

# 承 认 书

SPECIFICATION FOR APPROVAL

客户名称: Customer \_\_\_\_\_

货 名: Description SMD3225 石英晶体谐振器

客户料号: Part No \_\_\_\_\_

物料编号: Code No S3220000201040D2

频 率: Frequency 20.000MHz

日 期: Date 2020-06-29

备 注: RoHS compliance with Directive (EU) 2015/863

| 制作(Prepare by) | 检查(Check by) | 批准 (Approve by) |
|----------------|--------------|-----------------|
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|                             |  |
|-----------------------------|--|
| 客户批准<br>Approve by customer |  |
| 批准日期<br>Approval date       |  |

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## 1、 Specifications

|    |                                      |                              |
|----|--------------------------------------|------------------------------|
| 1  | 规格型号 Holder Type                     | SMD3225                      |
| 2  | 标称频率 Nominal Frequency               | 20.000MHz                    |
| 3  | 振动模式 Mode of Oscillation             | Fundamental                  |
| 4  | 调整频差 Frequency Tolerance at 25°C     | ±10ppm                       |
| 5  | 温度频差 Temperature Frequency Stability | ±20ppm                       |
| 6  | 工作温度 Operating Temperature Range     | -20~70°C                     |
| 7  | 贮存温度 Storage Temperature Range       | -40~90°C                     |
| 8  | 负载电容 Load Capacitance                | 20pF                         |
| 9  | 静电容 Shunt capacitance                | ≤7 pF                        |
| 10 | 等效电阻 Equivalent Series Resistance    | 40 Ω Max                     |
| 11 | 激励功率 Drive Level                     | 10uW                         |
| 12 | 绝缘阻抗 Insulation Resistance           | 500MΩ/100V±15V <sub>DC</sub> |
| 13 | 年老化率 Aging                           | ±3ppm/First year             |
| 14 | 测试仪器 Test machine                    | 250B                         |

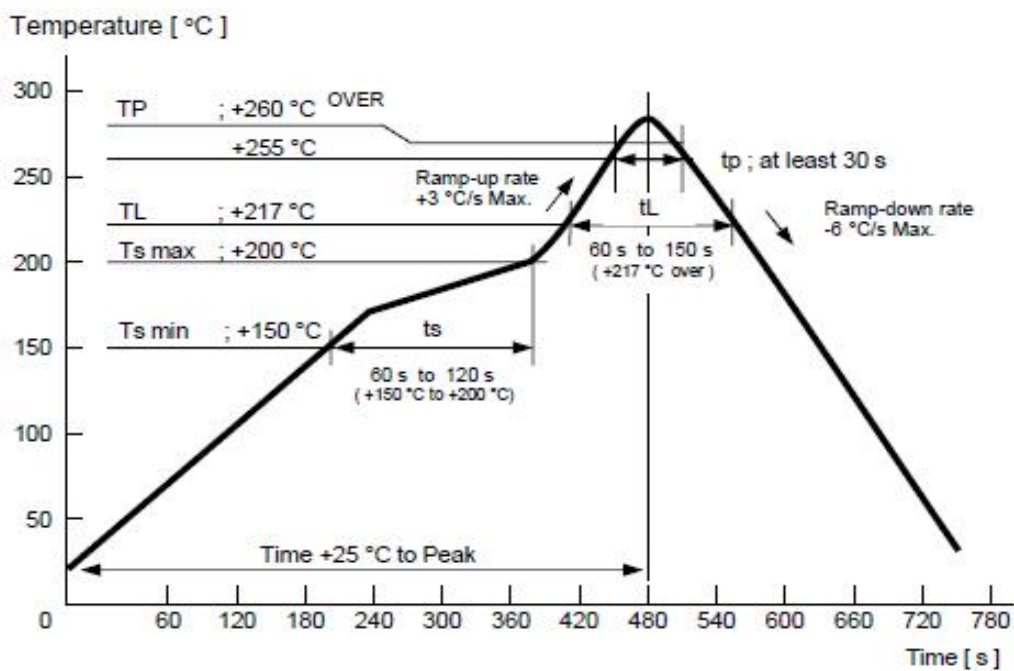
## 2. Frequency stability over temperature range (AT cut)

| Temperature Range | Frequency Stability |       |         |        |        |        |        |        |
|-------------------|---------------------|-------|---------|--------|--------|--------|--------|--------|
|                   | ±3PPM               | ±5PPM | ±7.5PPM | ±10PPM | ±20PPM | ±30PPM | ±50PPM | ±70PPM |
| 0°C~+50°C         | ☆                   | ☆     | ☆       | ☆      | ☆      | ☆      | ☆      | ☆      |
| -10°C~+60°C       |                     |       | ☆       | ☆      | ☆      | ☆      | ☆      | ☆      |
| -20°C~+70°C       |                     |       |         | ☆      | ★      | ☆      | ☆      | ☆      |
| -30°C~+70°C       |                     |       |         |        | ☆      | ☆      | ☆      | ☆      |
| -40°C~+85°C       |                     |       |         |        | ☆      | ☆      | ☆      | ☆      |
| -40°C~+125°C      |                     |       |         |        |        | ☆      | ☆      | ☆      |

### 3. Dimensions (unit:mm)



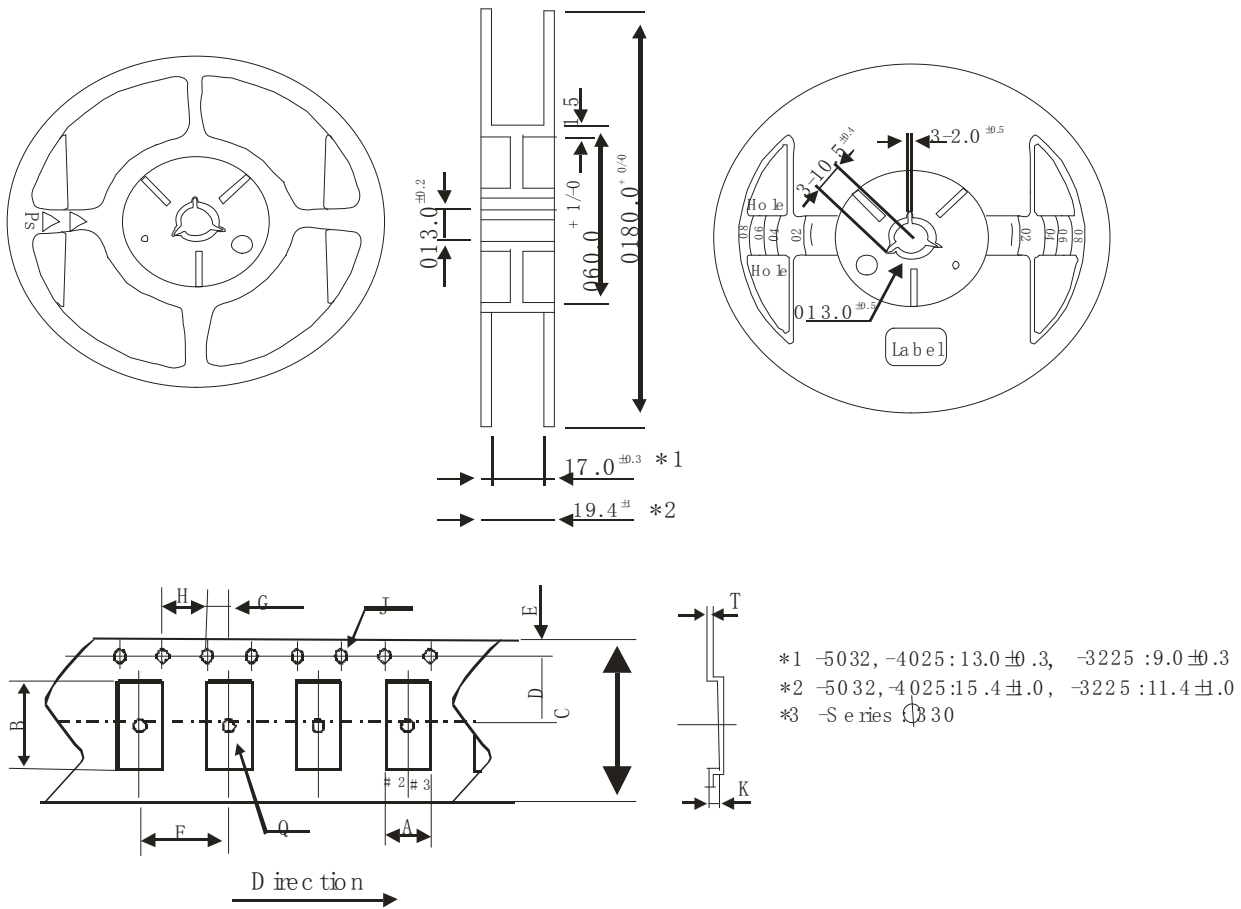
### 4.Recommended Reflow profile



## 5. Reliability specifications

| NO | Item                         | Condition  | Standard   |
|----|------------------------------|--|--|
| 1. | Drop Test                    | Free drop from 50cm height on a hard wooden board for 3 times. (Board is thickness more than 30 mm.)                               | Frequency change:<br>≤5ppm<br>Rr as specification  |
| 2. | Mechanical Shock             | Half sine wave, 1000G, 0.5mS, three times for all 3 directions   | Frequency change:<br>≤5ppm<br>Rr as specification  |
| 3. | Vibration                    | Frequency range:10~55hz<br>Amplitude:1.52mm<br>Sweep time:1mintutes<br>perpendicular axes each test time:2Hrs                      | Frequency change:<br>≤5ppm<br>Rr as specification  |
| 4. | Solderability                | Temperature:245℃ ± 5℃<br>Immersing depth:0.5mm minimum<br>Immersion time:5 ± 1sec.<br>Flux:Rosin resin methyl alcohol solvent(1:4) | 90% exhibit tin ok                                 |
| 5. | Resistance to soldering heat | Test temperature:260℃ ± 5℃<br>Test time :10 ± 1sec.  | Frequency change:<br>≤10ppm<br>Rr as specification |
| 6. | High Temp & Humidity         | 85±3℃ & RH85%, 500 ± 12 hours  | Frequency change:<br>≤10ppm<br>Rr as specification |
| 7. | Low temperature storage      | -40±3℃, 500 ± 12 hours   | Frequency change:<br>≤10ppm<br>Rr as specification |
| 8. | High temperature storage     | +85±3℃, 500 ± 12 hours   | Frequency change:<br>≤10ppm<br>Rr as specification |
| 9. | Temperature cycling          | -40±3℃/10min~+85±3℃/10min, 100cycles   | Frequency change:<br>≤10ppm<br>Rr as specification |

## 6、Packaging standard

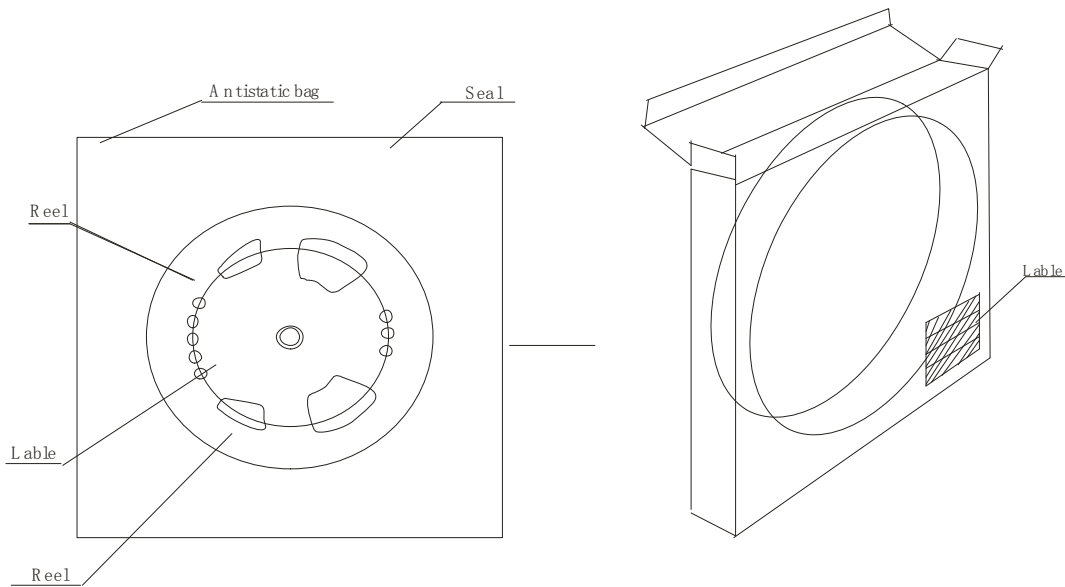


- Standard quantity of ST -3225 : 3,000 pcs/reel
- Standard quantity of SN -Series : 4,000 pcs/reel
- Standard quantity of others : 1,000 pcs/reel
- Carrier tape : Antistatic material (PS)
- Each reel can be recycled

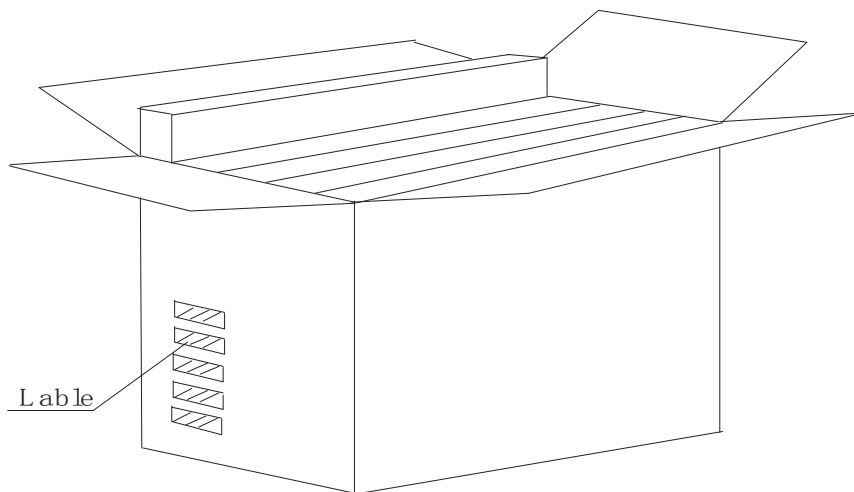
|   | SJ-7050<br>SN-7050 | SJ-6032<br>SN-6032 | SJ-5032         | SJ -5032        | SJ-4025          | SJ-3225          |
|---|--------------------|--------------------|-----------------|-----------------|------------------|------------------|
| A | 5.4 $\pm$ 0.1      | 3.9 $\pm$ 0.1      | 3.5 $\pm$ 0.1   | 3.5 $\pm$ 0.1   | 2.9 $\pm$ 0.1    | 2.9 $\pm$ 0.1    |
| B | 7.4 $\pm$ 0.1      | 6.4 $\pm$ 0.1      | 5.4 $\pm$ 0.1   | 5.4 $\pm$ 0.1   | 4.4 $\pm$ 0.1    | 3.6 $\pm$ 0.1    |
| C | 16.0 $\pm$ 0.2     | 16.0 $\pm$ 0.2     | 12.0 $\pm$ 0.2  | 12.0 $\pm$ 0.2  | 10.0 $\pm$ 0.2   | 8.0 $\pm$ 0.2    |
| D | 7.5 $\pm$ 0.1      | 7.5 $\pm$ 0.1      | 5.5 $\pm$ 0.1   | 5.5 $\pm$ 0.1   | 5.5 $\pm$ 0.1    | 5.5 $\pm$ 0.1    |
| E | 1.75 $\pm$ 0.1     | 1.75 $\pm$ 0.1     | 1.75 $\pm$ 0.1  | 1.75 $\pm$ 0.1  | 1.75 $\pm$ 0.1   | 1.75 $\pm$ 0.1   |
| F | 8.0 $\pm$ 0.1      | 8.0 $\pm$ 0.1      | 8.0 $\pm$ 0.1   | 8.0 $\pm$ 0.1   | 4.0 $\pm$ 0.1    | 4.0 $\pm$ 0.1    |
| G | 2.0 $\pm$ 0.1      | 2.0 $\pm$ 0.1      | 2.0 $\pm$ 0.1   | 2.0 $\pm$ 0.1   | 2.0 $\pm$ 0.1    | 2.0 $\pm$ 0.1    |
| H | 4.0 $\pm$ 0.1      | 4.0 $\pm$ 0.1      | 4.0 $\pm$ 0.1   | 4.0 $\pm$ 0.1   | 4.0 $\pm$ 0.1    | 4.0 $\pm$ 0.1    |
| J | 1.55 $\pm$ 0.05    | 1.55 $\pm$ 0.05    | 1.5 $\pm$ 0.1/0 | 1.5 $\pm$ 0.1/0 | 1.5 $\pm$ 0.1/0  | 1.5 $\pm$ 0.1/0  |
| K | 1.4 $\pm$ 0.1      | 1.5 $\pm$ 0.1      | 1.0 $\pm$ 0.1   | 1.5 $\pm$ 0.1   | 0.9 $\pm$ 0.1    | 0.9 $\pm$ 0.1    |
| Q | 1.6 $\pm$ 0.1/0    | 1.55 $\pm$ 0.05    | 1.6 $\pm$ 0.1   | 1.6 $\pm$ 0.1   | 1.5 $\pm$ 0.1/0  | 1.5 $\pm$ 0.1/0  |
| T | 0.3 $\pm$ 0.05     | 0.3 $\pm$ 0.05     | 0.25 $\pm$ 0.05 | 0.25 $\pm$ 0.05 | 0.25 $\pm$ 0.05s | 0.25 $\pm$ 0.05s |

| Item         |               | Empty Space    |
|--------------|---------------|----------------|
| Tapa Leader  | Cover Tape    | Min.500mm      |
|              | Empty Pockets | Min.20 pockets |
| Tape Trailer | Cover Tape    | Min.0mm        |
|              | Empty Pockets | Min.40mm       |

**7. Inner carton**



**OUTET CARTON**



### 7-1. MARKING

- (1) Marking Labels are affixed to reel, inner carton and outer carton.
- (2) Each label contains the following information.
  - (a) Manufacture's name or symbol
  - (b) Parts name or type
  - (c) Frequency
  - (d) Quantity
  - (e) Reel number
  - (f) Manufacturer's code (EIAJ code)

### 7-2. QUANTITY

3000pcs/reel (max.5reels in outer carton)

### 7-3. STORAGE ENVIRONMENT

- ✧ Storage the reel at normal temperature and humidity
- ✧ Open the packing just before using
- ✧ Do not expose the sun
- ✧ Do not storage with some erosive chemicals
- ✧ Nothing is allowed to put on the reel or carton to prevent mechanical damage

### 7-4. HANDLING

- ✧ Handle with care to prevent the damage of tape, reel and products.