

保电通 (东莞) 电子科技有限公司
PROTECTOM (DONGGUAN) ELECTRONIC TECHNOLOGY CO.,LTD

ES2T 2410

Brick SMD fuse

贴片保险丝规格书

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适用范围 / Scope of Application

本产品适用于 LCD / PDP 电视、液晶显示器、LCD / PDP 面板、LCD 背光逆变器、便携式 DVD 播放器、3C 数码类快充头、电源、联网、PC 服务器、冷却风扇系统、存储系统、电信系统、无线基站、白色家电、游戏机、办公自动化、设备电池充电电路保护、工业设备、医疗器材、汽车各类电子设备电路的过流保护作用。

This product is suitable for LCD / PDP TV, LCD display, LCD / PDP panel, LCD backlight inverter, Portable DVD player, 3C digital class fast charger Power supply, Networking, PC server, Cooling fan system, Storage system, Telecommunication system, Wireless base station, Game machine, Office automation, Equipment, Battery charging circuit protection, Industrial equipment, Medical equipment, Over-current protection of various electronic equipment circuits.

安规认证标准及编号 / Standards and Agency Approvals

- 2.1 执行标准：遵循 UL248-1/14, GB/T 9364.1-2015;GB/T 9364.7-2016 ,KC60127-3(2015-09), K60127-1(2011-12),IEC 60127-1:2006
 IEC 60127-1:2006/AMD1:2011 ,IEC 60127-1:2006/AMD2:2015
 IEC 60127-7:2015, DIN EN 60127-1 (VDE 0820-1):2015-12; EN60127-1:2006+A1:2011+A2:2015
 DIN EN 60127-7 (VDE 0820-7):2016-09; EN 60127-7:2016

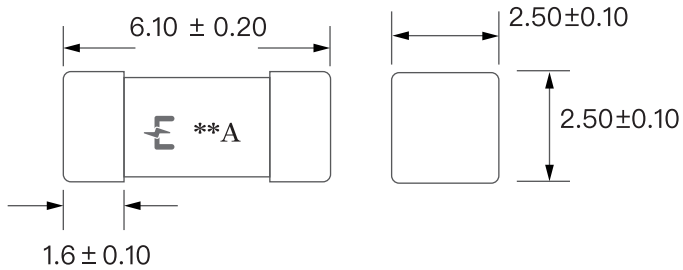
Standards: In accordance with UL248-1/14, GB/T 9364.1-2015;GB/T 9364.7-2016 ,KC60127-3(2015-09), K60127-1(2011-12),IEC 60127-1:2006
 IEC 60127-1:2006/AMD1:2011 ,IEC 60127-1:2006/AMD2:2015
 IEC 60127-7:2015, DIN EN 60127-1 (VDE 0820-1):2015-12; EN60127-1:2006+A1:2011+A2:2015
 DIN EN 60127-7 (VDE 0820-7):2016-09; EN 60127-7:2016.

■ 2.2 认证范围 Certification:

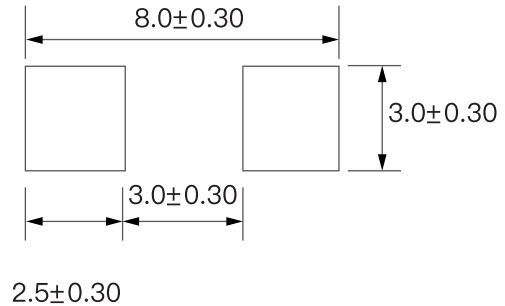
额定电压 Rated Voltage	安规标准 Agency	认证电流 Ampere Range	证书编号 Agency File Number
250V ac/dc	UR-CUR (UL)	0.1A ~ 10A	E519111
125V ac/dc	UR-CUR (UL)	11A ~ 15A	
250V ac/dc	CQC	500MA,1A,1.25A,1.6A,2A,2.5A,3.15A,4A,5A,6.3A,8A,10A,12A,15A,20A	CQC21012316667
250V ac/dc	KC	500MA,1A,1.25A,1.6A,2A,2.5A,3.15A,4A,5A	SU05076
250V ac/dc	IEC	500MA,1A,1.25A,1.6A,2A,2.5A,3.15A,4A,5A	CN54664-A1
250V ac/dc	VDE	500MA,1A,2A,3.15A,5A	40054943
250V ac/dc	TUV	0.1A ~ 15A	J50727148
250V ac/dc	PSE	1A ~ 15A	

结构及尺寸 / Dimensions and Structure

单位：毫米 / Unit: mm



Recommended pad layout



材料明细 / Material Details

编号 NO.	零件名称 Part Name	材质 Material
1	铜帽 Cap	铜镀银/金 Silver/Gold Plated Brass
2	管体 Body	陶瓷管 Non-Transparent Square Ceramic Tube
3	熔丝 Element	合金线+纤维线 Alloy Wire+ Fiber
4	焊锡 Solder	高温焊锡 High temperature tin

产品标示 / Product Marking

保险丝两端铜帽上或本体上需有下列标示。

The fuses cap or fuse body shall have the following markings.

示例 Example:



1. 制造厂商标识/ Protectom Logo
2. 额定电流/Rated Current: A 或 or mA

注意 / Note: 对于标示的大小和位置没有规定。

Size and position of the markings shall not be provided



产品特性 / Product Characteristic

零件编号	Rated current	Rated voltage		DCR ($\Omega/\text{m}\Omega$)	voltage drop(mv)	I ² T A2s						TUV	PSE
ES2T0005	0.05A	250	vac	125	72vdc	25-41 Ω	2410-3350	0.0033	○	○	○	○	○
ES2T0006	0.062A					13-26 Ω	1520-2360	0.0035	○	○	○	○	○
ES2T0008	0.08A					19-23 Ω	2930-3410	0.0064	○	○	○	○	○
ES2T0010	0.1A					9.1-10.9 Ω	1180-1410	0.015	●	○	○	○	○
ES2T0012	0.12A					3.9-6.2 Ω	552-912	0.072	●	○	○	○	○
ES2T0015	0.15A					1.75-2.5 Ω	320-437	0.162	●	○	○	○	○
ES2T0018	0.18A					1.1-1.58 Ω	283-318	0.227	●	○	○	○	○
ES2T0020	0.2A					0.71-0.93 Ω	187-214	0.12	●	○	○	○	○
ES2T0025	0.25A					0.6-0.84 Ω	164-254	0.1	●	○	○	○	○
ES2T0030	0.3A					0.35-0.75 Ω	148-209	0.18	●	○	○	○	○
ES2T0035	0.35A					0.32-0.58 Ω	170-242	0.4	●	○	○	○	○
ES2T0037	0.375A					0.39-0.56 Ω	158-245	0.45	●	○	○	○	○
ES2T0040	0.4A					0.30-0.53 Ω	203-252	0.4	●	○	○	○	○
ES2T0050	0.5A					0.2-0.3 Ω	130-203	1.32	●	●	●	●	○
ES2T0060	0.6A					190-245m Ω	128-210	1.35	●	○	○	○	○
ES2T0063	0.63A					190-245m Ω	120-207	1.37	●	○	○	○	○
ES2T0070	0.7A					157-193m Ω	114-181	1.96	●	○	○	○	○
ES2T0075	0.75A					150-180m Ω	108-147	2.15	●	○	○	○	○
ES2T0080	0.8A					121-172m Ω	103-163	2.25	●	○	○	○	○
ES2T0100	1A					75-99m Ω	90-142	2.27	●	●	●	●	●
ES2T0125	1.25A					50-70m Ω	76-116	3.44	●	○	●	●	●
ES2T0150	1.5A					63vdc	48-68.5m Ω	83-120	6.1	●	○	○	○
ES2T0160	1.6A					32vdc	44-53m Ω	84-117	5.6	●	○	●	●
ES2T0200	2A					24vdc	25-41.5m Ω	72-110	9.2	●	●	●	●
ES2T0250	2.5A						22-34m Ω	74-104	15.6	●	○	●	●
ES2T0300	3A						16-24.5m Ω	80-103	20.7	●	○	○	○
ES2T0315	3.15A						16-24.5m Ω	68-98	23.1	●	●	●	●
ES2T0350	3.5A						14-22m Ω	71-95	28.2	●	○	○	○
ES2T0400	4A						12-18m Ω	76-105	36.8	●	○	●	●
ES2T0500	5A						10-14.8m Ω	62-86	60	●	●	●	●
ES2T0600	6A						7-8.9m Ω	61-88	43.2	●	○	○	○
ES2T0630	6.3A						6.5-8.7m Ω	48-73	47.6	●	○	○	○
ES2T0700	7A						7.3-8.8m Ω	54-71	58.8	●	○	○	○
ES2T0800	8A						6.8-8m Ω	51-70	115.2	●	○	○	○
ES2T1000	10A	/					4.0-5.3m Ω	51-66	130	●	○	○	○
ES2T1200	12A	/					3.6-4.6m Ω	45-73	144	●	○	○	○
ES2T1500	15A	/					2.8-3.4m Ω	43-63	225	●	○	○	○
ES2T1600	16A	/					2.2-2.85m Ω	40-60	230.4	○	○	○	○
ES2T2000	20A	/					1.9-2.6m Ω	45-66	440	○	○	○	○
ES2T2500	25A	/	/				1.3-1.9m Ω	40-61	625	○	○	○	○
ES2T3000	30A	/	/				1.15-1.62m Ω	50-70	720	○	○	○	○
ES2T3500	35A	/	/				1.05-1.35m Ω	38-62	1593	○	○	○	○
ES2T4000	40A	/	/				0.95-1.2m Ω	51-60	1920	○	○	○	○
ES2T4500	45A	/	/				0.8-1.1m Ω	44-66	1823	○	○	○	○
ES2T5000	50A	/	/				0.7-0.9m Ω	53-69	2250	○	○	○	○

● Approved ○ pending

外观及形状 / Appearances and Configuration

■ 7.1 外观不应出现显著的污点、裂纹，标识应该容易辨识。

There shall not be any remarkable stain and crack on the appearances, markings shall be easily legible.

■ 7.2 形状：方形陶瓷贴片保险丝。

Configuration: Square ceramic patch fuse

产品特性 / Product Characteristics

■ 8.1 引脚拉力强度 / Lead Pull Strength

10 牛顿 10±1 秒 / 10N for 10±1 Seconds

电气特性 / Electrical Characteristics

■ 9.1 实验条件：Test Condition

所有测试环境温度为 25±5℃。

All electrical test is to be conducted with the ambient air at a temperature of 25±5℃.

■ 9.2 分断能力 / Interrupting Rating:

分断能力 Breaking Capacity:

参考第 6 项 (REF 6)

■ 9.3 温度上升试验 / Rising Temperature Test:

温度上升试验：通 1.0 倍额定电流，当温度稳定时（5 分钟测量 4 次，且每次测量值与平均值相差不超过 2℃）。测得熔断体任何部位的温升不得超过 135℃，周围环境温度为 25±5℃。

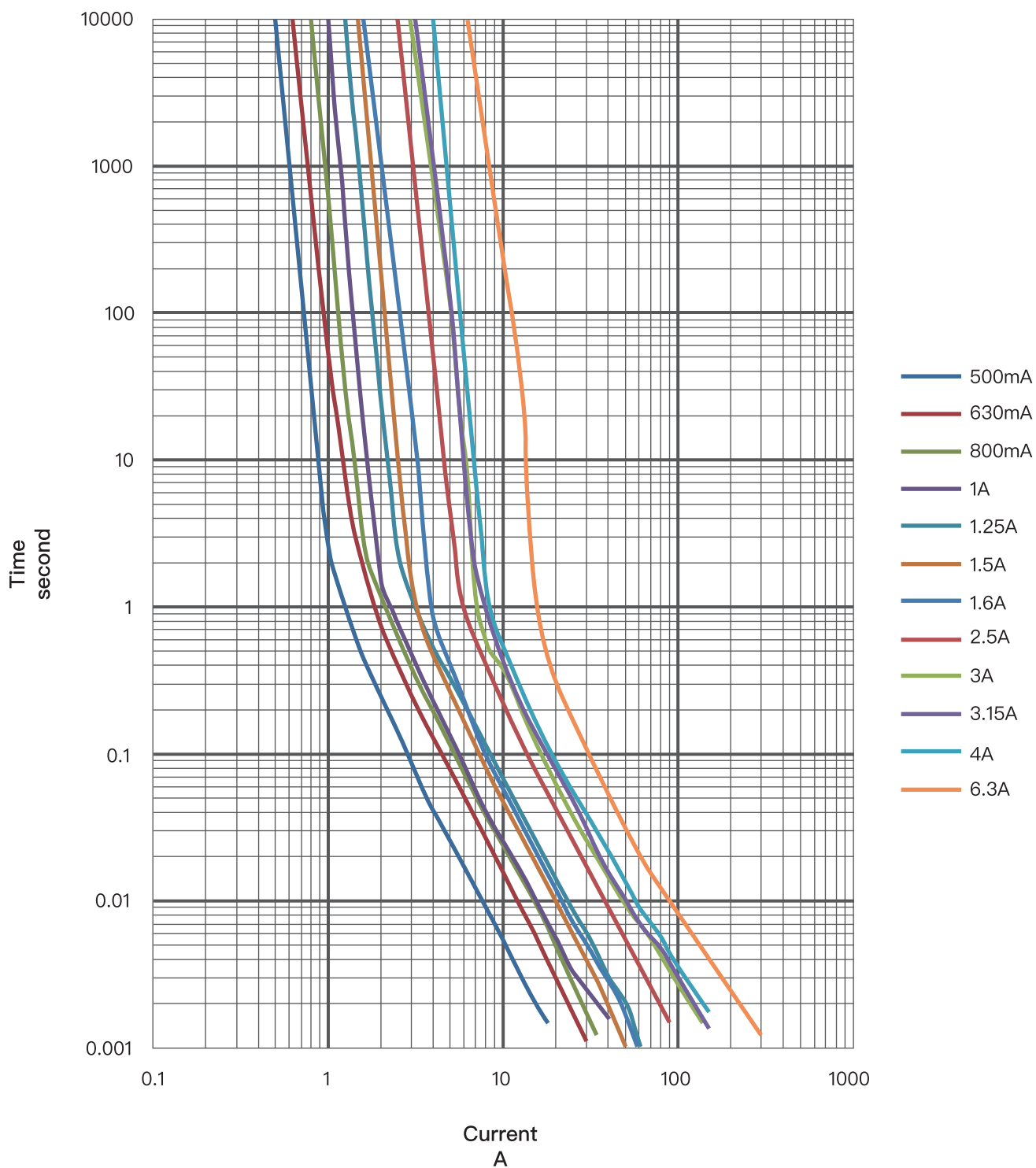
When the 100% times of rating electric current passes the fuse, After reaching thermal balance, the temperature on the fuse surface rising is not higher than 135℃ Rising temperature= The surface temperature–Ambient

■ 9.4 熔断时限 / Opening Time

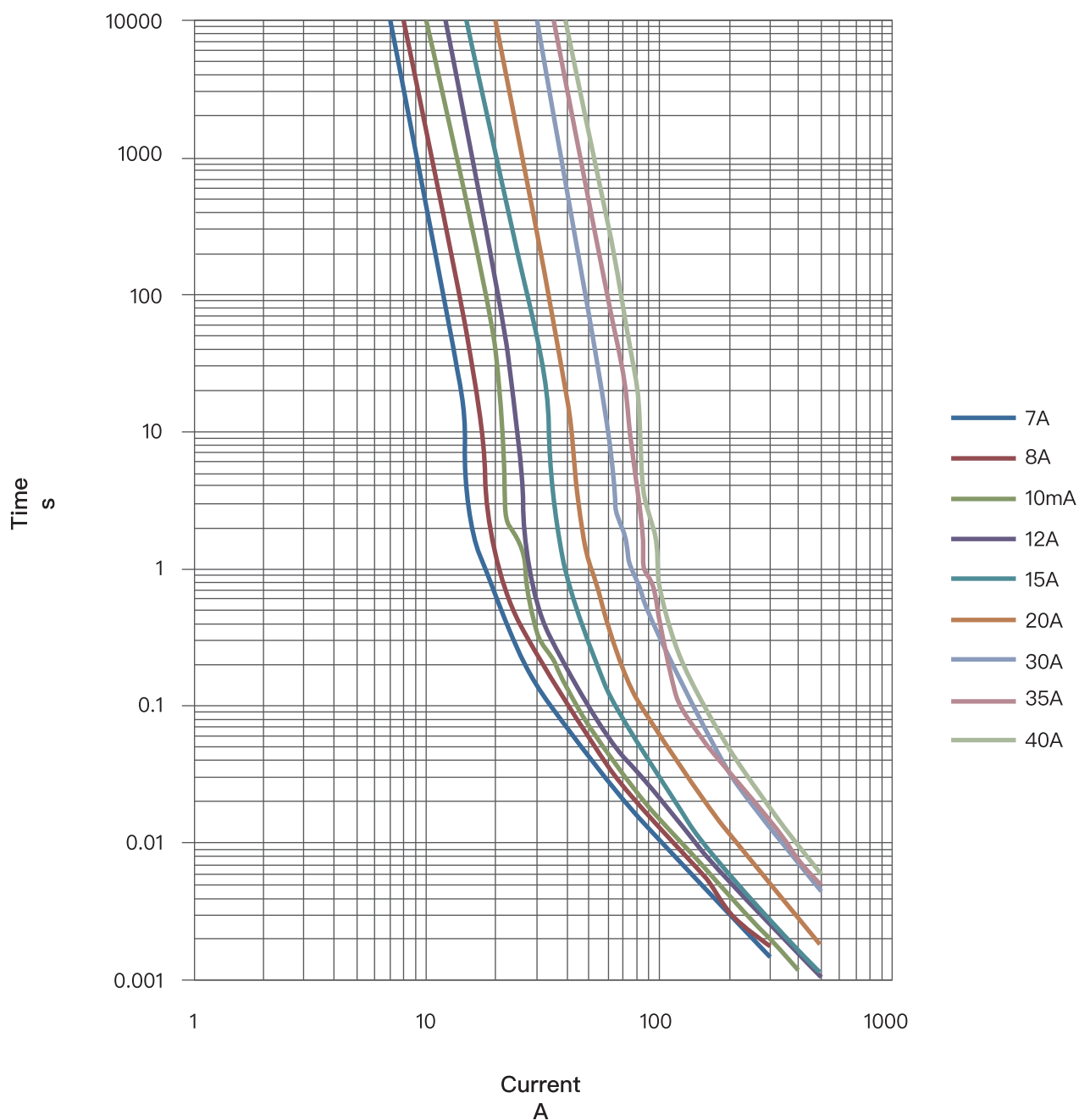
额定电流的%% of Ampere Rating	熔断时间 Opening Time (Time lag)
100%	T>4hrs
200%	T<120s
400%	1ms<T<1000ms
1000%	1ms<T<100ms

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

2410 Series I-T Curve 500 mA–6.3A



2410 Series I-T Curve 7A-40A



环境特性 / Environmental Characteristic

■ 10.1 使用温度范围 / Operating Temperature

-55°C ~ +125°C。

■ 10.2 保存条件 Stock Condition

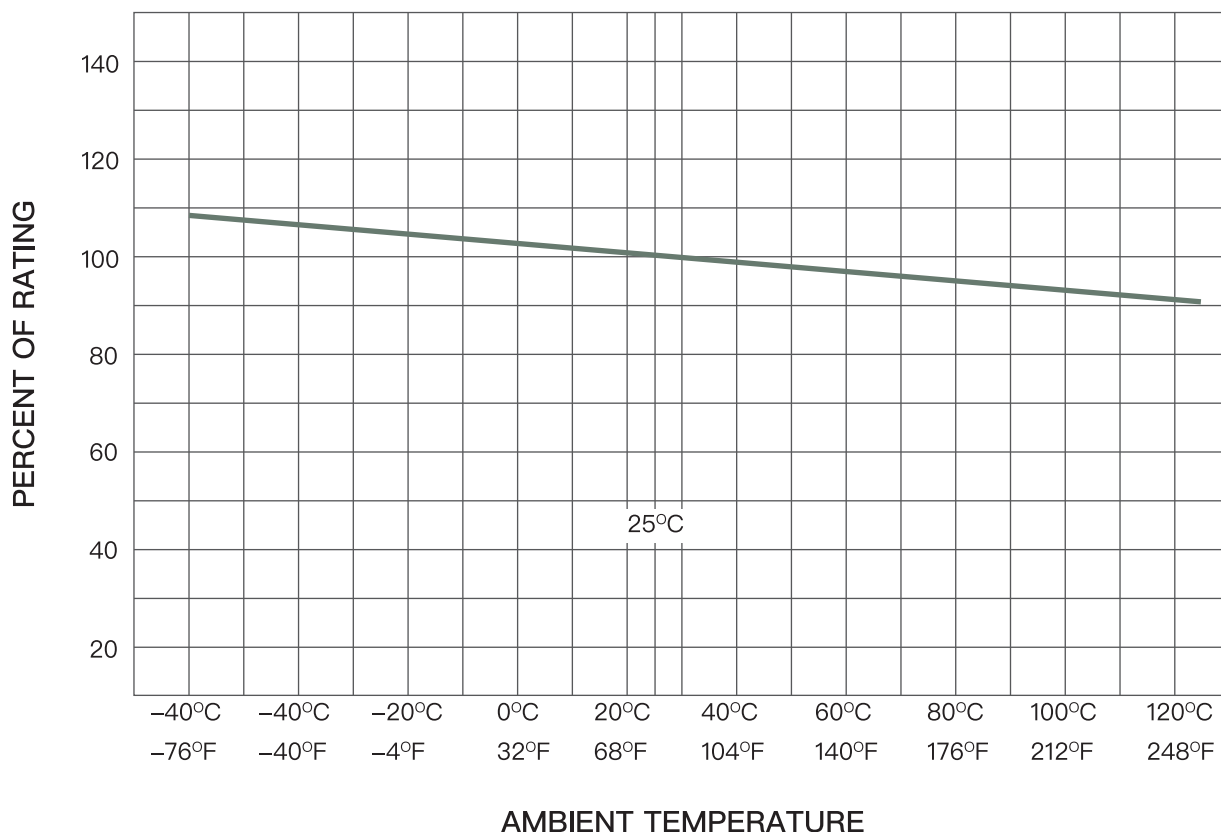
温度在 10°C~40°C，相对湿度≤75%平均可以存放 2 年。

Can be stored for 2 years under tight seal condition at temperature of 10°C~40°C, relative humidity ≤75%

■ 10.3 若操作环境温度超出 25±5°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 20~30°C, engineer should consider the environmental temperature's affection to fuses. Please refer: Temperature Rerating Curve:

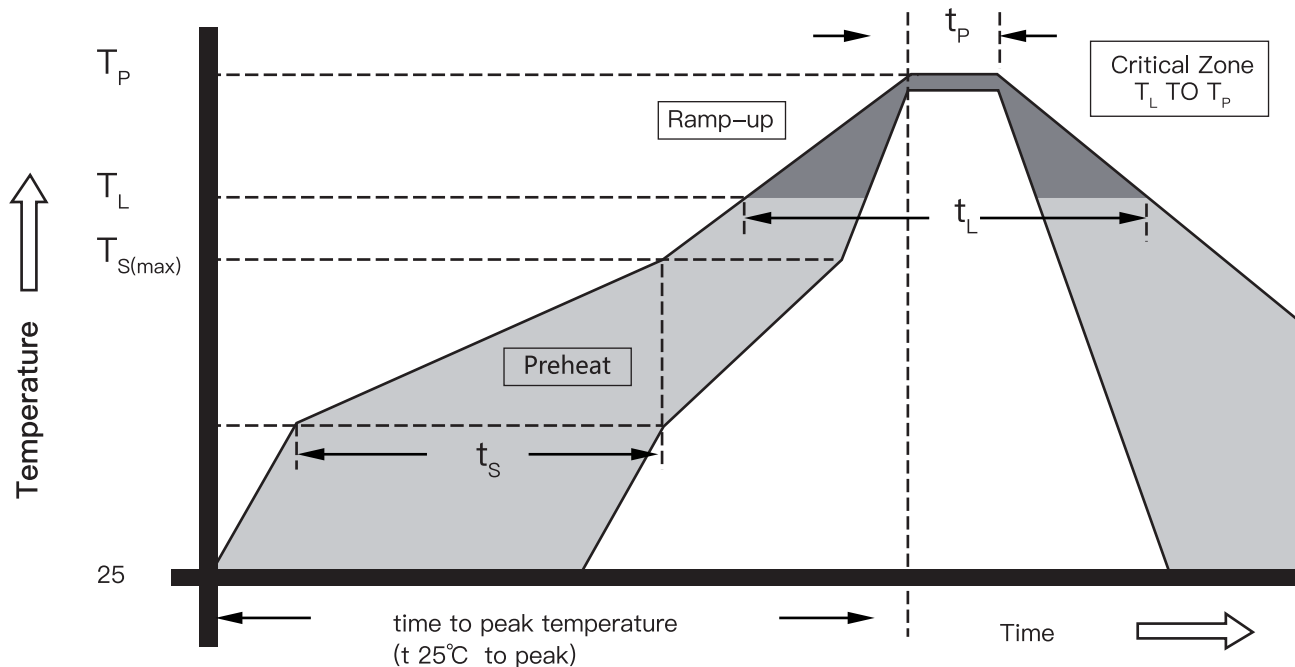
Temperature Rerating Curve



建议焊接参数 / Recommended Soldering Parameters

A.回流焊/Infrared Reflow	温度 Temperature 260°C	时间 Time 10sec Max;
B.波峰焊/ Wave soldering	温度 Temperature 260°C	时间 Time 10sec Max;
C.烙铁焊/Hand Soldering	温度 Temperature 350°C	时间 Time 3sec Max
烙铁避免接触铜帽 Soldering iron avoid touch Copper cap		

Profile Feature	Pb-Free assembly
Average Ramp-up Rate (Tsmx to Tp)	3°C/sec Max.
Preheat Temperature Max Ts(min) Temperature Max Ts(max) Time(Tsmin to Tmax)	150°C 200°C 60-120sec
Peak Temperature(Tp)	250°C
Time within 5°C of actual Peak Temperature(Tp)	5 sec
Melting tin time(TL)	20sec~40sec
Ramp-down Rate	6°C/sec Max
Time 25°C to peak Temperature	8minutes Max



回流焊接参考温度 Recommend Reflow profile

包装 / Packaging

■ 12.1 包装袋/盒印明下列标示: / The following items indicated on the label:

产品料号、额定(电压、电流)、分断类型及安规名称。

Catalog number, ratings (voltage, current), interrupting type and safety mark.

包装材料均符合 ROHS/REACH/HF 的环保要求, 且包装材料不会和零件发生化学反应, 造成不良。

The packing material conforms to ROHS/REACH/HF environmental protection request. And the packing materials will not have the chemical reaction with the components.

■ 12.2 包装数量 / Packing Quantity

每 1500pcs 一卷/Every 1500 PCS for 1 roll

每盒5卷/Each box 5 rolls

