



Microfuse RoHS & Pb-free
好利® 保险丝管



产 品 规 格 书

PRODUCT SPECIFICATION

玻璃保险丝管（速断型）

GLASS TUBE FUSE (FAST BLOW)

61NM RoHS SERIES

编码：A05 HLD-PSI-8072 2022/08/30

制定：

李湖明
2022.08.30

PREPARED BY

审核：

胡兴华
2022.08.30

CHECKED BY

批准：

苏毅镇
2022.08.30

APPROVED BY



好利来（厦门）电路保护科技有限公司
Hollyland (Xiamen) Technology Corporation Limited
福建厦门市翔安区舩山东二路829号361101
T +86 592 577 2288
M sdxm@hollyfuse.com
Wwww.hollyfuse.com



目录

Table of Contents

一、适用范围/Scope	3
二、相关标准/Applicable Standards	4
三、构造图/ Construction Fig. & Dimension	5
四、机械特性/ Mechanical Performances	5
五、电气特性/ Electrical Performance	6
六、产品标志/ Marking	9
七、包装要求/ Packaging Details	10
八、环境参数/ Environment Parameters	10
九、信赖性试验/ Reliability Test	10

1 适用范围/ SCOPE

本规格书适用于公司生产并获得 UL、CUL、CSA、PSE、KC 安全标准认证的 61NM RoHS 系列 HOLLY® 商标的小型保险丝管。

This specification defines the technical requirements of miniature fuse type 61NM RoHS series with HOLLY® brand, which are approved by UL, CUL, CSA, PSE and KC.

产品部件号为: 型号

Construction of part no.: type

例如/ Example: 61NM

额定电流

rated current

010

额定电压

rated voltage

H

* 额定电压/ Rated Voltage: H - 250V

L-125V

L1-32V

产品部件号/ PART NUMBER

产品部件号 PART NUMBER	额定电流 RATED CURRENT	额定电压 RATED VOLTAGE	冷电阻 Nominal Cold Resistance(Ohms)	平均 I ² T 值/ Average I ² T Value(A ² ·sec.)
61NM-0100H/L	100 mA	250V/ 125V	16.3000	0.00194
61NM-0125H/L	125 mA	250V/ 125V	12.5000	0.00373
61NM-0150H/L	150 mA	250V/ 125V	8.2800	0.00685
61NM-0160H/L	160 mA	250V/ 125V	8.0600	0.00782
61NM-0200H/L	200 mA	250V/ 125V	3.4500	0.00655
61NM-0250H/L	250 mA	250V/ 125V	6.4000	0.0123
61NM-0300H/L	300 mA	250V/ 125V	4.4500	0.0215
61NM-0315H/L	315 mA	250V/ 125V	3.8300	0.0239
61NM-0350H/L	350 mA	250V/ 125V	2.9100	0.0384
61NM-0400H/L	400 mA	250V/ 125V	2.5200	0.0515
61NM-0500H/L	500 mA	250V/ 125V	1.7700	0.112
61NM-0600H/L	600 mA	250V/ 125V	1.4300	0.213
61NM-0630H/L	630 mA	250V/ 125V	1.1400	0.239
61NM-0750H/L	750 mA	250V/ 125V	0.9160	0.399
61NM-0800H/L	800 mA	250V/ 125V	0.7500	0.504
61NM-010H/L	1.0 A	250V/ 125V	0.5320	0.968
61NM-012H/L	1.2 A	250V/ 125V	0.3760	1.751
61NM-013H/L	1.25 A	250V/ 125V	0.3750	1.788
61NM-015H/L	1.5 A	250V/ 125V	0.2690	3.565
61NM-016H/L	1.6 A	250V/ 125V	0.2450	4.026
61NM-020H/L	2.0 A	250V/ 125V	0.1700	8.57
61NM-025H/L	2.5 A	250V/ 125V	0.0530	14.21
61NM-030H/L	3.0 A	250V/ 125V	0.0430	23.12
61NM-032H/L	3.15 A	250V/ 125V	0.0406	25.70
61NM-035H/L	3.5 A	250V/ 125V	0.0343	32.15
61NM-040H/L	4.0 A	250V/ 125V	0.0290	43.65
61NM-050H/L	5.0 A	250V/ 125V	0.0219	72.54
61NM-060H/L	6.0 A	250V/ 125V	0.0172	120.2
61NM-063H/L	6.3 A	250V/ 125V	0.0154	168.7
61NM-070H/L	7.0 A	250V/ 125V	0.0135	195.3
61NM-080H/L	8.0 A	250V/ 125V	0.0117	393.0
61NM-090H/L	9.0 A	250V/ 125V	0.0108	476.5
61NM-100H/L	10 A	250V/ 125V	0.0090	556.9
61NM-120H/L/L1	12 A	250V/ 125V/32V	0.0075	805.9
61NM-150H/L/L1	15 A	250V/ 125V/32V	0.0051	1868
61NM-160H/L/L1	16 A	250V/ 125V/32V	0.0050	2196
61NM-200H/L/L1	20 A	250V/ 125V/32V	0.0041	3212
61NM-250H/L/L1	25 A	250V/ 125V/32V	0.0031	5902
61NM-300H/L/L1	30 A	250V/ 125V/32V	0.0025	8494

2 相关标准/ APPLICABLE STANDARDS

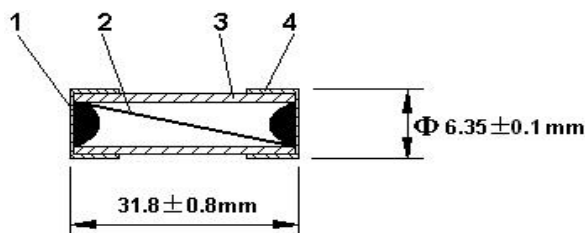
2.1 61NM RoHS 系列产品适用的相关标准是 UL248-1、UL248-14、CSA C22.2 NO.248.1-00、CSA C22.2 NO.248.14-00、JIS C6575、㉔02(KC)。

Applicable standards for 61NM RoHS series are UL248-1, UL248-14, CSA C22.2 NO.248.1-00, CSA C22.2 NO.248.14-00, JIS C6575, and ㉔02(KC).

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/ 250V	32mA~10A	E156471	32mA~10A	LR101178
额定电压 RATED VOLTAGE	PSE		KC	
	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	1A~5A	JET2489-31003-1017	/	/
	5.1A~15A	JET2489-31003-1020		
	16A~30A	JET2489-31003-1035		
250V	1A~5A	JET2489-31003-1018	100mA~250mA 300mA~2.5A 3A~10A	SU05008-3014D SU05008-3015D SU05008-4001D
	5.1A~15A	JET2489-31003-1019		
	16A~30A	JET2489-31003-1037		
额定电压 RATED VOLTAGE	UR/ cUR		/	/
32V	认证范围 APPROVED RANGE	认证范围 APPROVED RANGE		
	12A~30A	E156471		

3 构造图/ CONSTRUCTION FIG. & DIMENSION



编号 No.	品名 PART	材料名 MATERIAL	备注 NOTE
1	焊锡 Solder	无铅焊锡/ Pb Free	额定电流 $I_n \leq 12A$
		含铅高温焊锡/ Pb Contained High Temperature Solder	额定电流 $I_n > 12A$
2	可熔体 Element	金属丝/ Metal Wire	额定电流 $I_n < 6A$
		金属片/ Metal Strip	额定电流 $I_n \geq 6A$
3	管体/ Tube	玻璃管/ Glass Tube	/
4	铜帽/ Cap	黄铜/ Brass	镀镍/ Nickel

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

3.2 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℃-35℃ 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℃ and 35℃. After remove from the water, an axial pull steadily increasing to 10N is applied to each cap for 1 minute.

3.3 焊点/ SOLDERING JOINT

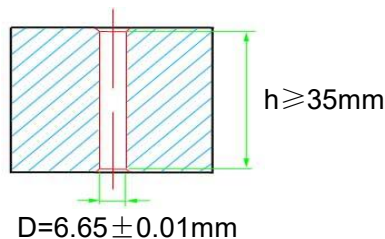
焊接铜帽端时，铜帽外表面不能有残留的助焊剂、焊锡、可熔体等异物。

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.

3.4 准直度/ ALIGNMENT

保险丝应能依自身重量能通过准直度卡规,准直度卡规的图形如下。

The entire length of the fuse shall pass through the gauge by the fuses own weight. The construction of gauge is as follows.



4 机械特性/ MECHANICAL PERFORMANCES

保险丝应能承受下列二项试验。/ Fuse shall withstand the following two testing.

4.1 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 10N 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 10N 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.

4.2 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 30N 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 30N is applied to the middle part of the fuse-tube, no damage of the fuse-tube shall occur.

5 电气特性/ ELECTRICAL PERFORMANCES

5.1 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.

5.2 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.

5.3 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 (额定电流 $I_n < 15\text{A}$) 或 130°C (额定电流 $I_n \geq 15\text{A}$)。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 ($I_n < 15\text{A}$) or 130°C ($I_n \geq 15\text{A}$) or less.

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

5.4 预电弧时间-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
135%	1 hour Maximum
200%	5 sec. Maximum

5.5 分断能力/ INTERRUPTING CAPACITY

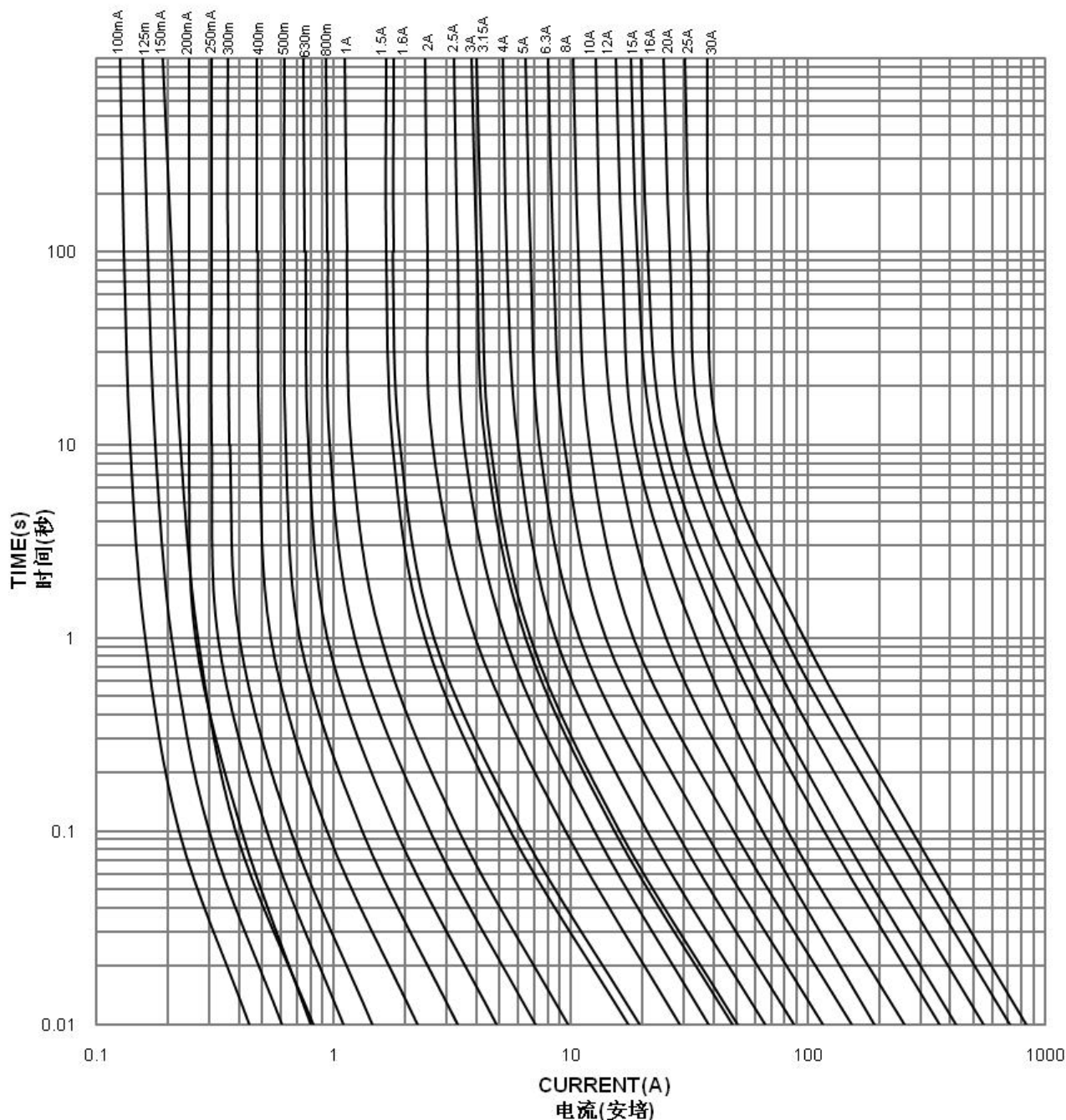
这些型号的保险丝的分断能力应能达到下表规定的相应的各种安全认证的分断能力要求。保险丝分断电路后，保险丝管不应破裂、铜帽飞脱、且铜帽两端的绝缘电阻不小于 $0.1\text{M}\Omega$ 。

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 $0.1\text{M}\Omega$.

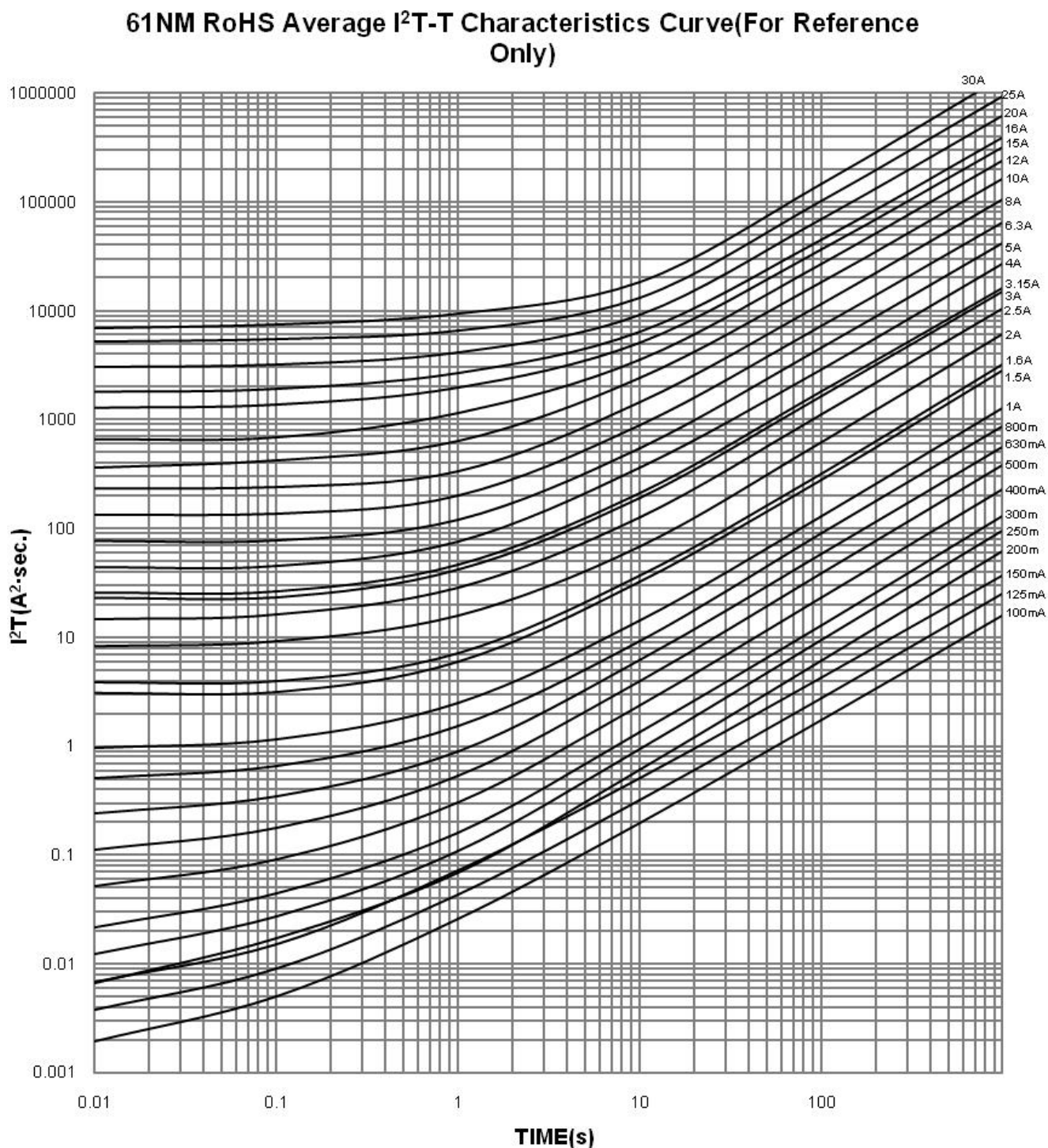
额定电压 RATED VOLTAGE	分断电流/ INTERRUPTING CURRENT				
	UL/ CUL	UR/ cUR	CSA	PSE	KC
125V ac	10000A (32mA~10A)	/	10000A (32mA~10A)	100A (1A~15A)	/
250V ac	35A(32mA~1A) 100A(1.1A~3.5A) 200A(3.6A~10A)	/	35A(32mA~1A) 100A(1.1A~3.5A) 200A(3.6A~10A)		100A (100mA~100A)
32V ac/dc	/	300A (12A~30A)	/	/	/

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

61NM RoHS Average I-T Characteristics Curve(For Reference Only)
61NM RoHS 平均I-T曲线图(供参考)



5.7 平均 I^2T -T 特性曲线图(供参考)/ THE AVERAGE I^2T -T CHARACTERISTICS CURVE(FOR REFERENCE ONLY)



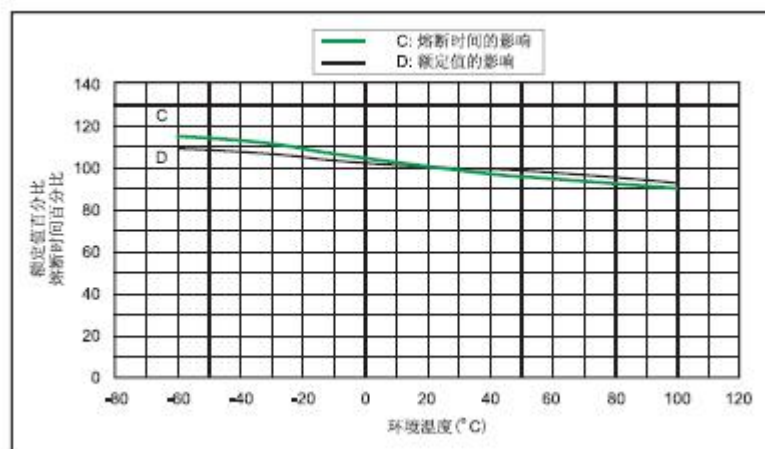
5.8 焊接参数/ SOLDERING PARAMETERS

- 1) 波峰焊---260℃, 最大 10 秒。/ Wave soldering---260℃, 10 seconds Maximum.
- 2) 手工焊接/ Manual soldering: 350℃, 3sec. Max..
- 3) 耐热焊接/ Resistance to soldering heat: 260℃, 10sec. Max..

5.9 环境温度/Ambient Temperature

保险丝管的电流承载能力测试是在环境温度 25℃ 条件下进行的。而保险丝管的电流承载能力是受环境温度影响的。环境温度越高, 保险丝管的寿命越短, 承载能力就越低。所以选用保险丝管时应考虑保险丝管周边的环境温度, 环境温度对各类保险丝管承载能力的影响如下图所示。

The current carrying capacity tests of a fuse are performed at 25℃ and will be effected by changes with the ambient temperature. The higher the ambient temperature is, the shorter fuse life will be and the lower the current carrying capacity will be. So the ambient temperature shall be considered for proper fuse selection. Refer to the following charts showing its effect on the current carrying capacity of all kinds of fuse.



5.10 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℃.

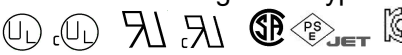
6 产品标志/ MARKING

6.1 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.

6.2 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: 61NM or NM (只有 PSE 认证时不需打 61 标记/ 61 is not marked on the cap for the fuses that only have PSE approval.)
- 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.

	Characteristics: $200\% \leq 5 \text{ seconds}$, $135\% \leq 1\text{hour}$, $100\% \geq 4\text{hours}$.	
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： $200\% \leq 5 \text{ 秒}$、$135\% \leq 1 \text{ 小时}$、$100\% \geq 4 \text{ 小时}$。 After low temperature test, the resistance value of the fuses shall be in range. Electrical Characteristics: $200\% \leq 5 \text{ seconds}$, $135\% \leq 1\text{hour}$, $100\% \geq 4\text{hours}$.	测试温度： $-20 \pm 2^\circ\text{C}$，测试时间：1000 小时。 Test Temperature: $-20 \pm 2^\circ\text{C}$，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： $200\% \leq 5 \text{ 秒}$、$135\% \leq 1 \text{ 小时}$、$100\% \geq 4 \text{ 小时}$。 After high humidity test, the resistance value of the fuses shall be in range. Electrical Characteristics: $200\% \leq 5 \text{ seconds}$, $135\% \leq 1\text{hour}$, $100\% \geq 4\text{hours}$.	测试温度： $40 \pm 2^\circ\text{C}$，测试湿度：90%~95%，测试时间：96 小时。 Test Temperature: $40 \pm 2^\circ\text{C}$，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： $200\% \leq 5 \text{ 秒}$、$135\% \leq 1 \text{ 小时}$、$100\% \geq 4 \text{ 小时}$。 After thermal shock test, the resistance value of the fuses shall be in range. Electrical Characteristics: $200\% \leq 5 \text{ seconds}$, $135\% \leq 1\text{hour}$, $100\% \geq 4\text{hours}$.	每个循环： -40°C 放置 30 分钟后再 85°C 放置 30 分钟，测试 10 循环。 $-40^\circ\text{C} / 30\text{minutes} \rightarrow 85^\circ\text{C} / 30\text{minutes}$, 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 10N，保持 1 分钟。玻璃管必须无缺陷破裂、缺损。试验后保险丝管的电阻符合范围；电气特性符合： $200\% \leq 5 \text{ 秒}$、$135\% \leq 1 \text{ 小时}$、$100\% \geq 4 \text{ 小时}$。 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 10N applied to each cap for 1 minute. The cap shall be nickel plated firmly. The glass tube shall have no defects such as crack and injury. After falling shock test, the resistance value of the fuses shall be in range. Electrical Characteristics: $200\% \leq 5 \text{ seconds}$, $135\% \leq 1\text{hour}$, $100\% \geq 4\text{hours}$.	一箱 5,000 个或 8,000 个保险丝管从一米高自由落下，跌落 20 次。 5,000EA or 8,000EA fuses/ one external carton, Falling Height: 1 meter, Falling Times: 20.