



Microfuse RoHS & Pb-free
好利 保险丝管



产品规格书

PRODUCT SPECIFICATION

瓷管保险丝（慢断型）

CERAMIC TUBE FUSE (TIEM-LAG)

50CT RoHS SERIES

编码: B03 HLD-PSI-8071 2022/8/4

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1 适用范围/ SCOPE

本规格书适用于公司按照 IEC 60127 标准生产的 50CT RoHS 系列 HOLLY® 商标的小型保险丝管。

This specification defines the technical requirements of miniature fuse type 50CT RoHS series with HOLLY® brand, which are according to IEC 60127.

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: 50CT 020 H

额定电压/ Voltage Rating: H - 250V.

产品部件号/ PART NUMBER

产品部件号	型号规格	产品部件号	型号规格
50CT-0160H	50CT T160mA 250V	50CT-032H	50CT T3.15A 250V
50CT-0200H	50CT T200mA 250V	50CT-040H	50CT T4A 250V
50CT-0250H	50CT T250mA 250V	50CT-050H	50CT T5A 250V
50CT-0315H	50CT T315mA 250V	50CT-063H	50CT T6.3A 250V
50CT-0400H	50CT T400mA 250V	50CT-080H	50CT T8A 250V
50CT-0500H	50CT T500mA 250V	50CT-100H	50CT T10A 250V
50CT-0630H	50CT T630mA 250V	50CT-120H	50CT 12A 250V
50CT-0800H	50CT T800mA 250V	50CT-125H	50CT 12.5A 250V
50CT-010H	50CT T1A 250V	50CT-150H	50CT 15A 250V
50CT-013H	50CT T1.25A 250V	50CT-160H	50CT 16A 250V
50CT-016H	50CT T1.6A 250V	50CT-200H	50CT T20A 250V
50CT-020H	50CT T2A 250V	50CT-250H	50CT T25A 250V
50CT-025H	50CT T2.5A 250V		

型号规格: 型号 特性符号 额定电流 分断能力符号 额定电压
MODEL DETAIL: Type Characteristic Symbol Rated Current Breaking Capacity Symbol Rated Voltage
例如/ Example: 50CT T 2A H 250V

*特性符号/ Characteristic Symbol: T – 慢断型/ Time-Lag,

分断能力符号/ Breaking Capacity Symbol: H - 高分断能力/ High Breaking Capacity.

(12A-16A 仅含 CQC、SEMKO、TUV 标识时不必标注“T”“H” 12A-16A need not be marked “T”“H” for CQC, Semko and TUV alone)

2 相关标准/ APPLICABLE STANDARDS

2.1 50CT RoHS 系列产品适用的相关标准是 IEC 60127 和 GB 9364。

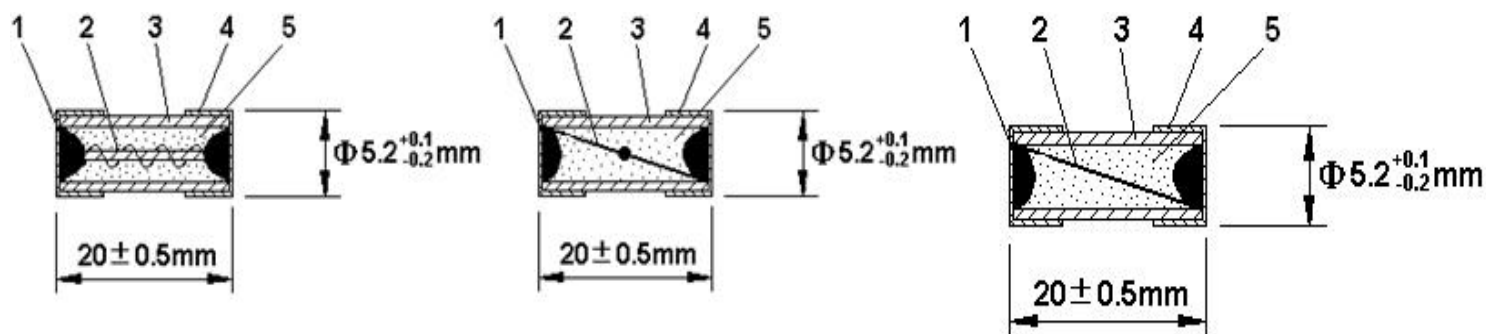
Applicable standards for 50CT RoHS series are IEC 60127 and GB 9364.

2.2 认证情况/ APPROVED DETAILS

安全认证 SAFETY APPROVALS	额定电压 RATED VOLTAGE	认证范围 APPROVED RANGE	认证号码 CERT. NO.
SEMKO	250V	1A~6.3A	SE-S-2001174
		8A、10A、12.5A、16A	SE-S-2002159
VDE	250V	1A~10A	40014896
		12.5A, 16A	40030750
BSI	250V	1A~6.3A	KM 52652
UR/cUR	250V	200mA~25A	E156471
TUV	250V	12A~16A	R50341798
KC	250V	1A~6.3A	SU05008-4004D
		8A、10A	SU05008-11002C
CCC	250V	1A~6.3A	2020970207000173
		8A、10A	2020970207000169
CQC	250V	12,5A, 16A	CQC09012037405
PSE	250V	1A~5A	JET 2489-31003-2006
		5.1A~15A	JET 2489-31003-2022

3 构造图/ CONSTRUCTION FIG.&DIMENSION

3.1 DIMENSION (Unit: mm)



编号 No.	品名 PART	材料名 MATERIAL MODEL	备注 NOTE
1	焊锡 Solder	无铅焊锡/ Pb Free	额定电流 $I_n < 10\text{A}$
		含铅高温焊锡/ Pb Contained High temperature Solder	额定电流 $I_n \geq 10\text{A}$
2	可熔体 Element	玻璃纤维 + 金属丝/ Glass Fiber + Metal Wire	额定电流 $I_n < 800\text{mA}$
		金属丝/ Metal Wire	额定电流 $I_n: 800\text{mA} \sim 2\text{A}$
		一个锡球 + 金属丝/ One Solder Blob + Metal Wire	额定电流 $20 \geq I_n > 2\text{A}$
		金属丝/ Metal Wire	额定电流 $I_n > 20\text{A}$
3	管体/ Tube	陶瓷管/ Ceramic Tube	灌砂/ Filled Sand
4	铜帽/ Cap	黄铜/ Brass	镀镍/ Nickel Plated
5	填充物/ Filler	石英砂/ Quartz Sand	/

3.2 陶瓷管/ CERAMIC TUBE

陶瓷管必须无缺陷破裂和缺损。

The ceramic tube shall have no defects such as crack and injury.

3.3 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.

3.4 焊点/ SOLDERING JOINT

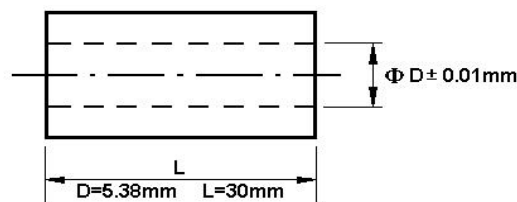
焊接铜帽端时，铜帽外表面不能有残留的助焊剂、焊锡、可熔体等异物。

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.

3.5 准直度/ ALIGNMENT

保险丝管的全长必须能以保险丝自身的重量全部通过准直度卡规。其具体图形如下。

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两项试验。/ Fuse shall be withstood 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，在陶瓷管的中心位置施加 25N 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 25N is applied to the middle part of the fuse-tube, no damage of the fuse-tube shall occur.

5 电气特性/ ELECTRICAL PERFORMANCE

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 技术参数/ TECHNICAL PARAMETERS

具体技术参数如下表

The specific technical parameters are shown in the table below.

额定电流 Raed Curren (A)	额定电压 Raed Volage (V)	最大电压降 Maximum Volage Drop (mV)	最大维持功耗 Maximum Susained Power Dissipaion (W)	电阻(Ω)	I2T
160mA	250	2,400	1.6	8.9200	0.0252
200mA	250	2,100	1.6	5.2000	0.0480
250mA	250	1,500	1.6	3.7500	0.0570
315mA	250	1,100	1.6	2.0800	0.0960
400mA	250	1,000	1.6	1.8400	0.1610
500mA	250	850	1.6	1.0300	0.2570
630mA	250	650	1.6	0.8240	0.4510
800mA	250	500	1.6	0.3580	0.5532
1A	250	350	2.5	0.2300	1.014
1.25A	250	300	2.5	0.1790	2.115
1.6A	250	200	2.5	0.1060	4.238
2A	250	190	2.5	0.0766	7.120
2.5A	250	180	2.5	0.0343	7.781
3.15A	250	140	4	0.0248	15.46
4A	250	100	4	0.0175	37.60
5A	250	100	4	0.0126	60.95
6.3A	250	100	4	0.0099	101.3
8A	250	100	4	0.0072	188.7
10A	250	100	4	0.0048	323.4
12A	250	100	4	0.0038	539.2
12.5A	250	100	4	0.0036	585.1
15A	250	100	6	0.0026	934.1
16A	250	100	6	0.0024	1055
20A	250	100	6	0.0019	2116
25A	250	100	6	0.0018	2709

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小于等于 75℃($I_n \leq 20A$)或 95℃($I_n > 20A$)。

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 less than or equal to 75℃ ($I_n \leq 20A$) or 95℃($I_n > 20A$)..

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

5.4 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.

额定电流 Rated Current	2.1I _n	2.75I _n		4I _n		10I _n	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.
100mA-800mA	30min.	250ms	80sec.	50ms	5sec.	5ms	150ms
>800mA-3.15A	30min.	750ms	80sec.	95ms	5sec.	10ms	150ms
>3.15A-10A	30min.	750ms	80sec.	150ms	5sec.	10ms	150ms
>10A	30min.	1sec.	80sec.	150ms	8sec.	20ms	150ms

5.5 分断能力/ BREAKING 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 $0.1M\Omega$ 。

The breaking 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 $0.1M\Omega$

安全认证 SAFETY APPROVALS	认证范围 APPROVED RANGE	额定电压 RATED VOLTAGE	分断电流 BREAKING CURRENT
UR/cUR	200mA~25A A.C.	250V	1500A
TUV	12A~16A A.C.	250V	1500A
CCC/CQC/ SEMKO/ VDE/ BSI / KC	1A~12.5A A.C.	250V	1500A
PSE	1~10A A.C.	250V	1500A
	10.1A~15A A.C.	250V	100A

5.6 耐久性试验/ ENDURANCE TEST

耐久性试验过程下。/ The process of endurance test is as follows.

A 对熔断体通过 1.2 倍的额定电流 1 小时, 然后切断电流 15 分钟, 重复此循环 100 次。/ A current $1.2I_n$ is passed through the fuse-link for a period of 1hour. The current is then switched off for a period of 15 minutes. The cycle is repeated 100 times.

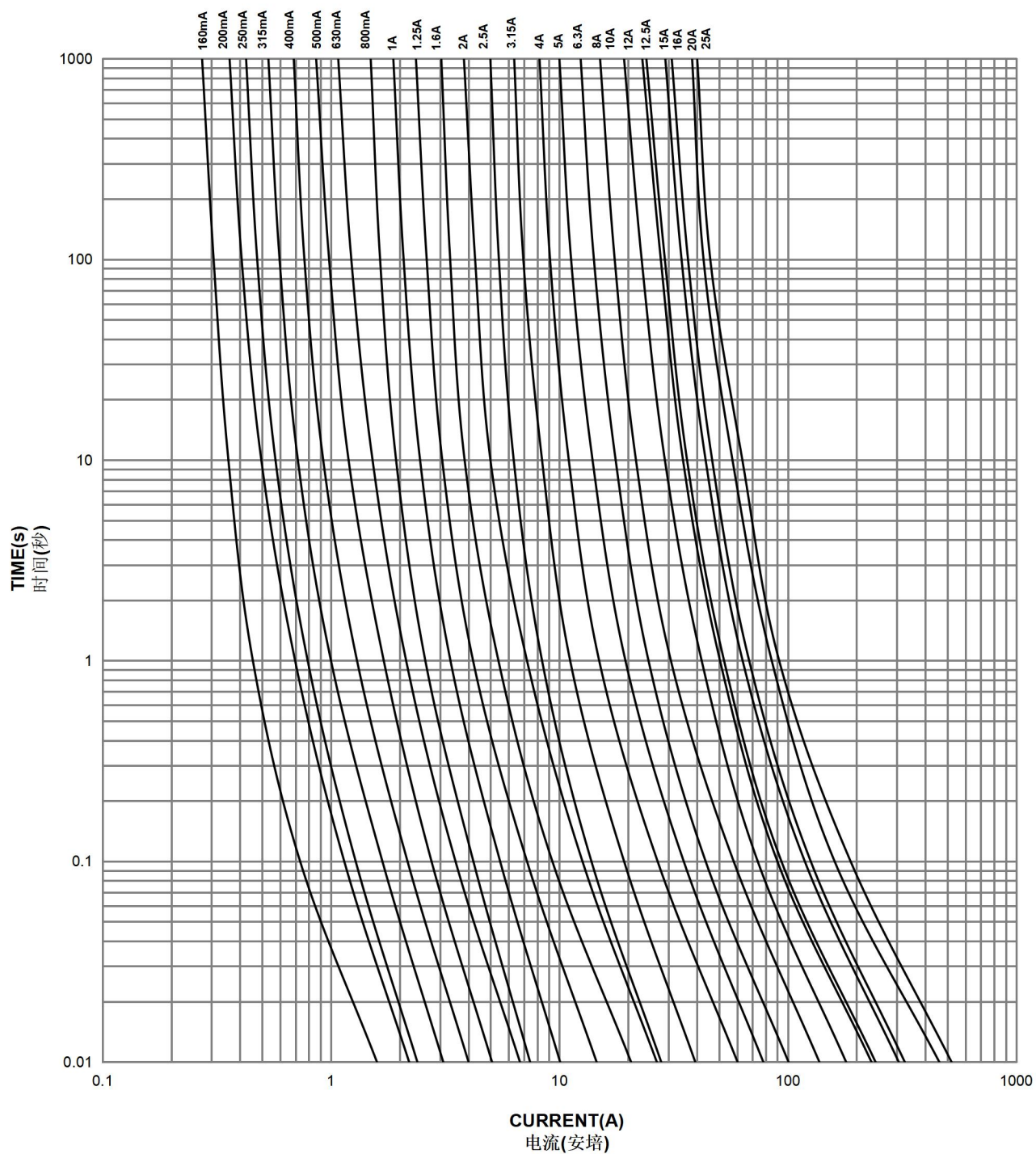
B 然后对熔断体通以 1.5 倍额定电流 1 小时($I_n \leq 6.3A$)或 0.5 小时($I_n > 6.3A$)。/ A current $1.5I_n$ is then passed through the fuse-link for 1hour($I_n \leq 6.3A$) or 0.5hour($I_n > 6.3A$).

C 测量熔断体两端的电压降。试验后, 熔断体两端的电压降的增大量不大于试验前测得值的 10%。/ Finally, the voltage drop across the fuse-link is measured. The voltage drop across the fuse-link after the test shall not have increased by more than 10% of the Value measured before the test.

D 试验后, 标记仍应清晰可辨, 而且诸如端帽上的焊点不应出现任何明显的劣变。/ After the test, the marking shall still be legible and soldered joints on end caps, for example, shall not show and appreciable deterioration.

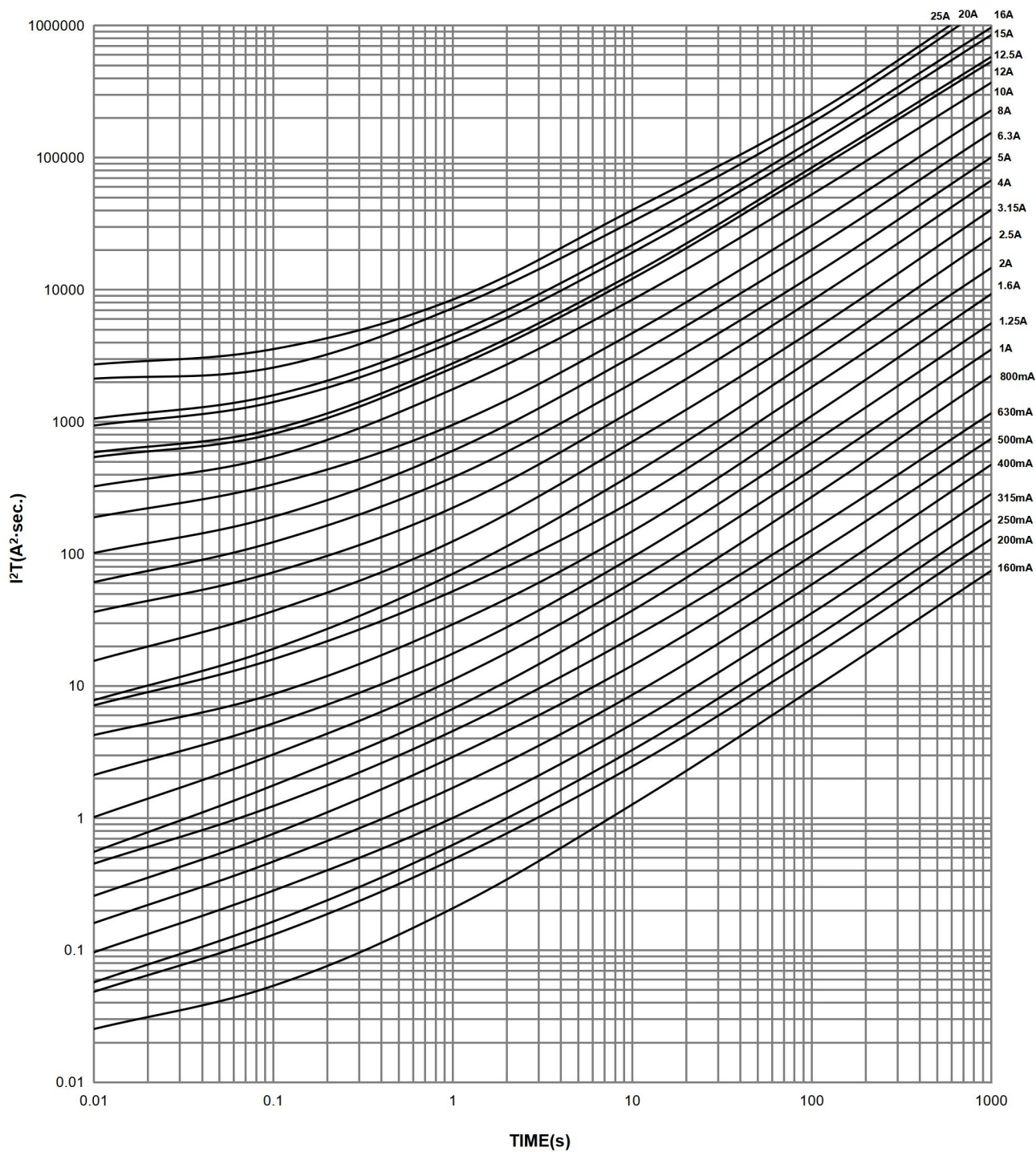
5.7 平均 I-T 特性曲线图(仅供参考)/ THE AVERAGE I-T CHARACTERISTICS CURVE(FOR REFERENCE ONLY)

50CT 平均I-T曲线图(仅供参考)
50CT AVERAGE I-T CHARACTERISTICS CURVE(FOR REFERENCE ONLY)



5.8 平均 I²T-T 特性曲线图(仅供参考)/ THE AVERAGE I²T-T CHARACTERISTICS CURVE(FOR REFERENCE ONLY)

50CT RoHS Average I²T-T Characteristics Curve(For Reference Only)



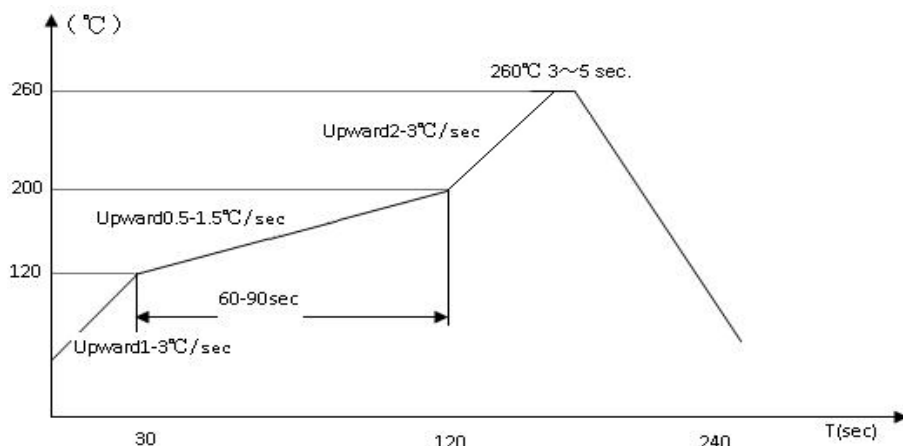
5.9 焊接参数/ Soldering Parameters

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

建议波峰焊接图形/ Suggest wave soldering graphics

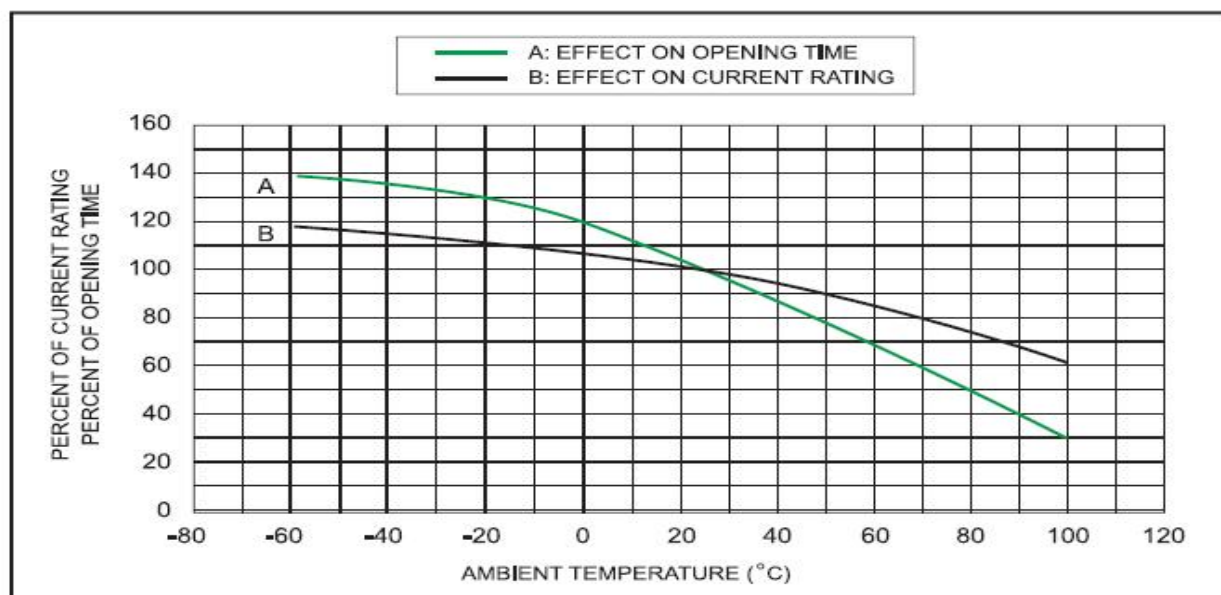


5.10 电阻测试/ COLD RESISTANCE TEST

环境温度为 $25 \pm 2^\circ\text{C}$ ，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 $25 \pm 2^\circ\text{C}$.

5.11 温度调额曲线/ Temperature rating curve



(I) Effect on rating and opening time in 5In of traditional slow-blow and medium slow-blow fuse

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: 50CT
- 3) 商标/ Trademark: 
- 4) 特性符号/ Characteristic Symbol: T(12A-16A 仅含 CQC、SEMKO、TUV 标识时不必标注“T” 12A-16A need not be marked “T” for CQC, Semko and TUV alone)
- 5) 额定电流/ Rated Current
- 6) 分断能力符号/ Breaking Capacity Symbol: H(12A-16A 仅含 CQC、SEMKO、TUV 标识时不必标注“H” 12A-16A need not be marked “H” for CQC, Semko and TUV alone)
- 7) 额定电压/ Rated Voltage

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)、5)、6) 和 7)应标注在保险丝管另一端铜帽的侧面。

4), 5), 6) and 7) should be marked on the other side cap of the fuse.

7 包装要求/ PACKING DETAILS

7.1 包装方式 A/ EXTERNAL CARTON PACKING A

7.1.1 参考尺寸: 长×宽×高=320×240×165mm。

Reference Dimension: length×width×height=320×240×165mm.

7.1.2 包装细节: 200EA/小塑料袋; 25 小塑料袋/大塑料袋; 2 大塑料袋/每箱

Packing Details: 200EA/ little plastic-bag; 25 little plastic-bags/ big plastic-bag; 2 big plastic-bags/ External Carton.

7.2 包装方式 B/ EXTERNAL CARTON PACKING B

7.2.1 参考尺寸: 长×宽×高=375×245×165mm。

Reference Dimension: length×width×height=375×245×165mm.

7.2.2 包装细节: 200 个/袋; 5 袋/盒; 10 盒/箱。

Packing Details: 200EA/ bag; 5 bags/ box;10 boxes/ Carton.

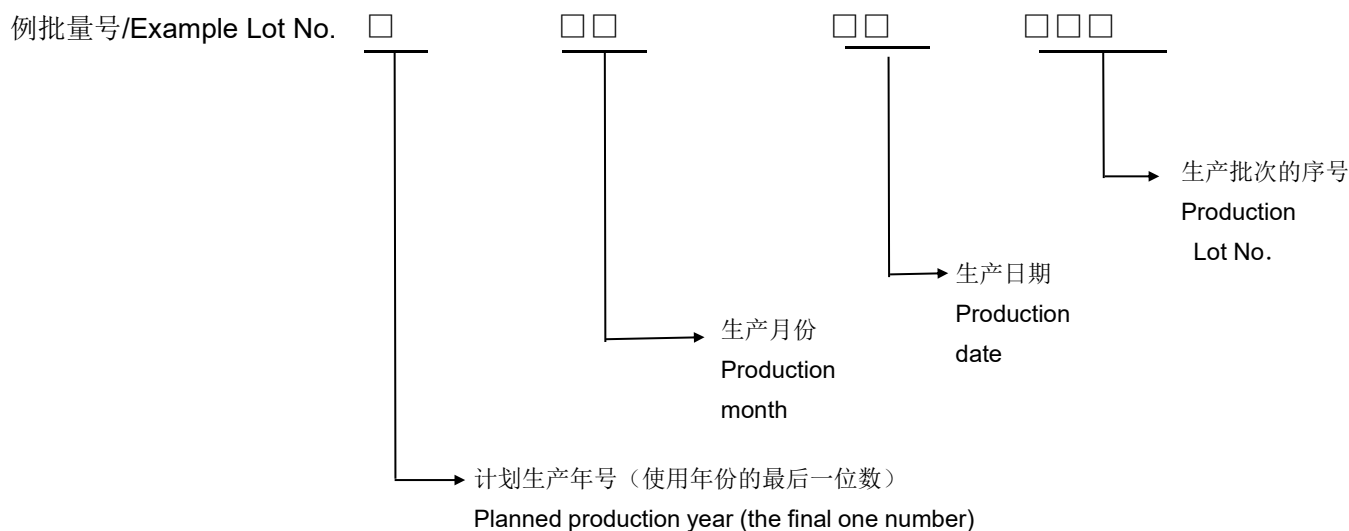
产品的包装应能达到防潮、抗振的作用，以防在运输或贮存过程中产品受潮或损坏。

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

7.3 标签/ LABEL

标签应包括型号、额定电流、额定电压、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 current, Trademark, Safety approval logo, Lot. No., Company name, “RoHS” mark, green “G” and “QA” mark.



8 环境参数/ ENVIRONMENT PARAMETERS

8.1 工作温度/ Operating Temperature: -55℃~125℃.

8.2 儲存溫度/ Storage Temperature: -55℃~85℃.

9 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：210%≤30 分、150%≥1 小时($I_n \leq 6.3A$)或 0.5 小时($I_n > 6.3A$)。 After high temperature test, the resistance value of the fuses shall be in range. Electrical Characteristics:210%≤30minutes, 150% ≥ 1hour($I_n \leq 6.3A$) or 0.5hour($I_n > 6.3A$).	测试温度：105±2℃，测试时间：1000 小时。 Test Temperature: 105 ± 2 ℃ ， 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：210%≤30 分、150%≥1 小时($I_n \leq 6.3A$)或 0.5 小时($I_n > 6.3A$)。 After low temperature test, the resistance value of the fuses shall be in range. Electrical Characteristics: 210% ≤ 30minutes, 150% ≥ 1hour($I_n \leq 6.3A$) or 0.5hour($I_n > 6.3A$).	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：210%≤30 分、150%≥1 小时($I_n \leq 6.3A$)或 0.5 小时($I_n > 6.3A$)。 After high humidity test, the resistance value of the fuses shall be in range. Electrical Characteristics: 210% ≤ 30minutes, 150% ≥ 1hour($I_n \leq 6.3A$) or 0.5hour($I_n > 6.3A$).	测试温度：40±2℃，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：210%≤30 分、150%≥1 小时($I_n \leq 6.3A$)或 0.5 小时($I_n > 6.3A$)。 After thermal shock test, the resistance value of the fuses shall be in range. Electrical Characteristics: 210% ≤ 30minutes, 150% ≥ 1hour($I_n \leq 6.3A$) or 0.5hour($I_n > 6.3A$).	每个循环：-40℃放置 30 分钟后 85℃放置 30 分钟，测试 10 循环。 -40 °C / 30minutes → 85 °C / 30minutes, 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。陶瓷管必须无缺陷破裂和缺损。试验后保险丝管的电阻符合范围；电气特性符合：210%≤30 分、150%≥1 小时($I_n \leq 6.3A$)或 0.5 小时($I_n > 6.3A$)。 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 ceramic 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: 210% ≤ 30minutes, 150% ≥ 1hour($I_n \leq 6.3A$) or 0.5hour($I_n > 6.3A$).	一箱 10,000 个保险丝管从一米高自由落下, 跌落 20 次。 10,000EA fuses/ one external carton, Falling height: 1 meter, Falling times: 20.