



深圳市晶力源科技有限公司

Shenzhen Jingliyuan Technology Co., Ltd.

## 产品规格书 SPECIFICATION

CUSTOMER(客户): \_\_\_\_\_

PRODUCT TYPE(型号): SMD-3.2\*1.5MM(3215) \_\_\_\_\_

NOMINAL FREQ(频率): 32.768KHZ \_\_\_\_\_

JLY P/N(料号): Y321532768KSBCX \_\_\_\_\_

Brand(品牌): JLYE晶力源 \_\_\_\_\_

CUSTOMER P/N(客户料号): \_\_\_\_\_

| Client Opinion (客户意见) |                 |                  |                       |
|-----------------------|-----------------|------------------|-----------------------|
| Hardware PL<br>(工程)   | QPM/SQE<br>(品质) | Approval<br>(核准) | Recognition<br>(承认日期) |
|                       |                 |                  |                       |

| Provider (供应商) |               |                  |                        |
|----------------|---------------|------------------|------------------------|
| Drawn<br>(制作)  | Check<br>(审核) | Approval<br>(核准) | Submitted Date<br>(日期) |
| 刘来凤            | 徐超            | 李元               | 2026-01-16             |

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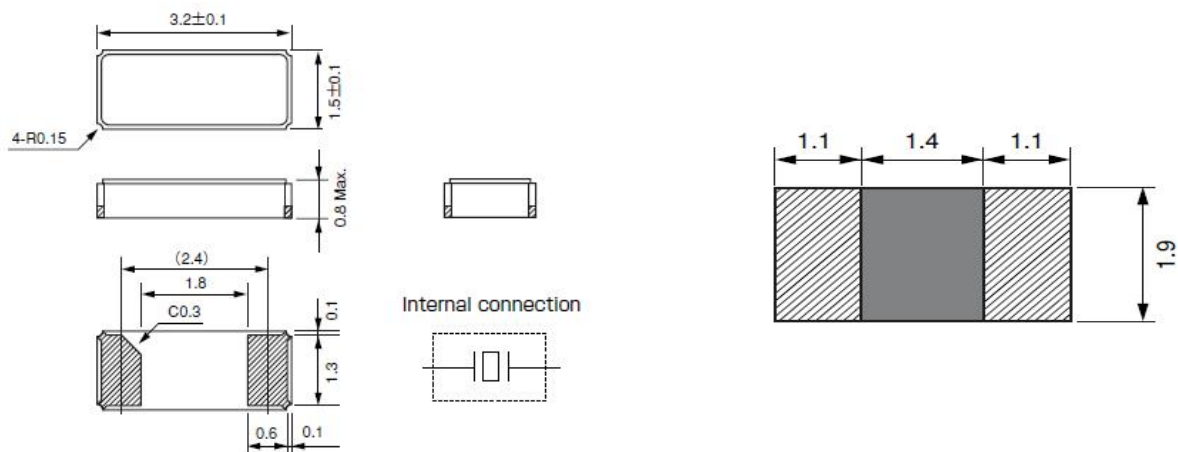
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## ● 石英晶体参数规格 (QUARTZ CRYSTAL UNIT SPECIFICATION)

| NO | 项目<br>Item                                         | 代码<br>Symbol | 电气特性规格              |            |            |             | 备注<br>Notes                              |
|----|----------------------------------------------------|--------------|---------------------|------------|------------|-------------|------------------------------------------|
|    |                                                    |              | 下限<br>Min.          | 中心<br>Typ. | 上限<br>Max. | 单位<br>Units |                                          |
| 1  | 一般频率Nominal Frequency                              | F0           | 32.768              |            |            | KHz         |                                          |
| 2  | 振荡模式Oscillation Mode                               | -            | Fundamental         |            |            | -           |                                          |
| 3  | 负载电容Load Capacitance                               | CL           | 12.5                |            |            | pF          |                                          |
| 4  | 推荐匹配电容范围<br>Recommended matching capacitance range |              | -                   | -          | -          | pF          |                                          |
| 5  | 频率公差Frequency Tolerance                            | -            | -10                 | -          | 10         | ppm         | At 25°C±3°C                              |
| 6  | 等效串联电阻Equivalent Series Resistance                 | ESR          | -                   | -          | 70         | kΩ          |                                          |
| 7  | 驱动功率Drive Level                                    | DL           | -                   | -          | 1.0        | μW          |                                          |
| 8  | Temperature Coefficient 温度系数                       | B            | [-0.035±0.01]ppm/°C |            |            |             | Over Operating Temp. Range(Ref. to 25°C) |
| 9  | 工作温度Operating Temperature                          | -            | -40                 | -          | 85         | °C          |                                          |
| 10 | 储存温度Storage Temperature                            | -            | -55                 | -          | 125        | °C          |                                          |
| 11 | 年老化率Aging                                          | -            | -3                  | -          | 3          | ppm         | Per Year                                 |
| 12 | 绝缘阻抗Insulation Resistance                          | -            | 500                 | -          | -          | MΩ          | At DC 100V                               |
| 13 | 并联电容Shunt Capacitance                              | C0           | -                   | -          | 3          | pF          |                                          |

## ● OUTLINE DIMENSIONS(UNIT:mm) 外形尺寸 (单位: mm)



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## ● RELIABILITY SPECIFICATIONS (信赖度试验)

| No | Test Item (测试项目)                                        | Test Conditions (测试条件)                                                                                                                                                                                                          | Reference (参考)                         |
|----|---------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| 1  | High Temperature<br>High Humidity Storage<br>(高温、高湿、储存) | Temperature: 85°C±3°C<br>温度: 85°C±3°C<br>Relative Humidity: 85%RH<br>相对湿度: 85%RH<br>Time: 96 Hours<br>时间: 96小时                                                                                                                  | JIS C5023                              |
| 2  | High Temperature Storage<br>(高温储存)                      | Temperature: 125°C±3°C<br>温度: 125°C±3°C<br>Time: 96 Hours<br>时间: 96小时                                                                                                                                                           | MIL-STD-883E Method<br>1005.8          |
| 3  | Low Temperature Storage<br>(低温储存)                       | Temperature: -40°C±3°C<br>温度: -40°C±3°C<br>Time: 96Hours<br>时间: 96小时                                                                                                                                                            | MIL-STD-883E Method 1013               |
| 4  | Thermal Shock<br>(温度冲击)                                 | Temperature1: -55°C±5°C<br>温度1: -55°C±5°C<br>Temperature2: 85°C±5°C<br>温度2: 85°C±5°C<br>Temperature change between T1 and T2 5 min<br>T1和T2温度在5分钟内改变<br>10cycles maintain T1 and T2 for 30 minutes each mone cy<br>每次循环30分钟共10次 | MIL-STD-202F Method 107<br>Condition A |
| 5  | RESISTANCE TO SOLDER<br>HEAT<br>(耐焊接热)                  | Solder Temperature: 260°C±5°C<br>焊槽温度: 260°C±5°C<br>Time: 10±1 Seconds<br>时间: 10±1秒                                                                                                                                             | MIL-STD-202F Method 210E               |
| 6  | Solderability(可焊性)                                      | The solder pot temperature is 245±5°C, dwell time 5±0.5sec<br>245±5°C焊锡槽浸润5±0.5秒                                                                                                                                                | J-STD-002B                             |
| 7  | Drop Test<br>(落下试验)                                     | 3 Times Free Fall from 75cm height table to 3cm<br>thickness hard wood board<br>从75cm高度3次跌落到3cm厚硬质木板上                                                                                                                           | JIS C6701                              |
| 8  | MECHANICAL SHOCK<br>(机械冲击)                              | Half sine wave, 1000 G<br>半正弦波, 加速度1000G<br>3 Times for all 3 directions<br>X、Y、Z 三个相互垂直方向各三次                                                                                                                                   | MIL-STD-202F Method 213B               |
| 9  | Vibration<br>(机械振动)                                     | Frequency Range: 10Hz~55Hz<br>频率范围: 10Hz~55Hz<br>Amplitude: 0.75mm<br>振幅: 0.75mm<br>2 Hours in each direction, total 6 Hours<br>X、Y、Z 三个相互垂直方向各振动2小时                                                                            | MIL-STD-883E Method 2007.3             |
| 10 | Leakage Test<br>(气密性)                                   | Take measurements with a helium<br>Leakage detector<br>氦质检漏<br>Leakage Rate ≤ 1×10 <sup>-3</sup> Pa cm <sup>3</sup> /s<br>漏率 ≤ 1×10 <sup>-3</sup> Pa cm <sup>3</sup> /s                                                         | MIL-STD-883E                           |

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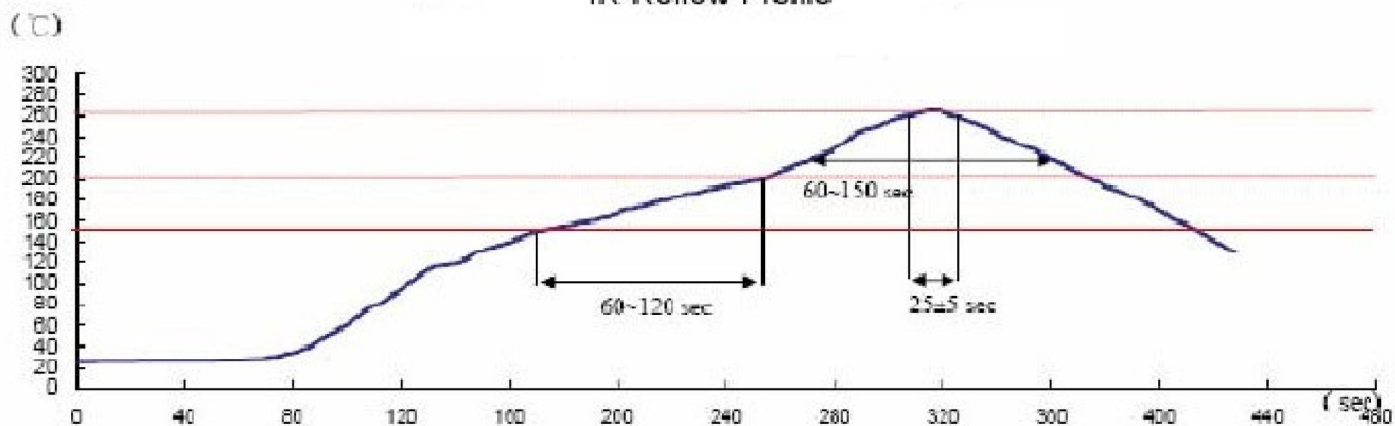
## ● SUGGESTED REFLOW PROFILE (回流焊曲线图)

Total time: 200sec. Max. (总时间: 200秒 最大)

Solder melting point: 220°C (熔点 220 °C)

| Profiles Feature (特性)                          |               | Pb-Free Assembly |
|------------------------------------------------|---------------|------------------|
| Average Ramp-up Rate(Ts max to Tp)             | 平均升温速度        | 3°C/second Max   |
| Preheat                                        | 预热            |                  |
| ■ Temperature Min (Ts min)                     | 最低温度          | 125°C            |
| ■ Temperature Max (Ts max)                     | 最高温度          | 200°C            |
| ■ Time (ts min to ts max)                      | 从最低到最高时间      | (60~180) seconds |
| Time maintained above                          | 维持上述时间        |                  |
| ■ Temperature(T1)                              | 温度            | 217°C            |
| ■ Time(tp)                                     | 时间            | (60~150) seconds |
| Peak/Classification Temperature(Tp)            | 最高点温度         | 260 °C           |
| Time within 5°C of actual Peak Temperature(tp) | 高温维持时间        | (20~40) seconds  |
| Ramp-down rate                                 | 降温速度          | 6°C/second max   |
| Time 25°C to Peak Temperature                  | 从25°C到最高温度的时间 | 8 minutes max    |
| Suggest reflow times                           | 建议 reflow次数   | 3 Times max      |

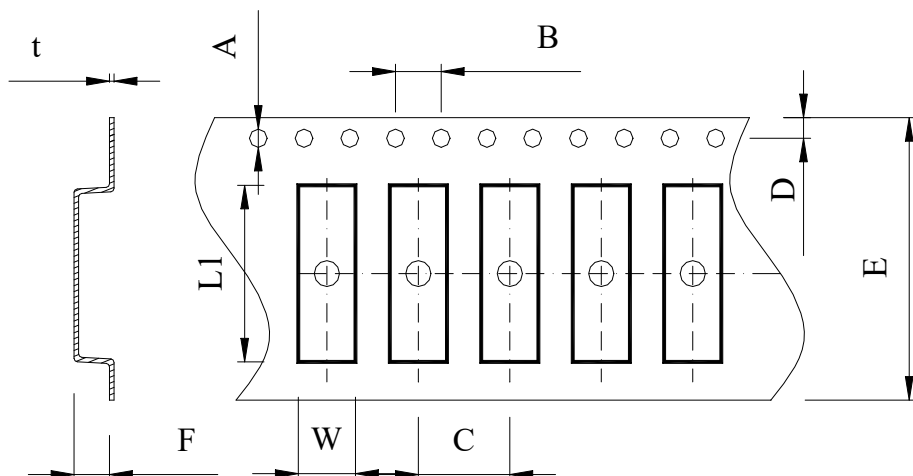
IR-Reflow Profile



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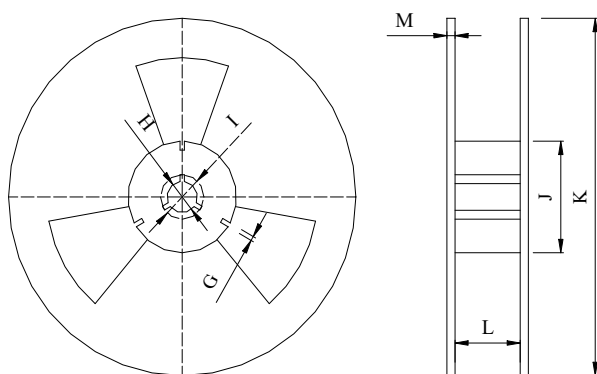
### ● PACKAGE

*Tape Dimensions(unit : mm)*



| A   | B   | C   | D    | E   | F   | L1  | W   | T   |
|-----|-----|-----|------|-----|-----|-----|-----|-----|
| 1.5 | 4.0 | 4.0 | 1.75 | 8.0 | 1.0 | 3.6 | 2.9 | 0.3 |

### ● Reel Dimensions(unit: mm)



| G   | H    | I    | J    | K     | L   | M   |
|-----|------|------|------|-------|-----|-----|
| 2.5 | 13.5 | 21.6 | 60.0 | 180.0 | 9.5 | 1.6 |

\*3000pcs/Reel

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