



深圳市科源信科技有限公司  
Shenzhen KeYuanXin Technology CO., LTD

# 产品规格书

**SPECIFICATION FOR APPROVAL**

深圳市福田区振华路 118 号华丽装饰一栋西座 306A  
306A Block West Building 1, Huali Decoration  
NO. 118 Zhenhua Road Futian District Shenzhen  
电话 TEL: 400873553 传真 FAX: 0755-23616323



Product Name:

Crystal

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Product Type:

SMD3225

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Nominal Freq:

24.0000MHz

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ProvideBrand:

KKST

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P/N:

KAE24000H01R

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Customer P/N:

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Approved By Customer

**Signature:**

**Date:**

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## CONTENT

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NO.3 Product reliability

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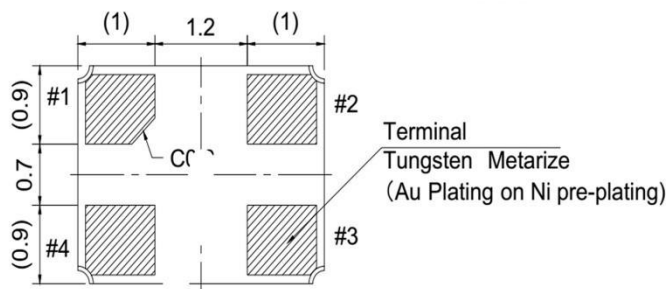
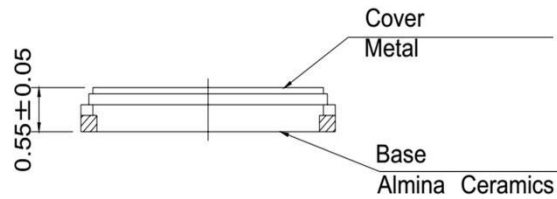
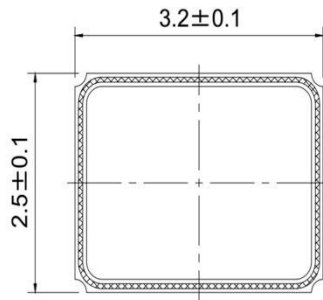


## N0.1 Product specification and features

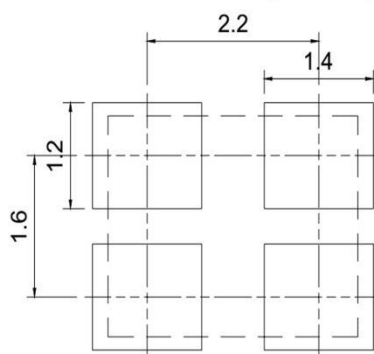
|                                     |                            |
|-------------------------------------|----------------------------|
| <b>1.1 General characteristics</b>  |                            |
| Nominal frequency                   | 24.000000 MHz              |
| Overtone order                      | Fundamental                |
| Type                                | SMD3225                    |
| Operating temperature               | -20~70 °C                  |
| Storage temperature                 | -40~85 °C                  |
| <b>1.2 Electric characteristics</b> |                            |
| Adjustment tolerance: (at+25°C)     | ±10 ppm                    |
| Tolerance over the temperature:     | ±20 ppm                    |
| Load capacitance                    | 20.0 pF                    |
| Drive level                         | 100.0 μW                   |
| Equivalent resistance               | 40.0 Ω Max                 |
| Shut capacitance                    | 3.0pF Max                  |
| Insulation resistance               | 500 M Ω Min 100VDC ± 15VDC |
| Aging                               | ±3ppm/Year                 |
| <b>1.3 Other characteristics</b>    |                            |
| SPDB                                | <-3 dB                     |

## NO.2 Outline dimensions、Appearances

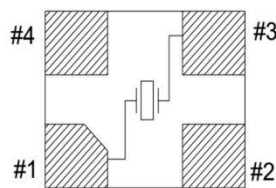
### 2.1 Product outline dimension(mm)



LAND PATTERN (TYPICAL)

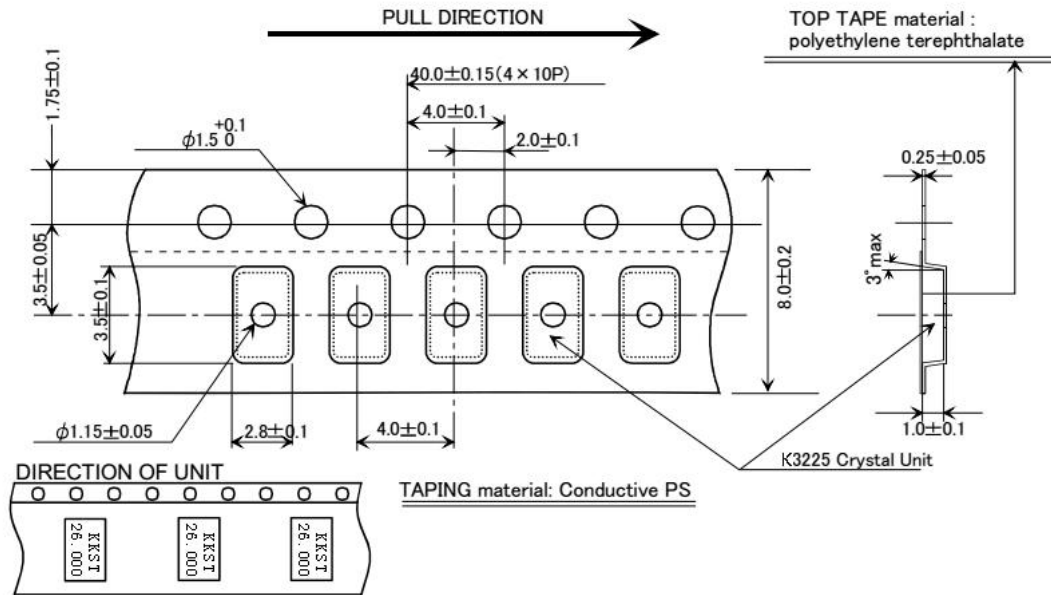


PIN CONNECTION(TOP VIEW)

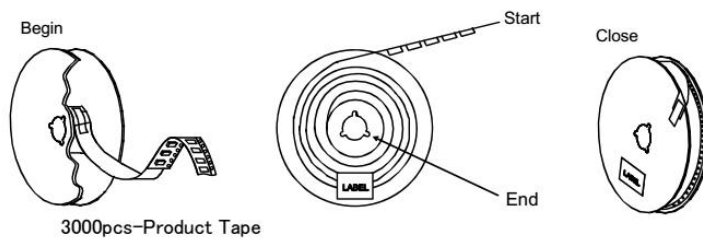
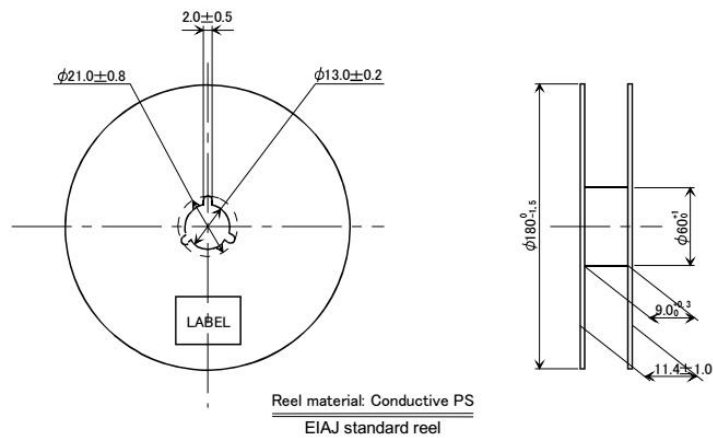


- ※ #1,#3 : Xtal
- #2,#4 : GND (CONNECTION COVER)

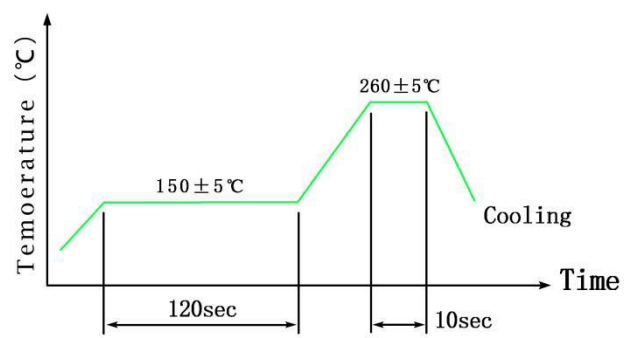
### 2.2 Carrier Dimensional Drawing (mm)



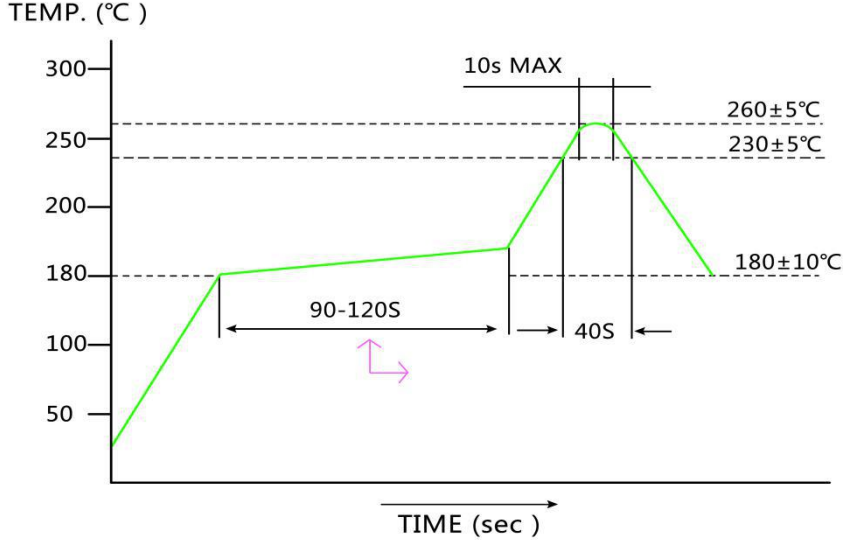
### 2.3 Reel Dimensional Drawing (mm)



### NO.3 Product reliability

| Item | Condition   | Result |
|------|---|--------|
| A1   | <b>Cold resistance</b><br>Stored at $-40\pm 2^{\circ}\text{C}$ for $1000\pm 2$ hrs then $25\pm 2^{\circ}\text{C}$ 1~2 hrs before testing  | (I)    |
| A2   | <b>Heat resistance</b><br>Stored at $85\pm 2^{\circ}\text{C}$ for $1000\pm 2$ hrs then $25\pm 2^{\circ}\text{C}$ 1~2 hrs before testing   | (I)    |
| A3   | <b>Salt Mist Test</b><br>Spray the $35^{\circ}\text{C}\pm 2^{\circ}\text{C}$ salt water (salt density 5%) to crystal for $48\pm 2$ hrs,then clean by water  | (I)    |
| A4   | <b>Humidity Resistance Result</b><br>Steady temperature: $60\pm 2^{\circ}\text{C}$ ;humidity: 90 ~ 95 % RH; time:500h   | (I)    |
| A5   | <b>Mechanical Shock</b><br>$14700\text{m/S}^2$ 0.5sec 5times in each of 6 direction   | (I)    |
| A6   | <b>Aging</b><br>Stored at $85\pm 3^{\circ}\text{C}$ for $720\pm 12$ Hrs then $25\pm 2^{\circ}\text{C}$ 1~2 Hrs before testing Stored at $25\pm 2^{\circ}\text{C}$ for $1\pm 0.03$ year  | (I)    |
| A7   | <b>Leakage</b><br>Fine leak: Helium leak test *JIS C 6701 10.6  | (V)    |
| A8   | <b>Temperature Cycle</b><br>$-40^{\circ}\text{C} \sim 85^{\circ}\text{C}$ , Dewell 30Min, 100 cycles<br> <p>The graph shows a temperature cycle with two dwell periods. The first dwell is at <math>150\pm 5^{\circ}\text{C}</math> for 120 seconds. The second dwell is at <math>260\pm 5^{\circ}\text{C}</math> for 10 seconds. The cooling phase is labeled 'Cooling'.</p> | (I)    |

3.1 Mechanism characteristics

|            |  |             |
|------------|--|-------------|
| <p>B.1</p> | <p><b>Drop Test</b><br/>Device are dropped from a height of 100 cm onto 20mm thickness stainless plate executing 3 times of random drops</p>   | <p>(I)</p>  |
| <p>B.2</p> | <p><b>Resistance of Vibration</b><br/>Frequency: 10~55Hz, amplitude(total excursion): 1.5mm±15%,3 direction (X,Y,Z) each 2 hr</p>  | <p>(I)</p>  |
| <p>B.3</p> | <p><b>Resistance to soldering heat (Hand soldering method)</b><br/>Temperature: 370~400°C; Time: 3~4sec;<br/>Frequency: 2 times; Soldering iron: 60W/Min</p>   | <p>(I)</p>  |
| <p>B.4</p> | <p><b>Solderability</b><br/>240±2°C, 3±0.5sec</p>  | <p>(II)</p> |
| <p>B.5</p> | <p><b>Reflow) Resistance to soldering heat (Reflow)</b><br/>260± 5°C; 10S; 2Times</p> <p style="text-align: center;">Reflow</p>  <p>TEMP. (°C)</p> <p>300</p> <p>250</p> <p>200</p> <p>180</p> <p>100</p> <p>50</p> <p>10s MAX</p> <p>260±5°C</p> <p>230±5°C</p> <p>180±10°C</p> <p>90-120S</p> <p>40S</p> <p>TIME (sec)</p> | <p>(I)</p>  |





| Item | Result NO. | Specification Requirements   |
|------|------------|--|
| 1    | ( I )      | Frequency variation $\leq \pm 10\text{ppm}$<br>Resistance variation $< 5\Omega$ or 15% of RR spec.,<br>select the bigger value         |
| 2    | ( II )     | The covering rate of Tin-plating is more than 95%  |
| 3    | ( III )    | There is no bubbles after the Crystal is dipped in the<br>water Insulation Resistance: 500 $M\Omega$ Min<br>100VDC/ $\pm 15\text{VDC}$ |
| 4    | ( IV )     | The Crystal is no crackle under the observation of 10<br>times Magnifier.  |
| 5    | ( V )      | $1 \times 10^{-9}\text{Pa}\cdot\text{m}^3/\text{s}$ Max  |

## NO.4 Package specification

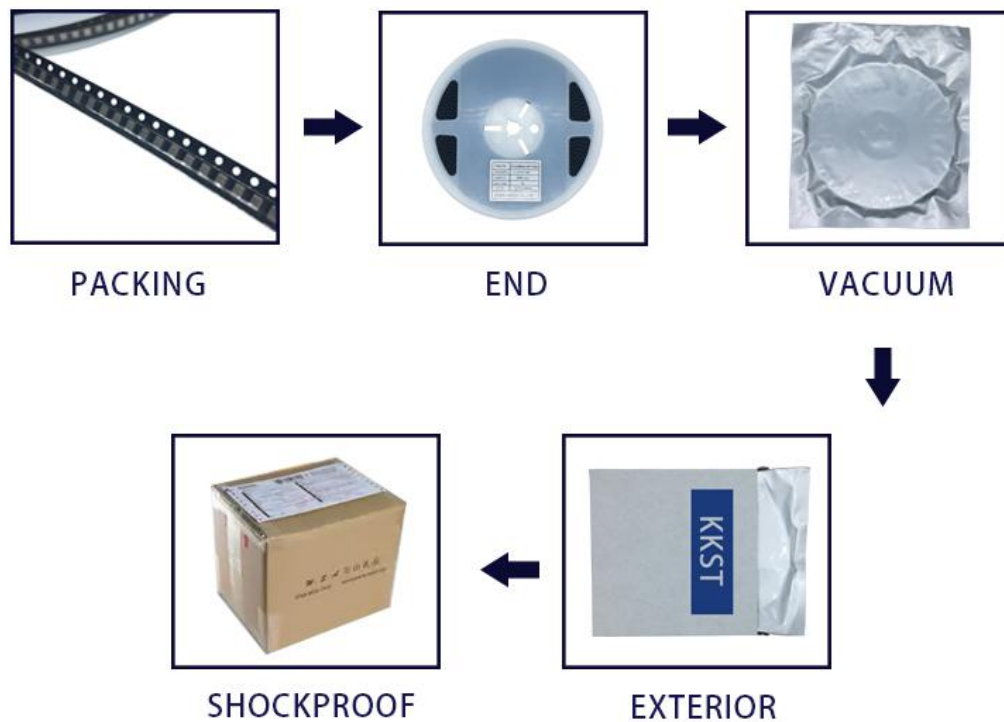
### 4.1 Marking



### 4.2 Label

| KKST KEYUANXIN TECHNOLOGY GO.,LTD |              |                    |
|-----------------------------------|--------------|--------------------|
| Item                              | Crystal      | QTY:<br>3000PCS    |
| P/N                               | KAE24000H01R |                    |
| FREQUENCY                         | 24.000MHz    | DATE:<br>2017-10-9 |
|                                   |              |                    |

### 4.3 Package specification





KEYUANXIN TECHNOLOGY GO.,LTD

**浏览网址:WWW.SZKYX.CN**