



## 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

认证印章	负责人印章
年 月 日	年 月 日

本规格章程连同本页共 4 页

工厂地址: 深圳市龙华区观澜人民路蔡发工业城 1 栋 4 层, TEL: 0755-89315823 89315866  
FAX:0755-89315223 官网: [www.kaiyuexiang.com](http://www.kaiyuexiang.com)

承 认 书  
SPECIFICATION FOR APPROVAL

Customer Name :

Customer Part No :

Product Name : TUNING FORK CRYSTAL

Part Description : MC-146 32.768KHZ 12.5PF /±30ppm ROHS

Date :

CUSTOMER APPROVED BY

**1.ELECTRIC CHARAC:**

- |  |                          |
|--|--------------------------|
| 1. Frequency:                                  | 32.768 KHZ               |
| 2. Holder Type:                                | M6                       |
| 3. Frequency Tolerance:                        | ±30 ppm at 25°C±2°C      |
| 4. Equivalent Series Resistance:               | 70 KΩ Max                |
| 5. Storage Temperature Range:                  | -40°C T0 + 85°C          |
| 6. Operating Temperature Range:                | -40°C T0 + 85°C          |
| 7. Frequency Characteristics Over Temperature: | ±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:                     | 500MΩ Min at D. C. 100 V |
| 12. Capacitance ratio                          | 650 max                  |

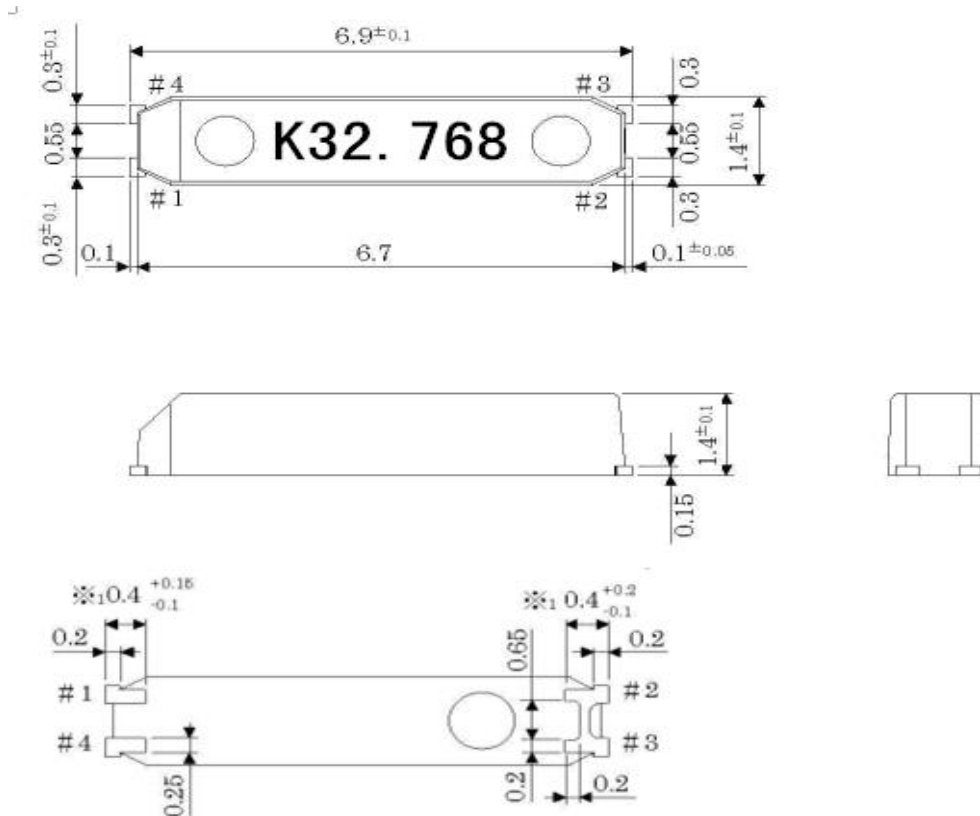
13. Aging:

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

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 1 hour 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 1 hour 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 5times with a transfer time of 15sec. at the room condition . Then release the resonator into the room temperature for 2hours prior to the measurement .

**3-6. Vibration**

Subject the crystal to vibration for 2hours each in x, y, and z axes with the amplitude of 1.5mm, 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 1hour 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 erminal 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 0.5kg for  $10\pm 1$ sec.; The crystal shall 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 direction; The crystal shall no evidence of damage and shall fulfill all the initial electric characteristics.

**4. REVIEW OF SPECIFICATION**

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

拟制	成望生	审核	董宗全	批准	谢为亮
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