

## 规格书 SPECIFICATION

Customer : \_\_\_\_\_

Part Number: \_\_\_\_\_

LK Part No.: LPA0S11059U84L

Holder : HC-49SMD

Frequency: 11.0592MHz/49SMD/20PF/20PPM

Manufacturer: Lucki Electronics

Date: 2023/04/25

|           |               |           |
|-----------|---------------|-----------|
| Prepared  | Checked       | Approved  |
| Zhao Qian | Zhang Dongwei | Zhang Bin |

(For Customer Use)

|            |  |
|------------|--|
| Acceptable |  |
|            |  |

Professional manufacturer of quartz crystal

## 目 录

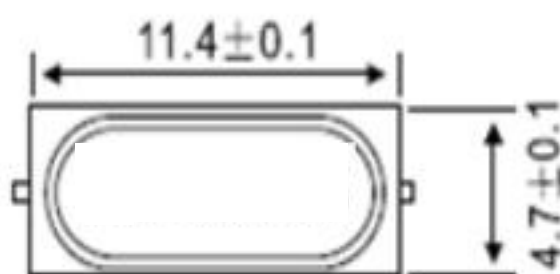
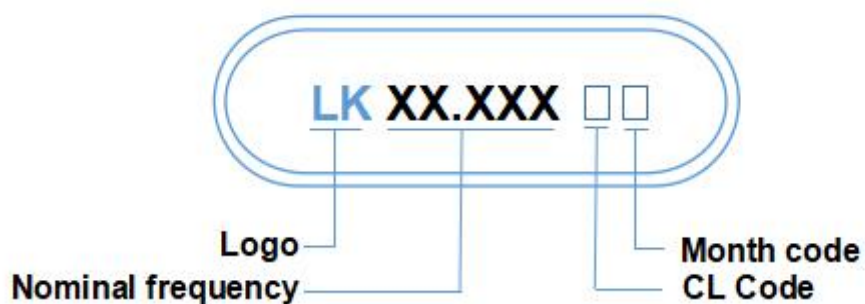
## TABLE OF CONTENT

| 规格内容<br>Specification content              | 页码<br>PAGE |
|--------------------------------------------|------------|
| CRYSTAL ELECTRICAL SPECIFICATION . . . . . | 4          |
| MARKING & DIMENSIONS . . . . .             | 5          |
| PACKING . . . . .                          | 6          |
| RELIABILITY SPECIFIXATIONS . . . . .       | 7~8        |

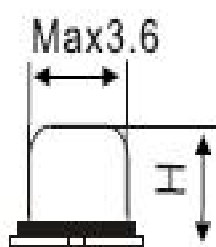
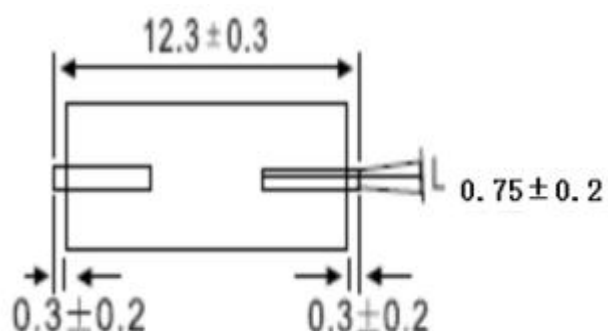
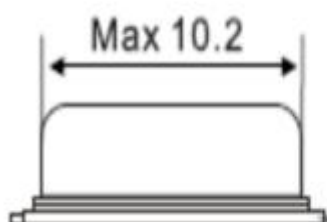
## CRYSTAL ELECTRICAL SPECIFICATION

|    |                                     |                          |
|----|-------------------------------------|--------------------------|
| 1  | Holder Type                         | HC-49SMD                 |
| 2  | Mode of Vibration                   | AT CUT                   |
| 3  | Oscillation Mode                    | Fundamental              |
| 4  | Nominal Frequency                   | 11.0592MHz               |
| 5  | Load Capacitance                    | 20 pf                    |
| 6  | Frequency Tolerance(25℃)            | ±20 ppm                  |
| 7  | Effective Series Resistance         | 40 ohms Max              |
| 8  | Shunt Capacitance(C0)               | 7.0pf Max                |
| 9  | Motional Capcitanace(C1)            | N/A                      |
| 10 | Drive Level                         | 100 uW                   |
| 11 | Operation Temperature Range         | -40℃~+85℃                |
| 12 | Stability Over Temperature Range    | ±30 ppm (related to 25℃) |
| 13 | Insulation Resistance               | 500 Mohms Min.at DC 100V |
| 14 | Ration of Holder to Motional(C0/C1) | N/A                      |
| 15 | Storage Temperature                 | -55℃~ + 125℃             |
| 16 | Aging                               | ±3 ppm/year              |
|    |                                     |                          |
|    |                                     |                          |

## Marking specification

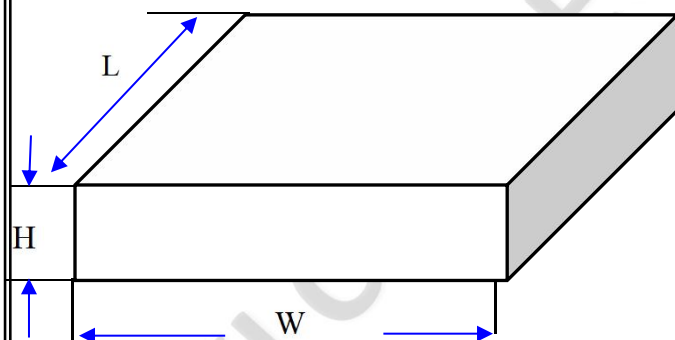
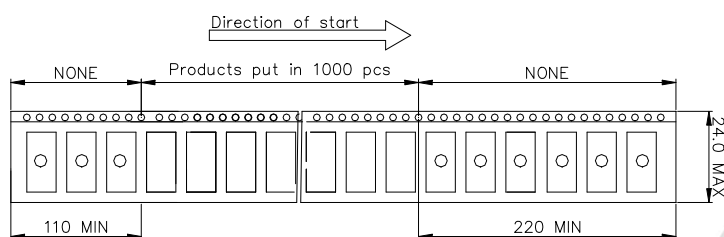
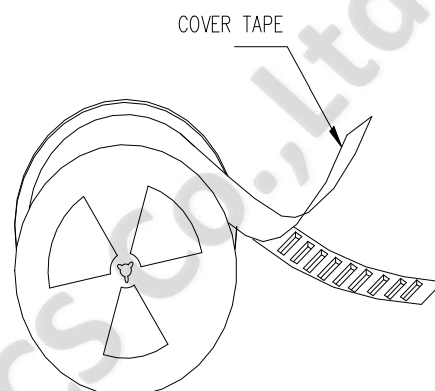
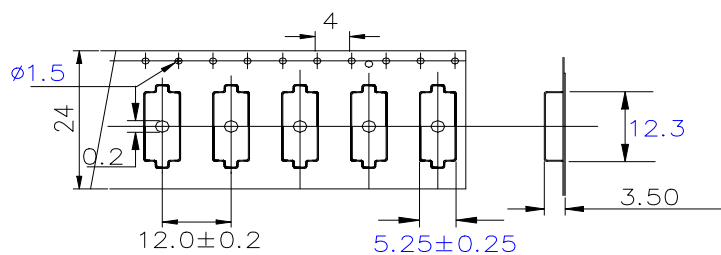


## DIMENSIONS(Unit:mm)

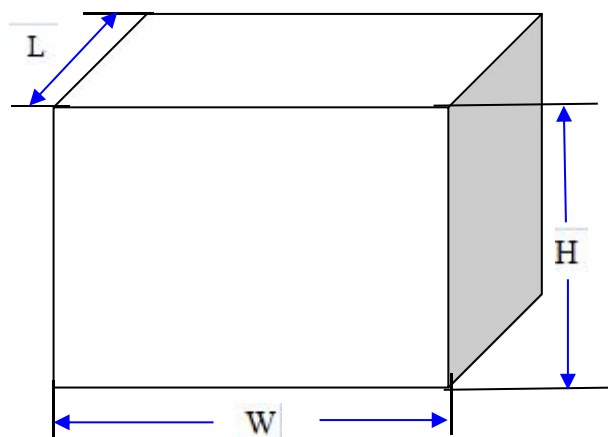


| TYPE    | H   |
|---------|-----|
| 49S/SMD | 3.8 |
|         | 3.0 |

## PACKING



1K/卷, 5卷一箱



| 装箱数量  | 尺寸     |        |        |
|-------|--------|--------|--------|
|       | L(长)   | W(宽)   | H(高)   |
| 内盒    | 328 mm | 328 mm | 35 mm  |
| SMD外箱 | 350 mm | 350 mm | 200 mm |



# RELIABILITY SPECIFICATIONS

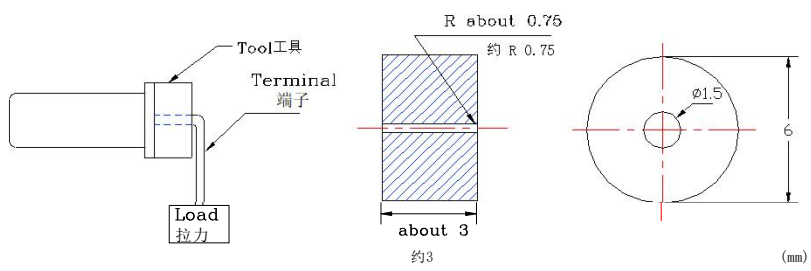
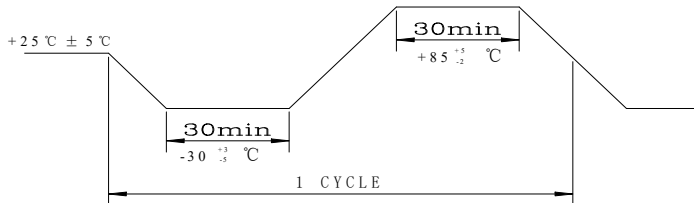
| No.   | Test Item                                     | Test Methods                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------|-----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1     | Mechanical Endurance<br>机械特性                  | Provided that measurement shall be carried out after letting it alone in the room temperature for 1 hour.<br>试验产品应在室温下放置1小时后方可进行以下试验。                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 1.1   | SHOCK<br>抗冲击测试                                | Electrical characteristics shall be satisfied after dropping three time from the height of 75cm onto Three.<br>产品从75cm高度自由落下到硬木板3次电气参数仍符合要求。                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 1.2   | VIBRATION<br>抗振测试                             | Electrical characteristics shall be satisfied after supplying following Vibration.<br>电气性能应满足以下的振动要求。<br>(1) VIBRATION FREQUENCY 振动频率 10—55Hz<br>(2) REPEATED PERIOD 周期 1—2min<br>(3) FULL CYCLE 全振幅 1.5mm P—P<br>(4) DIRECTION 振动方向 X.Y.Z                                                                                                                                                                                                                                                                                                                                                                                     |
| 1.3   | STRENGTH OF TERMINALS/LEAD—WIRES 引脚与基座底部的强度测试 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 1.3.1 | PULLING 可靠性测试                                 | 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。<br>b)After above test a), there is no observation of any visual damages on the specimen.<br>经过a)的测试，产品应没有任何可以目测到的损坏。                                                                                                                                                                                                                                                                                                                  |
| 1.3.2 | BENDING 弯曲度测试                                 | a)Body of specimen shall be fixed, and 90degree bending shall be given, being supplied 225g stension 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)<br>产品固定后，以90o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 o的弯曲及伸直。（如图1所示）<br>b)After above test a), there is no observation of any visual damages on the specimen .<br>通过a)测试后，晶体上应没有任何可以目测到的损坏。<br><div data-bbox="662 1668 1476 1937">  </div> |

FIG-1

## RELIABILITY SPECIFICATIONS

| No. | Test Item                             | Test Methods                                                                                                                                                                                                                                                                                                                                                                                                    |
|-----|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.4 | SEALING TIGHTNESS<br>绝缘性测试            | Absolute ethyl alcohol inflating:0.5MPa,for 20min,Insulation resistance: $\geq 500\text{M}\Omega$ (100V DC)<br>酒精加压 (压力0.5MPa)20分钟,100V 直流电压下绝缘电阻 $\geq 500\text{M}\Omega$                                                                                                                                                                                                                                      |
| 1.5 | SOLDERING DIP<br>浸锡测试                 | Terminals/lead-wires of specimen shall be dipped into solder melted tank at $+230^{\circ}\text{C}\pm 5^{\circ}\text{C}$ for 3sec . Dipping depth shall be 2mm from the bottom of specimens body .(After applying ROSIN flux) Soldering portion shall be covered in over 95% of terminals/lead-wires dipped .将晶体引线脚置于 $+260^{\circ}\text{C}\pm 5^{\circ}\text{C}$ 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95%以上。 |
| 1.6 | SOLDER HEATING<br>沾锡耐热性测试             | Terminals/lead-wires of specimen shall be dipped into solder melted tank at $+350^{\circ}\text{C}\pm 10^{\circ}\text{C}$ for 3 sec Electrical characteristics shall be satisfied after dipping depth shall be 2mm from edge of terminals/lead-wires .<br>将已沾锡的产品的引线脚置于 $+350^{\circ}\text{C}\pm 10^{\circ}\text{C}$ 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                                                            |
| 2   | ENVIRONMENTAL ENDURANCE<br>环境特性       | Provided that measurement shall be carried out after letting it alone in the room temperature for 1 hour .<br>必须将试验产品在室温下放置1小时后方可进行测试。                                                                                                                                                                                                                                                                          |
| 2.1 | HUMIDITY<br>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 .<br>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                                                                                                                                                                |
| 2.2 | STORAGE IN LOW TEMPERATURE<br>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 .<br>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。                                                                                                                                                                                               |
| 2.3 | STORAGE IN HIGH TEMPERATURE<br>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 .<br>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。                                                                                                                                                                                               |
| 2.4 | TEMPERATRE CYCLE<br>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)<br>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)<br>            |