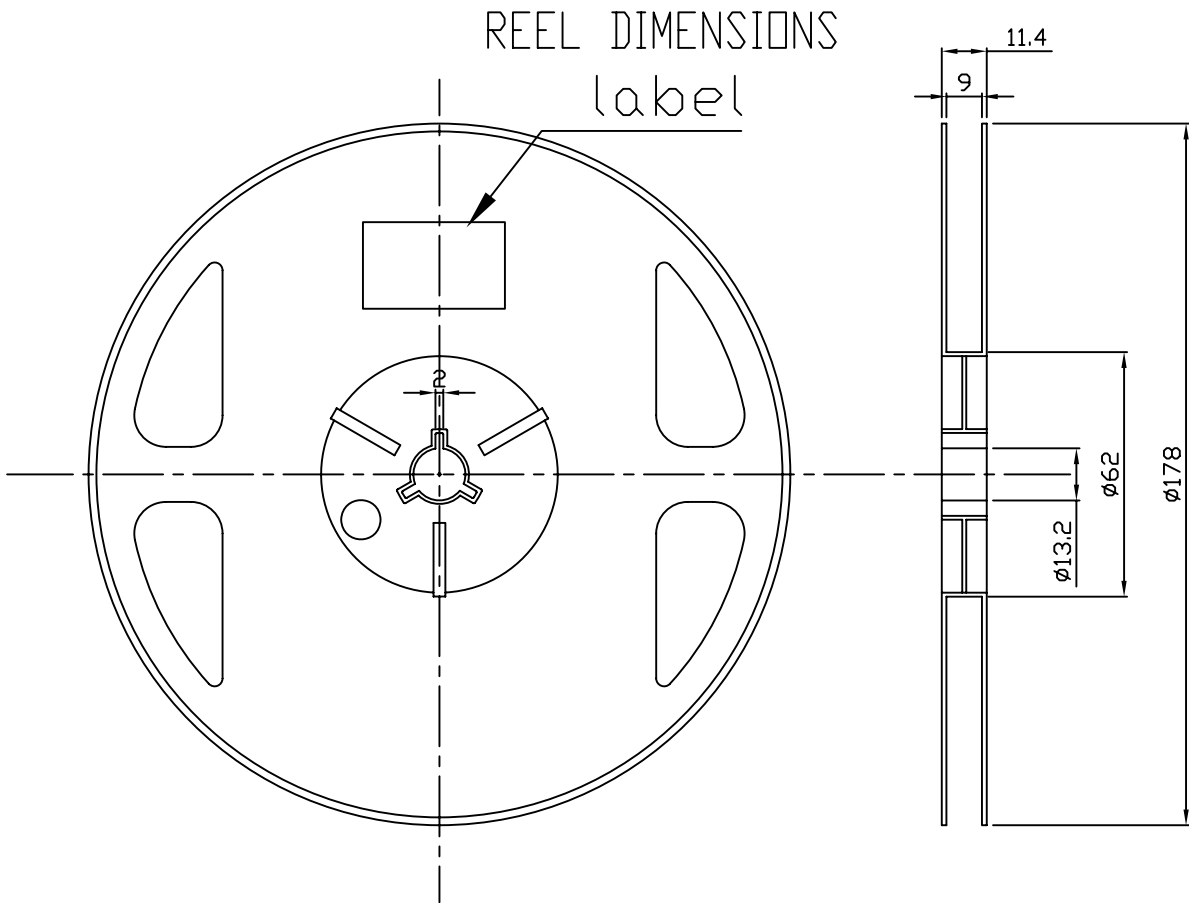
For example:



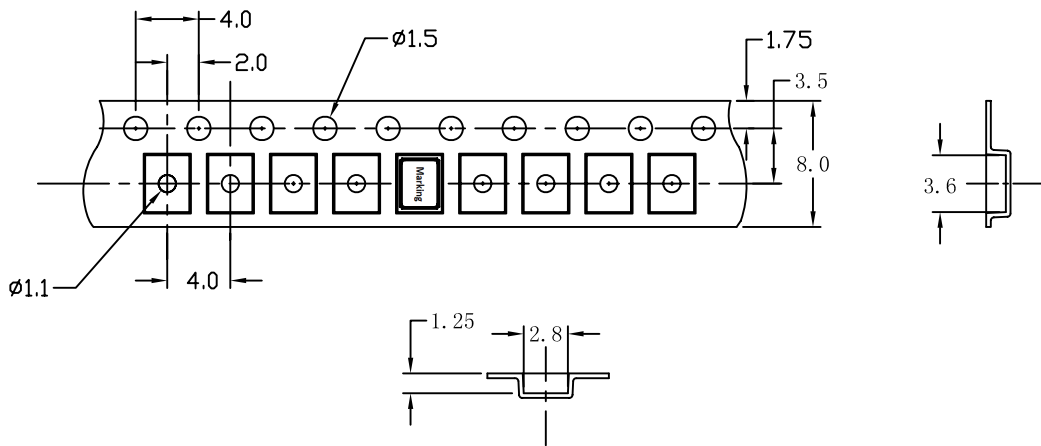
Inside Structure



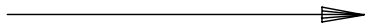
No.	Components	Materials
1	Package	Ceramic(Al_2O_3)
2	Lid	KV(Fe/Ni/Co)
3	Crystal blank	SiO_2
4	Electrode	Ag, Cr
5	Silver glue	Ag, CH_3OH , SiO_2



EMBOSSED TYPE DIMENSIONS

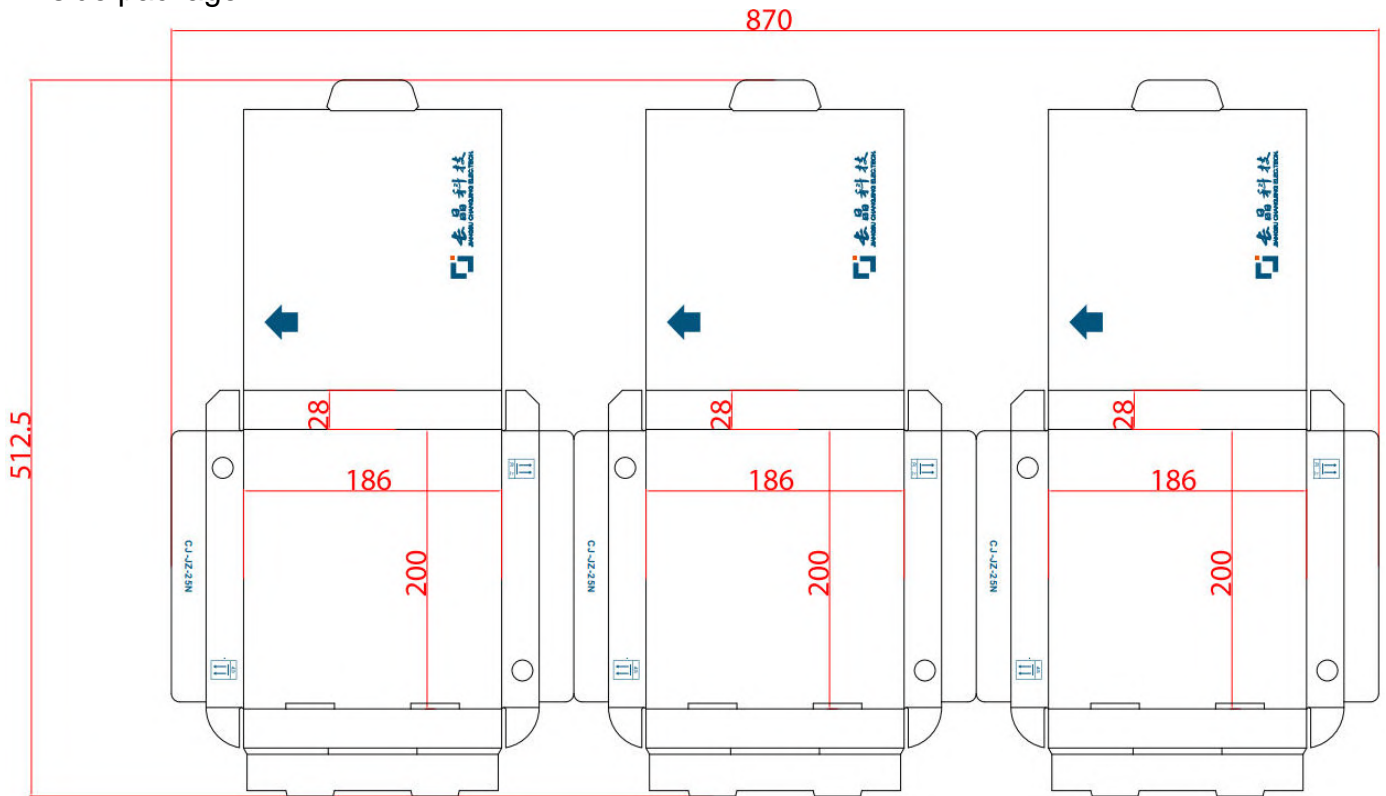


USER FEED DIRECTION

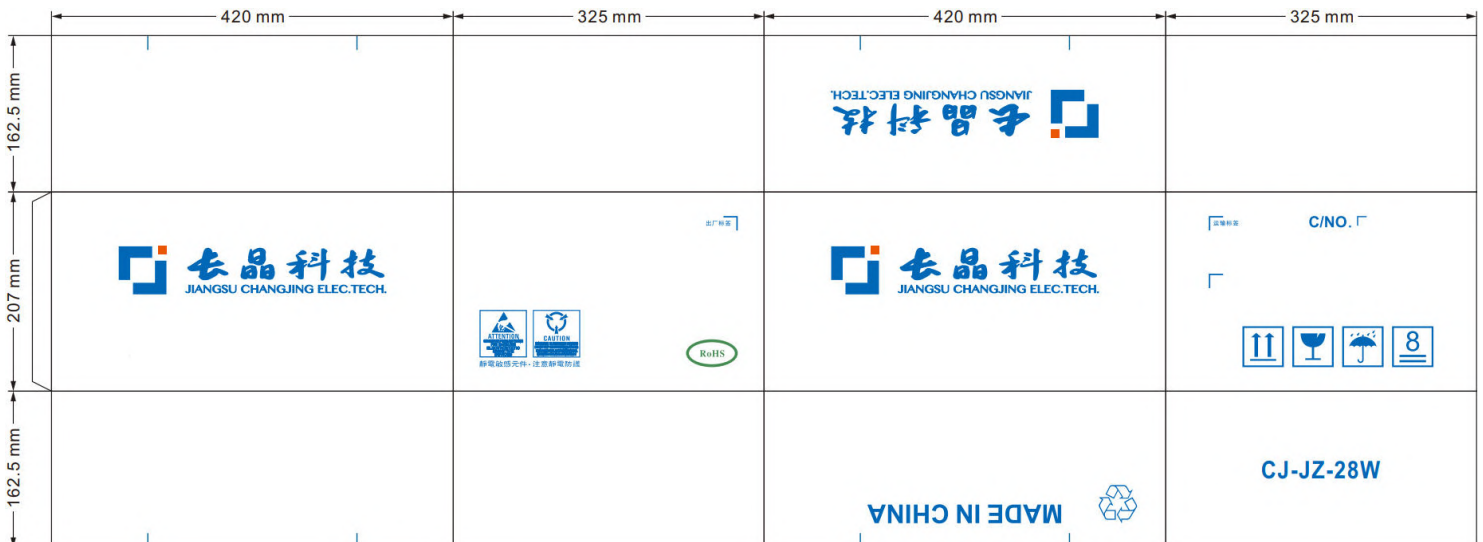


Package

Inside package



Outside package



NOTICE

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