



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**

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KEYUANXIN TECHNOLOGY GO.,LTD

Product Name: Crystal

Product Type: SMD 2520

Nominal Freq: 32.0000MHz

ProvideBrand: KKST

P/N: KAD32000C01R

Customer P/N:

Approved By Customer

Signature:

Date:



## **CONTENT**

**NO.1      Product specification and features**

**NO.2      Product outline dimension**

**NO.3      Product reliability**

**NO.4      Package specification**

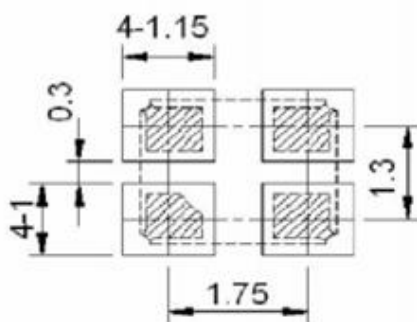
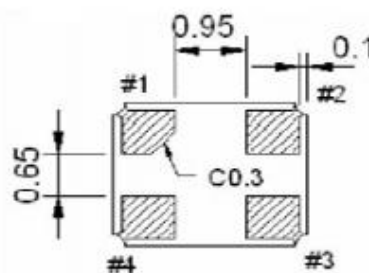
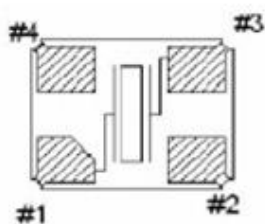
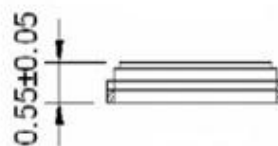
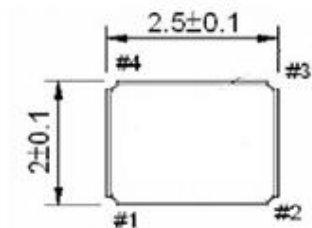


## N0.1 Product specification and features

|                                     |                            |
|-------------------------------------|----------------------------|
| <b>1.1 General characteristics</b>  |                            |
| Nominal frequency                   | 32.000000 MHz              |
| Overtone order                      | Fundamental                |
| Type                                | SMD2520                    |
| 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                    | 12.0 pF                    |
| Drive level                         | 10.0 μW                    |
| Equivalent resistance               | 40.0 Ω Max                 |
| Shut capacitance                    | 7.0pF Max                  |
| Insulation resistance               | 500 M Ω Min 100VDC ± 15VDC |
| Aging                               | ±3ppm/Year                 |
| <b>1.3 Other characteristics</b>    |                            |
| SPDB                                | <-3 dB                     |

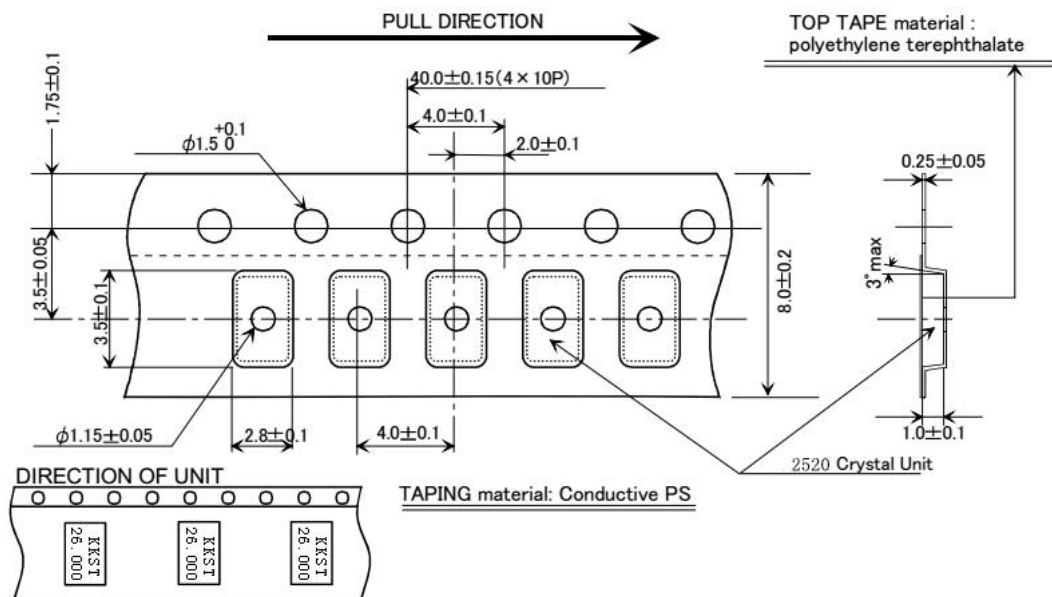
## NO.2 Outline dimensions、Appearances

### 2.1 Product outline dimension(mm)

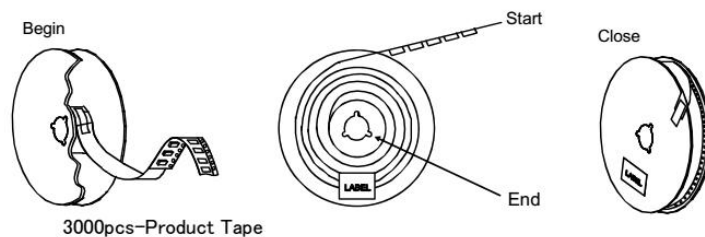
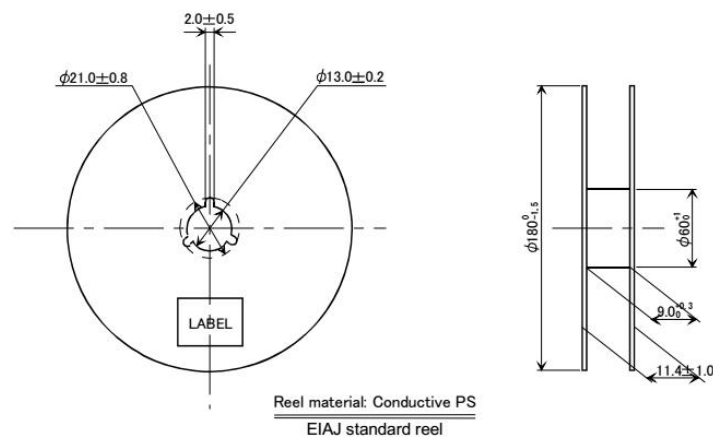




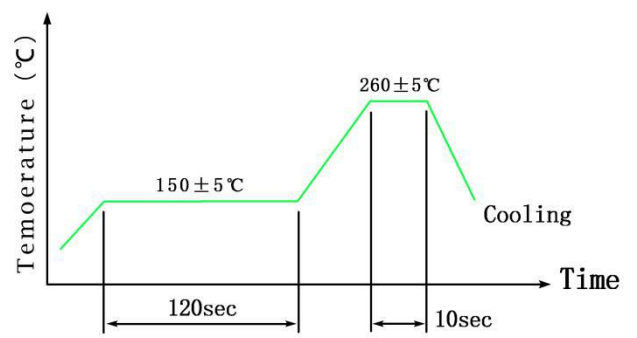
## 2.2 Carrier Dimensional Drawing (mm)



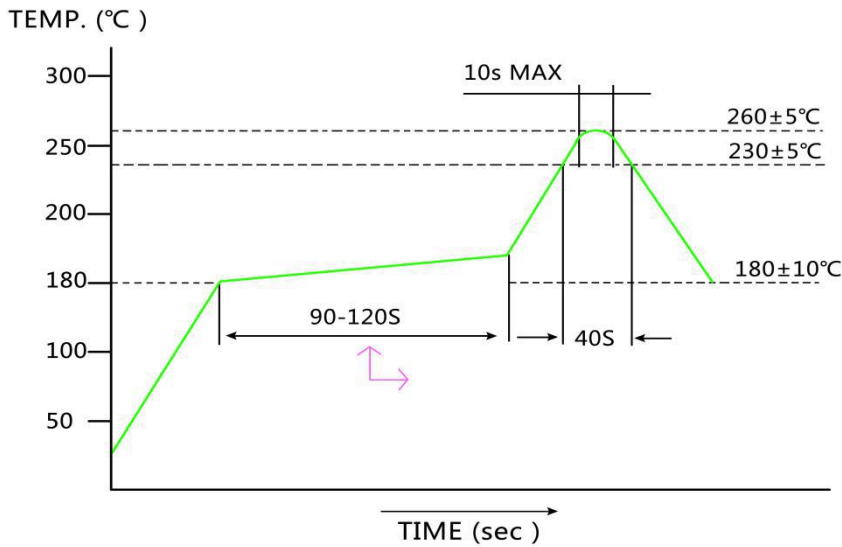
## 2.3 Reel Dimensional Drawing (mm)



## 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 Temperature (°C) on the y-axis and Time on the x-axis. The cycle consists of three segments: a heating ramp to <math>150\pm 5^{\circ}\text{C}</math>, a dwell at <math>150\pm 5^{\circ}\text{C}</math> for 120sec, and a heating ramp to <math>260\pm 5^{\circ}\text{C}</math>. The dwell at <math>260\pm 5^{\circ}\text{C}</math> is indicated by a vertical line, and the cooling ramp is labeled 'Cooling' with a duration of 10sec.</p> | (I)    |

## 3.1 Mechanism characteristics

|     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |      |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| B.1 | <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                                                                                                                                                                                                                                                                                                                                                                                                                                                               | (I)  |
| B.2 | <b>Resistance of Vibration</b><br>Frequency: 10~55Hz, amplitude(total excursion): 1.5mm±15%,3 direction (X,Y,Z) each 2 hr                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | (I)  |
| B.3 | <b>Resistance to soldering heat (Hand soldering method)</b><br>Temperature: 370~400℃; Time: 3~4sec;<br>Frequency: 2 times; Soldering iron: 60W/Min                                                                                                                                                                                                                                                                                                                                                                                                                                                 | (I)  |
| B.4 | <b>Solderability</b><br>240±2℃, 3±0.5sec                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | (II) |
| B.5 | <b>Reflow) Resistance to soldering heat (Reflow)</b><br>260± 5℃; 10S; 2Times<br>Reflow<br> <p>The graph shows a temperature profile for reflow soldering. The y-axis is labeled 'TEMP. (°C)' with values from 50 to 300. The x-axis is labeled 'TIME (sec)' with values from 0 to 120. The profile starts at 50°C, rises to 180°C in 90-120S, then rises to a peak of 260±5°C in 10s MAX, and finally cools back to 180±10°C in 40S. A pink double-headed arrow indicates the 90-120S dwell time at 180°C.</p> | (I)  |





| 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

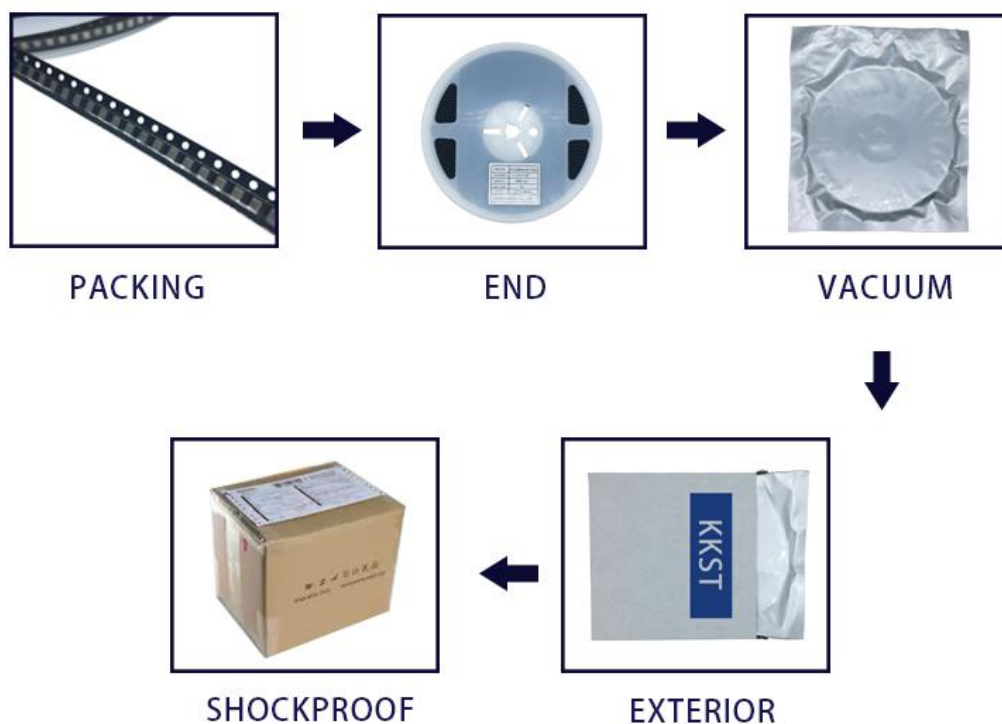
### 4.1 Marking



### 4.2 Label

| KKST KEYUANXIN TECHNOLOGY GO.,LTD |              |                     |
|-----------------------------------|--------------|---------------------|
| Item                              | Crystal      | QTY:<br>3000PCS     |
| P/N                               | KAD32000C01R |                     |
| FREQUENCY                         | 32.000MHz    | DATE:<br>2017-09-12 |
|                                   |              |                     |

### 4.3 Package specification





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