

# INDIVIDUAL SPECIFICATION SHEET

**Product Name:** 表面贴装保险丝

**Part Number:**TA Series

**Revision:** A



**Dongguan TLC Electronic Technology Co., LTD**

No.18,5th GaoLi Road,TangXia Town,DongGuan,GuangDong,P.R China 523710

TEL: 86-0769-3892 0511

FAX: 86-0769-8793 2077

Http: [www.tlcet.com.cn](http://www.tlcet.com.cn)

| Rev. | Effective Date | Changed Contents |
|------|----------------|------------------|
| A    | 2020-11-16     | New Released     |
|      |                |                  |
|      |                |                  |

The individual specification sheet are the property of Dongguan TLC electronic technology Co.,Ltd and shall not be copied or used as commercial purposes without permission.

PREPARED BY

APPROVED BY




1. 产品特性及应用范围 / Description, Features and Applications 本产品适用于各类电子设备电路初、次级电路板的过流保护，广泛应用于固态照明、电池充电、消费电子、电子镇流器、LED AC/DC 电源供应、网络通信、医疗仪器及工业控制器等领域。

Descriptions: TLC TA series slow-blow square Surface Mount fuses are ceramic tube/end cap constructions, RoHS compliant, Halogen Free and lead(Pb) exempts of the requirements of RoHS Directive(2002/95/EC), with U.S. (UL/CSA) safety agency approvals. Provide board level primary and secondary circuit protection in a wide variety of applications. With excellent inrush current withstanding capability, excellent reliability for thermal and mechanic shock, also have a high reliability and stable solder ability, end caps are available in gold/silver/nickel plated.

**Features:**

- Fast-Acting ( Fast-Acting )
- Wide range of current rating
- Low temperature de-rating
- Tape and Reel for automatic
- Small size(6.1mm\*2.5mm)
- Wide operating temperature range
- RoHS compliant
- Conflict free metals

**Applications:**



- LED lighting
- LCD backlight
- PC server
- Wireless base station
- Digital camera
- Notebook PC
- Portable Devices
- Cooling fan system
- White goods
- Industrial
- Battery devices
- Power supply
- Storage system
- Game console
- Medical
- LCD/PDP devices
- Networking
- Telecom system
- Office equipment
- Automotive

2. 安规认证标准及编号 / Standards and Agency Approvals

2.1 执行标准：遵循 UL 248-14。 Standards: In accordance with UL 248-14.

| 2.2 认证范围 | 认证范围<br>Ampere Range | 证书编号<br>Agency File Number |
|----------|----------------------|----------------------------|
| UL       | 50mA ~ 15A-40A       | E467707(JDYX2)             |
| cUL      | 50mA ~ 15A-40A       | E467707(JDYX8)             |

## 2.3 目录编号 Catalogue No., ● 已认证 Approved / ○ 认证中 Pending

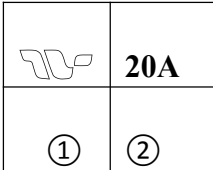

| 目录编号<br>Catalog<br>No. | 额定电流<br>Ampere<br>Rating | 额定电压<br>Voltage<br>Rating | 分断能力<br>Breaking<br>Capacity | 冷阻值<br>Nominal<br>Cold<br>Resistance | 熔化热能<br>I <sup>2</sup> TMelting<br>Integral(A <sup>2</sup> .S) | 安规认证<br>Agency Approvals  |   |
|------------------------|--------------------------|---------------------------|------------------------------|--------------------------------------|--|---|---|
|                        |                          |                           |                              |                                      |  |  |  |
| TA0.250                | 250mA                    | 125/250<br>VAC            | 50A@300VAC                   | 0.860                                | 0.145  | ●   | ●   |
| TA0.300                | 300mA                    |                           |                              | 0.620                                | 0.162  | ●   | ●   |
| TA0.315                | 315mA                    |                           |                              | 0.550                                | 0.189  | ●   | ●   |
| TA0.375                | 375mA                    |                           |                              | 0.470                                | 0.200  | ●   | ●   |
| TA0.400                | 400mA                    |                           |                              | 0.380                                | 0.238  | ●   | ●   |
| TA0.500                | 500mA                    |                           |                              | 0.320                                | 0.275  | ●   | ●   |
| TA0.600                | 600mA                    |                           |                              | 0.285                                | 0.470  | ●   | ●   |
| TA0.630                | 630mA                    |                           |                              | 0.256                                | 0.566  | ●   | ●   |
| TA0.700                | 700mA                    |                           |                              | 0.208                                | 0.805  | ●   | ●   |
| TA0.750                | 750mA                    |                           |                              | 0.175                                | 1.240  | ●   | ●   |
| TA0.800                | 800mA                    |                           |                              | 0.155                                | 1.880  | ●   | ●   |
| TA1                    | 1A                       |                           |                              | 0.148                                | 3.500  | ●   | ●   |
| TA1.25                 | 1.25A                    |                           |                              | 0.102                                | 4.760  | ●   | ●   |
| TA1.5                  | 1.5A                     |                           |                              | 0.085                                | 6.305  | ●   | ●   |
| TA2                    | 2A                       |                           |                              | 0.044                                | 8.950  | ●   | ●   |
| TA2.5                  | 2.5A                     | 0.043                     | 16.025                       | ●                                    | ●  |   |   |
| TA3                    | 3A                       | 0.033                     | 21.560                       | ●                                    | ●  |   |   |
| TA3.15                 | 3.15A                    | 0.029                     | 22.750                       | ●                                    | ●  |   |   |
| TA3.5                  | 3.5A                     | 0.027                     | 27.050                       | ●                                    | ●  |   |   |
| TA4                    | 4A                       | 0.025                     | 31.808                       | ●                                    | ●  |   |   |
| TA5                    | 5A                       | 0.019                     | 40.250                       | ●                                    | ●  |   |   |
| TA6                    | 6A                       | 0.018                     | 67.245                       | ●                                    | ●  |   |   |
| TA6.3                  | 6.3A                     | 0.017                     | 73.550                       | ●                                    | ●  |   |   |
| TA7                    | 7A                       | 0.016                     | 76.280                       | ●                                    | ●  |   |   |
| TA8                    | 8A                       | 0.015                     | 80.750                       | ●                                    | ●  |   |   |
| TA10                   | 10A                      | 0.014                     | 110.380                      | ●                                    | ●  |   |   |
| TA12                   | 12A                      | 0.013                     | 158.080                      | ●                                    | ●  |   |   |
| TA15                   | 15A                      | 0.012                     | 160.680                      | ●                                    | ●  |   |   |
| TA16                   | 16A                      | 72VDC                     | 500A@72VDC                   | 0.011                                | 161.250  | ●   | ●   |
| TA20                   | 20A                      | 72VDC                     | 500A@72VDC                   | 0.008                                | 168.080  | ●   | ●   |
| TA25                   | 25A                      | 72VAC                     | 500A@72VDC                   | 0.006                                | 170.170  | ●   | ●   |
| TA30                   | 30A                      | 63VDC                     | 500A@63VDC                   | 0.004                                | 173.650  | ●   | ●   |
| TA40                   | 40A                      | 63VDC                     | 500A@63VDC                   | 0.002                                | 175.780  | ●   | ●   |

- \*: These catalog no. cold resistance and I2t value are pending due to fuse elements shall be customized;
- DC Cold Resistance are measured at <10% of rated current in ambient temperature of 25°C;
- Typical Pre-arching I2t are calculated at 10\*In Current or 8ms;
- Min Interrupting Rating: 1.35\*In.

### 3. 产品标示 / Product Marking

保险丝上需有下列标示 / The fuses shall have the following markings

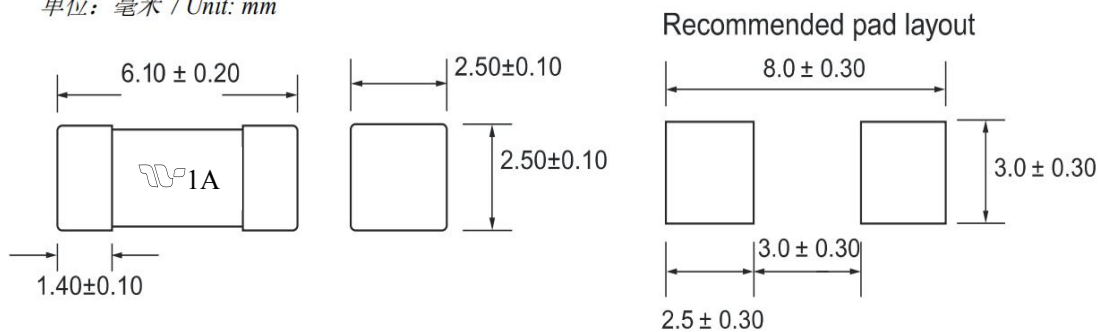
示例 Example:

|   |                                   |  |
|---|-----------------------------------|--|
|  | ①                                 | 标识/LOGO:  |
| ②   | 额定电流/Rated Current (A):_A 或or__mA |  |

注: 对于标示的大小和位置没有规定 / Note: Size and position of the markings shall not be provided.

### 4. 结构及尺寸 / Dimensions and Structure

单位: 毫米 / Unit: mm



### 5. 材料明细 / Material Details

| 编号<br>NO. | 零件名称<br>Part Name | 材质<br>Material                         |
|-----------|-------------------|--|
| ①         | 端帽End caps        | 黄铜镀金Au Plated Brass Cap                |
| ②         | 主体Body            | 陶瓷管Non-Transparent Square Ceramic Tube |
| ③         | 熔丝Fuse element    | 合金Cu-Ag Alloy wire                     |

### 6. 产品特性 / Product Characteristics

| 编号<br>NO. | 项目<br>Item                    | 内容<br>Content                                     | 参考标准<br>Reference standards |
|-----------|-------------------------------|---|-----------------------------|
| 1         | 产品标识<br>Product Marking       | Brand, Ampere Rating                              | REOMAX marking standards    |
| 2         | 工作温度<br>Operating Temperature | -55°C to 125°C                                    | IEC60068-2-1/2              |
| 3         | 可焊性<br>Solderability          | T=240°C ± 5°C, t=3sec ± 0.5sec,<br>Coverage ≥ 95% | MIL-STD-202, Method 208     |

|    |   |  |   |
|----|---|--|---|
| 4  | 耐焊接热<br>Resistance to Soldering Heat          | 10 sec at 260°C  | MIL-STD-202, Method 210, Test condition B |
| 5  | 绝缘阻抗<br>Insulation Resistance (after Opening) | 10,000 ohms minimum                                    | MIL-STD-202, Method 302, Test Condition A |
| 6  | 热冲击<br>Thermal Shock                          | 5 cycles, -65°C / +125°C, 15 minutes at each extreme   | MIL-STD-202, Method 107, Test Condition B |
| 7  | 机械冲击<br>Mechanical Shock                      | 100G's peak for 6 milliseconds, 3cycles                | MIL-STD-202, Method 213, Test I           |
| 8  | 振动试验<br>Vibration                             | 0.03" amplitude, 10-55 Hz in 1 min. 2hrs each XYZ=6hrs | MIL-STD-202, Method 201                   |
| 9  | 耐湿性<br>Moisture Resistance                    | 10 cycles  | MIL-STD-202, Method 106                   |
| 10 | 盐雾试验<br>Salt Spray                            | 5% salt solution, 48hrs                                | MIL-STD-202, Method 101, Test Condition B |

## 7. 电气特性 / Electrical Characteristics

### 7.1 实验条件: Test Condition

所有测试环境温度为 25±5°C。

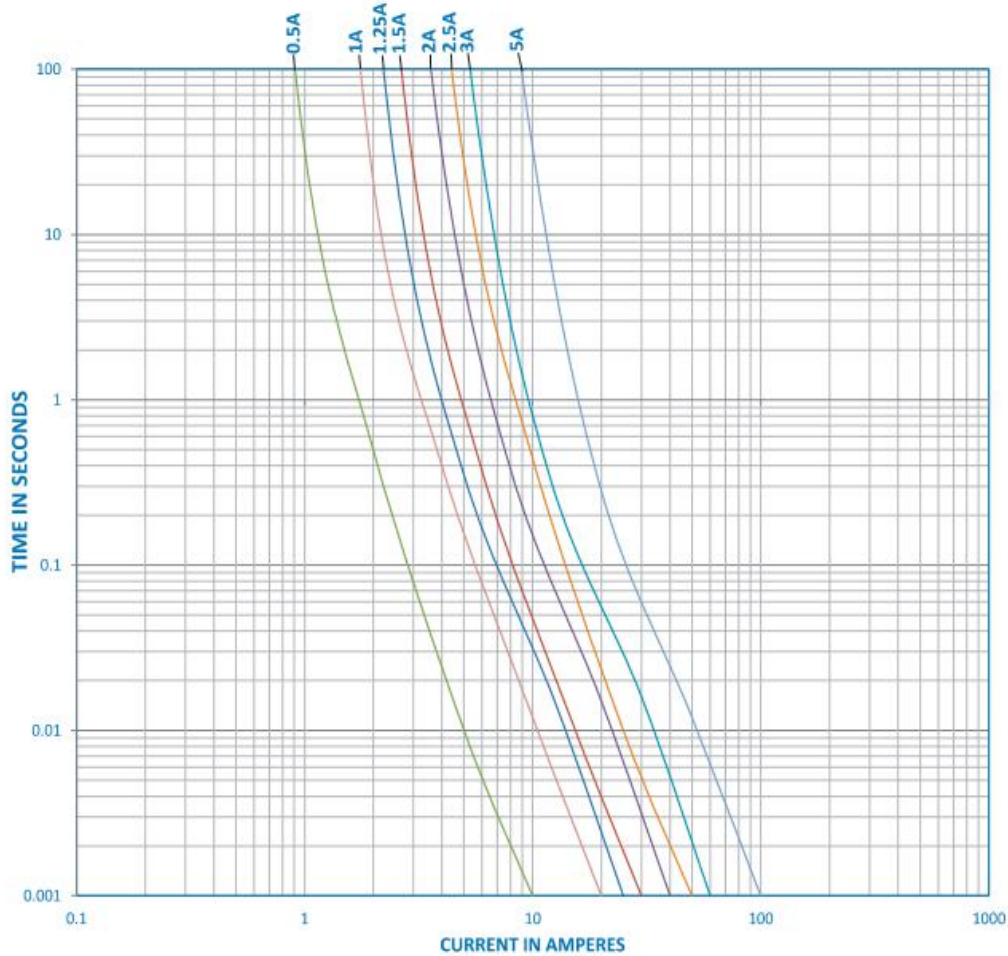
All electrical test is to be conducted with the ambient air at a temperature of 25±5°C.

### 7.2 分断能力 Interrupting Rating: 保险丝承受分断能力: 50A@250Vac, 200A@125Vac. Breaking Capacity: 50A@250Vac, 200A@125Vac.

### 7.3 熔断时限 / Operating Characteristics

| 额定电流的%<br>% of Ampere Rating(In) | 熔断时间<br>Blowing Time  |
|----------------------------------|-----------------------|
| 100% * In                        | 大于4 小时(4 hours Min)   |
| 200% * In                        | 小于120 秒 (120 sec Max) |
| 1000% * In                       | 大于10 毫秒 (10ms Min)    |

## 7.4 平均时间电流曲线图 / Average Time Current Curves

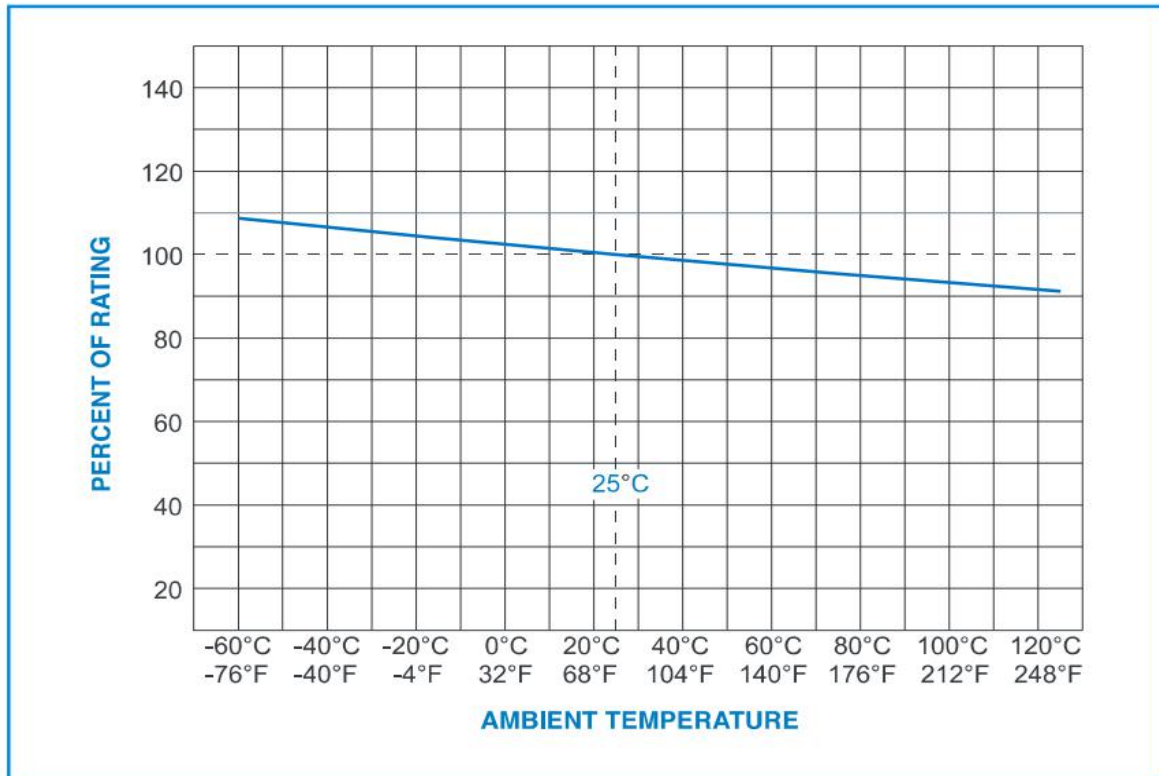


## 8. 环境特性 / Environmental Characteristic

若操作环境温度超出  $25 \pm 5^\circ\text{C}$  范围，在选用保险丝规格时，需考虑操作环境温度对保险丝的影响，请参照如下：温度-电流曲线图。

When choosing the fuse's specification, if the operating environmental temperature beyond the scope from  $20 \sim 30^\circ\text{C}$ , engineer should consider the environmental temperature's affection to fuses.

Please refer: Temperature Rerating Curve:



### 9. 建议焊接参数 / Recommended Soldering Parameters

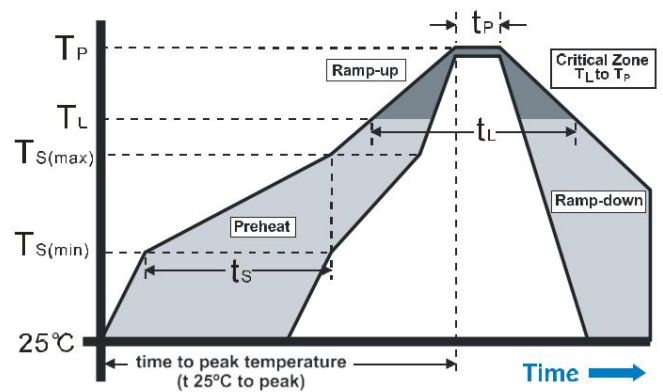
#### A. 波峰/回流焊参数 / Wave /Reflow Soldering Parameters:

锡膏工艺 / Solder paste process.

锡炉温度 / Solder Pot Temperature: 260° C Max; 焊接时间 / Solder Dwell

Time: 5 seconds max

| Reflow Condition                    | Pb-Free assembly |
|-------------------------------------|------------------|
| Average ramp-up rate (Ts(max)to Tp) | 5°C /second max. |
| Temperature Min (Ts(min))           | 150°C            |
| Temperature Max (Ts(max))           | 200°C            |
| Preheat Time (Min to Max) (ts)      | 60-120 seconds   |
| Temperature (TL)                    | 220°C            |
| Reflow Time Max (tL)                | 60 seconds       |
| Peak Temperature(Tp)                | 260°C max        |
| Ramp-down Rate                      | 5°C/second max   |
| Time 25°C to peak Temperature (Tp)  | 8 minutes max    |

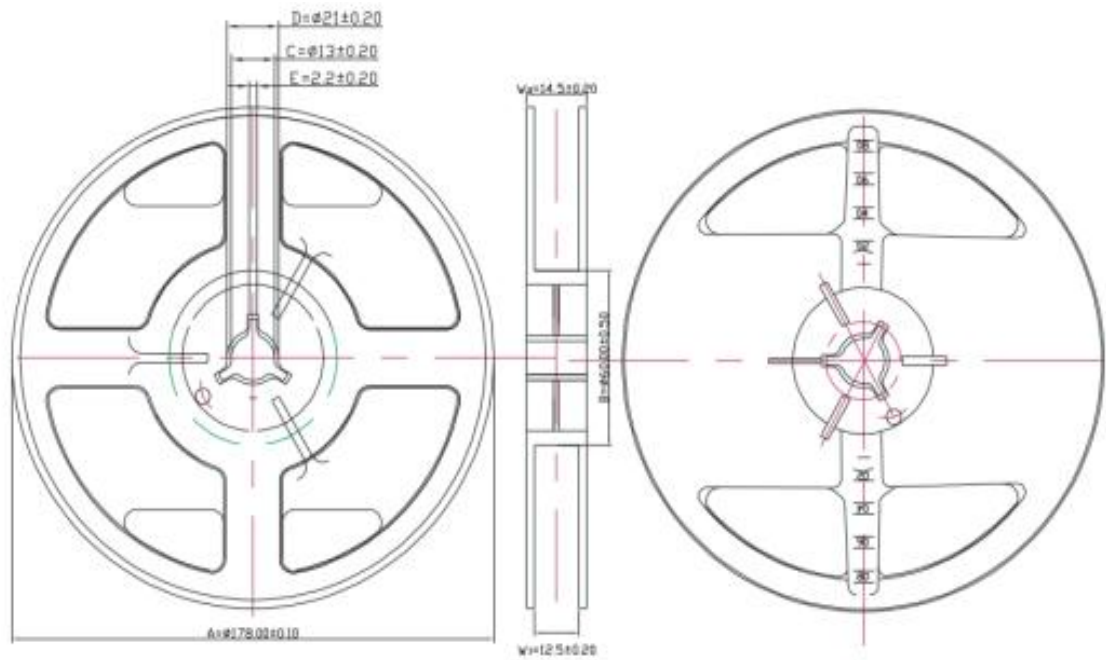


#### B. 手工焊参数 / Hand-Solder Parameters: 烙铁温度 / Solder Iron Temperature:

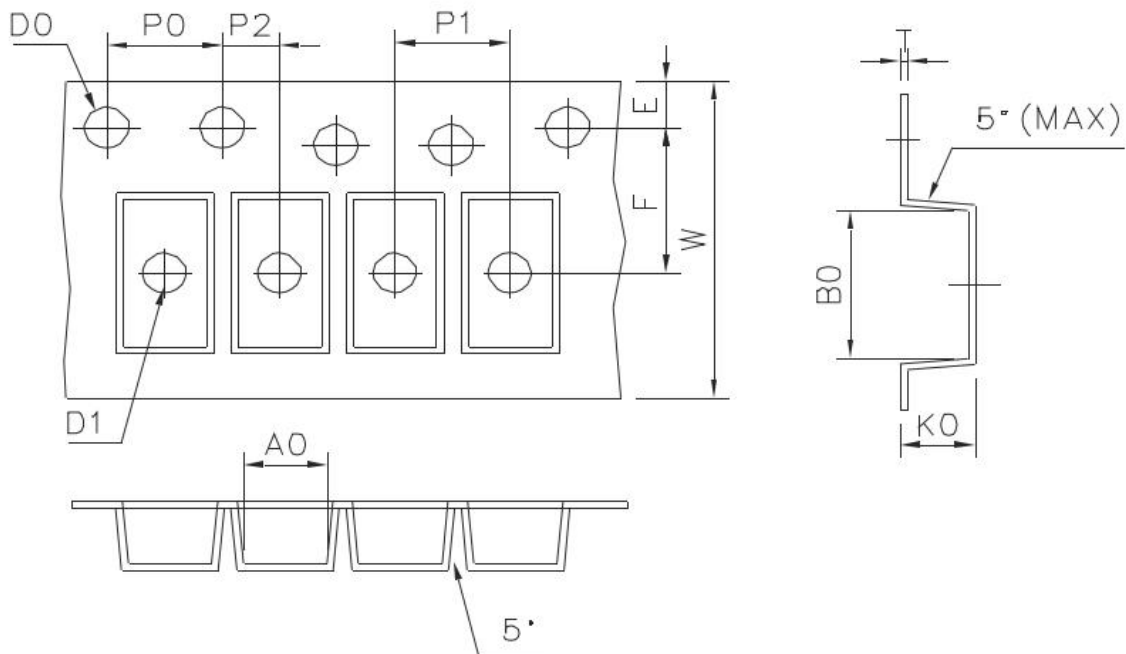
300±5°C 焊接时间 / Heating Time: 1~2 s Max

### 10. 包装 / Packaging

1000 个每卷/ 1,000 pcs in 7 inches dia. reel, 12mm wide tape, EIA Standard



| Item      | A        | B       | C       | D       | E        | W1        | W2        |
|-----------|----------|---------|---------|---------|----------|-----------|-----------|
| Spec.(mm) | 178±0.10 | 60±0.50 | 13±0.20 | 21±0.20 | 2.2±0.20 | 12.5±0.20 | 14.5±0.20 |



| Item      | A <sub>0</sub> | B <sub>0</sub> | D <sub>0</sub> | D <sub>1</sub> | E          | F         |
|-----------|----------------|----------------|----------------|----------------|------------|-----------|
| Spec.(mm) | 2.70±0.10      | 6.40±0.10      | 1.50±0.10      | 1.50±0.25      | 1.75±0.10  | 5.50±0.10 |
| Item      | K <sub>0</sub> | P <sub>0</sub> | P <sub>1</sub> | P <sub>2</sub> | W          | t         |
| Spec.(mm) | 2.70±0.10      | 4.00±0.10      | 4.00±0.10      | 2.00±0.10      | 12.00±0.15 | 0.25±0.05 |



## 11. 其他 / Others

11.1 如果在使用中有超出本规格书的要求，须经双方协商确认。

In the event that an impropriety is found beyond this specification, it shall be fixed by mutual agreement between the parties.

**附件 I: 安规证书 / Appendix I: Safety approval certificates**