



深圳市凯越翔电子有限公司

石英谐振器规格书

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|---------|---------------|
| 产品名称: | 石英晶体谐振器 |
| 产品型号: | 49US/4.000MHZ |
| 产品参数: | 20PF/±30ppm |
| 原厂型号: | KUS040002030 |
| 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合共 5 页

产品规格书

| | |
|-----------------------------------|--|
| 1.GENERAL | |
| 1.1 HOLDER TYPE | 49US |
| 1.2 MODE OF VIBRATION | AT CUT |
| 1.3 OSCILLATION MODE | FUND |
| 1.4 TEST FACILITIES | S&A KH-1240 |
| 1.5 STORAGE TEMPERATURE | -40℃ TO +85℃ |
| 1.6 DRIVER LEVEL | 100 μ W |
| 2.ELECTRICAL PARAMETER | |
| 2.1 NORMAL FREQUENCY | 4.000 MHz |
| 2.2 FREQUENCY TOLERANCE (25℃ ±2℃) | ±30ppm |
| 2.3 TEMPERATURE STABILITY | ±20ppm |
| 2.4 OPERATING TEMPERATURE RANGE | -20℃ TO +70℃ |
| 2.5 LOAD CAPACITANCE | 20 PF |
| 2.6 MOTIONAL CAPACITANCE | |
| 2.7 SHUNT CAPACITANCE | 5PF MAX |
| 2.8 EFFECTIVE SERIES RESISTANCE | 250 Ω MAX |
| 2.9 INSULATION RESISTANCE | 500M OHMS MIN AT DC 100V |
| 3.MECHANICAL PARAMETER | |
| 3.1 SOLDERABILITY | 95%COVERAGE BY USING 90/10 SOLD AT 245℃ FOR 5 SEC. DIPPING AFTER IMMERSION IN ALPHA 611 FLUX FOR 5 SEC. |

I MECHANICAL ENDURANCE 机械特性

Provided that measurement shall be carried out after letting it alone in the room temperature for 1 hour.

试验产品应在室温下放置 1 小时后方可进行以下试验。

① SHOCK 抗击测试

Electrical characteristics shall be satisfied after dropping three time from the height of 50 cm onto Hard wooden board .

产品从 50 cm 高度自由落下到硬木板 3 次电气参数仍符合要求。

② VIBRATION 抗振测试

Electrical characteristics shall be satisfied after supplying following Vibration .

电气性能应满足以下的振动要求。

| | | | |
|--------------|-----------|-------|---------------------------------|
| (1)VIBRATION | FREQUENCY | 振动频率 | 10—55Hz |
| (2)REPEATED | PERIOD | 周 期 | 1—2min |
| (3)FULL | CYCLE | 全 振 幅 | 1.5mm P—P |
| (4)DIRECTION | | 振动方向 | X.Y.Z |
| (5)TIME | | 振动时间 | 2hours/each direction 2 小时/每个方向 |

③ STRENGTH OF TERMINALS/LEAD—WIRES 引脚与基座底部的强度测试

-1 PULLING 拉力测试

a)Body of specimen shall be fixed, and 900g of tension weight shall be supplied gradually to axial direction of terminals/lead-wires for 30 sec .

产品应固定在 900g 的拉力的情况下逐渐延基座底部/引线脚中轴方向拉 30 秒钟。

b)After above test a), there is no observation of any visual damages on the specimen.

经过 a)的测试, 产品应没有任何可以目测到的损坏。

-2 BENDING 弯曲度测试

a)Body of specimen shall be fixed, and 90degree bending shall be given, being supplied 225gs tension weight .

After that, terminals/lead-wires shall be straightened gradually .

Then the same bending and straightening shall be supplied to the opposite direction in the same axial . (Refer to Fig-1)

产品固定后, 以 90° 的弯曲并供以 225g 的拉力, 然后沿同一轴线并与相反的方向 90° 的弯曲及伸直。(如图 1 所示)

b)After above test a), there is no observation of any visual damages on the specimen .

通过 a)测试后, 晶体上应没有任何可以目测到的损坏。



FIG-1

④ SEALING TIGHTNESS 气密性测试

There is no observation of gas bubble after specimen put in hot water at +90°C—+95°C for 5 min .

晶体置于+90°C—+95°C的热水中 5 分钟，应没有气泡产生。

⑤ SOLDERING DIP 浸锡测试

Terminals/lead-wires of specimen shall be dipped into solder melted tank at +230°C—±5°C for 3sec . Dipping depth shall be 2mm from the bottom of specimens body . (After applying ROSIN flux) Soldering portion shall be covered in over 90% of terminals/lead-wires dipped .

将晶体引线脚置于+230°C—±5°C的锡桶中 3 分钟，基座底部离锡表面 2mm，（加上松香焊剂后）引线脚的沾锡率为 90%以上。

⑥ SOLDER HEATING 沾锡耐热性测试

Terminals/lead-wires of specimen shall be dipped into solder melted tank at

+350°C—±10°C for $\frac{1}{3}$ -₀ sec .

Electrical characteristics shall be satisfied after dipping depth shall be 2mm from edge of terminals/lead-wires .

将已沾锡的产品的引线脚置于+350°C—±10°C的锡桶中 3-4 秒钟后 基座底部离锡表面



2mm，电气性能仍符合要求。7. 图示结构：

II ENVIRONMENTAL ENDURANCE 环境特性

Provided that measurement shall be carried out after letting it alone in the room temperature for 1 hour .

必须将试验产品在室温下放置 1 小时后方可进行测试。

① HUMIDITY 耐湿测试

Electrical characteristics shall be satisfied after letting it alone at $60^{\circ}\text{C} \pm 2^{\circ}\text{C}$ in humidity of 90—95% for 250 hours .

试验产品在温度为 $60^{\circ}\text{C} \pm 2^{\circ}\text{C}$ ，相对湿度 90—95% 的试验箱内放置 250 小时后电气性能仍符合要求。

② STORAGE IN LOW TEMPERATURE 低温储存测试

Electrical characteristics shall be satisfied after letting it alone at $-30^{\circ}\text{C} \pm 2^{\circ}\text{C}$ for 250 hours .

试验产品在温度为 $-30^{\circ}\text{C} \pm 2^{\circ}\text{C}$ 的试验箱中放置 250 小时后电气性能仍符合要求。

③ STORAGE IN HIGH TEMPERATURE 高温储存测试

Electrical characteristics shall be satisfied after letting it alone at $+85^{\circ}\text{C} \pm 2^{\circ}\text{C}$ for 250 hours .

试验产品在温度为 $+85^{\circ}\text{C} \pm 2^{\circ}\text{C}$ 的试验箱中放置 250 小时后电气性能仍符合要求。

④ TEMPERATURE CYCLE 温度变换测试

Electrical characteristics shall be satisfied after supplying the following temperature cycle (3cycles) .

Temperature shift from low to high, high to low shall be done in $1^{\circ}\text{C}/\text{min}$ (Refer to Fig-2) .

电气性能应满足以下温度周期要求 (3 个周期)

温度变换从低到高，从高到低变化量为 $1^{\circ}\text{C}/\text{分}$ 。(如图 2 所示)



FIG — 2

| | | | | | |
|----|-----|----|-----|----|-----|
| 拟制 | 成望生 | 审核 | 董宗全 | 批准 | 谢为亮 |
|----|-----|----|-----|----|-----|