

## STANDARD SPECIFICATION

### 产品规格书

客户 Customer: \_\_\_\_\_

客户料号 Customer P/N NO.: \_\_\_\_\_

产品描述 Product Description: TCXO-2016 26MHZ 1.8V~3.3V ±0.5PPM  
H X - C 料号 P/N. NO.: 1T026000VX

### 客户批准 Customer Approval :

| 审 核     | 批 准      |
|---------|----------|
| Checked | APPROVED |
|         |          |

(请批准后回签一份 PLEASE RETURN A COPY WITH APPROVAL)

| 拟 制<br>DESIGNER | 审 核<br>CHECK | 批 准<br>APPROVED |
|-----------------|--------------|-----------------|
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## REVISION RECORD

[illegible]

## Spec Sheet Contents

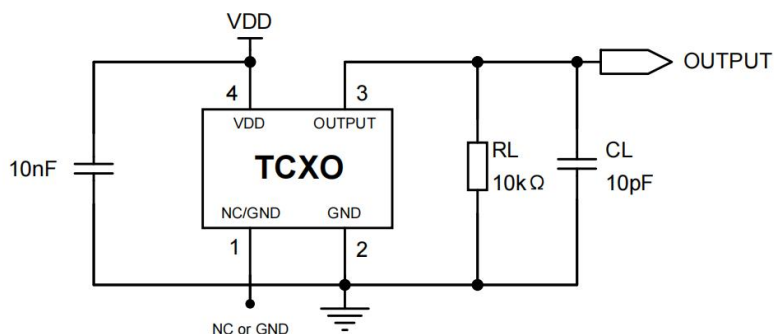
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## 1. 石英晶体参数规格 QUARTZ CRYSTAL UNIT SPECIFICATION

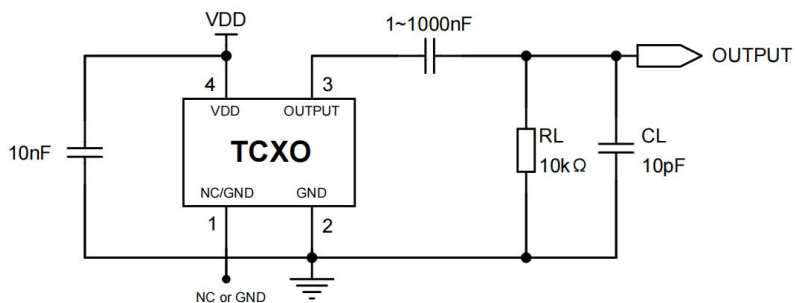
描述 Description : TCXO  
产品型别 Product Type : 1T  
测量设备 Measure equipment : S&A 280B  
电气特性 Electrical Characteristics

| NO.                 | 项目<br>Item                       | 符号<br>Symbol            | 电气特性规格<br>Electrical Specification |                            |                           |                            | 备注<br>Notes                     |
|---------------------|----------------------------------|-------------------------|------------------------------------|----------------------------|---------------------------|----------------------------|---------------------------------|
|                     |                                  |                         | 下限<br>Min.                         | 中心<br>Typ.                 | 上限<br>Max.                | 单位<br>Units                |                                 |
| 1                   | 标准频率<br>Nominal Frequency        | FL                      | 26.000                             |                            |                           |                            | MHZ                             |
| 2                   | 输出方式<br>Output mode              | -                       | Clipped Sinewave                   |                            |                           |                            | -                               |
| 3                   | 频率偏差<br>Frequency Tolerance      | FT                      | -0.5                               | -                          | +0.5                      | ppm                        | After 2 times reflow            |
| 4                   | 负载变化<br>Load Variation           | FL                      | -                                  | -                          | ±0.2                      | ppm                        | Load_R/C=(10kΩ//10pF)±10%       |
| 6                   | 温度频率稳定性<br>Temperature frequency | TC                      | -1.5                               | -                          | +1.5                      | ppm                        | TA = -40℃ ~ 85℃, VCC=3.3        |
| 6                   | 工作温度<br>Operating Temperature    |                         | -40                                | -                          | 85                        | ℃                          |                                 |
| 7                   | 储存温度范围<br>Storage Temperature    | T_stg                   | -40                                | -                          | 125                       | ℃                          |                                 |
| 8                   | 老化率<br>Aging rate                | F_age                   |                                    | ±2                         |                           | ppm                        | First year                      |
| 9                   | 供电电压<br>For the pressure         | Vdd                     | 1.8~3.3±5%                         |                            |                           |                            | ±0.3ppm(max.)                   |
| 10                  | 电流<br>current                    | Icc                     |                                    |                            | 1.5                       | mA                         |                                 |
| 11                  | 启动时间<br>Start-up time            | To's'c                  |                                    |                            | 3                         | ms                         | More then 90%of final amplitude |
| 12                  | 输出电平<br>Output Level             | -                       | 0.8                                | -                          | -                         | Vp-p                       | Clipped sine wave(DC-coupled)   |
| 13                  | 占空比<br>Duty ratio                | TH/T                    | 40                                 | -                          | 60                        | %                          |                                 |
| 相位噪声<br>Phase noise |                                  | -50dBc/Hz<br>1Hz offset | -80dBc/Hz<br>10Hz offset           | -106dBc/Hz<br>100Hz offset | -134dBc/Hz<br>1KHz offset | -144dBc/Hz<br>10KHz offset | -152dBc/Hz<br>100KHz offset     |

## 2. 电路测试 CILCUIT TEST



DC Coupled Application



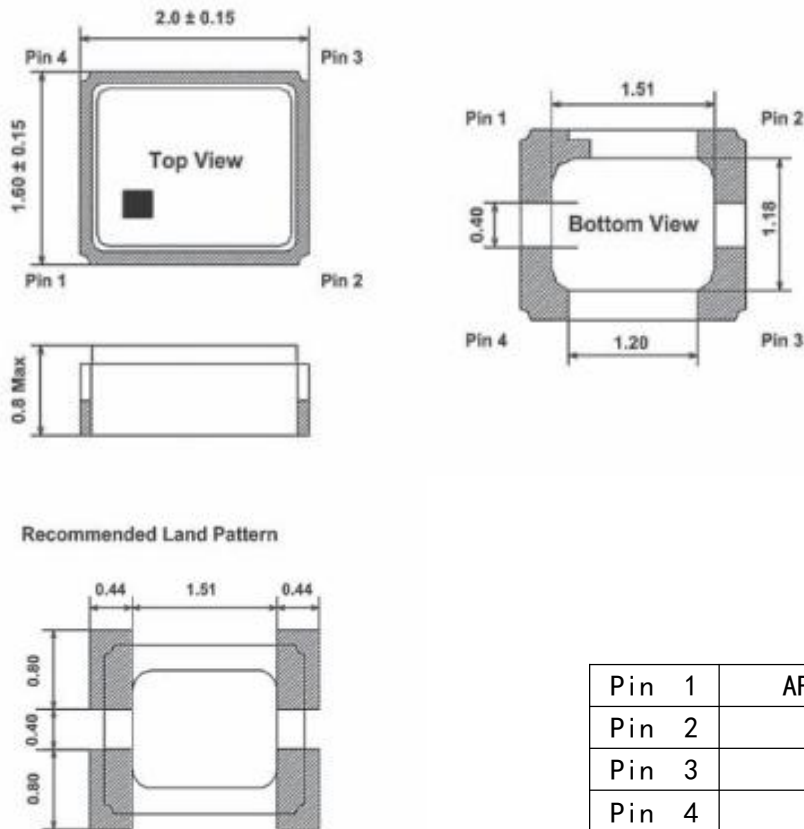
AC Coupled Application

## 3. 包装数量 NUMBER OF PACKAGES

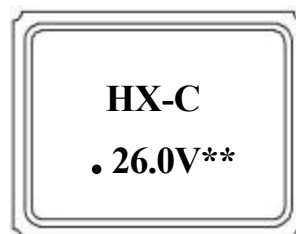
| 类型<br>TYPE           | 尺寸<br>SIZE  | 数量<br>NUMBER |
|----------------------|-------------|--------------|
| 包装盒<br>Packaging     | 180*20*180  | 3000pcs      |
| 包装箱<br>Packing cases | 240*200*200 | 30000pcs     |

#### 4. 外形尺寸 BOUNDARY DIMENSION

( 单位: mm )



#### 5. 印字

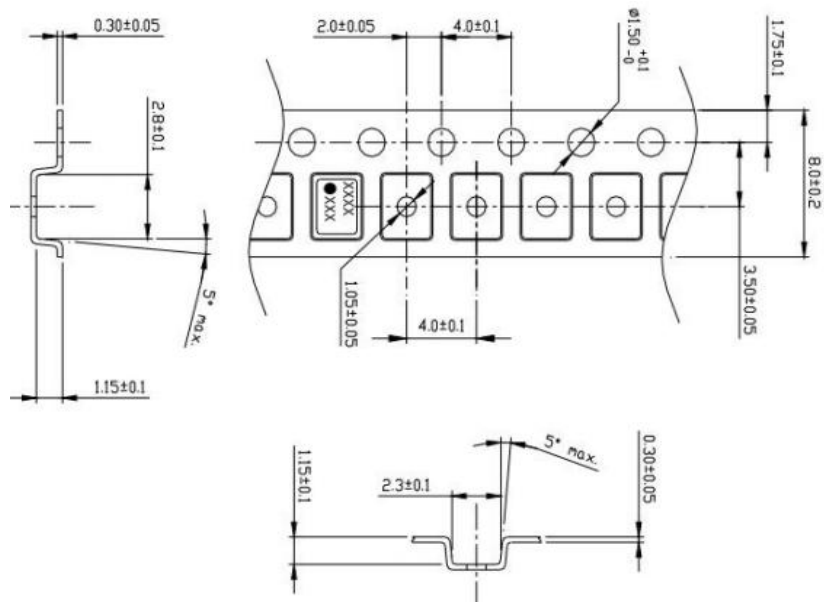


HX-C ----- LOGO  
26.0----- 频率  
V ----- 电压  
\* ----- 周期  
. ----- Pin1

## 6. 编带包装 BRAID PACKAGING

(单位: mm)

### 1. 载带与编带盘尺寸

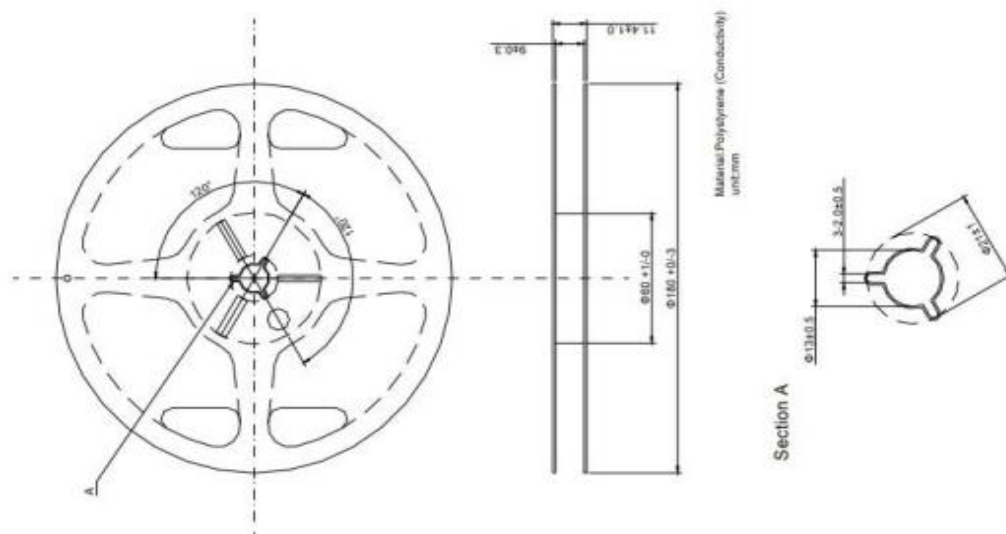


1. Clearance of an embossing tape, and a product unit: mm

| Direction | Pocket size | TCXO size | Clearance |
|-----------|-------------|-----------|-----------|
| L         | 2.8±0.1     | 2.5±0.15  | 0.3±0.25  |
| W         | 2.3±0.1     | 2.0±0.15  | 0.3±0.25  |
| H         | 1.15±0.1    | 0.9 max.  | 0.25 min. |

2. Quality : Polystyrene (Conductivity)

3. Tensile strength of an embossing tape : more than 14N



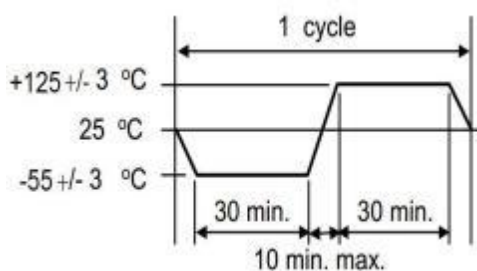
## 7. 回流焊温度曲线 REFLOW PROFILES

参考标准 REFER: JEDEC J-STD-020D

| Profiles Feature                                                                                          | Pb-Free Assembly                 |
|-----------------------------------------------------------------------------------------------------------|----------------------------------|
| Preheat/Soak<br>Temperature Min (Ts min)<br>Temperature Max (Ts max)<br>Time (Ts) from (Ts min to Ts max) | 150°C<br>200°C<br>60-120 seconds |
| Ramp-up rate (TL to TP)                                                                                   | 3°C/second max.                  |
| Liquidous temperature (TL)<br>Time (TL) maintained above TL                                               | 217°C<br>60-150 seconds          |
| Peak/Classification Temperature (TP)                                                                      | 260±5°C                          |
| Time within 5°C of actual Peak<br>Temperature (TP)                                                        | 20~40 seconds                    |
| Ramp-down rate (TP to TL)                                                                                 | 6°C/second max.                  |
| Time 25 °C to peak temperature                                                                            | 8 minutes max.                   |
| Suggest reflow times                                                                                      | 3 Times max                      |



## 8. 可靠性试验 RELIABILITY SPECIFICATION

| 参考标准REFER |                                        | JIS C 6701                                                                                                                                                                                                               |                                                                                           |
|-----------|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| NO.       | 项目<br>ITEM                             | 测试条件<br>CONDITIONS                                                                                                                                                                                                       | 判定标准<br>Criteria                                                                          |
| 1         | 跌落<br>FREE FALL                        | 从150cm位置高度,自由跌落在木板上,连续3次.<br>FREE DROPPING FROM 150 cm HEIGHT 3 TIMES ON A HARD                                                                                                                                          | 电器性能<br>满足规格要求<br><br>THE<br>ELECTRICAL<br>PERFORMAN<br>CE MEET<br>THE SPECIFIC<br>ATIONN |
| 2         | 振动<br>VIBRATION                        | 振动频率: 10~2000 Hz, 振幅: 1.52mm, 时间: 每个方位三面(X、Y、Z)各振动2小时<br>FREQUENCY: 10 2000Hz; AMPLITUDE (TOTAL EXCURSION): 1.5mm SWEEP TIME: 2-3MIN, 3 DIRECTION(X, Y, Z) EACH FOR 2 Hrs.                                               |                                                                                           |
| 3         | 温度循环<br>TEMPERATURE<br>CYCLE           | 晶体放入试验箱中, 高、低温循环10次<br>THE CRYSTAL UNIT SHALL BE SUBJECTED TO 10 SUCCESSIVE<br>CHANGE OF TEMPERATURE CYCLE<br>                        |                                                                                           |
| 4         | 冲击<br>IMOACT                           | 半正弦波冲击(1000G): 持续时间: 0.5ms, X,Y,Z三轴各三次时间: 2 小时 HELIUM BOMBING: 3 TIME                                                                                                                                                    |                                                                                           |
| 5         | 可焊性<br>SOLDERABILI<br>TY               | 温度: 245±5°C, 浸锡时间: 3±0.5 秒<br>THE LEAD IS IMMERSIED IN A 245±5°C SOLDER BATH WITHIN 3±0.5 SECONDS.                                                                                                                       |                                                                                           |
| 6         | 稳态湿热<br>HIGH TEMP. &<br>HUMIDITY       | 温度: 85 ±3°C, 湿度: 85 %, 保持时间: 500个小时<br>STORED AT 85 ±3°C AND HUMIDITY 85 % FOR 500±12H.                                                                                                                                  |                                                                                           |
| 7         | 高温存储<br>HIGH<br>TEMPERATURE<br>STORAGE | 高温温度: 125±2°C, 时间: 500±12 个小时<br>STORED AT 125±2°C FOR 500±12H.<br>如果客户的温度要求是高于标准,则必须根据客户的要求测试<br>If Customer's temperature request is higher than the standard, Temperature test must be done for customer requirements |                                                                                           |
| 8         | 低温存储<br>LOW<br>TEMPERATURE<br>STORAGE  | 低温温度: -40±2°C, 时间: 500±12 个小时<br>STORED AT -40±2°C FOR 500±12H.<br>如果客户的温度要求是低于标准,则必须根据客户的要求测试<br>If Customer's temperature request is lower than the standard, Temperature test must be done for customer requirements  |                                                                                           |