

RS306-1-T1Z&S1P&Q1Z&W1Z 690V

产品规格书

PRODUCT SPECIFICATION

SINO FUSE

成为能量保护系统的集成方案供应商
为整个人类的能量转换活动的安全运行提供保障
Provide integrated solution of energy protection systems
and safeguard energy conversion processes for mankind

产品技术参数 / Product technical parameters

- 参考标准 / Conform to : IEC60269-4、UL248-13、GB/T13539.4
- 额定电压 / Rated voltage : AC 690V(IEC)/AC 700V(UL)
- 额定电流 / Rated current : 160A ~ 800A
- 保护类别 / Protection category : aR
- 分断能力 / Breaking capacity : 200kA
- 符合 / Compliant : CCC、TUV、UL、RoHS

No	Part Number	Size	In (A)	I ² t/ (A ² s)		Loss (W)		Weight (g)	Min Package (pcs)	Max Package (pcs)	Remark
				Prearc	Clearing	0.5In	In				
1	RS306-1-T1Z-160A690V	1	160	2600	22800	5.5	28	455	2	28	M10 21±1N
2	RS306-1-T1Z-200A690V		200	3600	31900	7	37				
3	RS306-1-T1Z-250A690V		250	6000	54000	8.5	45				
4	RS306-1-T1Z-315A690V		315	9400	88800	11	57				
5	RS306-1-T1Z-350A690V		350	12500	118200	11.5	60				
6	RS306-1-T1Z-400A690V		400	17900	170000	12.5	66				
7	RS306-1-T1Z-450A690V		450	24750	242500	13.5	71				
8	RS306-1-T1Z-500A690V		500	31800	312200	15	77				
9	RS306-1-T1Z-550A690V		550	43400	425000	15.5	80				
10	RS306-1-T1Z-630A690V		630	63900	652000	16.5	87				
11	RS306-1-T1Z-700A690V		700	84100	858000	18	93				
12	RS306-1-T1Z-800A690V		800	117000	1200000	20	105				

注/Note:

1. 功耗值测试个体为RS306-1-S1P 690V;

Power consumption value test individual for RS306-1-S1P 690V;

2. 默认基座指示, 如需端部 (盖板上安装) 可视指示器, 型号后加-T, 例: RS306-1-T1Z-800A690V-T;

Base indicator(default), if end needs visual indicator, add "-T" e.g. RS306-1-T1Z-800A690V-T;

3. 如无需指示, 型号后加-N, 例: RS306-1-T1Z-800A690V-N (无可视指示器与基座);

If no visual indicator is needed, add "-N" e.g. RS306-1-T1Z-800A690V-N (No visual indicator and base);

4. 重量偏差±3%。

Weight deviation ±3%.

No	Part Number	Size	In (A)	I ² t/ (A ² s)		Loss (W)		Weight (g)	Min Package (pcs)	Max Package (pcs)	Remark
				Prearc	Clearing	0.5In	In				
1	RS306-1-S1P-160A690V	1	160	2600	22800	5.5	28	430	1	45	/
2	RS306-1-S1P-200A690V		200	3600	31900	7	37				
3	RS306-1-S1P-250A690V		250	6000	54000	8.5	45				
4	RS306-1-S1P-315A690V		315	9400	88800	11	57				
5	RS306-1-S1P-350A690V		350	12500	118200	11.5	60				
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2. 默认基座指示, 如需端部 (盖板上安装) 可视指示器, 型号后加-T, 例: RS306-1-S1P-800A690V-T;

Base indicator(default), if end needs visual indicator, add "-T" e.g. RS306-1-S1P-800A690V-T;

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If no visual indicator is needed, add "-N" e.g. RS306-1-S1P-800A690V-N (No visual indicator and base);

4. 重量偏差±3%。

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RS306-1-S1P 安装/Mounting

a) 螺柱拧入深度推荐不超过8mm;

a) Recommended depth of screwing into the stud is not more than 8mm;

b) 拧紧螺母时, 保持螺柱不旋转;

b) Keep the stud from rotating when tightening the nut;

c) 推荐螺柱安装, 螺柱拧入时无推荐力矩, 以拧入深度满足为准。

c) Recommended stud mounting, no recommended torque when screwing in studs, subject to depth of screwing.

螺母/Bolt	螺母拧紧力矩/Torque
M8	10±1N·m

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				Prearc	Clearing	0.5In	In				
1	RS306-1-Q1Z-160A690V	1	160	2600	22800	5.5	28	475	2	28	M10 21±1N
2	RS306-1-Q1Z-200A690V		200	3600	31900	7	37				
3	RS306-1-Q1Z-250A690V		250	6000	54000	8.5	45				
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3. 如无需指示, 型号后加-N, 例: RS306-1-Q1Z-800A690V-N (无可视指示器与基座);

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4. 重量偏差±3%。

Weight deviation ±3%.

产品特性/ Product features

本产品为部分范围保护用熔断器, 适用于适合轨道交通、电动汽车、船舶、电力、通讯等行业应用。可以作为储能系统、动力系统、半导体、导线及其他器件和设备的短路过电流以及后备保护。

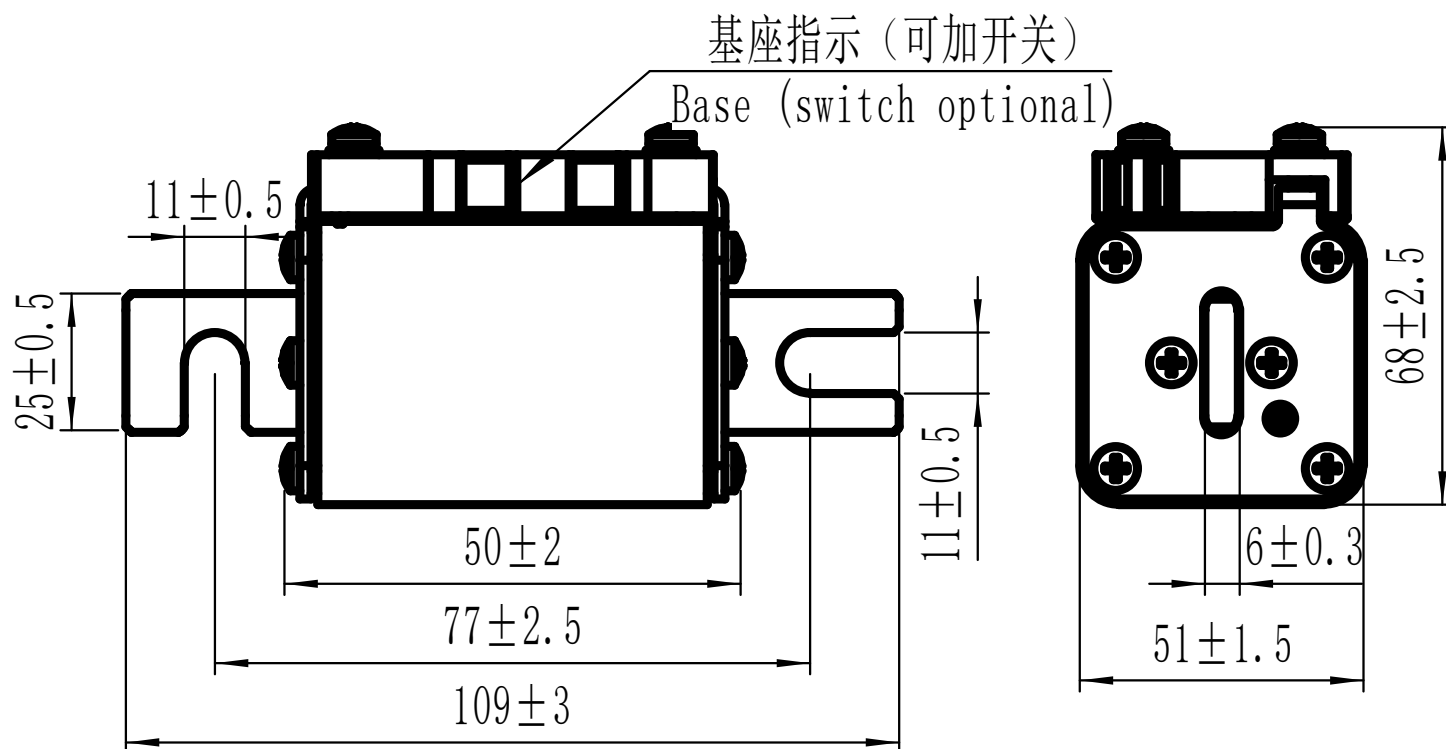
Suitable for rail transport, electric vehicles, ships and other industrial applications. Used for energy storage system, power system, conductor, and short-circuit overcurrent devices and equipment, as well as backup protection.

注: 本规格书中所有试验数据均为标准环境下测得, 试验参数和接线按照IEC60629。

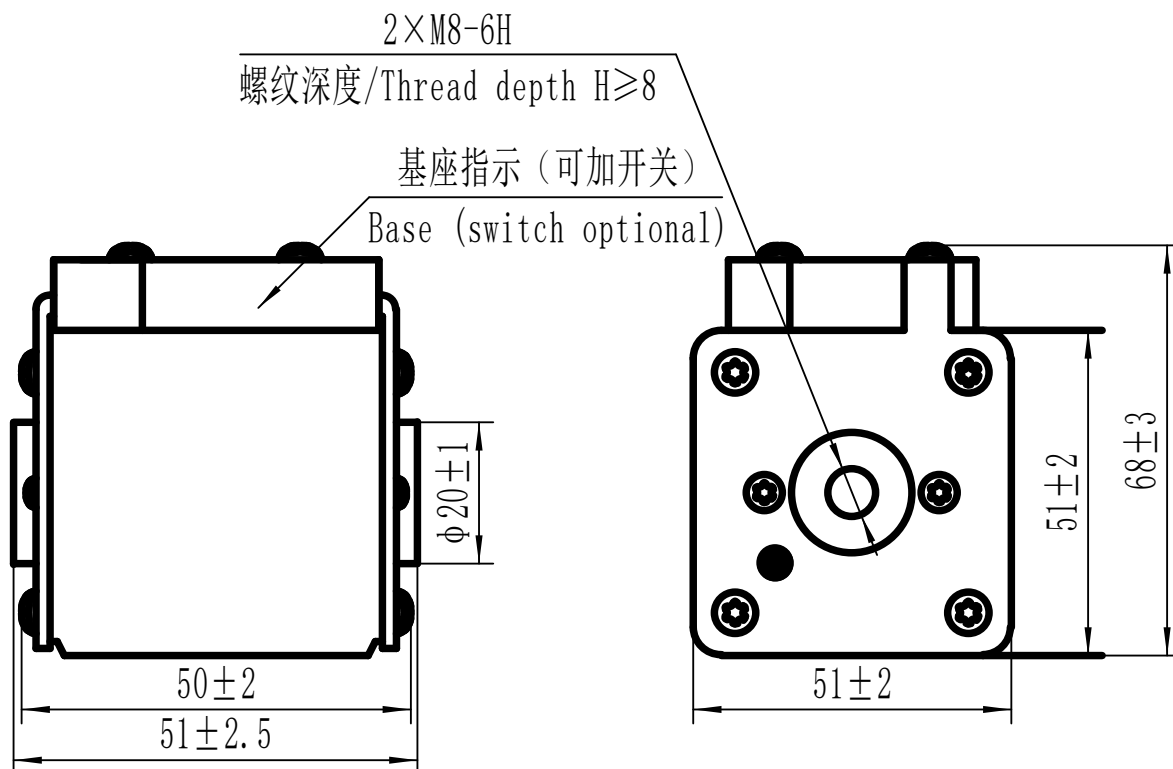
Note: All test data are measured in a standard environment, test parameters and connector in accordance with IEC 60269.

产品外形尺寸/Dimensions(mm)

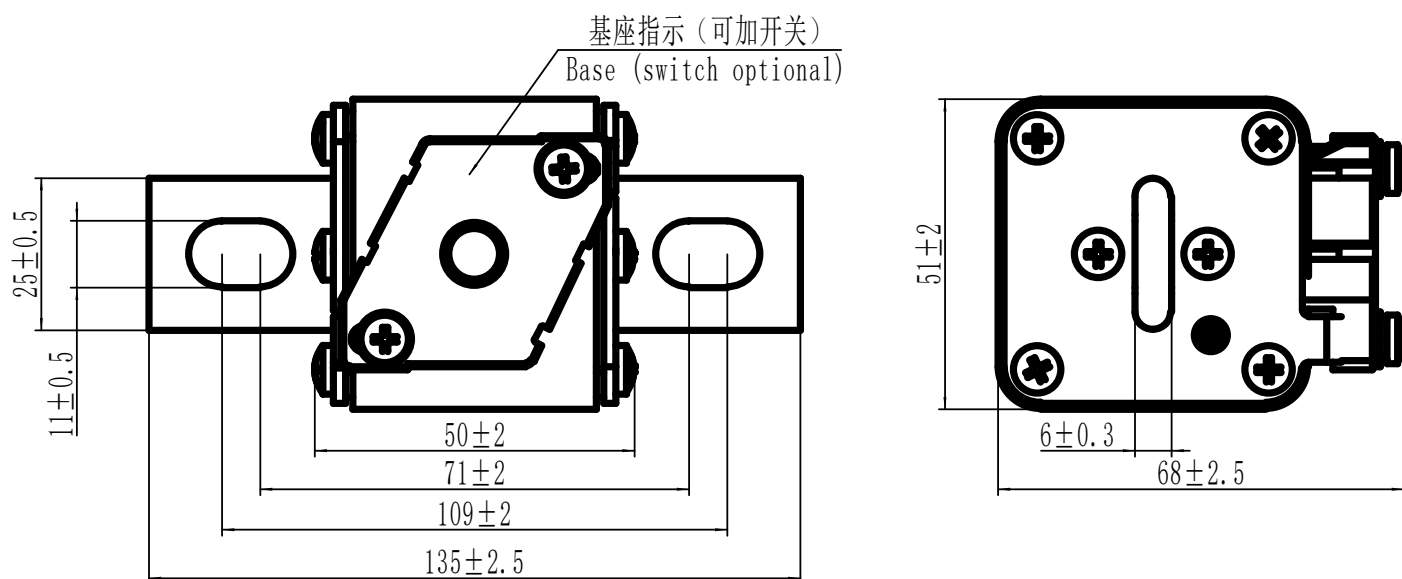
RS306-1-T1Z 熔断件外形及安装尺寸/Outline Mounting



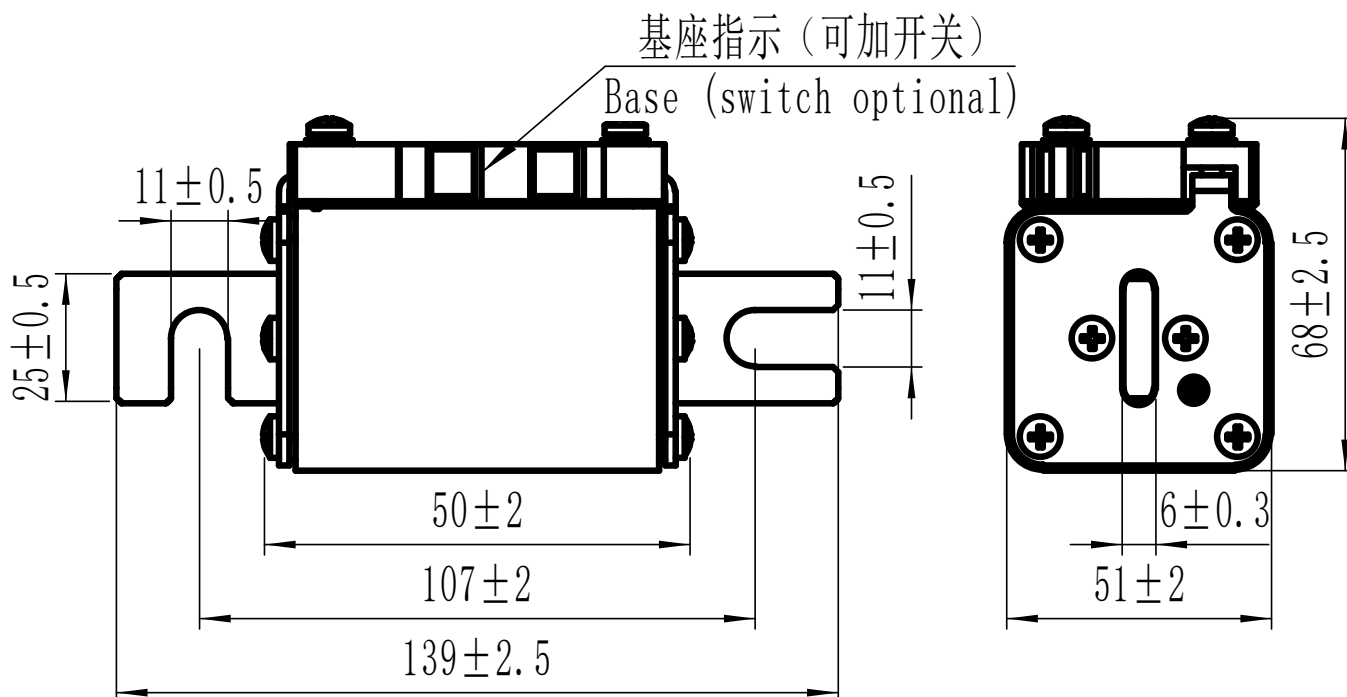
RS306-1-S1P熔断件外形及安装尺寸/Outline Mounting



RS306-1-Q1Z 熔断件外形及安装尺寸/Outline Mounting

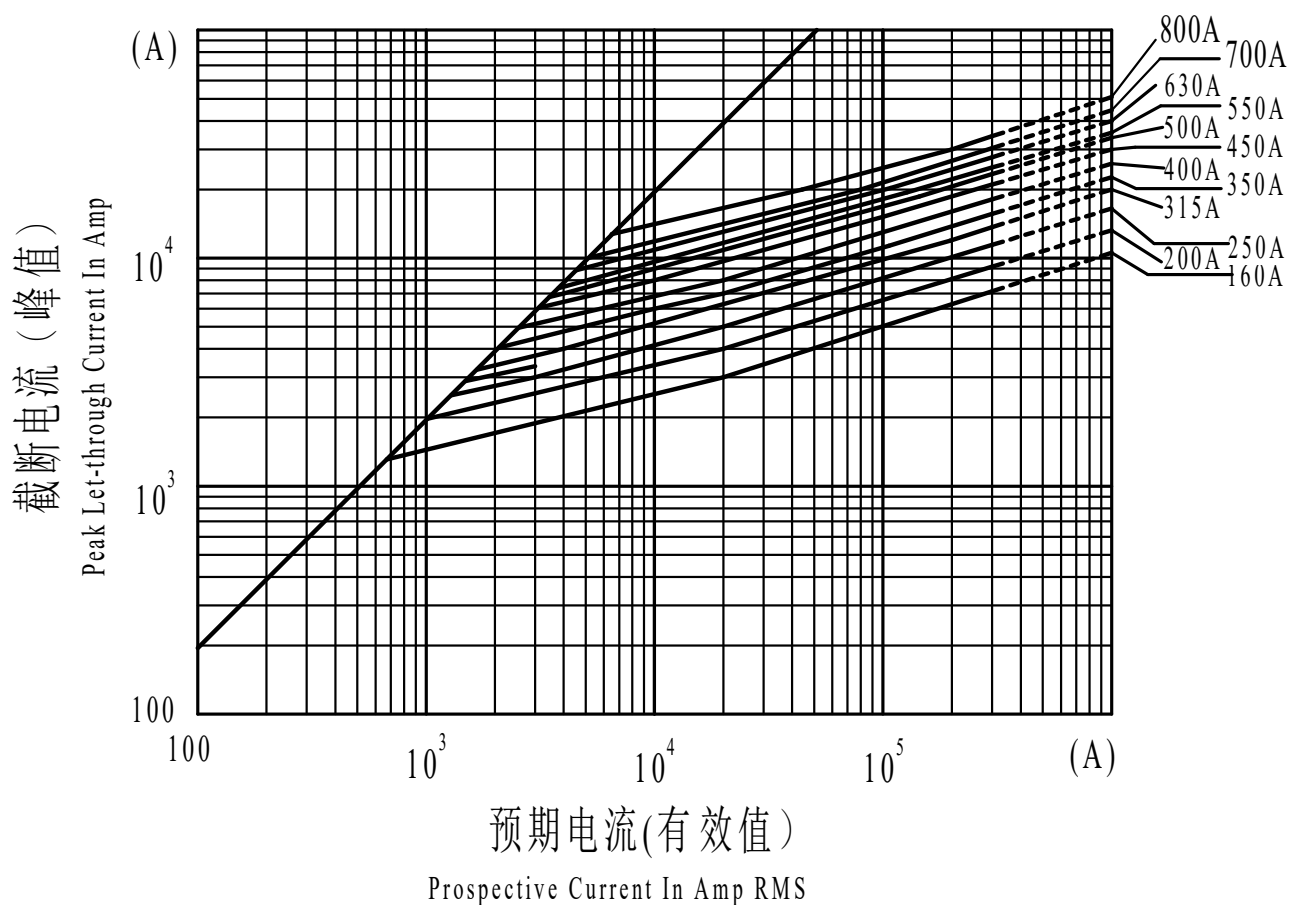


RS306-1-W1Z熔断件外形及安装尺寸/Outline Mounting

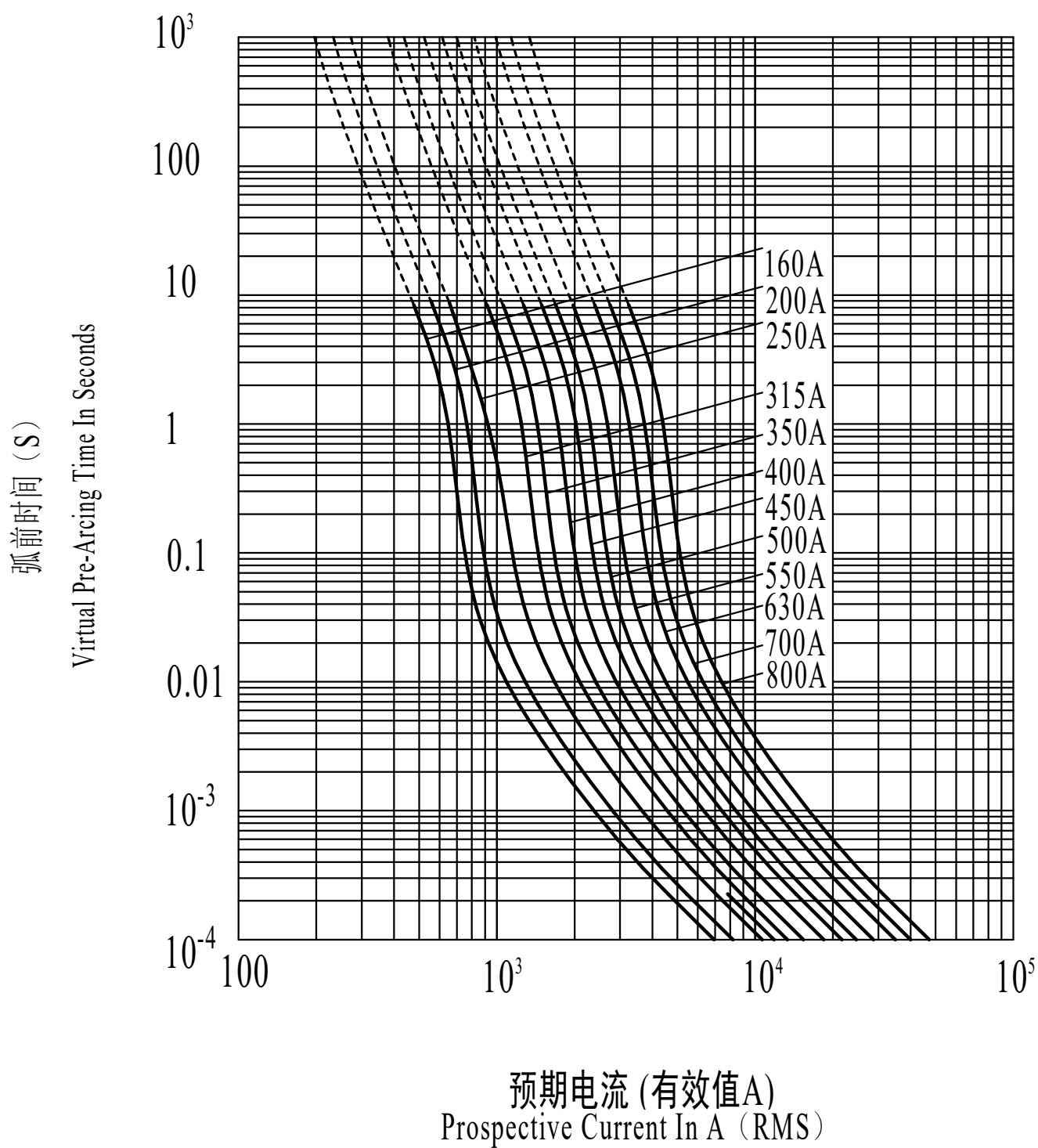


产品特性曲线/ Characteristic curve

截断电流特性曲线/Cut-Off Current Curve



时间-电流特性曲线/Time Current Characteristic Curves:



注/Note:

- 1、特性曲线精度为电流方向误差 $\pm 15\%$; / Curves: current tolerance $\pm 15\%$;
- 2、最小分断电流: $\geq 8I_n$ 。 / Minimum breaking current at least $8I_n$.

运输、存储/Transportation, Storage

运输/Transportation

带原包装运输，运输过程中应避免雨雪侵袭和机械损伤。

Avoid rain/snow or mechanical damage during transportation.

存储/Storage

1、产品存储温度：-40℃ ~ 85℃；

Storage Temperature: -40℃ ~ 85℃.

2、产品存储湿度：相对湿度在最高温度为40℃时不超过50%；在较低的温度下可以有较高的相对湿度，例如，在20℃时，相对湿度可达90%；

Storage Humidity: Maximum 50% RH at 40℃, lower temperature allow higher RH. For example, maximum 90% RH at 20℃.

3、包装存储温度：-40℃ ~ 70℃；

Package Temperature: -40℃ ~ 70℃.

4、包装存储湿度：相对湿度≤90%，无凝露。

Package Humidity: RH≤90%, no dewing.

使用条件/Use Conditions

熔断器所有试验均在标准典型测试条件下进行，因实际使用条件和标准典型测试条件存在差异，在选用时需考虑其影响。当实际使用条件满足允许使用条件时，需按照对应修正曲线对熔断器的额定值进行修正；当实际使用条件不满足允许使用条件时，请咨询我司。关于熔断器在不同领域的选型见对应选型指南。

All tests of fuse are measured under standard typical conditions, due to the difference between the actual use conditions and the test conditions, the influence of which should be taken into account when selecting the fuses. When actual usage condition meets tolerable range, the rated value should be corrected according to the corresponding correction curve. Otherwise, please consult SinoFuse.

大气条件/Atmosphere

空气是干净的，相对湿度在最高温度为40℃时不超过50%。在较低的温度下可以有较高的相对湿度，例如，在20℃时，相对湿度可达90%。

For clean atmosphere, maximum 50% RH at 40℃. Higher RH is allowed when temperature is lower, e.g. Maximum 90% at 20℃.

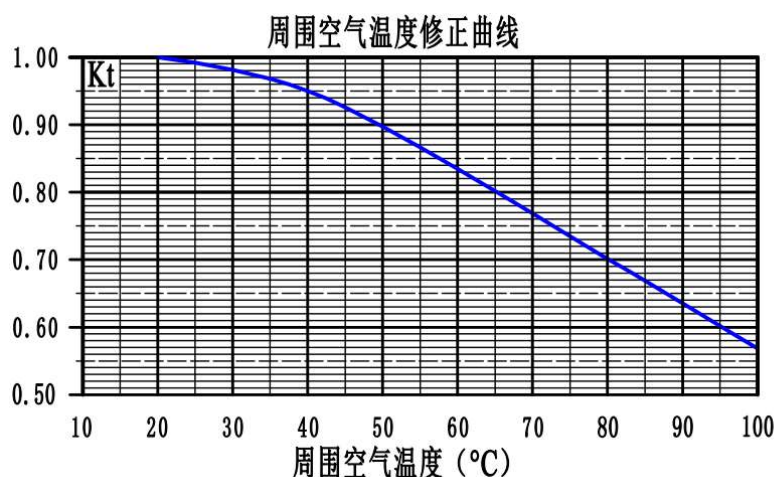
周围空气温度/Ambient air temperature

标准典型测试条件：20℃；

Standard Typical Testing Condition: 20℃

允许使用条件：-40℃ ~ 100℃，熔断器在周围空气温度20℃以上工作，额定电流按照下面曲线进行修正；温度修正时一般不考虑增加熔断器额定电流（除非20℃以上不是工作范围）。

Tolerable Testing Conditions: -40℃ ~ 100℃, the rated current of fuse should be corrected according following curves when ambient temperature above 20℃(except ambient temp≥20℃ is not working range)



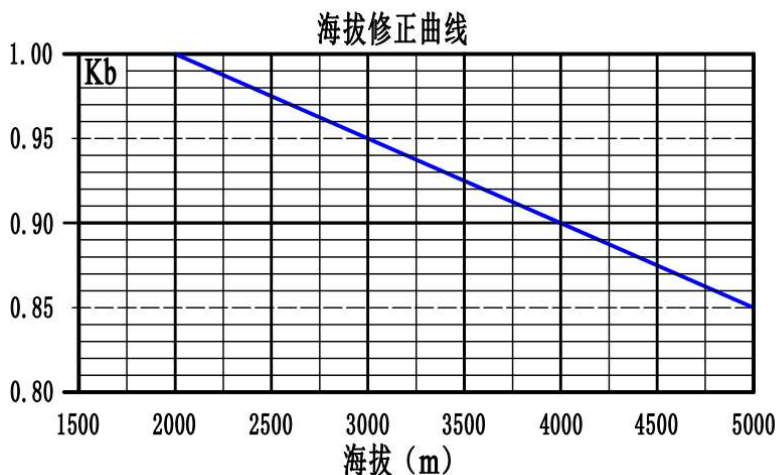
海拔/Altitude

标准典型测试条件：海拔 $\leq 2000\text{m}$ ；

Standard Typical Testing Condition: Altitudes $\leq 2000\text{m}$

允许使用条件：海拔 $\leq 5000\text{m}$ ，不同海拔下熔断器额定电流按照下面曲线进行修正。

Tolerable Testing Condition: Altitudes $\leq 5000\text{m}$, rated current should be corrected according following curve at different altitude.



安装条件/Mounting Condition

标准典型测试条件：无风，周围1m以内无发热器件；

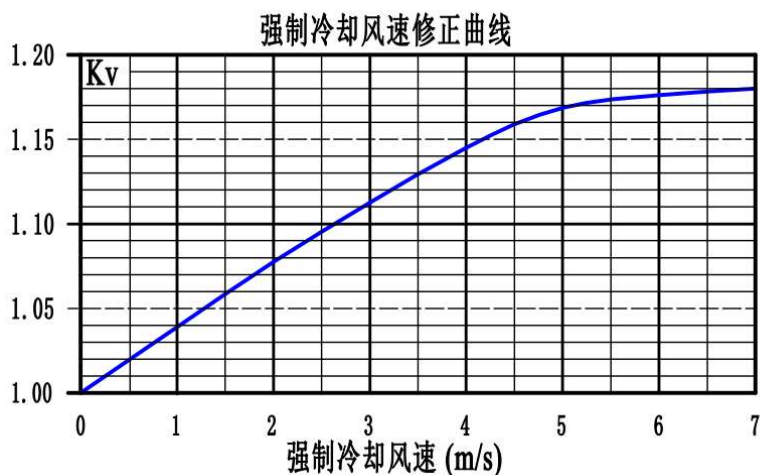
Standard Typical Condition: no ventilation, no heat source within 1m.

允许使用条件：允许有风及周围有发热器件，但需考虑其影响。

Tolerable Condition: ventilation and heat source allowed, but effect should be considered.

强制风冷：采用强制风冷可以增加熔断器的散热，可以增加熔断器的额定电流；强制风冷条件下熔断器额定电流按照下面曲线进行修正。

Forced Air Cooling: Current carrying capacity of fuse can be improved by implementing forced air or liquid cooling. Rated current should be corrected according following curve.



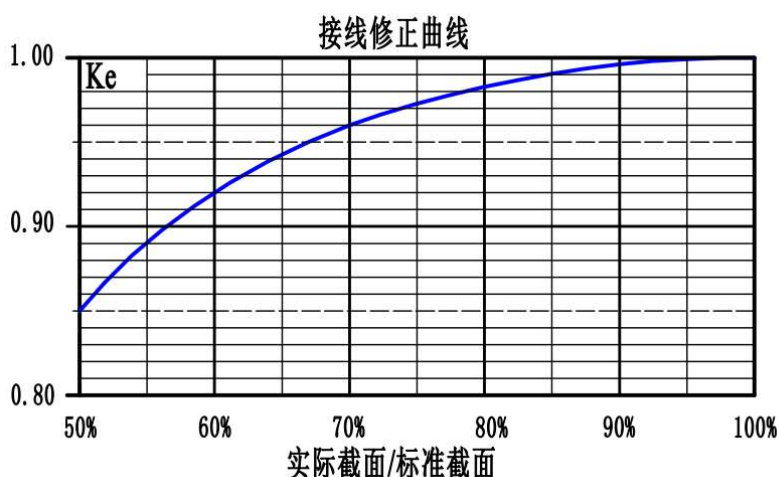
铜导线/铜排尺寸/Copper conductor/Copper size

标准典型测试条件：铜导线/铜排尺寸满足标准要求；

Standard Typical Testing Condition: Copper conductor/size meet standards.

允许使用条件：推荐铜导体截面不小于标准截面的50%（标准截面以实际通流值为前提），其他材质导体需换算为铜导体的尺寸进行校核。不同铜导体尺寸下熔断器的额定电流按照下面曲线进行修正。

Tolerable Condition: Recommended copper conductor cross-section area should not less than 50% standard cross-section areas.(Standard cross-sections are predicated on actual through current), other materials need to be converted to copper conductor size for calibration. Rated current should be corrected according following curve.



耐受机械振动、冲击能力/Resistance to Mechanical Shock and Vibration

非底座安装类熔断器有良好的抗振动和冲击的耐受能力（满足GB/T 21563 轨道交通机车车辆设备 冲击和振动试验1类B级）。

Non base-mounting type fuse have great resistance to vibration and shock(meets Standard GB/T 21563 Shock and Vibration Test I .B Level).

关于底座安装类安装熔断器的机械振动/冲击能力，以及方体瓷管类产品机械振动/机械冲击更为强烈的应用环境，请咨询我司。

For Base-mounting type fuse, and applications with strong mechanical vibration/shock for square ceramic tubes, please consult us.

污染等级/Pollution Level

方体熔断器满足污染等级等级2（详见GB 14048.1 6.1.3.2）；

Square Fuse meets pollution level II (See GB 14048.1 6.1.3.2)

圆管熔断器满足污染等级等级1（详见GB 14048.1 6.1.3.2）。

Cylindrical Fuse meets pollution level I (See GB 14048.1 6.1.3.2)

电气间隙和爬电距离（以下简称绝缘尺寸）/Electrical Clearance and Creepage Distance (Hereafter Insulation size)

绝缘尺寸受到多种因素的影响，包括海拔高度、环境温度、湿度、污染程度、材料组别、绝缘水平等。实际应用中绝缘尺寸的确定和校核参考GB/T 16935.1。

Insulation size is affected by many factors, including altitude, ambient temperature, humidity, pollution level, material group, insulation level and so on. Reference GB/T 16935.1 for the determination and checking of insulation size in practical application.

熔断器本体的绝缘尺寸一般远大于GB/T 16935.1标准要求的绝缘尺寸，除个别体积较小的熔断体外，无需校核熔断器本体绝缘尺寸。不同熔断器之间,以及熔断器对地的绝缘尺寸，需由用户进行校核。

The insulation size of the fuse is generally much larger than the insulation size required by GB/T 16935.1 standard, except for some smaller fuse body, there is no need to check the insulation size of the fuse body. The insulation size between different fuses and the fuse to ground should be checked by the user.

降低电压下的熔断 I^2t 值的计算/Calculation of Clearing I^2t Value at Reduced Voltage

使用下式可估算较低电压下的熔断 I^2t 值/The value of Clearing I^2t at lower voltages can be estimated using the following formula:

$$\text{降低电压 } V_r \text{ 下的熔断 } I^2t = \left\{ \frac{\text{试验电压 } V_f \text{ 下的熔断 } I^2t}{\text{弧前 } I^2t} \right\} \times V_r/V_f \times \text{弧前 } I^2t$$

$$\text{Reduced Voltage } V_r, \text{ Clearing } I^2t = \left\{ \frac{\text{Clearing } I^2t \text{ at Test voltage } V_f}{\text{Prearcing } I^2t} \right\} \times V_r/V_f \times \text{Prearcing } I^2t$$

注：上式仅用于单一测试参数下降低电压后熔断 I^2t 的估算；

Note: the above formula is only used for the estimation of clearing I^2t after only the test voltage is reduced for a single test parameter.

串联和并联使用说明 / Series and Parallel Usage Instructions

熔断器并联时，施加的电压不得超过 $0.9U_n$ （ U_n 为熔断器额定电压，考虑到并联的各熔断器所承受的能量可能无法完全一致）；还应确保不超过各自在当前条件下允许的最大负载电流（考虑到并联不同熔断器电流分布可能不均以及熔断器间的热干涉）。

When fuses are connected in parallel, the applied voltage shall not exceed $0.9 U_n$ (U_n is the rated voltage of the fuses, taking into account that the energies to which the fuses are subjected in parallel may not be exactly the same); it shall also be ensured that the respective maximum permissible load currents under the current conditions are not exceeded (taking into account that the distribution of currents among the different fuses connected in parallel may be uneven).

熔断器串联时，建议串联的熔断器只在熔断时间小于10ms、且每个熔断器的恢复电压不超过 $0.9U_n$ （ U_n 为熔断器额定电压，考虑到串联的熔断器可能无法同时动作以均分施加的电压）。

When fuses are connected in series, it is recommended that the series-connected fuses are only connected when the clearing time is less than 10ms and the recovery voltage of each fuse does not exceed $0.9U_n$ (U_n is the rated voltage of the fuse, taking into account that the series-connected fuses may not be able to operate at the same time in order to equally share the applied voltage).

熔断器安装条件 / Mounting Condition

使用规格书推荐扭矩安装，安装方式及注意事项见相应结构熔断器安装说明。

Installing in accordance with the torque recommended by the specification, see the corresponding structural fuse installation instructions for mounting methods and precautions.