 Hollyland (China) Electronics Technology Corporation Ltd. Hollyland(XiaMen) Technology Corporation Ltd.	PRODUCT SPECIFICATION	ISSUED DATE:	2019/11/01
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制定 PREPARED BY	研发部 2019-11-01 李湖明	审核 CHECKED BY	研发部 2019-11-01 李湖明	批准 APPROVED BY	副总经理 2019-11-01 赖文辉
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1 适用范围/ SCOPE

本规格书适用于公司生产并获得 UL、CUL、CSA 安全标准认证的 32NM/ 31NM(P) RoHS 系列 HOLLY® 商标的微型保险丝管。

This specification defines the technical requirements of microfuse type 32NM/ 31NM(P) RoHS series with HOLLY® brand, which are approved by UL, CUL and CSA.

产品部件号为: 型号 额定电流 额定电压
Construction of part no.: type rated current rated voltage
例如/ Example: 32NM 010 H

* 额定电压/ Rated Voltage: H - 250V L-125V

产品部件号/ PART NUMBER

PART NUMBER	额定电流 RATED	额定电压 RATED VOLTAGE	PART NUMBER	额定电流 RATED CURRENT	额定电压 RATED VOLTAGE
32NM-0100H/L	100 mA	250V/ 125V	32NM-013H/L	1.25 A	250V/ 125V
32NM-0125H/L	125 mA		32NM-015H/L	1.5 A	
32NM-0150H/L	150 mA		32NM-016H/L	1.6 A	
32NM-0160H/L	160 mA		32NM-020H/L	2.0 A	
32NM-0200H/L	200 mA		32NM-025H/L	2.5 A	
32NM-0250H/L	250 mA		32NM-030H/L	3.0 A	
32NM-0300H/L	300 mA		32NM-032H/L	3.15 A	
32NM-0315H/L	315 mA		32NM-035H/L	3.5 A	
32NM-0350H/L	350 mA		32NM-040H/L	4.0 A	
32NM-0375H/L	375 mA		32NM-050H/L	5.0 A	
32NM-0400H/L	400 mA		32NM-060H/L	6.0 A	
32NM-0500H/L	500 mA		32NM-063H/L	6.3 A	
32NM-0600H/L	600 mA		32NM-070H/L	7.0 A	
32NM-0630H/L	630 mA		32NM-080H/L	8.0 A	
32NM-0700H/L	700 mA		32NM-090H/L	9.0 A	
32NM-0750H/L	750 mA		32NM-100H/L	10 A	
32NM-0800H/L	800 mA		32NM-120H/L	12 A	
32NM-010H/L	1.0 A		32NM-130H/L	13 A	
32NM-012H/L	1.2 A		32NM-150H/L	15 A	

2 相关标准/ APPLICABLE STANDARDS

2.1 32NM/ 31NM(P) RoHS 系列产品适用的相关标准是 UL248-1、UL248-14、CSA C22.2 NO.248.1-00、CSA C22.2 NO.248.14-00。


Applicable standards for 32NM/ 31NM(P) RoHS series are UL248-1, UL248-14, CSA C22.2 NO.248.1-00 and CSA C22.2 NO.248.14-00.

2.2 认证情况/ APPROVED DETAILS

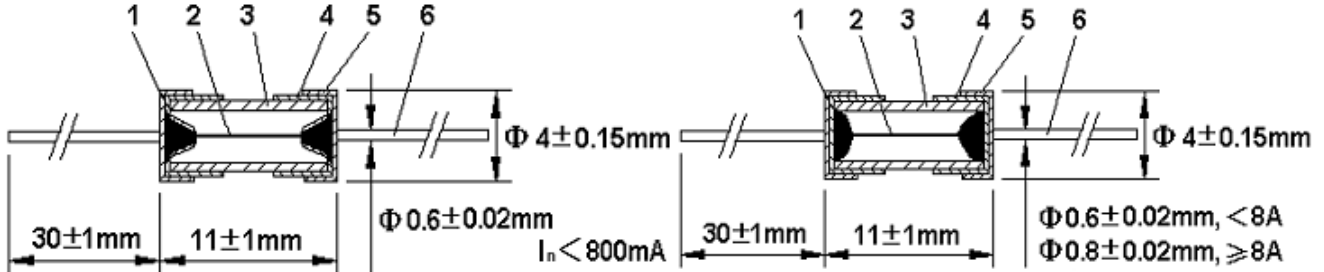
额定电压 RATED VOLTAGE	UL/ CUL		CSA	
	认证范围 APPROVED RANGE	认证号码 CERT. NO.	认证范围 APPROVED RANGE	认证号码 CERT. NO.
125V	32mA-15A	E156471	32mA-1.6A	LR101178
250V			/	/

3 公司地址/ ADDRESS

中国福建省厦门市翔安区舫山东二路 829 号
829 Fangshan East 2nd Road, Xiang'an, Xiamen, China.

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4 构造图/ CONSTRUCTION FIG. & DIMENSION



编号 No.	品名 PART	材料 MATERIAL	备注 NOTE
1	焊锡 Solder	无铅焊锡/ Pb Free	额定电流 $I_n \leq 8A$
		含铅高温焊锡/ Pb Contained High Temperature Solder	额定电流 $I_n > 8A$
2	可熔体/ Element	金属丝/ Metal Wire	/
3	管体/ Tube	玻璃管/ Glass Tube	/
4	铜帽/ Cap	黄铜/ Brass	镀镍/ Nickel Plated
5	尾线铜帽 Cap with Pig Tail	黄铜 Brass	镀镍 Nickel Plated
6	尾线/ Pig Tail	镀锡铜线/ Tin Plated Copper	镀锡/ Tin Plated

4.1 玻璃管/ GLASS TUBE

玻璃管无破裂、缺损或污染等现象，且须透明易辨其内部的可熔体。

The tube shall be transparent as to be easily distinguished fusing element with naked eyes and have no defects such as crack, injury and contamination.

4.2 铜帽/ CAP

铜帽应焊接牢固，以保证在未损坏熔断体时，铜帽不能被卸脱。样品在 15°C-35°C 水中浸 24 小时取出后，在每个端帽上，均匀地施加拉力至 10N，保持 1 分钟，铜帽不应脱落。

Cap should be firmly attached so that it is not possible to remove them without damaging the fuse itself. The samples are immersed in water for 24 hours at a temperature between 15°C and 35°C. After remove from the water, an axial pull steadily increasing to 10N is applied to each cap for 1 minute.

4.3 焊点/ SOLDERING JOINT

焊接铜帽端时，铜帽外表面不能有残留的助焊剂、焊锡、可熔体等异物。

Soldering joint in end cap shall not be melted during normal operation and shall not have solder chips on tube, element in view and outer surface of caps.


5 机械特性/ MECHANICAL PERFORMANCES

保险丝应能承受下列三项试验。/ Fuse shall withstand following three testing.

5.1 扭力试验/ ROTATIONAL STRENGTH

固定保险丝的一端铜帽，然后在另一端铜帽上顺时针和逆时针方向上顺序施加 10N·mm 力矩，两端铜帽不应松动，管体也不应破碎。

When one end cap of the specimen is fixed and then the torque 10N·mm is applied to the other end cap clockwise and counterclockwise, no looseness of end caps at both ends or damage of fuse-tube shall occur.

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5.2 拉力试验/ TENSILE STRENGTH

固定保险丝的一端铜帽，然后在另一端铜帽上，沿水平轴方向施加 5N 的拉力，两端铜帽不应松动且管体不应破碎。

When one end cap of the specimen is fixed and then the tensile force 5N is applied to the other end cap in a direction to separate the end caps, no looseness of end caps or damage of fuse-tube shall occur.

5.3 管体强度试验/ STRENGTH OF FUSE-TUBE

两端铜帽固定好后，在玻璃管的中心位置施加 15N 的压力，管体不应破碎。

When middle parts of end caps at both ends of the specimen are supported and then the force 15N is applied to the middle part of the fuse-tube, no damage of the fuse-tube shall occur.

6 电气特性/ ELECTRICAL PERFORMANCES

6.1 测试条件/ TEST CONDITION

全部测试条件都应在环境温度 $24^{\circ}\text{C} \pm 3^{\circ}\text{C}$ 条件下进行，在此期间温度变化不允许达到 $+5^{\circ}\text{C}$ 和到极限范围

All electrical tests are conducted at an ambient temperature of $24 \pm 3^{\circ}\text{C}$. The ambient temperature is not allowed to vary more than 5°C during the test, and must be within these limits.

6.2 负载能力测试/ CURRENT-CARRYING CAPACITY TEST

当保险丝通以 100% 倍额定电流的条件下进行测试时，在 4 小时内电路不应断开，保险丝不被电流熔化，管体不破裂。

When a fuse is carrying 100% of rated current for continuing 4 hours and more, no open circuit, melt fusible element, or ruptured tube shall occur in any manner during this test.

6.3 温度上升试验/ TEMPERATURE RISE TEST

当保险丝通以 100% 倍额定电流的条件下进行测试时，在达到热量平衡后，测量保险丝表面的温度，保险丝表面的温度上升必须等于或低于 75°C 。注：温度上升=保险丝表面的温度-环境温度。

Measure the temperature of the surface of the fuse under the 100% rated current, when the thermal equilibrium reaches. The temperature rise on the surface of each fuse shall be 75°C or less.

Note: Temp. Rise = fuse temp. - room temp..

6.4 预飞弧时间-电流特性/ PRE-ARCING TIME-CURRENT CHARACTERISTICS

当保险丝通以下表规定的电流时，其熔断时间必须符合下表的要求，且铜帽不能飞脱、管体不应破裂、损坏。

When the current in the following table is passing the fuse, its opening time must be in accordance with the requirements in the following table, that is, the pre-arcing time. Moreover, neither damage of the fuse-tube nor shattering of the cap shall occur.

熔断电流/ % of Rated Current	熔断时间/ Open Time
200%	60 Sec. Max.

6.5 分断能力/ INTERRUPTING CAPACITY

这些型号的保险丝的分断能力应能达到下表规定的相应的各种安全认证的分断能力要求。保险丝分断电路后，保险丝管不应破裂、铜帽飞脱、且铜帽两端的绝缘电阻不小于 $0.1\text{M}\Omega$ 。

The interrupting capacity should reach the interrupting rated current given in the following table. And after this test, there should be no damage of the fuse-tube or shattering of the caps. After this test, the insulation resistance between the end caps shall be not less than $0.1\text{M}\Omega$.

额定电压 RATED VOLTAGE	分断电流/ INTERRUPTING CURRENT	
	UL/ CUL	CSA
125V	50A(32mA~15A)	50A(32mA~1.6A)
250V		/



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PRODUCT SPECIFICATION

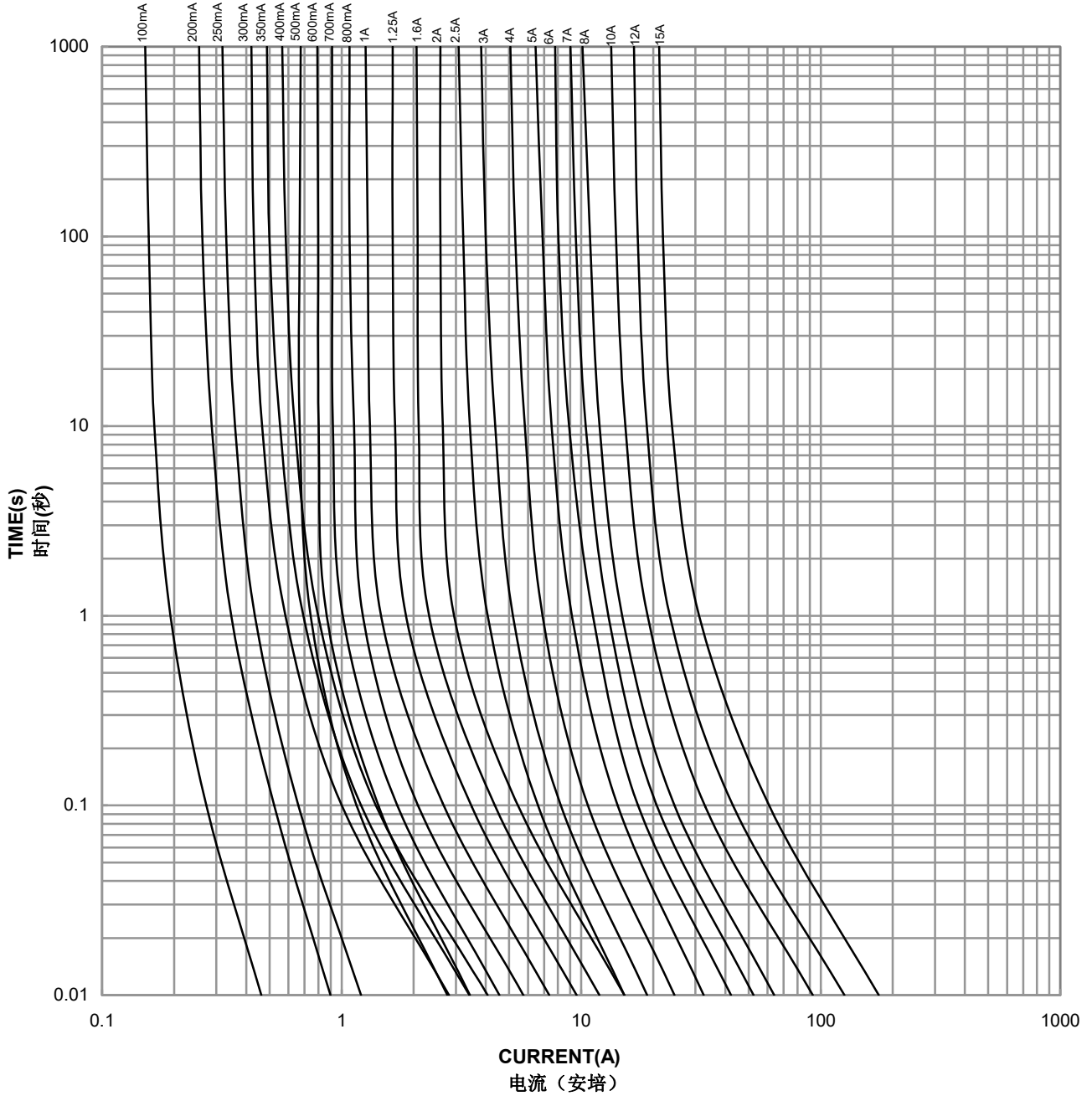
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6.6 平均 I-T 特性曲线图(供参考)/ THE AVERAGE I-T CHARACTERISTICS CURVE(FOR YOUR REFERENCE)

32NM RoHS I-T CHARACTERISTICS CURVE
32NM RoHS 电流-时间曲线图





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PRODUCT SPECIFICATION

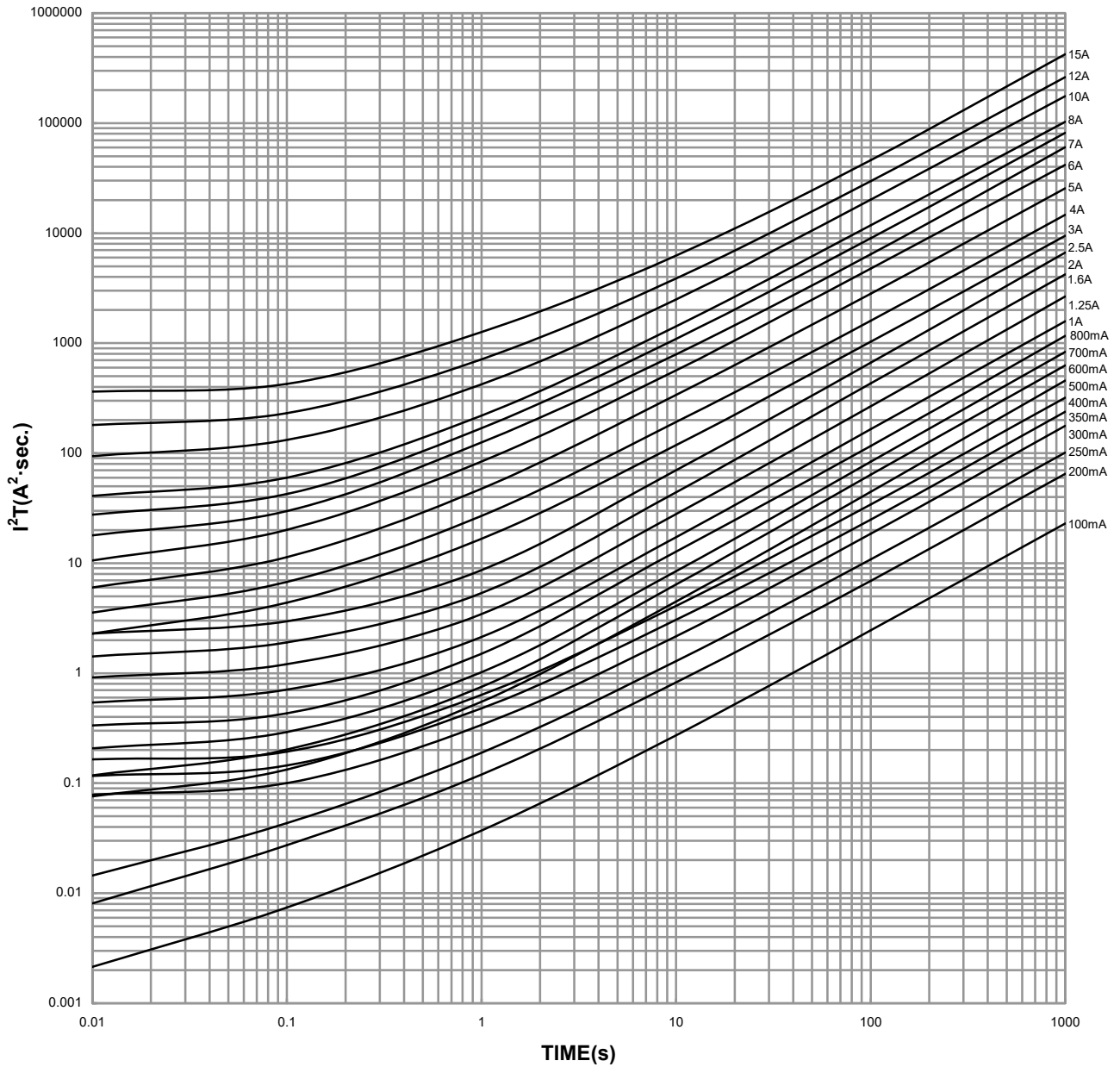
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6.7 平均 I²T-T 特性曲线图(供参考)/ THE AVERAGE I²T-T CHARACTERISTICS CURVE(FOR YOUR REFERENCE)

32NM RoHS I²T-T CHARACTERISTICS CURVE



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6.8 焊接参数/ SOLDERING PARAMETERS

波峰焊----260℃，最大 10 秒。/ Wave soldering-----260℃，10seconds Maximum.

6.9 电阻测试/ COLD RESISTANCE TEST

环境温度为 25±2℃，测试电流不大于保险丝额定电流的 10%。

Input 10% of fuse rated current to fuse for cold resistance test at surrounding temperature of 25±2℃.



7 产品标志/ MARKING

7.1 保险丝上的标志应易于看清。

The relevant markings shall be marked on the caps of the fuse and shall be easily visible.

7.2 每个保险丝应标有下列标记。

The markings for every fuse shall be prescribed as below according to the types.

- 1) 安全认证标志/ Safety approval logo: 
- 2) 型号名称/ Type: 32NM
- 3) 商标/ Trademark: 
- 4) 额定电压/ Rated Voltage
- 5) 额定电流/ Rated Current

注：1)、2) 和 3)应标注在保险丝管一端铜帽的侧面。

Note: 1), 2) and 3) should be marked on the one side cap of the fuse.

4) 和 5)应标注在保险丝管另一端铜帽的侧面。

4) and 5) should be marked on the other side cap of the fuse.

8 包装要求/ PACKING DETAILS

8.1 外箱包装/ EXTERNAL CARTON PACKING

8.1.1 包装方式 A/ PACKING MODE A

8.1.1.1 参考尺寸：长×宽×高=470×400×230mm。

Reference Dimension: length×width×height=470×400×230mm.

8.1.1.2 包装细节：200 个/袋；4 袋/盒；25 盒/箱。

Packing Details: 200EA/ bag; 4 bags/ box; 25 boxes/ Carton.

8.1.2 包装方式 B(编带型产品)/ PACKING MODE C(LEADS TAPING TYPE PRODUCT)

8.1.2.1 参考尺寸：长×宽×高=355×295×260mm。

Reference Dimension: length×width×height=355×295×260mm.

8.1.2.2 包装细节：1500 个/盒；9 盒/每箱。

Packing Details: 1500EA/ box; 9 boxes/ External Carton.

产品的包装应能达到防潮、抗振的作用，以防在运输或贮存过程中产品受潮或损坏。

Packing shall be so carried out that the products will not absorb moisture or be damaged during transportation or storage.

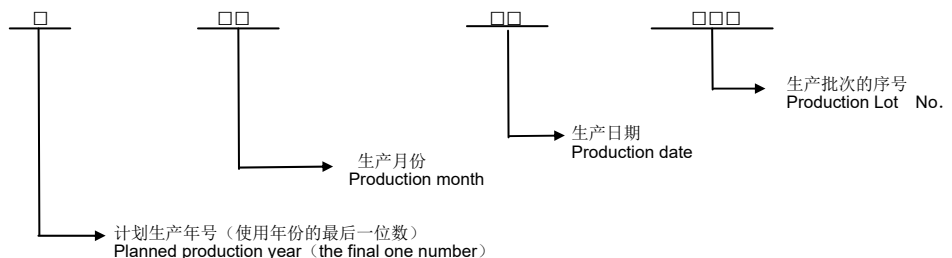
8.2 标签/ LABEL

标签应包括型号、额定电流、额定电压、额定分断电流、商标、安全标志、批量号码、公司名称、RoHS 标志、绿色“G”和“QA”标志。

The label in the smallest package in which the fuses are put shall contain the Type, Rated current, Rated voltage, Interrupting rating, Trademark, Safety approval logo, Lot. No., Company name, “RoHS” mark, green “G” and “QA” mark.

例批量号：


Example Lot No.:



9 环境参数/ ENVIRONMENTAL PARAMETERS


9.1 工作温度/ OPERATING TEMPERATURE: -55℃~125℃.

9.2 储存温度/ STORAGE TEMPERATURE: -55℃~85℃.

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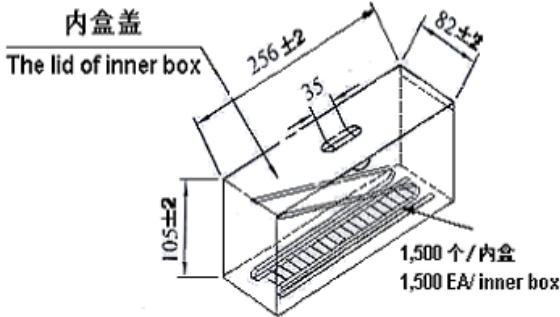
10 信赖性试验/ RELIABILITY TEST

项目/ Item	试验要求/ Test Requirement	试验条件/ Test Condition
高温试验 High Temperature Test	试验后保险丝管的电阻符合范围; 电气特性符合: 200%≤60 秒、100%≥4 小时。 After high temperature test, the resistance value of the fuses shall be in range. Electrical Characteristics: 200%≤60 seconds, 100%≥4hours.	测试温度: 105±2℃, 测试时间: 1000 小时。 Test Temperature: 105 ± 2 °C , Test Time: 1000hours.
低温试验 Low Temperature Test	试验后保险丝管的电阻符合范围; 电气特性符合: 200%≤60 秒、100%≥4 小时。 After low temperature test, the resistance value of the fuses shall be in range. Electrical Characteristics: 200%≤60 seconds, 100%≥4hours.	测试温度: -20±2℃, 测试时间: 1000 小时。 Test Temperature: -20 ± 2 °C , Test Time: 1000hours.
高湿试验 High Humidity Test	试验后保险丝管的电阻符合范围; 电气特性符合: 200%≤60 秒、100%≥4 小时。 After high humidity test, the resistance value of the fuses shall be in range. Electrical Characteristics: 200%≤60 seconds, 100%≥4hours.	测试温度: 40 ± 2 °C , 测试湿度: 90%~95%, 测试时间: 96 小时。 Test Temperature: 40 ± 2 °C , Test Humidity: 90%~95%, Test Time: 96hours.
热冲击试验 Thermal Shock Test	试验后保险丝管的电阻符合范围; 电气特性符合: 200%≤60 秒、100%≥4 小时。 After thermal shock test, the resistance value of the fuses shall be in range. Electrical Characteristics: 200%≤60 seconds, 100%≥4hours.	每个循环: -40℃放置 30 分钟后室温 25℃放置 5 分钟再 85℃放置 30 分钟最后室温 25℃放置 5 分钟, 测试 10 循环。 -40℃/ 30minutes→25℃/ 5minutes→85℃/ 30minutes→25℃/ 5minutes, 10 cycles.
落下、冲击试验 Falling Shock Test	铜帽应固定牢固, 以保证在未损坏熔断体时, 铜帽不能被卸下。铜帽表面镀层应牢固不易脱落, 每个端帽应能经受专用的设备外加的轴向拉力 5N, 保持 1 分钟。玻璃管必须无缺陷破裂、缺损和污染。试验后保险丝管的电阻符合范围; 电气特性符合: 200%≤60 秒、100%≥4 小时。 Cap should be firmly attached so that it is not possible to remove them without damaging the fuse itself. The means of attachment shall be sufficient to withstand an axial pull of 5N applied to each cap for 1 minute. The cap shall be nickel plated firmly. Glass tube shall be transparent as to easily distinguish fusing element with naked eyes and the tube shall have no defects such as crack, injury. After falling shock test, the resistance value of the fuses shall be in range. Electrical Characteristics: 200%≤60 seconds, 100%≥4hours.	一箱 13,500 个或 20,000 个保险丝管从一米高自由落下, 跌落 20 次。 13,500EA or 20,000EA fuses/ one external carton, Falling Height: 1 meter, Falling Times: 20.
可焊性试验	试验后尾线表面的焊锡覆盖率>95%。 After solderability test, solder coverage of fuse's pig tail will be no more than 95%.	预涂助焊剂 5±1 秒后, 浸入 235±5℃ 的无铅焊锡 5±0.5 秒。 Immerse to flux 5±1sec. then dip in solder bath 235±5℃, 5±0.5sec..

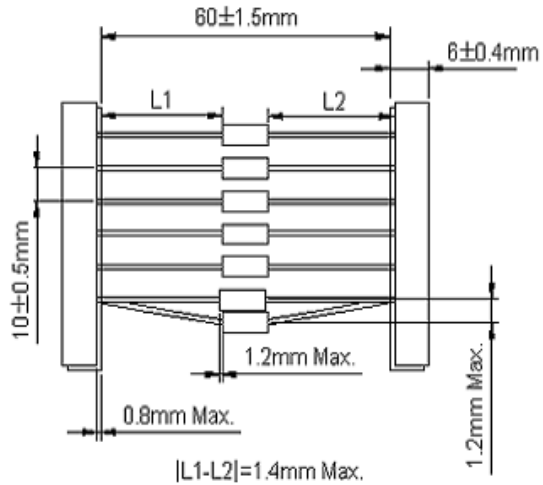
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包装方式 B(编带型产品)
Packing Mode B(Leads Taping Product)

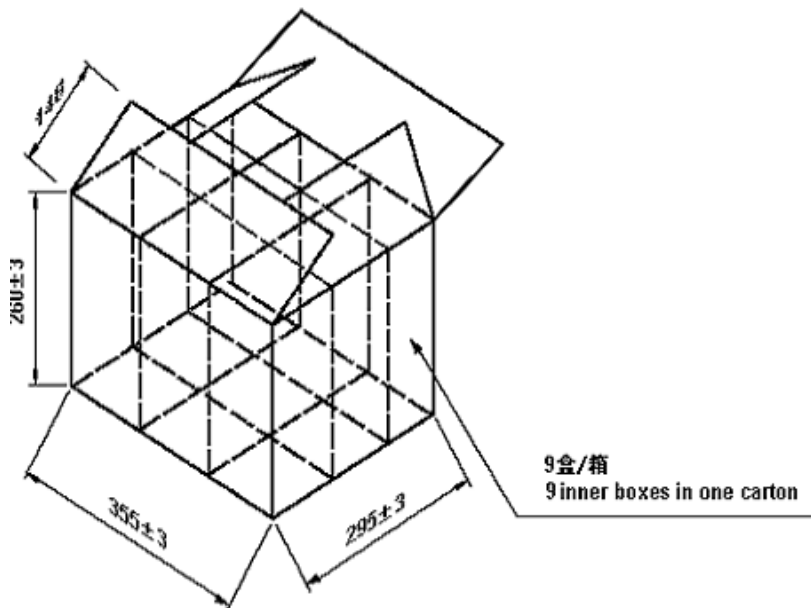
内盒
Inner Box



轴向引线编带
Axial Leads Taping



外箱
External Carton



1 重量 Weight

一个外箱(装满 13,500 个保险丝管)毛重 9.7 公斤/净重 8.1 公斤。

One external carton(filled with 13,500EA fuses): G.W. 9.7Kgs/ N.W. 8.1Kgs.

2 原材料 Material

内盒 Inner box: 纸板 Cardboard.

外箱 External carton: 双层瓦楞纸 Double layer corrugated paper, 厚度 Thickness>6mm.

3 印刷标志 Printing and Marking

外箱需有公司名称、电话、传真、电子邮箱、网址、商标、安全标志、RoHS、BSI ISO9001 和 CQC ISO14001:2004 等标志。

External carton With Company name, Tel, Fax, E-mail, Web site, Trade make, Safety approval logo, RoHS, BSI ISO9001 and CQC ISO14001:2004 registered firm etc..