



## 深圳市凯越翔电子有限公司

### 石英谐振器规格书

产品名称:	石英晶振谐振器
产品型号:	MC-146/32.768KHZ
产品参数:	12.5PF/±30ppm
原厂型号:	KMC3276812530
凯越翔技术部:	董宗全

### 客 户 确 认 印 栏

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年 月 日	年 月 日

本规格章程连同本页共 4 页

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FAX:0755-89315223 官网: [www.kaiyuexiang.com](http://www.kaiyuexiang.com)

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SPECIFICATION FOR APPROVAL

Customer Name :

Customer Part No :

Product Name : TUNING FORK CRYSTAL

Part Description : MC-146 32.768KHZ 12.5PF / $\pm 30$ ppm ROHS

Date :

CUSTOMER APPROVED BY

1.ELECTRIC CHARAC:

- |  |  |
|--|--|
| 1. Frequency:                                  | 32.768 KHZ                                 |
| 2. Holder Type:                                | M6   |
| 3. Frequency Tolerance:                        | $\pm 30$ ppm at 25°C $\pm 2^\circ\text{C}$ |
| 4. Equivalent Series Resistance:               | 70 K $\Omega$ Max                          |
| 5. Storage Temperature Range:                  | -40°C T0 + 85°C                            |
| 6. Operating Temperature Range:                | -40°C T0 + 85°C                            |
| 7. Frequency Characteristics Over Temperatnre: | $\pm 20$ ppm -40°C T0 +85°C                |
| 8. Load Capacitance (CL):                      | 12.5 PF                                    |
| 9. Drive Level:                                | 1.0uW MAX                                  |
| 10. Shunt Capacitance:                         | 1.35PF MAX                                 |
| 11. Insulation Resistance:                     | 500M $\Omega$ Min at D.C. 100 V            |
| 12. Capacitance ratio                          | 650 max                                    |

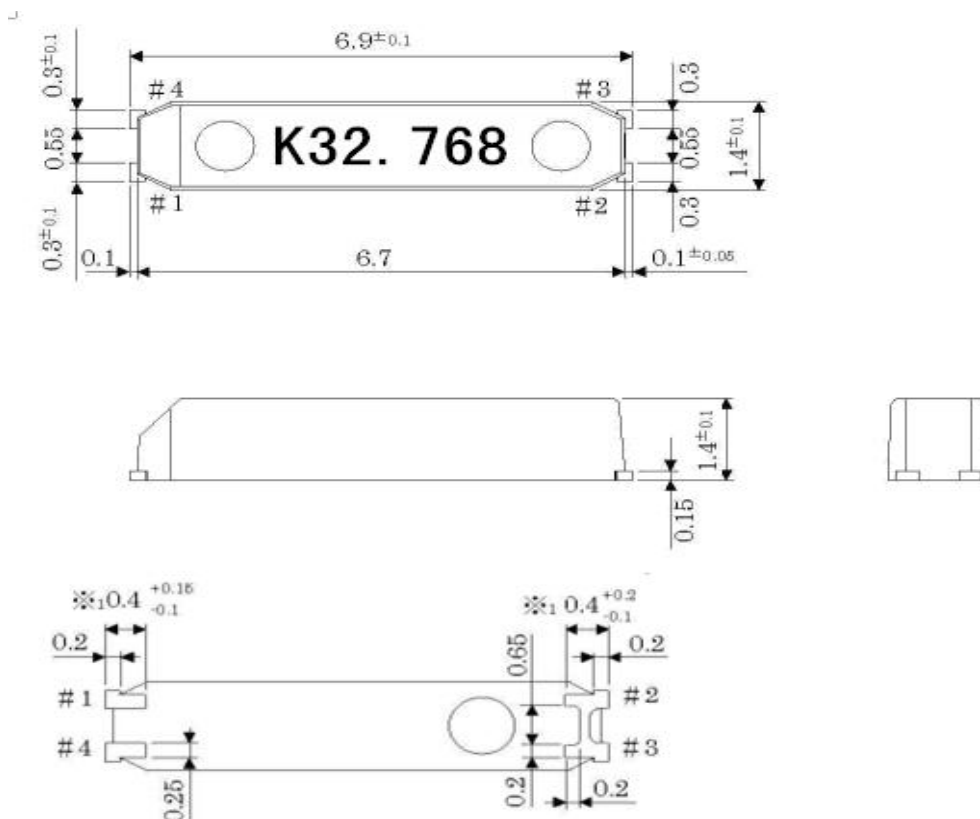
### 13. Aging:

 $\pm 3\text{ppm/Year}$ 

## 14. Marking

K32. 768

## 2.DIMENSION (MM)



### 3. PHYSICAL AND ENVIRONMENTAL CHARACTERISTICS

### 3-1. Humidity

Subject the crystal at  $40^{\circ}\text{C} \pm 2^{\circ}\text{C}$  and 90% - 95% RH for  $96 \pm 4$  hours. Then release the crystal into the room conditions for 1 hour prior to the measurement.

### 3-2. High Temperature Exposure

Subject the crystal to  $85^{\circ}\text{C} \pm 5^{\circ}\text{C}$  for  $96 \pm 4$  hours . Then release the crystal into the room conditions for 1hour prior to the measurement .

### 3-3. Low Temperature

Subject the crystal to  $-20^{\circ}\text{C} \pm 5^{\circ}\text{C}$  for  $96 \pm 4$  hours . Then release the crystal into the room conditions for 1hour prior to the measurement

### 3-4. Mechanical Shock

Drop the crystal randomly onto a concrete floor from the height of 75cm 3 times .

### 3-5. Temperature Cycling

Subject the crystal to  $-30^{\circ}\text{C}$  for 30 min. followed by a high temperature of  $+85^{\circ}\text{C}$  for 30 min. Cycling shall be repeated 5 times with a transfer time of 15 sec. at the room condition. Then release the resonator into the room temperature for 2 hours prior to the measurement.

### 3-6. Vibration

Subject the crystal to vibration for 2 hours each in x, y, and z axes with the amplitude of 1.5 mm, the frequency shall be varied uniformly between the limits of 10-55 Hz.

### 3-7. Resistance to Solder Heat

Dip the crystal terminals no closer than 2 mm into the solder bath  $260^{\circ}\text{C} \pm 5^{\circ}\text{C}$  for  $5 \pm 1$  sec; Then release the crystal into the room temperature for 1 hour prior to the measurement.

### 3-8. Solder Ability

Dip the crystal terminals no closer than 2 mm into the solder bath at  $235^{\circ}\text{C} \pm 5^{\circ}\text{C}$  for  $3 \pm 0.5$  sec. more than 95% of the terminal surface of the crystal shall be covered with fresh solder.

### 3-9. Lead Fatigue

#### 1) Pulling Test

Weight along with the direction of terminals without any shock 0.5 kg for  $10 \pm 1$  sec.; The crystal shall show no evidence of damage and shall fulfill all the initial electric characteristics.

#### 2) Bending Test

Lead shall be subject to withstand against 90 degree bending at its stem. This operation shall be done towards both directions; The crystal shall show no evidence of damage and shall fulfill all the initial electric characteristics.

## 4. REVIEW OF SPECIFICATION

When something gets doubtful with these specifications, we shall jointly work to get an agreement.

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