



四川索斯特电子有限公司  
Sichuan Source-Set Electronics Co., Ltd  
石英晶体规格书  
CRYSTAL UNIT SPECIFICATIONS



规格书  
SPECIFICATIONS

规格书编号/ID: M202020A  
物料描述/  
Product Description: 20M 20PF 20PPM  
料号/  
Part Number: S47SMD20.000M20PF20R30B3  
制作人/  
Approved by: 莫平会  
审核人/  
Checked by: 陈晓群  
日期/ 盖章/  
Date: 2022-12-30 Stamp:

客户签署/  
Customer signature required

公司名称/  
Company:  
客户料号/  
Customer Part Number:  
承认人/  
Approved by:  
批准人/  
Confirmed by:  
日期/  
Date:  
盖章/  
Stamp:



四川索斯特电子有限公司  
Sichuan Source-Set Electronics Co., Ltd  
石英晶体规格书



CRYSTAL UNIT SPECIFICATIONS

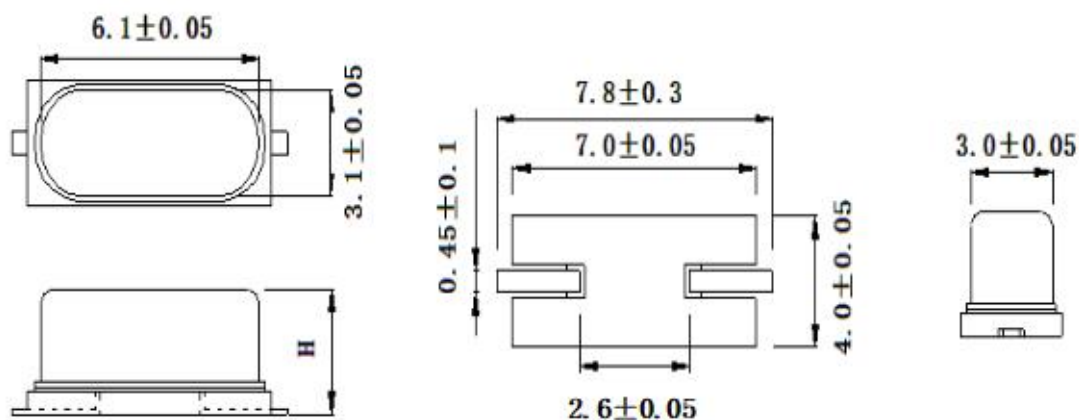
一、电性能参数 ELECTRICAL PARAMETERS:

| No. | 特性 Characteristic                     | 范围 Limits                                     | 备注 Remark                                                                            |
|-----|---------------------------------------|-----------------------------------------------|--------------------------------------------------------------------------------------|
| 1   | 产品型号<br>Ackage Type                   | SST-M49SSMD                                   |                                                                                      |
| 2   | 标称频率<br>Nominal Frequency             | 20.000MHz                                     |                                                                                      |
| 3   | 振动模式<br>Mode of Vibration             | AT—Fund（基频）                                   |                                                                                      |
| 4   | 常温频差<br>Frequency Tolerance           | $\pm 20\text{ppm}$                            | $25\pm 3^{\circ}\text{C}$ 测试<br>Measure at $25^{\circ}\text{C}\pm 3^{\circ}\text{C}$ |
| 5   | 工作温度范围<br>Operating Temperature Range | $-20^{\circ}\text{C}\sim +70^{\circ}\text{C}$ |                                                                                      |
| 6   | 频率稳定度<br>Frequency Stability          | $\pm 30\text{ppm}$                            |                                                                                      |
| 7   | 储存温度范围<br>Storage Temperature Range   | $-40^{\circ}\text{C}\sim +85^{\circ}\text{C}$ |                                                                                      |
| 8   | 负载电容<br>Load capacitance              | 20pF                                          |                                                                                      |
| 9   | 谐振电阻<br>Equivalent Series Resistance  | $40\ \Omega\ \text{max}$                      |                                                                                      |
| 10  | 激励功率<br>Drive Level                   | $100\ \mu\text{W}\ \text{max}$                |                                                                                      |
| 11  | 绝缘电阻<br>Insulation Resistance         | $500\text{M}\ \Omega$                         | At $250\text{V}_{\text{DC}}$                                                         |
| 12  | 静电容<br>Shunt Capacitance              | 5pF max                                       |                                                                                      |
| 13  | 老化率<br>Aging Per Year                 | $\pm 5\text{ppm}$                             |                                                                                      |
| 14  |                                       |                                               |                                                                                      |
| 15  |                                       |                                               |                                                                                      |
| 16  |                                       |                                               |                                                                                      |
| 17  |                                       |                                               |                                                                                      |
| 18  |                                       |                                               |                                                                                      |

## 二、可靠性试验 Reliability test

| No. | 测试项目<br>Item                     | 测试条件<br>Test Conditions                                                                                                                                                                                                                                                                                                                                                                                                                                         | 判定标准<br>Basis of Verdict                                                        |
|-----|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| 1   | 跌落冲击<br>Drop                     | 75cm 高度自由下落到 3cm 厚度的硬质木板 3 次<br>3 Times Free Fall from 75cm height table to 3cm thickness hard wood board                                                                                                                                                                                                                                                                                                                                                       | $\Delta FL \leq \pm 5\text{ppm}$ ,<br>$\Delta R \leq 5\text{ohm or } \leq 10\%$ |
| 2   | 模拟回流焊<br>Reflow                  | $240^{\circ}\text{C} \leq T \leq 265^{\circ}\text{C}$ $t=60 \pm 30\text{s}$<br>$T=260^{\circ}\text{C} \pm 5^{\circ}\text{C}$ $t=40 \pm 10\text{s}$<br>$T(\text{max}) = 265^{\circ}\text{C}$                                                                                                                                                                                                                                                                     | $\Delta FL \leq \pm 5\text{ppm}$ ,<br>$\Delta R \leq 5\text{ohm or } \leq 10\%$ |
| 3   | 可焊性<br>Solder                    | $260^{\circ}\text{C} \pm 5^{\circ}\text{C}$ 焊锡槽浸润 $3 \pm 0.5$ 秒<br>Temperature: $260^{\circ}\text{C} \pm 5^{\circ}\text{C}$<br>Time: $3 \pm 0.5$ Seconds                                                                                                                                                                                                                                                                                                        | 新锡覆盖率 $\geq 90\%$<br>the solder immersion surface $\geq 90\%$                   |
| 4   | 耐焊接热<br>Solder Heating           | $280^{\circ}\text{C} \pm 5^{\circ}\text{C}$ 焊锡槽浸润 $10 \pm 1$ 秒<br>Temperature: $280^{\circ}\text{C} \pm 5^{\circ}\text{C}$<br>Time: $10 \pm 1$ Seconds                                                                                                                                                                                                                                                                                                          | $\Delta FL \leq \pm 5\text{ppm}$ ,<br>$\Delta R \leq 5\text{ohm or } \leq 10\%$ |
| 5   | 高温储存<br>High temperature storage | $100^{\circ}\text{C} \pm 2^{\circ}\text{C}$ 烘箱中烘烤 $96 \pm 1$ 小时<br>Temperature: $100^{\circ}\text{C} \pm 5^{\circ}\text{C}$<br>Time: $96 \pm 1$ Hours                                                                                                                                                                                                                                                                                                           | $\Delta FL \leq \pm 5\text{ppm}$ ,<br>$\Delta R \leq 5\text{ohm or } \leq 10\%$ |
| 6   | 高温老化<br>High temperature ageing  | $85^{\circ}\text{C} \pm 5^{\circ}\text{C}$ 之烘箱中烘烤 30 天<br>Temperature: $85^{\circ}\text{C} \pm 5^{\circ}\text{C}$ , Time: 30days                                                                                                                                                                                                                                                                                                                                | $\Delta FL \leq \pm 5\text{ppm}$ ,<br>$\Delta R \leq 5\text{ohm or } \leq 10\%$ |
| 7   | 低温储存<br>Low temperature storage  | $-40^{\circ}\text{C} \pm 2^{\circ}\text{C}$ 环境中保持 $96 \pm 1$ 小时<br>Temperature: $-40^{\circ}\text{C} \pm 2^{\circ}\text{C}$<br>Time: $96 \pm 1$ Hours                                                                                                                                                                                                                                                                                                           | $\Delta FL \leq \pm 5\text{ppm}$ ,<br>$\Delta R \leq 5\text{ohm or } \leq 10\%$ |
| 8   | 恒温恒湿<br>Humidity                 | 在湿度为 90~95%, 温度为 $40 \pm 2^{\circ}\text{C}$ 环境中保持 96 小时<br>Temp: $40^{\circ}\text{C} \pm 2^{\circ}\text{C}$ , Humidity: 90~95%<br>Times: 96 Hours                                                                                                                                                                                                                                                                                                               | $\Delta FL \leq \pm 5\text{ppm}$ ,<br>$\Delta R \leq 5\text{ohm or } \leq 10\%$ |
| 9   | 振动<br>Vibration                  | 频率: $10 \sim 50\text{Hz}$ , 幅度: $0.75\text{mm}$<br>频率: $50\text{Hz} \sim 500\text{Hz}$ , 加速度幅度: $98\text{m/s}^2$<br>周期: $10 \sim 500 \sim 10\text{Hz}$ , $15\text{min}$<br>振动方向: X、Y、Z<br>振动时间: 每个方向 2 小时<br>Frequency: $10 \sim 50\text{Hz}$ , Amplitude: $0.75\text{mm}$<br>Frequency: $50 \sim 500\text{Hz}$ , Amplitude: $98\text{m/s}^2$<br>Cycle time: $10 \sim 500 \sim 10\text{H}$ , $15\text{min}$<br>Direction: X、Y、Z<br>Duration: 2 Hours /direction | $\Delta FL \leq \pm 5\text{ppm}$ ,<br>$\Delta R \leq 5\text{ohm or } \leq 10\%$ |

### 三、外形尺寸 Outline Dimensions (unit: mm)



| NO. | 规格        | H      |
|-----|-----------|--------|
| 1.  | M49S -SMD | 2.3Max |
| 2.  | M49S -SMD | 2.1Max |

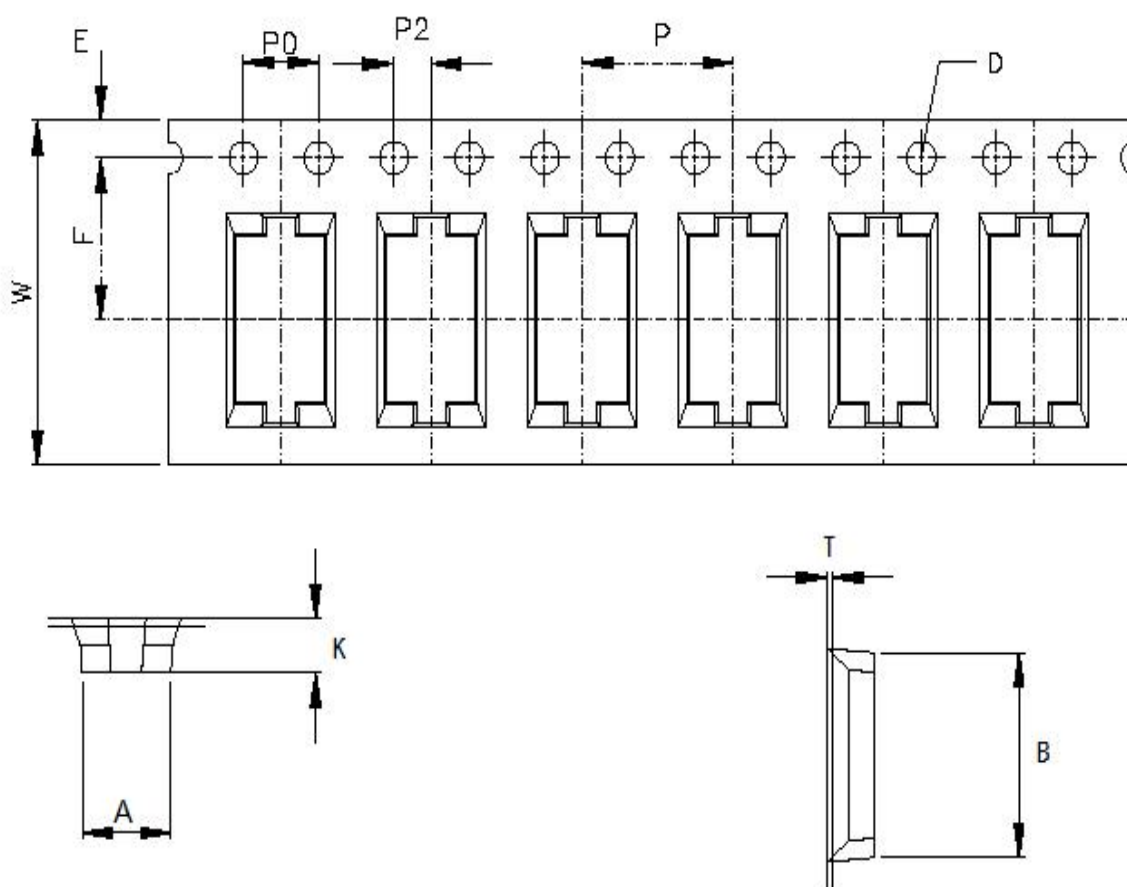
### 四、印字 Marking

当前字样:



## 五、包装方式 Packing

T/R: 3000pcs/ REEL



单位 units : mm:

| Model     | A             | B             | D          | E              | F             | P             | P0            | T              | W            |
|-----------|---------------|---------------|------------|----------------|---------------|---------------|---------------|----------------|--------------|
| SST-47SMD | $4.7 \pm 0.1$ | $9.5 \pm 0.1$ | $\Phi 1.5$ | $1.75 \pm 0.1$ | $7.5 \pm 0.1$ | $8.0 \pm 0.1$ | $4.0 \pm 0.1$ | $0.3 \pm 0.05$ | $16 \pm 0.3$ |
|           |               |               |            |                |               |               |               |                |              |

**CRYSTAL UNIT SPECIFICATIONS**

|        |      |      |      |      |      |      |      |      |
|--------|------|------|------|------|------|------|------|------|
| SPEC 1 | 12   | 16   | 24   | 32   | 44   | 56   | 72   | 88   |
| C1±1   | 330  | 330  | 330  | 330  | 330  | 330  | 330  | 330  |
| A±0.2  | 2.3  | 2.3  | 2.3  | 2.3  | 2.3  | 2.3  | 2.3  | 2.3  |
| B±0.2  | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 |
| H+2.0  | 12.5 | 16.5 | 24.5 | 32.5 | 44.5 | 56.5 | 72.5 | 88.5 |
| T±0.2  | 2.1  | 2.1  | 2.1  | 2.1  | 2.1  | 2.1  | 2.1  | 2.1  |
| D±0.5  | ∅100 | ∅100 | ∅100 | ∅100 | ∅100 | ∅100 | ∅100 | ∅100 |

