



深圳市凯越翔电子有限公司

石英谐振器规格书

产品名称:	石英晶体谐振器
产品型号:	HC-49USSMD/4.000 MHZ
产品参数:	20PF/±30ppm
原厂型号:	KSD040002030
凯越翔技术部:	董宗全

客 户 确 认 栏

认证印章	负责人印章
年 月 日	年 月 日

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产品规格书

1.GENERAL	
1.1 HOLDER TYPE	HC-49USSMD
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。(产品结构如图 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。



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。

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
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