



## CRYSTAL RESONATOR SPECIFICATIONS

### 石英晶体谐振器承认书

|                     |               |
|---------------------|---------------|
| 客户 Customer:        | 立创商城          |
| 型号 Product:         | S1T           |
| 客户料号 Code No:       |               |
| 我司料号 Code No:       | S1T73728ZWLAC |
| 频率 Frequency:       | 7.3728MHz     |
| 数量 Sample Quantity: |               |
| 日期 Date:            | 2023-5-15     |

### 深圳市晶友嘉电子有限公司

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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          |

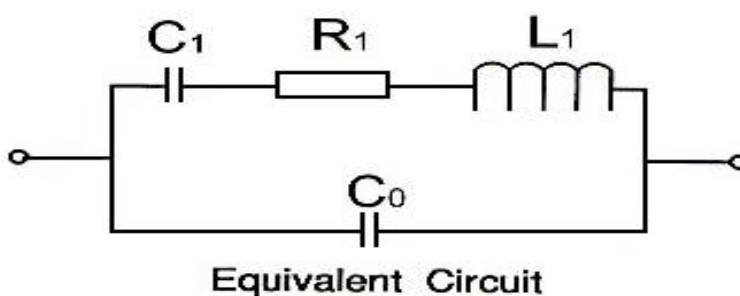
#### 客户承认栏:

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

## 1. Electrical Parameters

| No. | Item                         | Symb          | Electrical Specification |      |      |       | Remark        |
|-----|------------------------------|---------------|--------------------------|------|------|-------|---------------|
|     |                              |               | Min.                     | Type | Max. | Units |               |
| 1   | Nominal Frequency            | F0            | 7.3728                   |      |      |       | MHz           |
| 2   | Mode of Vibration            |               | Fundamental              |      |      |       |               |
| 3   | Frequency Tolerance          | $\Delta F/F0$ | -20                      |      | 20   | ppm   | At 25°C ± 3°C |
| 4   | Operating Temperature Range  | TOPR          | -20                      |      | 70   | °C    |               |
| 5   | Frequency Stability          | TC            | -30                      |      | 30   | ppm   |               |
| 6   | Storage Temperature          | TSTG          | -40                      |      | 90   | °C    |               |
| 7   | Load Capacitance             | CL            |                          | 20   |      | 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            |                          |      |      | PF    |               |
| 12  | Motional Capacitance         | C1            |                          |      |      | PF    |               |
| 13  | Aging Per Year               | Fa            | -3                       |      | 3    | ppm   | First Year    |
|     |                              |               |                          |      |      |       |               |

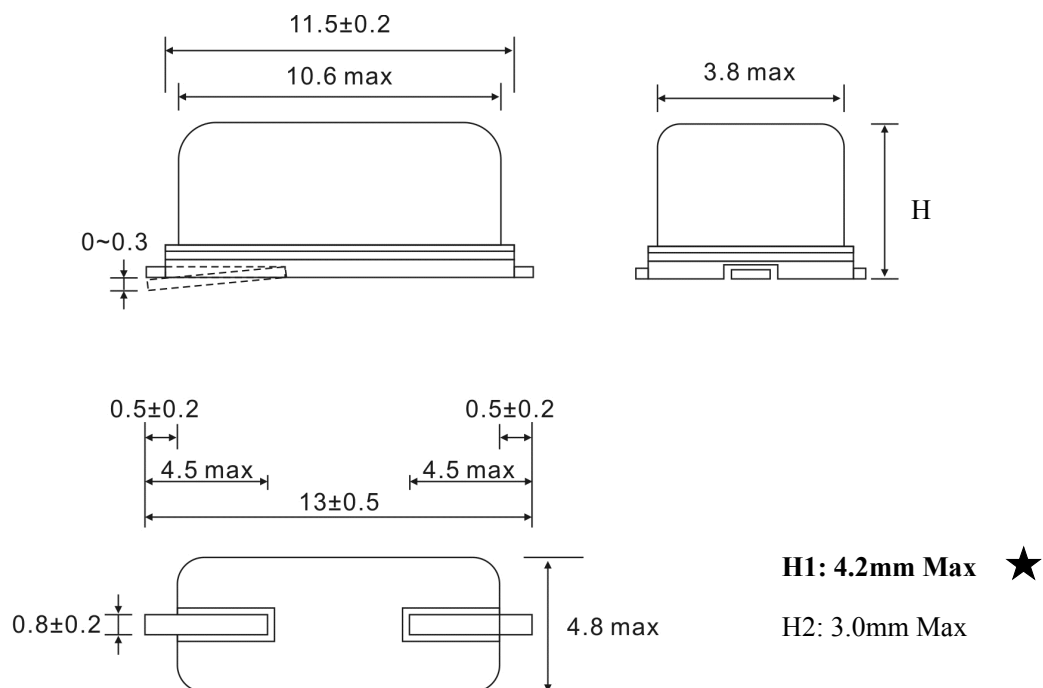
## 2. Equivalent Circuit:



### 3.实物 Product

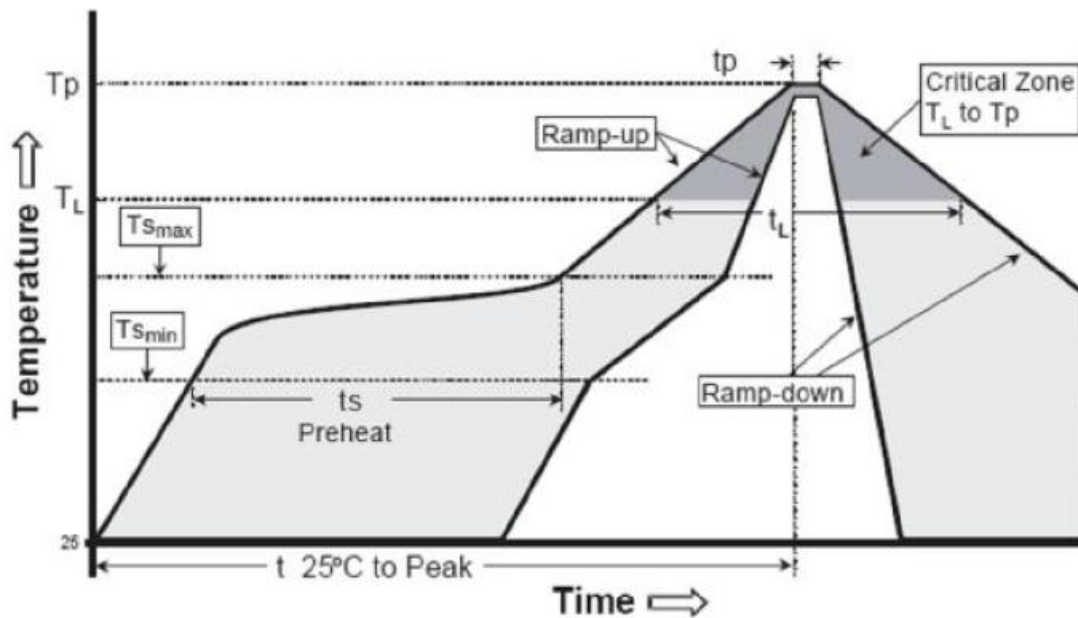


### 4.外型尺寸 Outline Dimensions (unit:mm)



## 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.     |



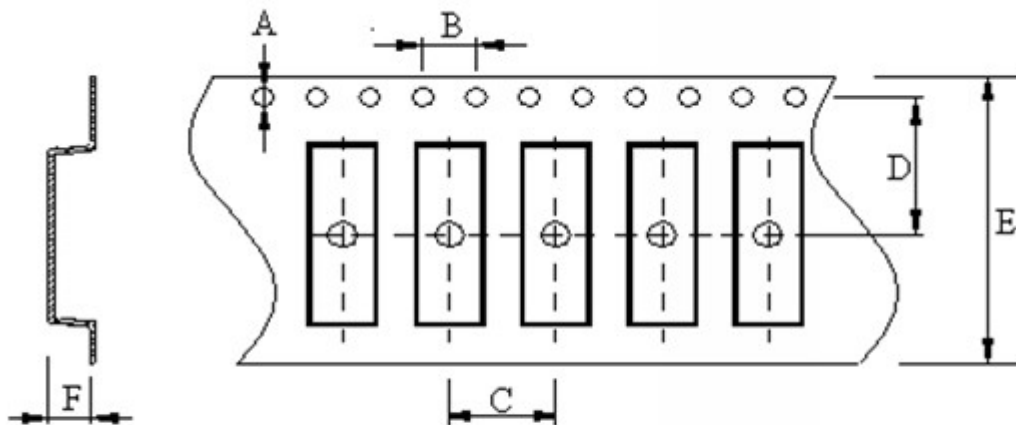


## 6.机械可靠/信赖性 Mechanical Performance

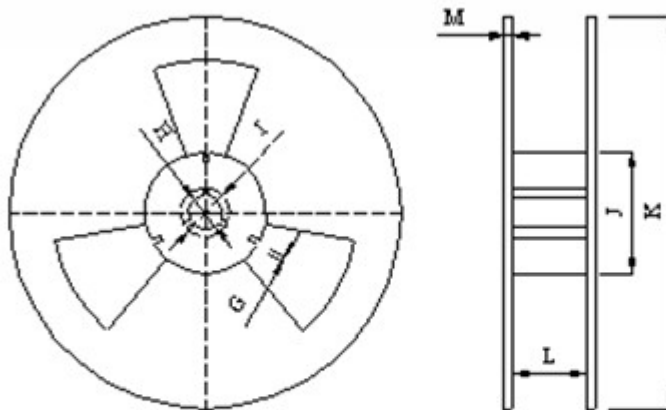
|     | Item                             | Condition                                                                                                                   | Standard                                                       |
|-----|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|
| 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



| A              | B             | C              | D              | E              | F             |
|----------------|---------------|----------------|----------------|----------------|---------------|
| $1.55 \pm 0.1$ | $4.0 \pm 0.1$ | $12.0 \pm 0.1$ | $11.5 \pm 0.1$ | $24.0 \pm 0.3$ | $3.5 \pm 0.2$ |



| G             | H              | I              | J               | K             | L              | M             |
|---------------|----------------|----------------|-----------------|---------------|----------------|---------------|
| $2.2 \pm 0.5$ | $13.0 \pm 0.2$ | $20.2 \pm 1.0$ | $100.0 \pm 1.0$ | $330 \pm 2.0$ | $24.5 \pm 0.3$ | $2.3 \pm 0.5$ |

## 8.包装 PACKING

1. 每盘数量 Capacity of a plastic reel : 1000 PCS ;
2. 每内箱数量 Capacity per inner box : 1000 PCS (A reel inner) ;
3. 每大箱数量 Capacity per outer carton : 10000 PCS (10×inner box) .

