

## CRYSTAL RESONATOR SPECIFICATIONS

### 石英晶体谐振器承认书

|                     |                |
|---------------------|----------------|
| 客户 Customer:        | 立创商城           |
| 型号 Product:         | 3TJ4           |
| 客户料号 Code No:       |                |
| 我司料号 Code No:       | 3TJ412000NYGBC |
| 频率 Frequency:       | 12.000MHz      |
| 数量 Sample Quantity: |                |
| 日期 Date:            | 2023-5-10      |

### 深圳市晶友嘉电子有限公司

SHENZHEN JINGYOUJIA ELECTRONIC CO., LTD  
深圳市龙华区东环二路数字颖博智能园 B 栋 412

TEL: 86-755-32840201 32850080  
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#### 供应商确认栏:

|            |            |             |
|------------|------------|-------------|
| 制作 Handler | 确认 Checked | 核审 Approved |
| 戴晓嘉        | 陈斌         | 李晨          |

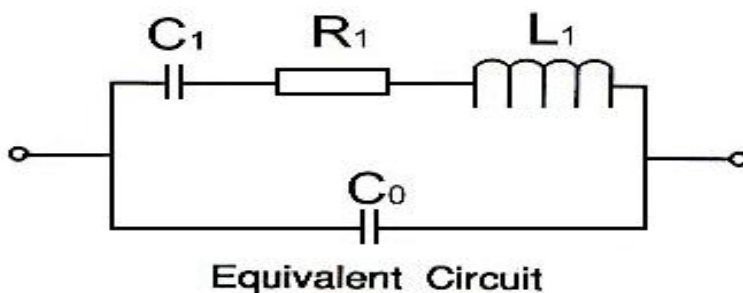
#### 客户承认栏:

|            |             |
|------------|-------------|
| 承认 Checked | 核审 Approved |
|            |             |

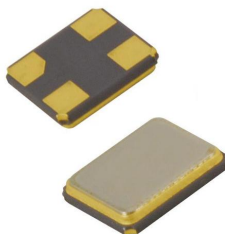
## 1. Electrical Parameters

| No. | Item                         | Symb          | Electrical Specification |      |      |       | Remark        |
|-----|------------------------------|---------------|--------------------------|------|------|-------|---------------|
|     |                              |               | Min.                     | Type | Max. | Units |               |
| 1   | Nominal Frequency            | F0            | 12.000                   |      |      | MHz   |               |
| 2   | Mode of Vibration            |               | Fundamental              |      |      |       |               |
| 3   | Frequency Tolerance          | $\Delta F/F0$ | -10                      |      | 10   | ppm   | At 25°C ± 3°C |
| 4   | Operating Temperature Range  | TOPR          | -30                      |      | 85   | °C    |               |
| 5   | Frequency Stability          | TC            | -20                      |      | 20   | ppm   |               |
| 6   | Storage Temperature          | TSTG          | -40                      |      | 90   | °C    |               |
| 7   | Load Capacitance             | CL            | 12                       |      |      | PF    |               |
| 8   | Equivalent Series Resistance | ESR           |                          |      | 70   | Ω     |               |
| 9   | Drive Level                  | DL            | 100                      |      |      | μW    |               |
| 10  | Insulation Resistance        | IR            | 500                      |      |      | MΩ    | At 100VDC     |
| 11  | Shunt Capacitance            | C0            |                          |      | 5    | PF    |               |
| 12  | Motional Capacitance         | C1            |                          |      |      | PF    |               |
| 13  | Aging Per Year               | Fa            | -3                       |      | 3    | ppm   | First Year    |
|     |                              |               |                          |      |      |       |               |

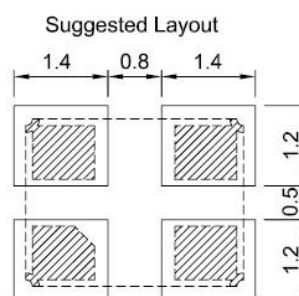
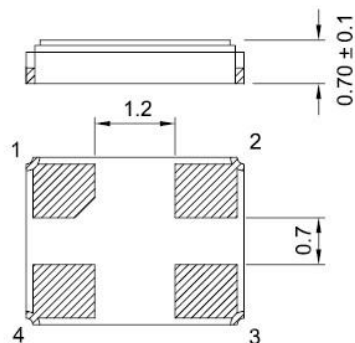
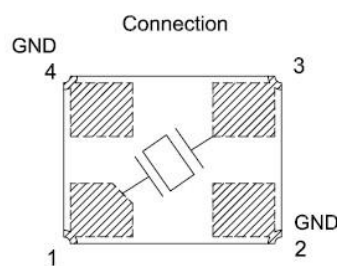
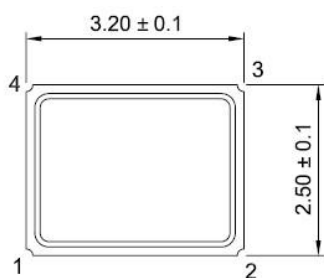
## 2. Equivalent Circuit:



### 3.实物 Product



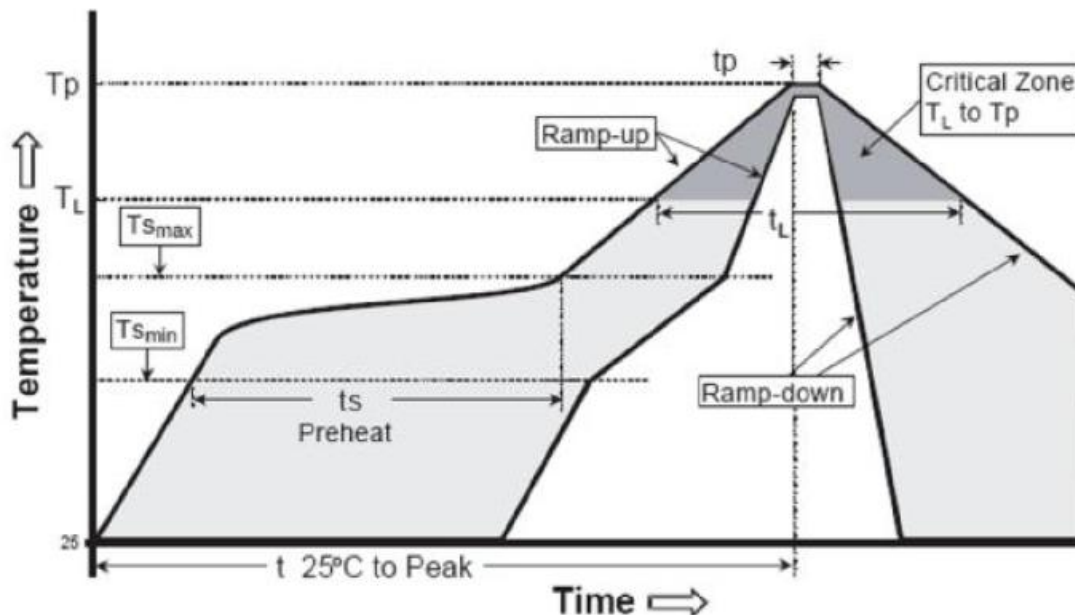
### 4.外型尺寸 Outline Dimensions (unit:mm)



Units:mm

## 5.回流焊曲线 Reflow Profiles

| Profiles Feature                     | Pb-Free Assembly |
|--------------------------------------|------------------|
| Average Ramp-up Rate (Ts max to Tp)  | 3°C/second max.  |
| Preheat                              |                  |
| Temperature Min (Ts min)             | 125°C            |
| Temperature Max(Ts max)              | 200°C            |
| Time (ts min to ts max)              | 60~180 seconds   |
| Time maintained above                |                  |
| Temperature (TL)                     | 217°C            |
| Time (tL)                            | 60~150 seconds   |
| Peak/Classification Temperature (Tp) |                  |
| Time within 5°C of actual Peak       | 20~40 second     |
| Temperature(tp)                      |                  |
| Ramp-down rate                       | 6°C/second max.  |
| Time 25°C to Peak Temperature        | 8 minutes max.   |
| Suggest reflow times                 | 3 times max.     |

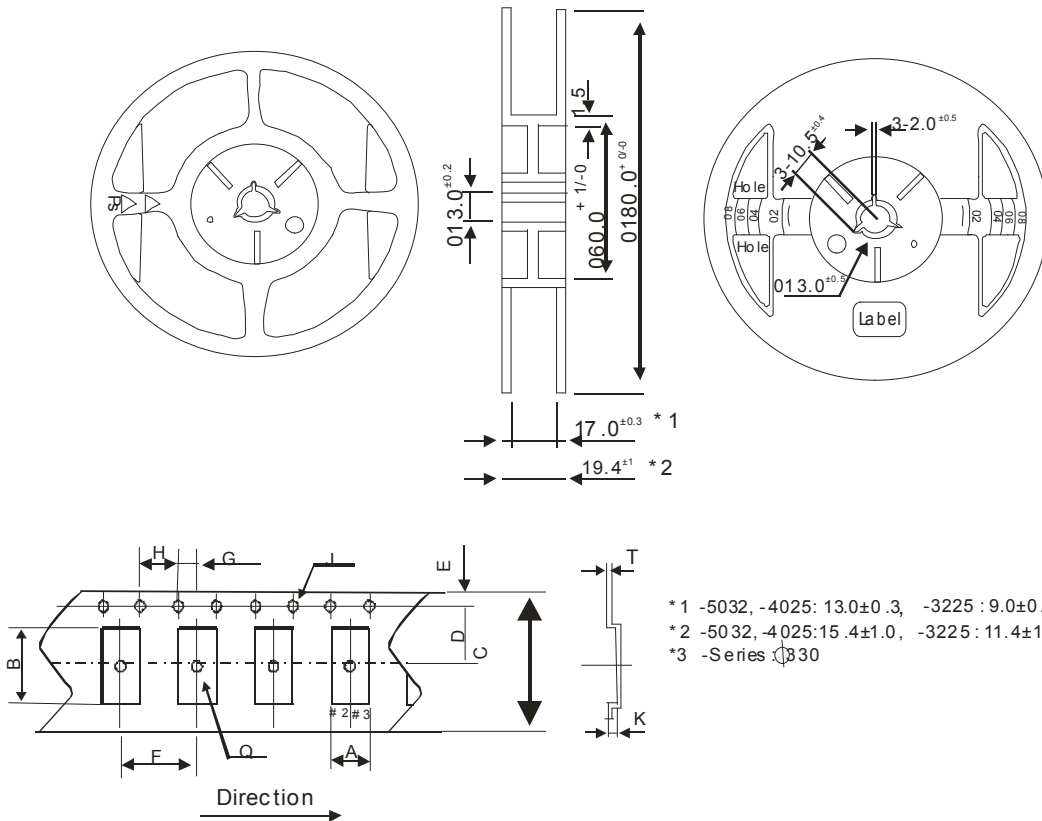


## 6.机械可靠/信赖性 Mechanical Performance

|     | Item                             | Condition                                                                                                                   | Standard                                                       |
|-----|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|
| 1.  | Drop characteristics             | Free drop from 50cm height on a hard wooden board for 3 times. (Board is thickness more than 30 mm.)                        | Frequency change:<br>$\leq 5\text{ppm}$<br>Rr as specification |
| 2.. | Shake characteristics            | Shake frequency 10~55Hz, cyc1~2 minutes, swing 1.5mm, direction x/y/z, all 30 minutes, test after 1 hours.                  | Frequency change:<br>$\leq 5\text{ppm}$<br>Rr as specification |
| 3.  | Airproof characteristics         | Put crystal into the pressure cabin with alcohol, keep pressure 0.4~0.5mpa 10 minutes, then take out and blow for 5 minutes | $IR \geq 500M\Omega$                                           |
| 4.  | Weld characteristics             | 260℃ Max, 10 seconds                                                                                                        | 90% exhibit tin ok                                             |
| 5.  | Humidity characteristics         | +40±2℃ & 90%~95% R.H. 250 hours                                                                                             | Frequency change:<br>$\leq 5\text{ppm}$<br>Rr as specification |
| 6.  | Low temperature characteristics  | -30±2℃, 250 hours, put in room temperature, test after 1 hours.                                                             | Frequency change:<br>$\leq 5\text{ppm}$<br>Rr as specification |
| 7.  | High temperature characteristics | +85±2℃, 250 hours, put in room temperature, test after 1 hours.                                                             | Frequency change:<br>$\leq 5\text{ppm}$<br>Rr as specification |
| 8.  | Temperature cycling              | -30±3℃/30±3 min~+85±2℃/30±3min, 5 cycles                                                                                    | Frequency change:<br>$\leq 5\text{ppm}$<br>Rr as specification |

## 7.Dimension of Inside Package

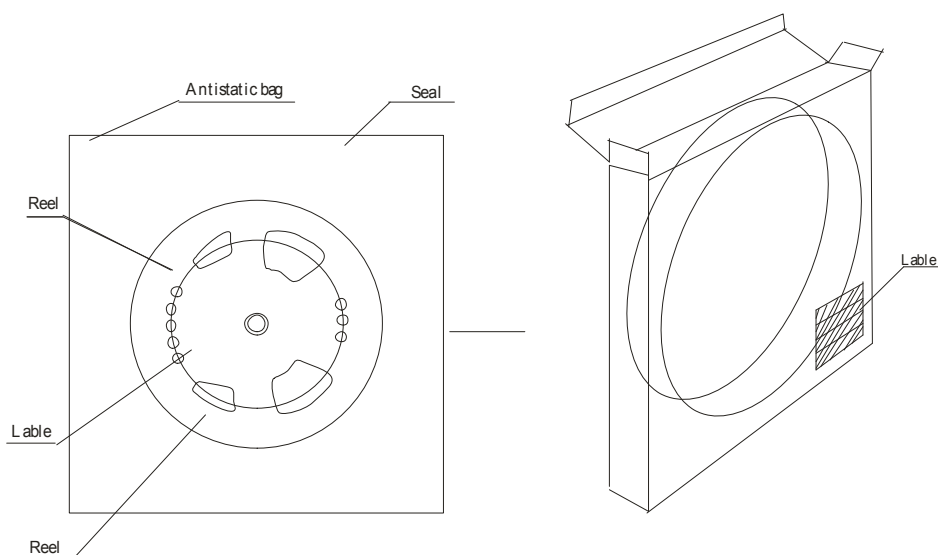
内包装尺寸图



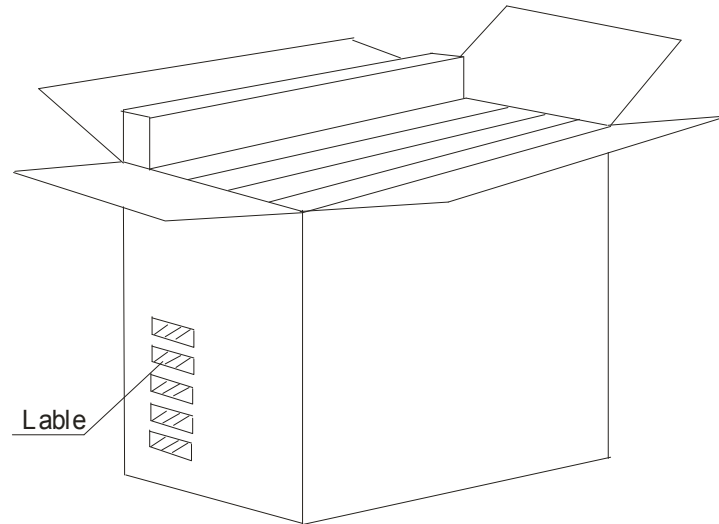
- Standard quantity of 3225 : 3.000 pcs/reel
- Standard quantity of others : 1.000 pcs/reel
- Carrier tape : Antistatic material (PS)
- Each reel can be recycled

|   | 7050           | 6035           | 5032           | 3225            |
|---|----------------|----------------|----------------|-----------------|
| A | $5.4^{+0.1}$   | $3.9^{+0.1}$   | $3.5^{+0.1}$   | $2.9^{+0.1}$    |
| B | $7.4^{+0.1}$   | $6.4^{+0.1}$   | $5.4^{+0.1}$   | $3.6^{+0.1}$    |
| C | $16.0^{+0.2}$  | $16.0^{+0.2}$  | $12.0^{+0.2}$  | $10.0^{+0.2}$   |
| D | $7.5^{+0.1}$   | $7.5^{+0.1}$   | $5.5^{+0.1}$   | $5.5^{+0.1}$    |
| E | $1.75^{+0.1}$  | $1.75^{+0.1}$  | $1.75^{+0.1}$  | $1.75^{+0.1}$   |
| F | $8.0^{+0.1}$   | $8.0^{+0.1}$   | $8.0^{+0.1}$   | $4.0^{+0.1}$    |
| G | $2.0^{+0.1}$   | $2.0^{+0.1}$   | $2.0^{+0.1}$   | $2.0^{+0.1}$    |
| H | $4.0^{+0.1}$   | $4.0^{+0.1}$   | $4.0^{+0.1}$   | $4.0^{+0.1}$    |
| J | $1.55^{+0.05}$ | $1.55^{+0.05}$ | $1.5^{+0.1/0}$ | $1.5^{+0.1/0}$  |
| K | $1.4^{+0.1}$   | $1.5^{+0.1}$   | $1.0^{+0.1}$   | $0.9^{+0.1}$    |
| Q | $1.6^{+0.1/0}$ | $1.55^{+0.05}$ | $1.6^{+0.1}$   | $1.5^{+0.1/0}$  |
| T | $0.3^{+0.05}$  | $0.3^{+0.05}$  | $0.25^{+0.05}$ | $0.25^{+0.05s}$ |

## 8. Inner carton



## OUTET CARTON



### 8-1.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 aymbol
  - (b) Parts name or type
  - (c) Frequency
  - (d) Quantity
  - (e) Reel number
  - (f) Manufacturer's code (EIAJ code)

### 8-2. QUANTITY

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

### 8-3. 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
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### 8-4. HANDLING

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