



规 格 书  
**SPECIFICATIONS**

规格书编号/ID: M2457610104PA  
物料描述/  
Product Description: 24.576M 10PF 10PPM 4P  
料号/  
Part Number: S47SMD24.576F10PF10R4P30B3  
制作人/  
Approved by: 莫平会  
审核人/  
Checked by: 陈晓群  
日期/ 盖章/  
Date: 2022-11-22 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: \_\_\_\_\_

**CRYSTAL UNIT SPECIFICATIONS**

一、电性能参数 **ELECTRICAL PARAMETERS:**

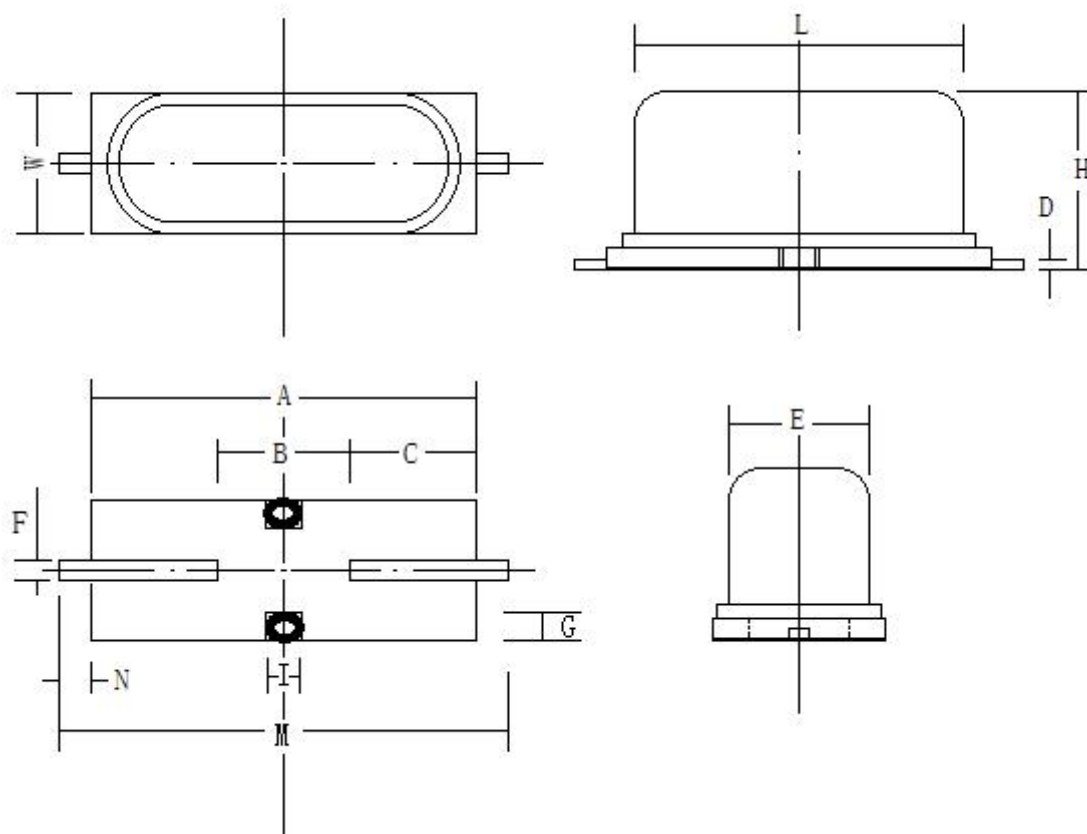
| No. | 特性 Characteristic                     | 范围 Limits    | 备注 Remark                     |
|-----|---------------------------------------|--------------|-------------------------------|
| 1   | 产品型号<br>Ackage Type                   | SST-M49SSMD  |                               |
| 2   | 标称频率<br>Nominal Frequency             | 24.576MHz    |                               |
| 3   | 振动模式<br>Mode of Vibration             | AT—Fund (基频) |                               |
| 4   | 常温频差<br>Frequency Tolerance           | ±10ppm       | 25±3℃ 测试<br>Measure at 25℃±3℃ |
| 5   | 工作温度范围<br>Operating Temperature Range | -20℃~+70℃    |                               |
| 6   | 频率稳定度<br>Frequency Stability          | ±30ppm       |                               |
| 7   | 储存温度范围<br>Storage Temperature Range   | -40℃~+85℃    |                               |
| 8   | 负载电容<br>Load capacitance              | 10pF         |                               |
| 9   | 谐振电阻<br>Equivalent Series Resistance  | 40 Ω max     |                               |
| 10  | 激励功率<br>Drive Level                   | 100 μ W max  |                               |
| 11  | 绝缘电阻<br>Insulation Resistance         | 500M Ω       | At 250V <sub>DC</sub>         |
| 12  | 静电容<br>Shunt Capacitance              | 5pF max      |                               |
| 13  | 老化率<br>Aging Per Year                 | ±5ppm        |                               |
| 14  |                                       |              |                               |
| 15  |                                       |              |                               |
| 16  |                                       |              |                               |
| 17  |                                       |              |                               |

**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 $90\sim 95\%$ , 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: $90\sim 95\%$<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>$\Delta R \leq 5\text{ohm or } \leq 10\%$ |

**CRYSTAL UNIT SPECIFICATIONS**

三、外形尺寸 Outline Dimensions (unit: mm)



| 项目          | A            | B            | C           | D           | E          | F            | G          | H          | I          | L           | M           | N           | W            |
|-------------|--------------|--------------|-------------|-------------|------------|--------------|------------|------------|------------|-------------|-------------|-------------|--------------|
| SST-M49SSMD | 7.00<br>±0.1 | 2.60<br>±0.2 | 2.20<br>min | 0.25<br>max | 3.1<br>max | 0.45<br>±0.1 | 0.8<br>max | 2.3<br>max | 1.2<br>max | 6.1<br>±0.1 | 7.8<br>±0.3 | 0.5<br>±0.2 | 4.00<br>±0.1 |
|             |              |              |             |             |            |              |            |            |            |             |             |             |              |

四、印字 Marking

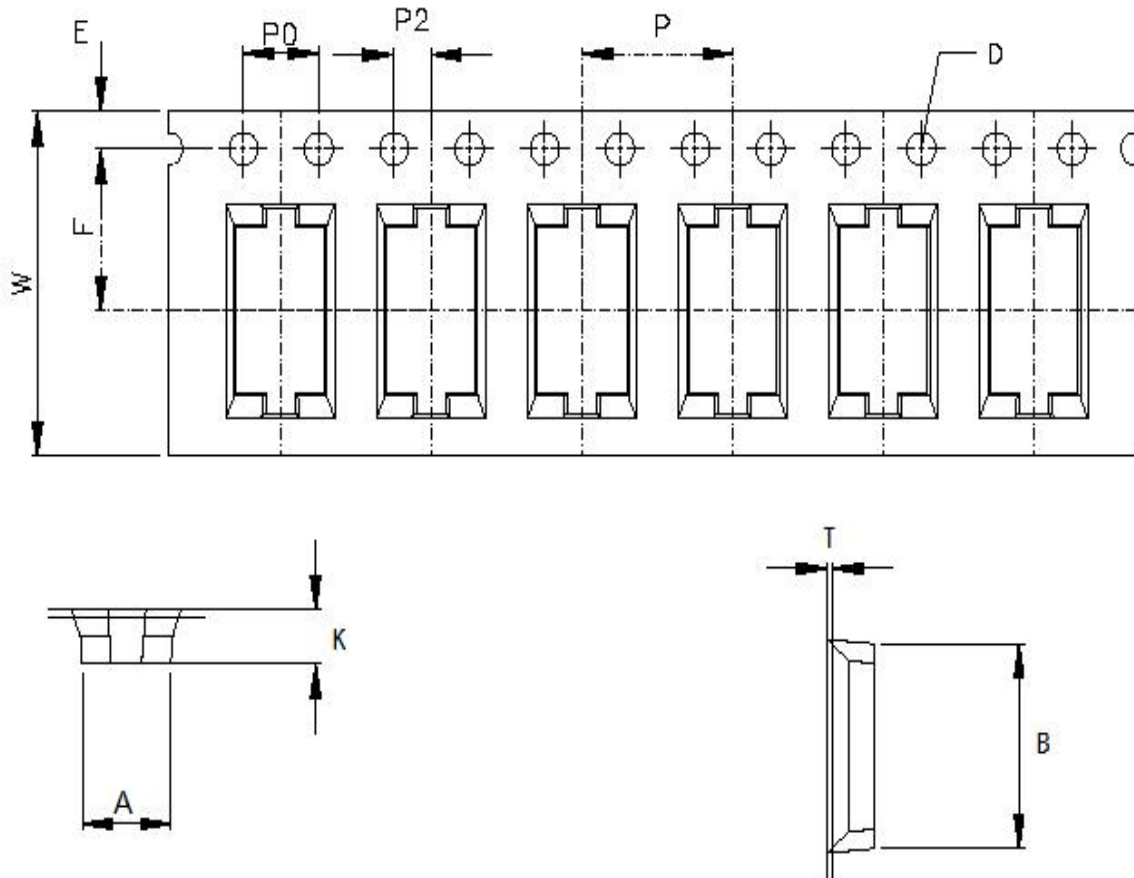
频率 Mhz/6 Digital, After 6 Digital: Frequency in Mhz

当前字样:



### 五、包装方式 Packing

T/R: 3000pcs/ REEL

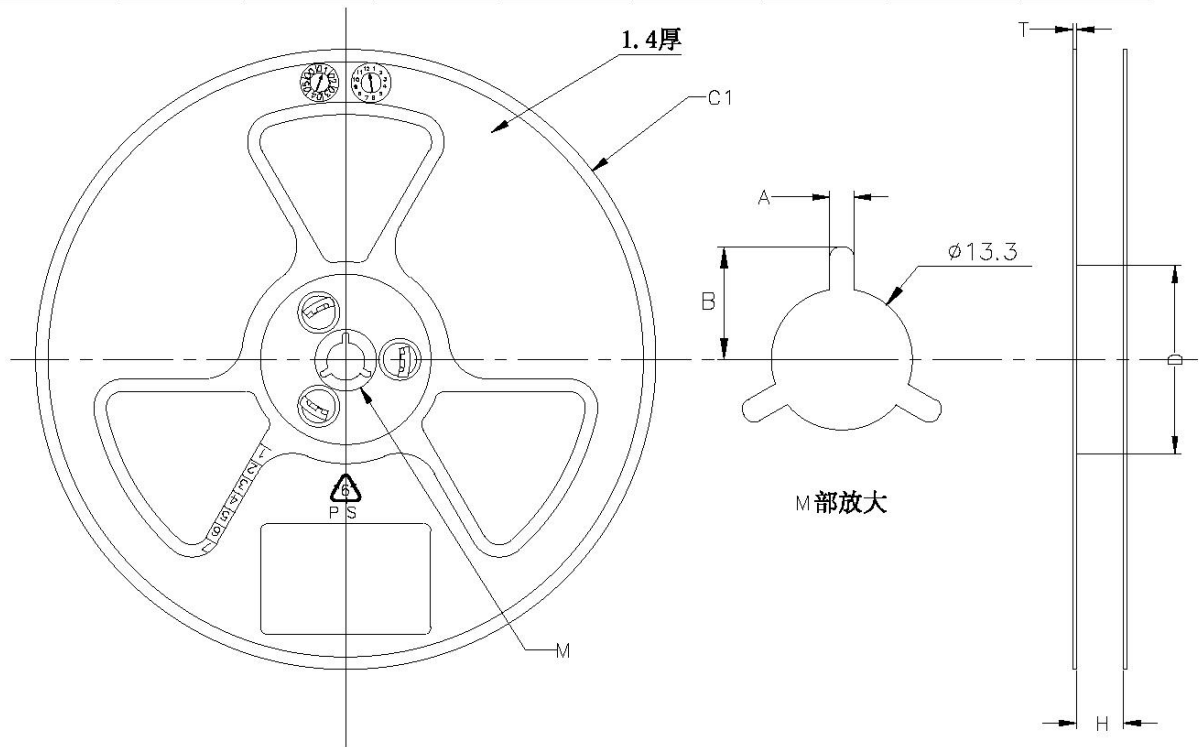


单位 units : mm:

| Model       | A             | B             | D          | E              | F             | P             | P0            | T              | W            |
|-------------|---------------|---------------|------------|----------------|---------------|---------------|---------------|----------------|--------------|
| SST-M49SSMD | $4.7 \pm 0.1$ | $9.5 \pm 0.1$ | $\Phi 1.5$ | $1.75 \pm 0.1$ | $7.5 \pm 0.1$ | $8.0 \pm 0.1$ | $4.0 \pm 0.1$ | $0.3 \pm 0.05$ | $16 \pm 0.3$ |
|             |               |               |            |                |               |               |               |                |              |

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|        |      |      |      |      |      |      |      |      |
|--------|------|------|------|------|------|------|------|------|
| 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 |



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