

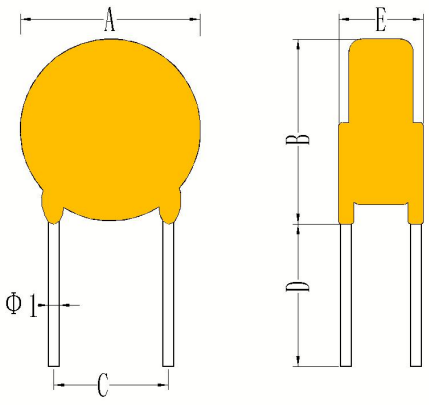
## 1. 产品介绍(Product introduction)

高分子热敏电阻对电流敏感，电阻随电流的增大而增大；具有自恢复的特性，在其额定使用范围内可重复应用于电路中；在电路正常工作状态下为低阻值，对电路几乎没影响；响应速度较快，一般为几十毫秒甚至秒级，与流过 PPTC 的电流大小有关。主要应用在电池、计算机、电机、通讯行业的过电流保护。

Polymer thermistor is sensitive to current , and the resistance increases with the increase of current; it has the self recovery feature, which can be repeatedly applied in the circuit within its rated use range; it is low resistance value under the normal working state of the circuit, which has little impact on the circuit; the response speed is fast, generally tens of milliseconds or even seconds, which is related to the current flowing through PPTC It is mainly used in over-current protection of battery, computer, motor and communication industry.

## 2. 外观和外形尺寸(Dimensions)

尺寸: mm



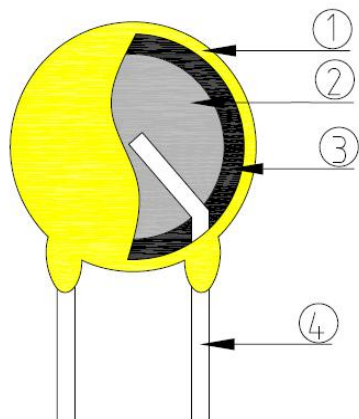
型号 Model No	A ( mm )		B ( mm )		C ( mm ) ( 包封根部处 )		D ( mm )		E ( mm )		Φ1 ( mm )
	尺寸 dimensi ons	容差 The toleranc e	尺寸 dimensi ons	容差 The toleranc e	尺寸 dimensio ns	容差 The toleranc e	尺寸 dimensio ns	容差 The toleranc e	尺寸 dimensi ons	容差 The toleranc e	
RF60-005F	3.8	±3	4.5	±3	5.0	±2	10.0	±5	3.0	±1	0.50± 0.05
RF60-010F	4.0	±3	5.2	±3	5.0	±2	10.0	±5	3.0	±1	0.50± 0.05
RF60-017F	6.2	±3	6.6	±3	5.0	±2	10.0	±5	3.0	±1	0.50± 0.05
RF72-020F	4.6	±3	6.6	±3	5.0	±2	10.0	±5	3.0	±1	0.50± 0.05
RF72-025F	4.6	±3	6.6	±3	5.0	±2	10.0	±5	3.0	±1	0.50± 0.05
RF72-030F	5.0	±3	7.0	±5	5.0	±2	10.0	±5	3.0	±1	0.60± 0.05
RF72-040F	6.2	±3	8.2	±5	5.0	±2	10.0	±5	3.0	±1	0.60± 0.05

RF72-050F	6.2	±3	8.2	±5	5.0	±2	10.0	±5	3.0	±1	0.50± 0.05
RF72-065F	7.8	±3	9.8	±5	5.0	±2	10.0	±5	3.0	±1	0.60± 0.05
RF72-075F	8.5	±3	10.8	±5	5.0	±2	10.0	±5	3.0	±1	0.60± 0.05
RF72-090F	9.5	±3	11.5	±5	5.0	±2	10.0	±5	3.0	±1	0.60± 0.05
RF72-110F	11.0	±3	13.0	±5	5.0	±2	10.0	±5	3.0	±1	0.80± 0.05
RF72-135F	12.5	±3	14.5	±5	5.0	±2	10.0	±5	3.0	±1	0.80± 0.05
RF72-160F	14.0	±3	16.0	±5	5.0	±2	10.0	±5	3.0	±1	0.80± 0.05
RF72-185F	16.0	±3	18.0	±5	5.0	±2	10.0	±5	3.0	±1	0.80± 0.05
RF72-250F	18.5	±3	20.5	±5	10.0	±2	10.0	±5	3.0	±1	0.80± 0.05
RF72-300F	22.0	±3	26.0	±5	10.0	±2	10.0	±5	3.0	±1	0.80± 0.05
RF72-375F	24.0	±3	26.0	±5	10.0	±2	10.0	±5	3.0	±1	0.80± 0.05

## 3.型号及主要技术参数(Technical parameters)

型号 Model No	保持电流	动作电流	最大电压	最大电流	特定电流下动作时间		阻值( $\Omega$ )	
	(A)	(A)	(V dc)	(A)	电流(A)	动作时间(S)	R min	R max
RF60-005F	0.05	0.11	60	40	0.25	$\leq 5$	7.3	20
RF60-010F	0.1	0.2	60	40	0.5	$\leq 4$	2.5	7.5
RF60-017F	0.17	0.34	60	40	0.85	$\leq 3$	3.3	8
RF72-020F	0.2	0.4	72	40	1	$\leq 2.2$	1.83	4.4
RF72-025F	0.25	0.5	72	40	1.25	$\leq 2.5$	1.25	3
RF72-030F	0.3	0.6	72	40	1.5	$\leq 3$	0.88	2.3
RF72-040F	0.4	0.8	72	40	2	$\leq 3.8$	0.55	1.29
RF72-050F	0.5	1	72	40	2.5	$\leq 4$	0.5	1.17
RF72-065F	0.65	1.3	72	40	3.25	$\leq 5.3$	0.31	0.72
RF72-075F	0.75	1.5	72	40	3.75	$\leq 6.3$	0.25	0.6
RF72-090F	0.9	1.8	72	40	4.5	$\leq 7.2$	0.2	0.47
RF72-110F	1.1	2.2	72	40	5.5	$\leq 8.2$	0.15	0.38
RF72-135F	1.35	2.7	72	40	6.75	$\leq 9.6$	0.12	0.3
RF72-160F	1.6	3.2	72	40	8	$\leq 11.4$	0.09	0.22
RF72-185F	1.85	3.7	72	40	9.25	$\leq 12.6$	0.08	0.19
RF72-250F	2.5	5	72	40	12.5	$\leq 15.6$	0.05	0.13
RF72-300F	3	6	72	40	15	$\leq 19.8$	0.04	0.1
RF72-375F	3.75	7.5	72	40	18.75	$\leq 24$	0.03	0.08

## 4. 产品结构说明 ( Structural instruction )



序号 Name	名称 Name	材质 Texture of material
①	保护层 Protective layer	环氧树脂 Epoxy resin
②	电极层 Electrode layer	铜、镍 Copper and nickel
③	本体元件 Ontology component	聚合树脂+导体 Polymer + conductor
④	引脚 Pin	铜包钢线/铜线 Copper clad steel wire / copper wire

## 5. 最终检验 ( Final inspection )

检验项目 Inspection items	样本量 sample qty	检验工具 Inspection tools	检验标准 Inspection standard	允收标准 Acceptance standard	检验方法 Test method
导电 electric conduction	全数检验 Full inspect	电阻测试仪 Resistance tester	均应在相应产品的阻 值范围内 All should be within the resistance range of corresponding products	C=0	用电阻测试仪逐一测试 Test one by one with resistance tester
动作时间 (Time to Trip)	3	动作时间测 试仪 Action time tester	均应在相应产品的动 作时间规格范围内 All shall be within the action time specification of corresponding products	C=0	将产品放置于测试设备中, 通规 定电压和电流 Place the product in the test equipment and pass the specified voltage and current
保持电流 (IH)	3	动作时间测 试仪 Action time tester	不动作 No action	C=0	将产品放置于测试设备中, 通不 动作电流, 维持 1 小时 Place the product in the test equipment and keep it for 1 hour without action current
耐电压 (两极 间) Withstand voltage (between two poles)	3	动作时间测 试仪 Action time tester	无可见损伤 No visible damage	C=0	将产品放置于测试设备中, 通额 定电压/电流, 维持 2 小时 Place the product in the test equipment, pass the rated voltage / current, and maintain for 2 hours

耐电流 (两极间) Current withstand (between two poles)	3	动作时间测试仪 Action time tester	无可见损伤 No visible damage	C=0	将产品放置于测试设备中, 通规定电压/电流, 产品通断 20 次(动作后冷却再动作) Place the product in the test equipment, apply the specified voltage / current, and make and break the product for 20 times (cooling and then acting after action)
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## 6. 参数说明(Parameter specifies)

保持电流 (I <sub>H</sub> )	不触发 PPTC 自复保险丝突越的最大电流 Maximum sudden current of self recovery fuse without triggering PPTC
触发电流 (I <sub>T</sub> )	能使 PPTC 电阻值突然变大的最小电流 Minimum current that can make PPTC resistance suddenly increase
最大电压 (V <sub>max</sub> )	在额定电流下能承受的不会损害 PPTC 自复保险丝本身的最大电压 The maximum voltage that can withstand under the rated current will not damage the PPTC self recovery fuse itself
最大电流 (I <sub>max</sub> )	在额定电压下能承受的不会损害 PPTC 自复保险丝本身的最大电流 The maximum current that can withstand under rated voltage will not damage the PPTC self recovery fuse itself
动作时间 (T <sub>trip</sub> )	PPTC 自复保险丝指定电流下的最大动作时间 Maximum operation time of PPTC self recovery fuse under specified current
最小电阻 (R <sub>min</sub> )	25°C 温度条件下最小零功率电阻 Minimum zero power resistance at 25 °C
最大电阻 (R <sub>max</sub> )	25°C 温度条件下最大零功率电阻 Maximum zero power resistance at 25 °C

注意: 超出制定额定值的操作, 可能会导致损伤和可能产生电弧和火焰

Note: operation beyond the specified rating may cause damage and may cause arcing and flame

## 7. 安全认证编号(Safe Certification Numbers)

型号 Model No	UL/CUL	TUV	CCC
***	E 487711	R 50380797	/

## 8. 环保 ( Environmental )

①符合 RoHS 环保指令.

Comply with the RoHS environmental directives.

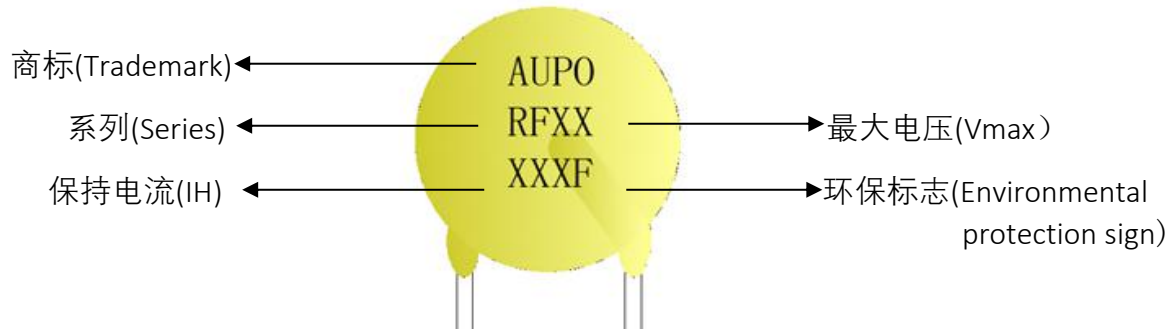
②符合 SONY SS-00259.

Comply with SONY SS – 00259.

③符合 REACH 法规中 SVHC (高关注物质)物质含量的要求.

Comply with REACH regulation SVHC (high attention substance) material content requirements.

## 9.印刷标志 ( Printing marks )



## 10.包装 ( Packing )

- ① RF72-160F/185F/250F/300F/375F 每 50 只产品为一个小包装单位,每 4 小包产品为一个大包装单位,其余规格每 100 只产品为一个小包装单位, 每 10 小包产品为一个大包装单位

RF72-160F/185F/250F/300F/375F, each 50 products is a small packaging unit, and each 4 small packages is a large packaging unit, For other specifications, every 100 products is a small packaging unit, and every 10 small packages is a large packaging unit

- ② 包装箱及部品在运输、贮存过程中不得遭受雨、雪浸泡, 不得挤压与破损

The packing case and parts shall not be soaked in rain or snow, squeezed or damaged during transportation and storage

- ③ 贮存温度不得高于+40℃, 空气相对湿度不大于 90%

The storage temperature shall not be higher than + 40 ℃, and the relative humidity of air shall not be greater than 90%

## 11.注意事项 ( Matters needing attention )

在设计应用或安装 AUPO 自恢复保险丝之前请阅读本要点说明。本说明的目的是为了避免由于应用中不正确的设计、安装方法及危害的工作环境而导致引起可复位保险丝工作不正常的危险;

以下几点敬请特别注意:

- ① 焊接的位置应距离包封脚下 6mm 的位置, 因为直接焊到包封脚处, 就会使包封层急剧受热而导致产品开裂、电阻变大。
- ② 焊接的温度应不宜超过 280℃, 焊接的时间宜保持在 2-3 秒内, 时间过长也会导致产品开裂、产品电阻变大的现象。
- ③ 当需要使用点焊 ( 电阻焊 ) 和自恢复保险丝 PTC 器件端子进行连接时, 为保证自恢复保险丝 PTC 点焊点应当控制在芯片边缘 2mm 以上, 必须保证焊接飞溅不接触到 PTC 芯片。
- ④ 当使用无包封自恢复保险丝 PTC 器件时, 如果 PTC 器件边缘和固定器间存在导电物件污染。例如金属屑或锡球。可能会导致氧化以及燃烧等故障的发生。
- ⑤ PPTC 元件一般只用于当发生偶然的过流或超温故障时进行保护, 切勿用于故障频繁发生的场合或预期发生长时间的过流事件场合。

在某些安装情况下导致自恢复保险丝 PTC 器件芯片两端承受较大压力, 挤压, 扭曲, 弯折等, 热膨胀现象将会被限制, 那么会影响到器件电气性功能, 保护器件有可能无法在故障条件下保护。最初设计中, 设计者应该考虑在保护器件芯片周围留有一定空间。

Please read this instruction before designing the application or installing the AUPO self recovery fuse. The purpose of this instruction is to avoid the danger of abnormal operation of resettable fuse caused by incorrect design, installation method and hazardous working environment in application;

Please pay special attention to the following points:

- ① The welding position should be 6mm away from the sealing foot, because directly welding to the sealing foot will make the sealing layer sharp Product cracking and resistance increase due to heating.
- ② The welding temperature should not exceed 280 °C, and the welding time should be kept within 2-3 seconds. Too long time will also lead to products Cracking and product resistance increasing.
- ③ When it is necessary to use spot welding (resistance welding) and self recovery fuse PTC device terminals for connection, to ensure self recovery The welding spot of fuse PTC shall be controlled at the edge of chip more than 2mm, and the welding spatter shall not touch the PTC chip.
- ④ When using the PTC device without self recovery fuse, if there is conductive object between the edge of the PTC device and the holder Pollution. For example, metal chips or solder balls. It may lead to oxidation, combustion and other failures.
- ⑤ PPTC element is generally only used for protection in case of accidental overcurrent or overtemperature fault, and shall not be used for frequent fault occurrence The occasion of birth or the occasion of action event expected to occur for a long time Under some installation conditions, the self recovery fuse PTC device chip will bear large pressure, extrusion, distortion, bending, etc., and the thermal expansion phenomenon will be limited, which will affect the electrical function of the device, and the protection device may not be able to protect under fault conditions. In the initial design, the designer should consider to leave some space around the protection device chip.

## 12.零件承认书的有效性 (Validity of Specification Sheet)

本承认书提出后，若经过 1 个月后贵公司无异议或无签回承认本时，则默认贵司同意我司承认书内容，承认书有效；若贵司对承认书内容有异议，请及时提出，由两公司协议后再行修订，并重新发出，原承认书作废。

The specifications can be used temporarily during the period of approval. If you have no any objection or not return one hardcopy to us within one month, this specifications will be operated as a valid document.If the content of this specifications is inadequate or need revising, it will be revised after both parties is agreement.

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