



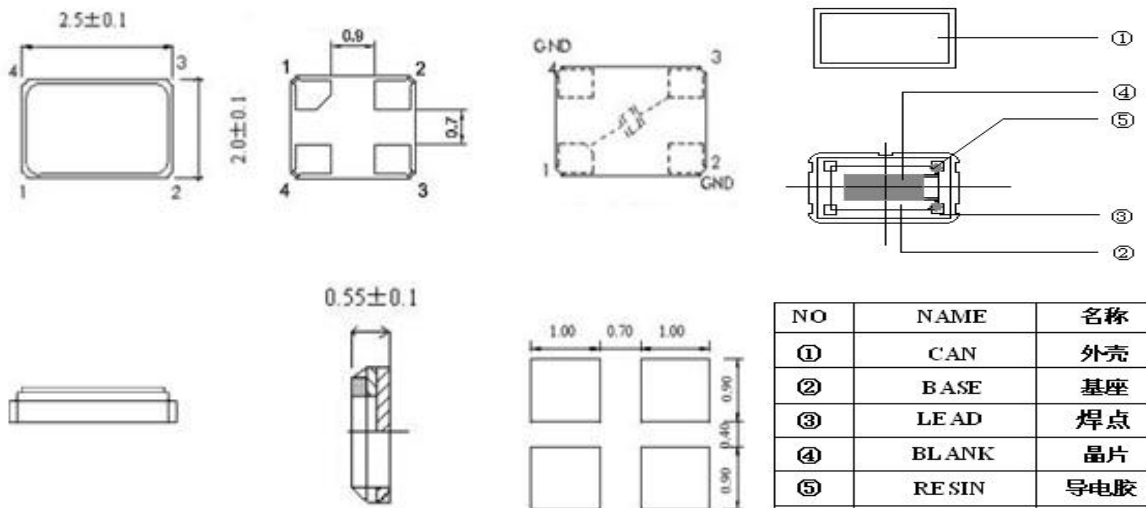


|   |  |                         |
|---|--|-------------------------|
| <p>深圳市新天源电子有限公司</p> <p>Shenzhen Xintianyuan Electronics Co., Ltd.</p> | <p>石英晶体谐振器规格书</p> <p>Specification of Quartz Crystal</p> | <p>NO: XTY0293-7017</p> |
|   | <p>无源 SMD2520 4pin</p>                                   | <p>Date: 2019/06/15</p> |
| <p>一、石英晶体规格参数</p> <p>Quartz Crystal Specification Parameters</p>      |  |                         |
| <p>1、产品型号</p> <p>Holder Type</p>                                      | <p>SMD 2520 (4pin)</p>                                   |                         |
| <p>2、标称频率</p> <p>Nominal Frequency</p>                                | <p>24.000000MHz</p>                                      |                         |
| <p>3、振动模式：</p> <p>Mode of Oscillation</p>                             | <p>Fundamental</p>                                       |                         |
| <p>4、调整频差</p> <p>Frequency Tolerance at 25°C ±2°C</p>                 | <p>±10ppm at 25°C ±2°C</p>                               |                         |
| <p>5、等效电阻</p> <p>Equivalent Resistance(ESR)</p>                       | <p>≤60 Ω</p>   |                         |
| <p>6、负载电容</p> <p>Load Capacitance(CL)</p>                             | <p>10pF</p>  |                         |
| <p>7、温度频差</p> <p>Temperature Characteristics</p>                      | <p>±20ppm</p>  |                         |
| <p>8、工作温度范围</p> <p>Operating Temperature range</p>                    | <p>-40~+85°C</p>   |                         |
| <p>9、储存温度范围</p> <p>Storage Temperature range</p>                      | <p>-55~+125°C</p>  |                         |
| <p>10、激励功率</p> <p>Drive Level</p>                                     | <p>100uW</p>   |                         |
| <p>11、静态电容</p> <p>Shunt Capacitance (C0)</p>                          | <p>&lt;4.0pF</p>   |                         |
| <p>12、绝缘电阻</p> <p>Insulation Resistance</p>                           | <p>≥500MΩ (DC100V ±15V)</p>                              |                         |
| <p>13、测试仪器</p> <p>Measure Instrument</p>                              | <p>250B</p>  |                         |
| <p>14、年老化率</p> <p>Aging Rate a Year</p>                               | <p>≤±3ppm/年</p>  |                         |

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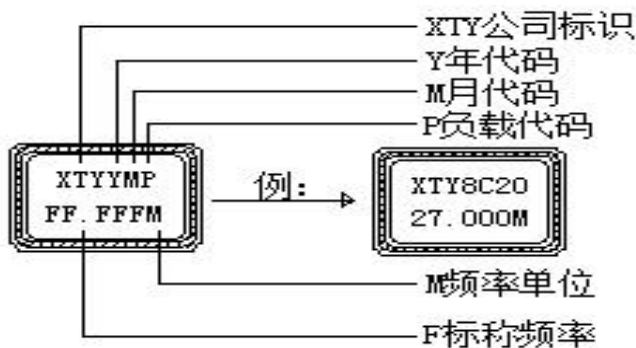
## 二、石英晶体尺寸、结构

### Quartz Crystal Dimensions And Structure



## 三、石英晶体印字

### Quartz Crystal Marking



#### 印字: Marking

XTY: 新天源

Y为年 (year): 8:2018; 9:2019...

M为月 (Month): A:1; B:2...

P为负载 CL:20: 20pF

FF. FFFM为频率 Frequency: 27.000M

例8C20: 8为2018年, C为3月, 20为20pF;

年、月、负载代码:

|    |      |      |      |      |      |      |      |      |      |      |      |        |
|----|------|------|------|------|------|------|------|------|------|------|------|--------|
| 年  | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026   |
| 代码 | 5    | 6    | 7    | 8    | 9    | 0    | 1    | 2    | 3    | 4    | 5    | 6      |
| 月  | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   | 11   | 12     |
| 代码 | A    | B    | C    | D    | E    | F    | G    | H    | I    | J    | K    | L      |
| 负载 | 9pF  | 10pF | 11pF | 12pF | 13pF | 14pF | 15pF | 16pF | 17pF | 18pF | 19pF | SERIES |
| 代码 | 9    | 10   | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | S      |

|   |   |                  |
|---|---|------------------|
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|   | 无源 SMD2520 4pin                               | Date: 2019/06/15 |

### 四、包装要求 Packaging

#### 1. 编带 Tape



| Type     | W    | E    | F    | T    | P    | P0   | P2   | D0   | D1   | A0   | KO   | B0   |
|----------|------|------|------|------|------|------|------|------|------|------|------|------|
| SMD 2520 | 8.00 | 1.75 | 3.50 | 0.25 | 4.00 | 4.00 | 2.00 | 1.50 | ø1.5 | 2.30 | 0.80 | 2.70 |

Unit:mm

#### 2. 轮 Reel



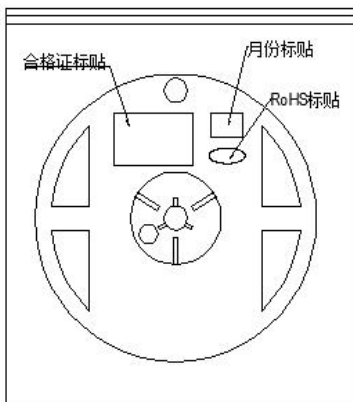
| Type     | A    | B   | C   | D     | N   | W1  | T1  |
|----------|------|-----|-----|-------|-----|-----|-----|
| SMD 2520 | ø178 | 2.5 | ø13 | ø22.2 | ø60 | 8.5 | 1.0 |

Unit:mm

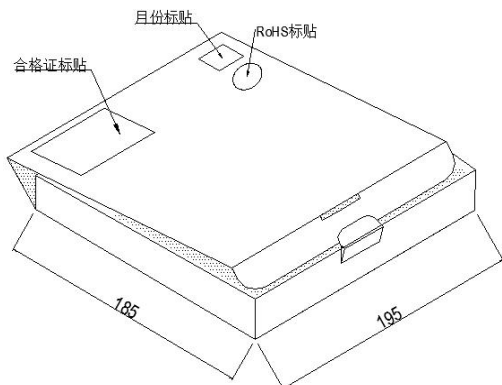
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3. 包装  
Package

3000只/1卷  
3000pcs/Reel



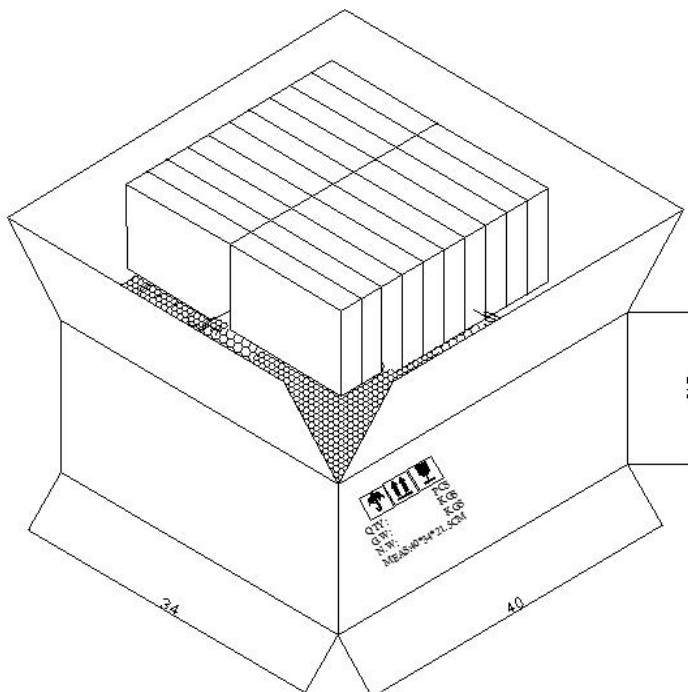
1轮=1盒  
1Reel=1Box  
Units: mm



| 合格证  |      |
|------|------|
| 频率:  | 型号:  |
| 负载:  | 电阻:  |
| 频差:  | 数量:  |
| 日期:  | 供应商: |
| 批号:  | 编号:  |
| 订单号: | 料号:  |

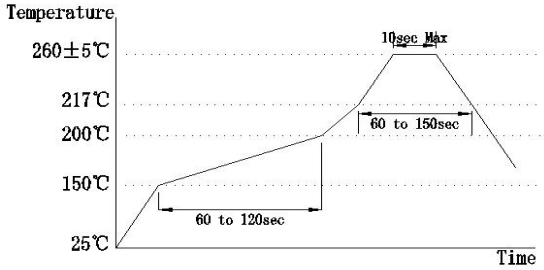
包装箱  
Shipping Carton

40\*34\*21.5 (20 Box)  
27\*20\*32.2 (12 Box)  
27\*20\*20 (8 Box)  
Units: cm



|   |   |                  |
|---|---|------------------|
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**五、石英晶体可靠性**  
**Reliability Test**

| NO. | 测试项目<br>Test Item                         | 可靠性条件<br>Testing Condition  | 判定标准<br>Determinant Criteria   |
|-----|---|---|--|
| 1.  | 跌落<br>Dropping Test                       | 从75cm高度跌落到30mm厚硬木板上, 跌落三次 Drop the resonators from 75cm height to 30mm thick hardwood board, 3times.  | $\Delta FL \leq \pm 5\text{ppm}$<br>$\Delta RS \leq \pm 10\%$ or $5\ \Omega$<br>(whichever is larger)                  |
| 2.  | 振动<br>Vibration                           | 频率 Frequency:10~60Hz; 幅度 Amplitude:0.75mm; 周期 Cycle time:10-55-10Hz: 1min; 振动方向 Direction:X, Y, Z; 振动时间 Duration: 每个方向2小时 2 h/direction.  | $\Delta FL \leq \pm 5\text{ppm}$<br>$\Delta RS \leq \pm 10\%$ or $5\ \Omega$<br>(whichever is larger)                  |
| 3.  | 高温<br>Heat Resistance                     | 温度Temperature: $125^\circ\text{C} \pm 10^\circ\text{C}$<br>时间Time: $720 \pm 24$ Hours   | $\Delta FL \leq \pm 5\text{ppm}$<br>$\Delta RS \leq \pm 10\%$ or $5\ \Omega$<br>(whichever is larger)                  |
| 4.  | 低温<br>Cold Resistance                     | 温度Temperature: $-40^\circ\text{C} \pm 10^\circ\text{C}$<br>时间Time: $720 \pm 24$ Hours   | $\Delta FL \leq \pm 5\text{ppm}$<br>$\Delta RS \leq \pm 10\%$ or $5\ \Omega$<br>(whichever is larger)                  |
| 5.  | 回流焊 (2次)<br>Reflow (2times)               |  <p>回流焊Reflow <math>260^\circ\text{C} \pm 5^\circ\text{C} \leq 10\text{s}</math></p>  | $\Delta FL \leq \pm 5\text{ppm}$<br>$\Delta RS \leq \pm 10\%$ or $5\ \Omega$<br>(whichever is larger)                  |
| 6.  | 耐焊接热<br>Resistance To Soldering Heat      | 焊接温度Soldering Heat: $320^\circ\text{C} \pm 10^\circ\text{C}$<br>测试时间Test Time: $3.5\text{s} \pm 0.5\text{s}$ ;  | $\Delta FL \leq \pm 5\text{ppm}$<br>$\Delta RS \leq \pm 10\%$ or $5\ \Omega$<br>(whichever is larger)                  |
| 7.  | 气密性<br>Leakage                            | 用氦质谱仪进行检测, 试验气体: He; 真空度: $1 \times 10^{-3}\text{Pa}$ ; Helium mass-mass-spectrometer detector, and vacuum and reach $1 \times 10^{-3}\text{Pa}$ ;  | $\leq 1 \times 10^{-8}\text{atm} \cdot \text{cc/S}$  |
| 8.  | 高温高湿<br>Constant Temperature and Humidity | 在温度 $60^\circ\text{C} \pm 5^\circ\text{C}$ , 湿度90%~99%, 储存720小时, 取出2小时后测试; Stored at $60^\circ\text{C} \pm 5^\circ\text{C}$ , Humidity 90%~99% For a period of minimum 720hours. Then $25^\circ\text{C} \pm 3^\circ\text{C}$ and 2 hours before testing | $\Delta FL \leq \pm 5\text{ppm}$<br>$\Delta RS \leq \pm 10\%$ or $5\ \Omega$<br>(whichever is larger)<br>Appearance OK |
| 9.  | 温度冲击<br>Temperature Shock                 | 低温Low $-40^\circ\text{C} \pm 2^\circ\text{C}$ (120min) $\leftrightarrow$ 高温High $85^\circ\text{C} \pm 2^\circ\text{C}$ (120min); 循环10次; For 10 cycles   | $\Delta FL \leq \pm 5\text{ppm}$<br>$\Delta RS \leq \pm 10\%$ or $5\ \Omega$<br>(whichever is larger)                  |

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