

INDIVIDUAL SPECIFICATION SHEET

Product Name: 表面贴装保险丝

Part Number: TB 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

| Rev. | Effective Date | Changed Contents |
|------|----------------|------------------|
| A | 2020-6-16 | New release |
| | | |
| | | |

☞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

随着《国家集成电路产业发展推进纲要》的发布，集成电路产业投资基金，行业俗称“大基金”的大力扶持，近年来中国在云计算、物联网、大数据、智能电网、智能交通、新能源汽车、工业控制等行业迅猛发展，高端集成电路从设计、研发、制造全产业链产品的核心技术实现完全自主掌握成为发展的必然趋势，TLC TB 系列应运而生，专为领先的云计算服务器、通信基站电源、区块链伺服器/ 控制器、新能源汽车电池管理系统而设计，为高端集成电路初、次级电路板保驾护航。

Descriptions:

The TLC TB series square Surface Mount fuses are designed for high-end cloud computing servers, telecom base station power supplies, blockchain servers, and new energy vehicle battery management systems, 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 plated.

Features:

- Slow-blow
- High current rating available
- Low temperature de-rating
- Tape and Reel for automatic placement
- Small size(10.25mm*3.2mm)
- Wide operating temperature range(-55°C to 125°C)
- RoHS compliant, Halogen Free
- Conflict free metals

Applications:

- Telecom base station power supplies
- Cloud computing
- Block chain server
- Battery Management System



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 Certification:

| 安规标准 Agency | 认证范围 Ampere Range | 额定电压 Voltage Rating | 证书编号 Agency File Number |
|----------------|----------------------|------------------------|----------------------------|
| UL cUL | 1 ~ 60A | 125VDC | E467707(JDYX2) |
| | 1 ~ 40A | 250VDC | E467707(JDYX8) |


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


| 目录编号 CatalogNo. | 额定电流 Ampere Rating | 额定电压 Voltage Rating | 分断能力 Breaking Capacity | 冷阻值 Nominal Cold Resistance (mΩ) | 熔化热能 I ² TMelting Integral(A ² .S) | 安规认证 Agency Appro | |
|--------------------|-----------------------|------------------------|--|-------------------------------------|---|---|---|
| | | | | | |  |  |
| TB1 | 1A | 125-250Vac | 300/250/125VA CDC@200A;72 VDC@500A | 75 | 0.87 | ● | ● |
| TB2 | 2A | | | 50 | 3.8 | ● | ● |
| TB.2.5 | 2.5A | | | 45 | 5.2 | ● | ● |
| TB3 | 3A | | | 36 | 7.5 | ● | ● |
| TB3.5 | 3.5A | | | 29 | 9.9 | ● | ● |
| TB4 | 4A | | | 23 | 15.8 | ● | ● |
| TB5 | 5A | | | 18 | 35 | ● | ● |
| TB6 | 6A | | | 15 | 55 | ● | ● |
| TB6.3 | 6.3A | | | 12.10 | 65 | ● | ● |
| TB7.5 | 7.5A | | | 10.30 | 72 | ● | ● |
| TB8 | 8A | | | 9.20 | 83 | ● | ● |
| TB10 | 10A | | | 8.05 | 91 | ● | ● |
| TB15 | 15A | | | 4.50 | 203 | ● | ● |
| TB20 | 20A | | | 3.30 | 360 | ● | ● |
| TB25 | 25A | | | 2.25 | 563 | ● | ● |
| TB30 | 30A | | | 1.98 | 810 | ● | ● |
| TB40 | 40A | | | 1.20 | 1360 | ● | ● |
| TB50 | 50A | | | 0.99 | 1949 | ● | ● |
| TB60 | 60A | 0.79 | 2887 | ● | ● | | |

- 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;

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:

| | |
|---|------------|
|  | 50A |
| ① | ② |

| | |
|---|--|
| 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

Recommended pad layout



5. 材料明细 / Material Details

| 编号 NO. | 零件名称 Part Name | 材质 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/Tin Alloy wire |

6. 产品特性 / Product Characteristics

| 编号 NO. | 项目 Item | 内容 Content | 参考标准 Reference standards |
|-----------|---|--|---|
| 1 | 产品标识 Product Marking | Brand, Ampere Rating | REOMAX marking standards |
| 2 | 工作温度 Operating Temperature | -55°C to 125°C | -55°C to 125°C with proper derating |
| 3 | 可焊性 Solderability | T=240°C ± 5°C, t=3sec ± 0.5sec, | MIL-STD-202, Method 208 |
| 4 | 耐焊接热 Resistance to Soldering Heat | 10 sec at 260°C | MIL-STD-202, Method 210, Test condition B |
| 5 | 绝缘阻抗 Insulation Resistance (after Opening) | 10,000 ohms minimum | MIL-STD-202, Method 302, Test Condition A |
| 6 | 热冲击 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 Mechanical Shock | 100G's peak for 6 milliseconds, 3cycles | MIL-STD-202, Method 213, Test I |
| 8 | 振动试验 Vibration | 0.03" amplitude, 10-55 Hz in 1 min. 2hrs each XYZ=6hrs | MIL-STD-202, Method 201 |
| 9 | 耐湿性 Moisture Resistance | 10 cycles | MIL-STD-202, Method 106 |
| 10 | 盐雾试验 Salt Spray | 5% salt solution, 48hrs | MIL-STD-202, Method 101, Test Condition B |

7 电气特性 / Electrical Characteristics

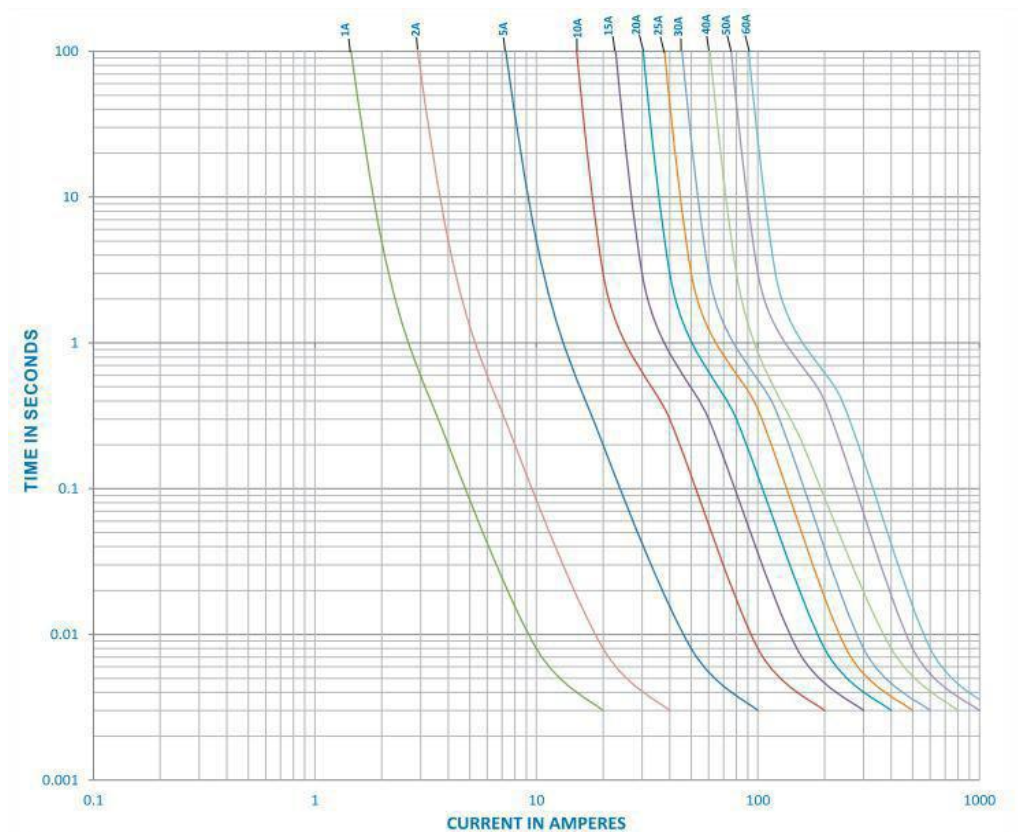
7.1 实验条件 Test Condition: 所有测试环境温度为 $25 \pm 5^\circ\text{C}$ 。

All electrical test is to be conducted with the ambient air at a temperature of $25 \pm 5^\circ\text{C}$.

7.2 熔断时限 / Operating Characteristics

| 额定电流的% % of Ampere Rating(I_n) | 熔断时间 Blowing Time |
|---------------------------------------|----------------------|
| 100% * I_n | 大于 4 小时(4 hours Min) |
| 200% * I_n | 小于 60 秒 (60 sec Max) |

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

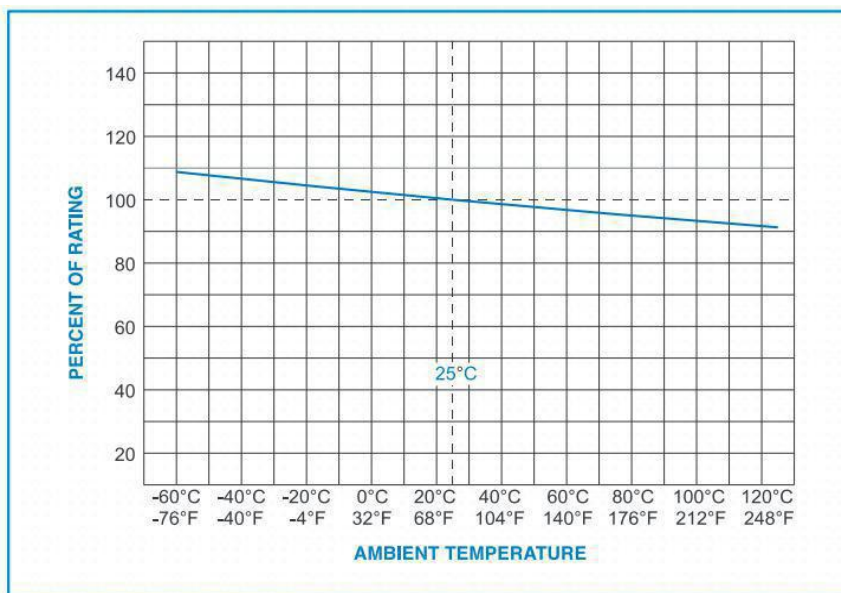


8 环境特性 / Environmental Characteristic

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。

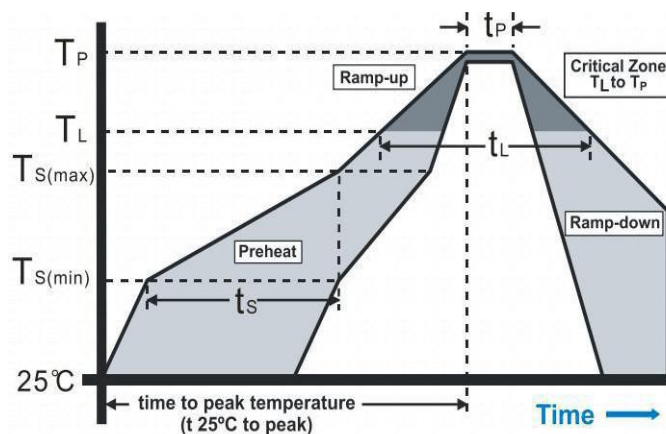
When choosing the fuse's specification, if the operating environmental temperature beyond the scope from $20 \sim 30^\circ\text{C}$, engineer should consider the environmental temperature's affection to fuses.

Please refer: Temperature Rerating Curve:



9 建议焊接参数 / Recommended Soldering Parameters

| Reflow Condition | Pb-Free assembly |
|--------------------------------------|------------------|
| Average ramp-up rate (Ts(max) to Tp) | 5°C /second max. |
| Temperature Min(Ts(min)) | 150°C |
| Preheat Temperature Max(Ts(max)) | 200°C |
| Time (Min to Max) (ts) | 60-180 seconds |
| Reflow Temperature (TL) | 220°C |
| Time Max (tL) | 60-150 seconds |
| Peak Temperature(Tp) | 260°C max |
| Time within 5°C of actual peak | 20-40 seconds |
| Temperature (tp) | 260°C |
| Ramp-down Rate | 5°C/second max |
| Time 25°C to peak Temperature(Tp) | 8 minutes max |
| Maximum operating temperature | 260°C |



10 包装 / Packaging

2000 个每卷 / 2,000 pcs in 13 inches dia. reel, 24mm wide tape, EIA Standard 481

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.

11.2 如果本规格书有不适当的情况，须通过双方协商并由本公司修改。

In the event that an impropriety is found in this specification, shall amend it by mutual agreement between the parties.

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