

规格承认书

Specification for approval

产品名称: R1032 系列快断型 表面贴装保险丝 125Vac

Product Type: 10.25x3.2mm Brick High Inrush Type Surface Mount Fast Blow Ceramic Tube Fuse 125VAC With Max. Current 30A

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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:

AOLITTEL R1032 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 (Fast-Acting)*
- Wide range of current rating available
- Low temperature de-rating
- Tape and Reel for automatic placement
- Small size(10.2mm*3.2mm)
- Wide operating temperature range
- RoHS compliant
- Conflict free metals

Applications:

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

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 | 证书编号 Agency File Number |
|----------------|----------------------|----------------------------|
| UL | 50mA ~ 7A-30A | E340427(JDYX2) |
| cUL | 50mA ~ 7A-30A | E340427(JDYX8) |

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

| 目录编号 Catalog No. | 额定电流 Ampere Rating | 额定电压 Voltage Rating | 分断能力 Breaking Capacity | 冷阻值 Nominal Cold Resistance (Ohms) | 熔化热能 I ² T Melting Integral(A ² .S) | 安规认证 Agency Approvals | |
|---------------------|-----------------------|------------------------|---|---------------------------------------|--|--------------------------|---|
| | | | | | | | |
| R1032.0200 | 200mA | 125VAC | 50A@300VAC 50A@250VAC 200A@125VAC | 0.920 | 0.125 | ○ | ○ |
| R1032.0250 | 250mA | | | 0.860 | 0.145 | ○ | ○ |
| R1032.0300 | 300mA | | | 0.620 | 0.162 | ○ | ○ |
| R1032.0315 | 315mA | | | 0.550 | 0.189 | ○ | ○ |
| R1032.0375 | 375mA | | | 0.470 | 0.200 | ○ | ○ |
| R1032.0400 | 400mA | | | 0.380 | 0.238 | ○ | ○ |
| R1032.0500 | 500mA | | | 0.320 | 0.275 | ○ | ○ |
| R1032.0600 | 600mA | | | 0.285 | 0.470 | ○ | ○ |
| R1032.0630 | 630mA | | | 0.256 | 0.566 | ○ | ○ |
| R1032.0700 | 700mA | | | 0.208 | 0.805 | ○ | ○ |
| R1032.0750 | 750mA | | | 0.175 | 1.240 | ○ | ○ |
| R1032.0800 | 800mA | | | 0.155 | 1.880 | ○ | ○ |
| R1032.1100 | 1A | | | 0.148 | 3.500 | ○ | ○ |
| R1032.1125 | 1.25A | | | 0.102 | 4.760 | ○ | ○ |
| R1032.1150 | 1.5A | | | 0.085 | 6.305 | ○ | ○ |
| R1032.1160 | 1.6A | | | 0.075 | 6.505 | ○ | ○ |
| R1032.1200 | 2A | | | 0.044 | 8.950 | ○ | ○ |
| R1032.1250 | 2.5A | | | 0.043 | 16.025 | ○ | ○ |
| R1032.1300 | 3A | | | 0.033 | 21.560 | ○ | ○ |
| R1032.1315 | 3.15A | | | 0.029 | 22.750 | ○ | ○ |
| R1032.1350 | 3.5A | | | 0.027 | 27.050 | ○ | ○ |
| R1032.1400 | 4A | | | 0.025 | 31.808 | ○ | ○ |
| R1032.1500 | 5A | | | 0.019 | 40.250 | ○ | ○ |
| R1032.1600 | 6A | | | 0.018 | 67.245 | ○ | ○ |
| R1032.1630 | 6.3A | | | 0.017 | 73.550 | ○ | ○ |
| R1032.1700 | 7A | | | 0.015 | 76.280 | ○ | ○ |
| R1032.2100 | 10A | | | 0.013 | 77.350 | ○ | ○ |
| R1032.2120 | 12A | | | 0.012 | 78.180 | ○ | ○ |
| R1032.2150 | 15A | 0.011 | 79.280 | ○ | ○ | | |
| R1032.2200 | 20A | 0.011 | 80.180 | ○ | ○ | | |
| R1032.2250 | 25A | 0.010 | 83.350 | ○ | ○ | | |
| R1032.2300 | 30A | 0.010 | 90.080 | ○ | ○ | | |

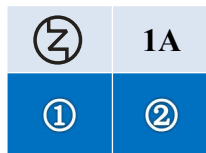
➤ *: These catalog no. cold resistance and I²t value are pending due to fuse elements shall be customized;

- DC Cold Resistance are measured at <10% of rated current in ambient temperature of 25°C;
- Typical Pre-arching I_{2t} are calculated at 10*I_n Current or 8ms;
- Min Interrupting Rating: 1.35*I_n.

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:

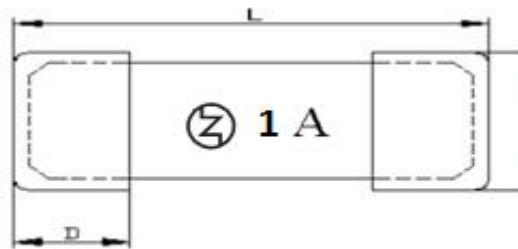


| | |
|---|---|
| ① | 制造厂商标识/AOLITTEL Trade Mark: |
| ② | 额定电流/Rated Current (A): ___A 或 or ___mA |

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.

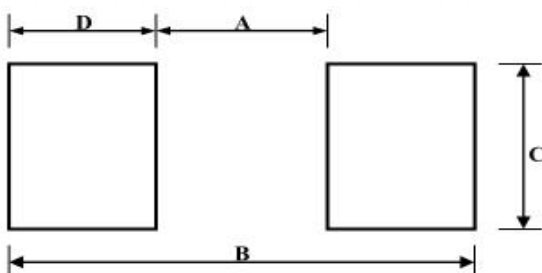
4. 结构及尺寸 / Dimensions and Structure

单位: 毫米 / Unit: mm



| L (mm) | W (mm) | T(mm) | D (mm) |
|------------|-----------|-----------|-----------|
| 10.25±0.20 | 3.20±0.15 | 3.20±0.15 | 1.75±0.15 |

Recommended pad layout



| Dimensions | A(mm) | B (mm) | C(mm) | D(mm) |
|------------|----------|----------|----------|----------|
| Spec | 5.72±0.3 | 12.6±0.3 | 3.43±0.3 | 3.25±0.3 |

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 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 | AOLITTEL marking standards |
| 2 | 工作温度 Operating Temperature | -55°C to 125°C | IEC60068-2-1/2 |
| 3 | 可焊性 Solderability | T=240°C ± 5°C, t=3sec ± 0.5sec, Coverage ≥ 95% | 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

所有测试环境温度均为 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:

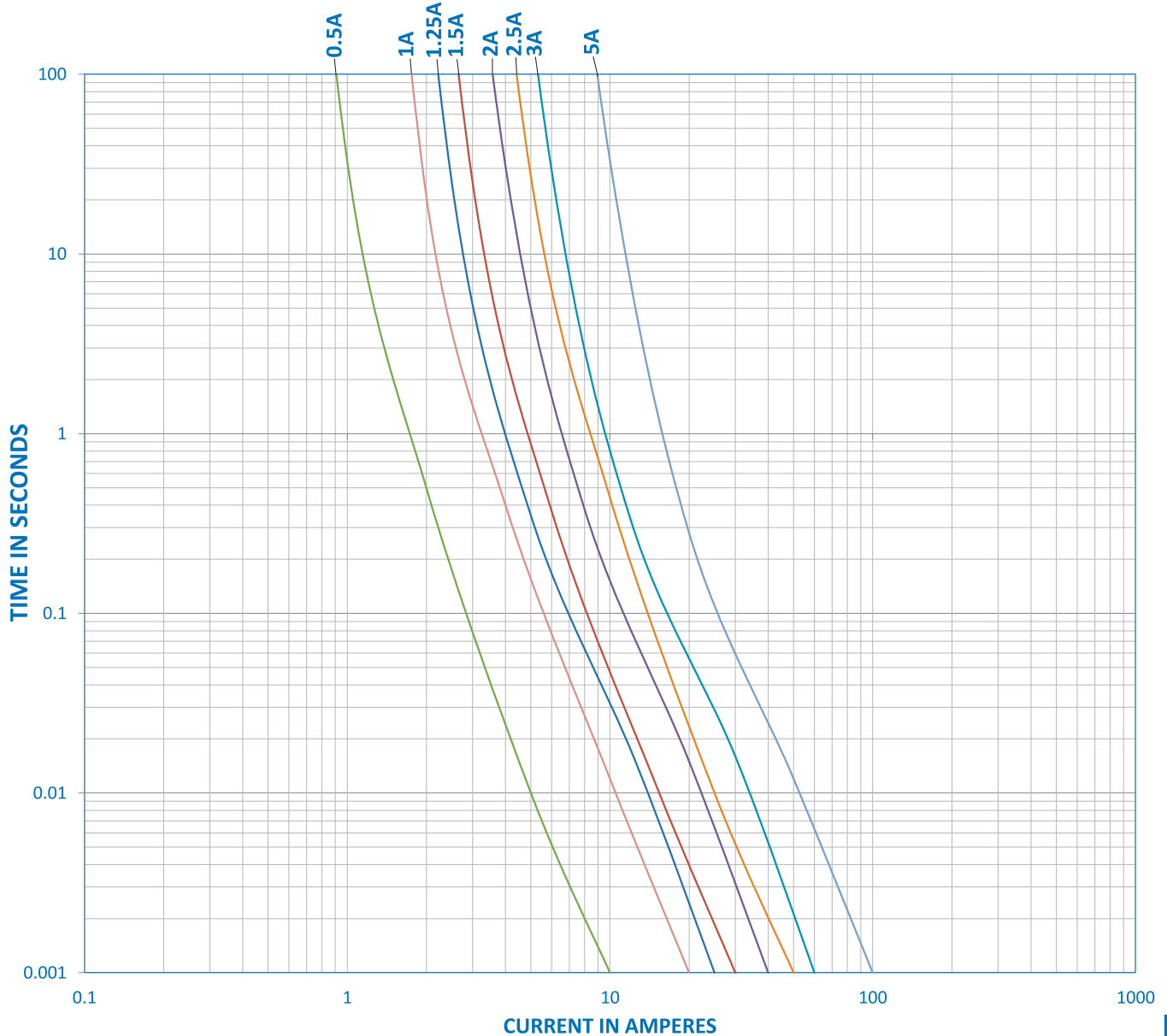
保险丝承受分断能力: 50A@250Vac, 200A@125Vac.

Breaking Capacity: 50A@250Vac, 200A@125Vac.

7.3 熔断时限 / Operating Characteristics

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

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

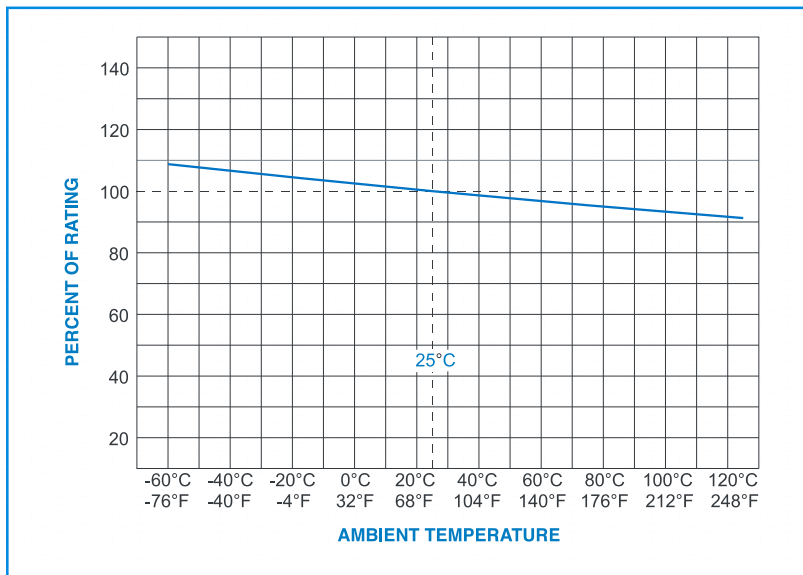


8. 环境特性 / Environmental Characteristic

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

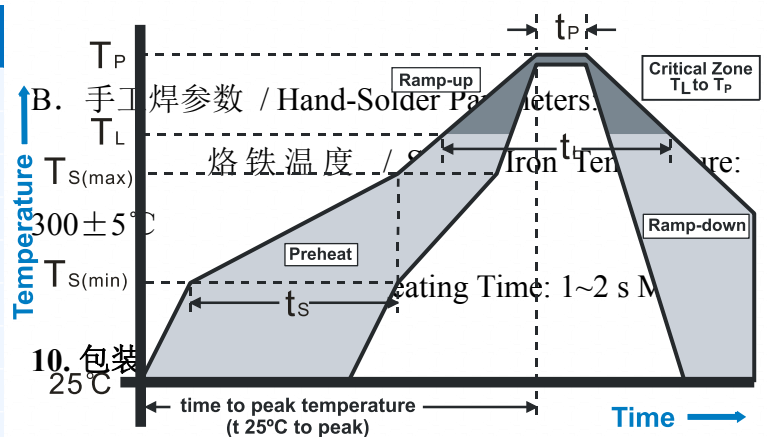
A. 波峰/回流焊参数 / Wave /Reflow Soldering Parameters:

锡膏工艺 / Solder paste process.

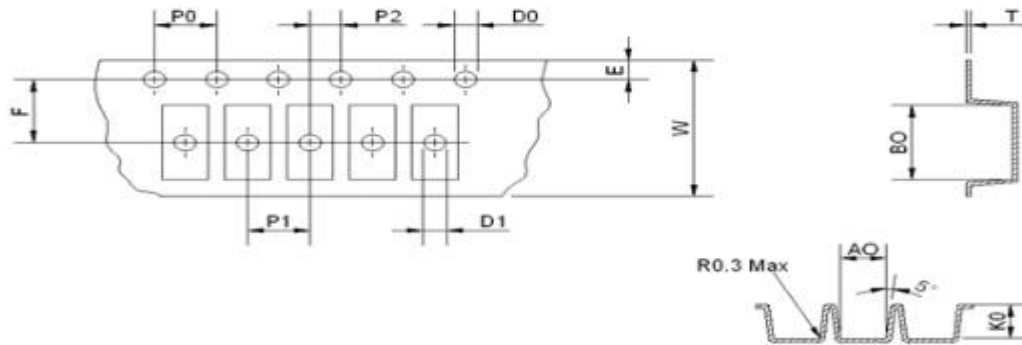
锡炉温度 / Solder Pot Temperature: 260°C Max

焊接时间 / Solder Dwell Time: 5 seconds max

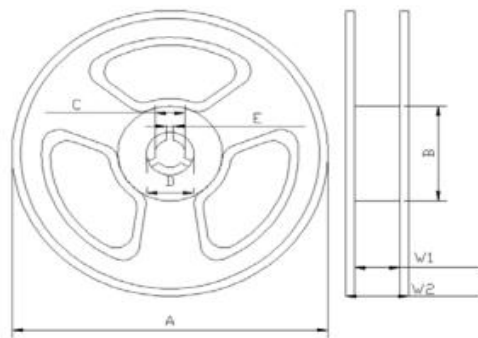
| Reflow Condition | Pb-Free assembly |
|---|---|
| Average ramp-up rate ($T_s(\text{max})$ to T_p) | $5^\circ\text{C}/\text{second}$ max. |
| Preheat | Temperature Min ($T_s(\text{min})$) 150°C |
| | Temperature Max ($T_s(\text{max})$) 200°C |
| | Time (Min to Max) (ts) 60-120 seconds |
| Reflow | Temperature (T_L) 220°C |
| | Time Max (t_L) 60 seconds |
| Peak Temperature(T_p) | 260°C max |
| Ramp-down Rate | $5^\circ\text{C}/\text{second}$ max |
| Time 25°C to peak Temperature (T_p) | 8 minutes max |



2000 pieces of fuses on 24mm tape-and-reel on 13 inch (330mm) reel



| Symbol | A0(mm) | B0(mm) | E(mm) | F(mm) | W(mm) | K0(mm) |
|--------|-----------|------------|-----------|--------------|--------------|-----------|
| Spec. | 3.50±0.10 | 10.60±0.15 | 1.75±0.10 | 11.50±0.10 | 24.00±0.30 | 3.50±0.10 |
| Symbol | P0(mm) | P1(mm) | P2(mm) | D0(mm) | D1(mm) | T(mm) |
| Spec. | 4.00±0.10 | 8.00±0.10 | 2.00±0.10 | 1.50+0.10/-0 | 1.50+0.10/-0 | 0.35±0.05 |



| Type | A(mm) | B(mm) | C(mm) | D(mm) | E(mm) | W1(mm) | W2(mm) |
|------|-----------|-----------|----------|----------|---------|----------|----------|
| Spec | 330.0±2.0 | 100.0±1.5 | 13.0±0.5 | 21.0±0.5 | 2.2±0.2 | 24.5±1.5 | 28.5±2.0 |

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