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规格书	页码 Page	第 1 页 共 8 页
	发行日期 Date of Issue	2016-07-01
产品名称 Product Name	热熔断体 Thermal links	
产品型号 Model No	20A	
产品描述 Product Description	额定动作温度: 102℃,瓷壳 Rated Temperature 102℃ Tao Ke .	
额定电流,电压 Rated Current,Voltage	20A,250V	
认证 Agency Approval	CCC	
制造商 Manufacturer	东莞市天瑞电子有限公司	
产地 Country of Origin	中国 China	
编制 Prepared By 产品工程师 Product Engineer	审核 Reviewed By 技质部长 Technology & Quality Manager	批准 Approved By 生产厂长 Production Manager

## Customer Approval 客户批准

客户名称 Customer Name	
客户资料 Product Part Number	
生效日期 Effective Date :                      年 YY                      月 MM                      日 DD	
如果本产品规格获得您们的批准, 烦请签名并拷贝一份副本给我们。 Note: If you approve this specification, Please sign and return one hardcopy to us. Yours faithfully.	

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本承认书适用于温度保险丝 RF系列20A温度保险丝（以下简称温度保险丝）之规定。

The document is suitable for thermal link model RF102 series ,hereinafter referred to as thermal link.

## 2.0 术语 Glossary

热熔断体也称为热断路器或温度保险丝，在本文中这些不同名词都代表同样的产品，为一次性动作而不可复位的装置。

Thermal-link: also known as thermal cutoff or thermal fuse, all are the same in this context, function one only, non-resettable.

- 额定动作温度 Rated Function temperature (Tf ):

通10mA的负载电流时，加热使温度保险丝断开的温度。

The temperature of the thermal link which causes it to change its state of conductivity with a detection current up to 10mA as the only load

允许偏差: +0, -10℃ (UL, VDE, IEC标准) ;Tolerance( UL、VDE、IEC Standard):+0, -10℃;

允许偏差:±7℃ (仅限PSE标准); Tolerance (only PSE Standard):±7℃ ;

- 实测熔断温度 Fuse temperature (Fuse-temp):

置于油池中，通10mA以下的负载电流，每分钟升温0.5~1℃，测断开温度。

the temperature is measured with silicone oil bath of which temperature is increased at the rate of 0.5~1℃/ min, with a detection current up to 10mA as the only load.

- 保持温度 Holding temperature (Th) :

持续通额定电流168小时不断开的最高温度。

The maximum temperature at which the TCO will not change its state of conductivity when conducting rated current for 168H.

- 极限温度 Max. temperature limit (Tm):

不破坏机械和电气特性所能承受的最高温度。

The maximum temperature at which the TCO can maintain its mechanical properties without being impaired for 10mins.

- 额定电流 Rated current (Ir):

温度保险丝分类用，允许用于电路并安全断开的最大电流。

The current used to classify a thermal-link, which is the maximum current that thermal cutoffs allow to carry and are able to cutoff the circuit safely.

- 额定电压 Rated voltage (Ur):

温度保险丝分类用，允许用于电路并安全断开的最高电压。

The voltage used to classify a thermal-link, which is the maximum voltage that is allowed to apply to the circuit in which the thermal cutoff is used.

- 瞬态过载电流Transient overload current (Ip):

温度保险丝在不破坏特性的情况下，所能承受的最大瞬态过载电流。

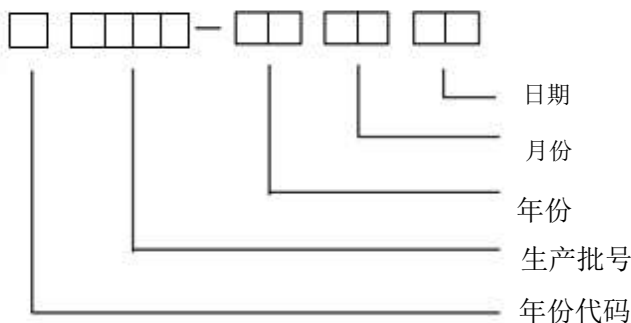
The maximum direct current pulse which the thermal-link is able to withstand without impairing its characteristics.

- 批 Lot

使用同一材料,同一日,同一制造条件下连续生产的制品为一批。

All products manufactured continually using the same materials under the same conditions on the same date are named 1 LOT

- 批号 Lot No.



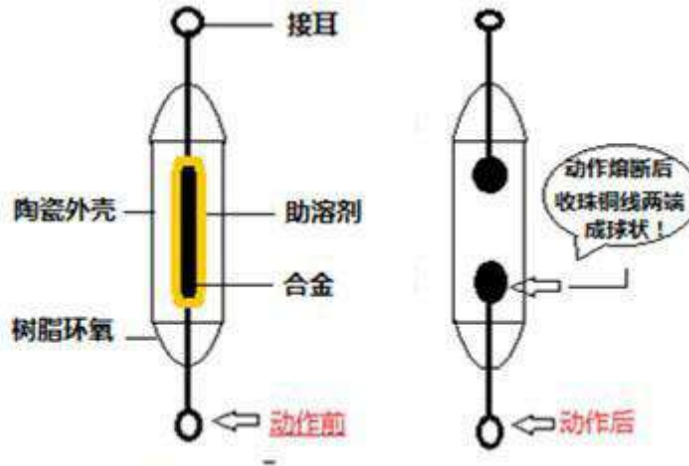
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### 3.0 结构尺寸 Structure and Dimension

#### 3.1 构造图 Structure diagram

温度保险丝由易熔合金、助熔剂、塑料外壳、环氧树脂及引脚等组成。

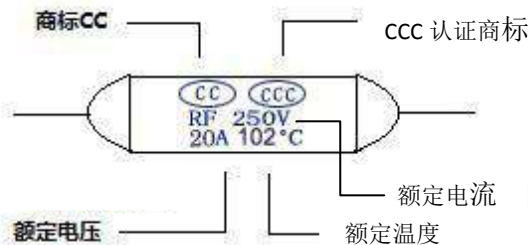
Thermal link is made up of fusible alloy, special resin, plastic case, sealant epoxy and lead wire.



#### 3.2 主要原材料明细 Main material list

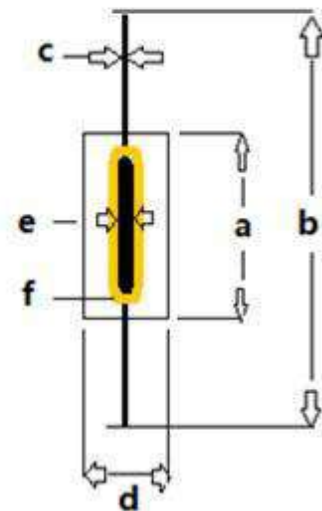
编号(NO.)	①	②	③
零部件 (Component)	外壳 (Case)	灌封料 (Sealant)	引脚 (Lead wire)
材质 (Materials)	瓷壳 (Zl Case)	环氧树脂 (Sealant resin)	锡铜线 (Insulated copper wire)

#### 3.3 产品本体标示 Marking on products



#### 3.4 尺寸 Dimension (mm)

代码	尺寸 (mm)
A	14.5 ± 0.20
B	77 + 2
C	1.38 ± 0.03
D(Φ)	6.0 ± 0.0
E	



#### 备注Note:

※长度E可按客户要求制造，H为产品根部中心距尺寸

The lead length "E" can be customized as required. The dimension H is measured from the root of leadwire

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#### 4.0 技术参数表 Data sheet

型号 Model No.	额定动作温度 Rated Functioning Temp. Tf(°C)	实际动作温度 Fuse Temp. (°C)	保持温度 Holding Temp. Th/Tc(°C)	极限温度 Maximum Temp. Limit Tm(°C)	额定电流 Rated current Ir(A)	额定电压 Rated voltage Ur(VAC)	印刷油墨 Color of Printing Ink
RF102	102	98±3	72	180	20	250	滚印

#### 5.0 检验方法和标准Testing method & standard

序号	检验项目 Test items	检验工具 Inspection Tools	检验标准 Inspection standards
1	外观 Appearance	目视 Visual	在充足光线下观察引脚无氧化发黑 Observe the lead wire in bright room, and it can't be black for oxidation
2	尺寸 Dimension	千分尺 Micrometer 游标卡尺 Calipers	采用千分尺或游标卡尺测量, 需符合3.4要求 Using a micrometer or caliper measurements, the dimension must meet requirement listed in 3.4
3	拉力 Pull	推拉测试仪 Push Pull Tester	引脚承受的10.05 N拉力1分钟, 不损伤、脱落 The lead wire won't be broken down when it is endured a pull force of 10.05 N for 1minute
4	扭转 Twist	手工测试 Manual testing	引脚扭转180°×4次, 不损伤、松动 The lead wire won't be broken down when it is bent 180° for 4 times.
5	动作温度准确性 The accuracy of fuse temperature	动作温度测试仪 (油池) Operating temperature tester	依照IEC60691及UL60691检验方法, 用油池测量, 需符合4.0要求 According to approach provided in IEC60691 and UL60691. Test it in a silicon oil bath, the result must meet the requirements list in 4.0
6	绝缘电阻 Insulation resistance	绝缘电阻表 Insulation resistance meter	动作后, 两引脚间绝缘电阻 > 0.2MΩ, 测试电压为 2×Ur (VDC) After it is fused off under a testing voltage of 2×Ur(VDC), the insulation resistance between lead wires is at least 0.2MΩ
			引脚与外壳间绝缘电阻 > 2MΩ, 测试电压为 2×Ur (VDC) After it is fused off under a testing voltage of 2×Ur(VDC), the insulation resistance between case and lead wires is at least 2MΩ
7	耐压 Voltage withstand	耐压测试仪 Pressure tester	动作后, 两引脚间承受: (2×Ur) VAC×1min, 不击穿 After it is fused off, it won't breakdown when the lead wires endured a voltage of (2×Ur) VAC for 1min
			引脚与外壳间承受: 1000+ (2×Ur) VAC×1min, 不击穿 After it is fused off, it won't breakdown when a voltage of 1000+ (2×Ur) VAC is applied between lead wire and case for 1min

备注: 测试条件为温度25±10℃、湿度65±15%RH。

Remark: Test conditions : Temperature is 25±10℃, Humidity is 65±15%RH.

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## 6.0 安全预防措施 Safety Precautions

6.1 使用中须注意，每个型号的温度保险丝都有其特定的电流、电压规格以及温度规格，包括Tf（额定动作温度）、Th 或者 Tc（保持温度）、Tm（极限温度）以及其电流、电压的规格，详见4.0数据表。

We must pay attention to the product in use as follow : Each thermal-link has specific current ,voltage and temperature parameters including Tf (Rated Function Temperature), Th or Tc (Holding Temperature), Tm (Maximum Temperature Limit), Rated current and Rated voltage . These technical parameters are list in 4.0 data sheet for the special type.

6.2 基于安全原因，温度保险丝是不可修复的产品，替换时应使用同类别同型号的温度保险丝并且严格按照同样的方法正确安装。Based on security reasons and the thermal-link is the non-repairable product ,we should insure that the alternative thermal link is the same catalogue \the same type , and Installed it correctly in the same way to the old.

6.3 安装温度保险丝时要确保其应用环境的温度不会超过其相应规格中的保持温度。

When install thermal links, we should insure that the temperature of the application environment do not exceed the thermal links' Holding Temperature.

6.4 最终产品需要确保温度保险丝仅能从预定的热源处（辐射源、对流源、和/或热传导）感受温度。举例来说，如应用于加热器，温度保险丝不能让导线过多受热，这样会加速保险丝熔化断裂；如用于变压器或发动机，温度应该由变压器或发动机线圈控制器，这时温度保险丝就需要与变压器或发动机线圈之间有良好的热传导。

The final product should be ensured that the thermal-link detects the heat only from the predetermined heat source (radiant, convection, and /or conductance). For example, when the thermal links is used in heater ,thermal-link should not be heated through lead wire which will accelerate the fusing off of the thermal-link, when used in a transformer or motor , the temperature should be controlled by the transformer or motor coil, therefor thermal-link should have good heat conductive contact with the transformer or motor coil.

6.5 建议采用内置热电偶式的仿真温度保险丝来确定适合的温度要求和安装位置。

It is recommended that using the dummy thermal-link having an internal thermocouple to determine the proper temperature and the installation location of the thermal-link.

6.6 勿将温度保险丝安装在可能经常出现剧烈振动的地方。

Do not install the thermal-link on an assembly that may often subjected to severe continuous vibration.

6.7 需对最终产品进行测试，以确保潜在的异常状况不会导致温度保险丝超过其极限温度。

The final product should be tested to ensure that potentially abnormal conditions do not lead to the thermal-link's temperature exceed over its Tm.

6.8 保险丝的封口及主体不能受损，烧伤或者过度受热。

The thermal link's seal and body segment can not be damaged, burned or over heated.

6.9 安装温度保险丝。 Installation of the thermal-links.

6.9.1将温度保险丝安装在可使其温度可以平稳上升的部位。

Install the thermal-link at the location where its temperature rises evenly.

6.9.2确保引脚足够长，且其安装方法不会造成强行按压、拉伸及扭转引脚之现象。

Design the lead wire as long as possible and install it in the way that tension or pressed torsion is not applied to the wire.

6.10 引脚弯曲Lead wire bending .

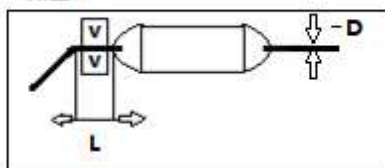
6.10.1如果一定要弯折引脚，那么应确保弯折处与主体间的距离，如表2。

If the lead wire has to be bend in use , bent it as Fig.1 and the distance between it and the molded section should be meet the requirement list in table 2 .

表2 Table 2

D	≤Φ1.0mm	>Φ1.0mm
L	≥3mm	≥5mm

如图 1



6.10.2 使用工具钳子如图1要求弯折引脚，并且不要损坏外壳和引脚之间的主体。

Use pinchers to bend the lend wire as shown in Fig.1 and do not to damage the molded section between the case and the lead wire.

6.10.3 在成形和安装过程中，引脚不应被用力过猛地裁切、切割、弯折，不能断裂或被烧伤。

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6.10.4避免正对着引脚施加外力（比如与温度保险丝主体成一定角度推或拉），因为这样的力会损坏温度保险丝封口。

Tangential forces on the leads must be avoided (i.e. pushing or pulling on the leads at some angle to thermal-link body) as such force may damage the seal of thermal-links.

6.11应确保外壳密封完好，必须保证无损坏、烧焦、过热情况。

Insure the case is sealed in good condition and not be damaged, burned and overheated.

6.12设计最终产品时应考虑到与引脚接触的零部件因膨胀及收缩所造成的应力、振动或其他运动，应采用柔韧的、易弯曲的引脚或者低阻引线来连接温度保险丝。

Because of the stress、vibration and other movement arise from expansion and contraction of parts connected to the lead wire, a flexible or low resistance lead wire should be used to connect with the thermal-link when designing the end product.

6.13应确保接触电阻为最小值，不正确的连接可能造成温度保险丝提前失效，需要对焊接样本进行检查以确保引脚和连接线充分地连接，不正确的连接可能引起封口或其他部份的损坏，不良连接产生的高阻可能导致器件过热而引起短路或损坏。

Resistance of connections should be the minimal resistance. Improper connect may result in premature failure of the thermal-link. The welding sample should be inspected to ensure the lead wire is connected well with the connection wires. Improper connect can cause damage to the seal or other parts and the high resistance generated for the ill-connection may lead the device overheat ,that result in short circuit or nuisance.

6.14 引脚的结合以及末端材料。Splices and terminations.

6.14.1若必需外露一定长度的引脚，应该采取可以防止温度保险丝引脚歪斜或损坏的措施。

If it is necessary to bare the lead of wire, some measures should be took to prevent the thermal-links from deflection and damage .

6.14.2所采用的末端材料或夹具应为抗腐蚀材料。

Terminals or clamps should be made of the corrosion resistant material.

6.14.3 应采用长度及柔韧度充足的引脚，温度保险丝和连接线的结合应该是可靠的，以避免其在正常的工作状态下发生震动或弯折。

Appropriate free lengths of wire and sufficiently flexible wire connections should be used. Thermal-links and splices should be secured to prevent vibration or flexing of thermal-links and splices during normal operation.

6.15 引脚焊接Soldering of leads.

6.15.1焊接时，按下表 3的焊接条件进行

Soldering should be carried out according to the soldering conditions listed in table 3

表3: 焊接时间（秒） Table 3. Soldering time (Sec)

额定温度℃ Function temperature Tf	最大允许焊接时间 Max allowable soldering time (s)			焊接温度 Solder temperature 400℃	图示 Show
	引线长度 Length of Lead wire (L)				
	10mm	20mm	30mm		
76~101	1*	2	3		
102~115	1*	2	3		
116~135	1*	3	5		
136~150	3	5	5		
151~221	4	6	7		

\* Need to add auxiliary heat conduction for not damage the thermal fuse unexpectedly.

\*为防止温度保险丝被焊断，焊接时需要增加辅助散热装置。

6.15.2若需要在比表 3规定更为严苛环境下进行焊接时，应在焊接点和温度保险丝主体间的引脚上使用散热装置。

When the soldering condition is severer than the condition listed in table 3, there should be a cooling device on the mal-link Lead wire that between solder joint and thermal-link body.

6.15.3 焊接时应小心，以避免温度保险丝主体和引脚遭受到推/拉力以及扭力。

Perform the soldering operation carefully to avoid the pull/push and twist tensions are applied to thermal-link body and lead wire.

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6.15.4 由于温度保险丝中与引脚连接的感温体是可熔化的合金，因此不正确的焊接操作（例如：温度过高、焊时过长、引脚过短等）可能导致感温体被引脚传递的过高热量波，从而使得温度保险丝提前断开。

Because the thermal element of thermal-link is a fusible alloy which connected with lead wires, improper soldering operation (too high soldering temperature, too long soldering time, too short lead wire used etc.) will cause thermal element damaged by the excessive heat transmit from the lead wire which may result in premature broken down of thermal-link

6.15.5 焊接后应让其自动冷却20秒以上,在冷却期间，勿移动温度保险丝本体和引脚。

After soldering leave it for natural cooling for longer than 20 sec. During the cooling time, never move the thermal-link body and lead wire.

6.16 安装温度保险丝时应注意防潮。Location of thermal-link with regard to wet application.

如果温度保险丝是用于咖啡壶、热水器、干燥机、温度调节器等环境下，那么应将温度保险丝安装在无水泄漏和非高湿度的部位。

Location of thermal-link with regard to wet application. If thermal-link is applied to coffeepot, hot-water heater, dryer, hygrostat, etc., locate the thermal-link at the position where thermal-link is protected from breakage by pilling water or other liquid and from damage by high humidity.

6.17 安装完成后，应确保整体结构符合应用标准的要求。

After installation, the end construction should comply with the application standard.

6.18 在使用产品前，请认真阅读产品使用说明书。

Read the standard specification and instruction manual carefully before using the products.

**7.0 储存条件和有效日期 Store conditions and effective date**

温度保险丝的保存期为贵公司入库后12个月。温度保险丝必须避免日光照射及无污染的环境，且於常温（10~30℃）、常湿（30~70% R H）以内的条件下保存。

The validity period of products is 12 months since the client corporation placing products in storage. And thermal links must storage in the place that without sunshine and pollution ,and its temperature is within 10-30 and its humidity is within 30-70% R H.

**8.0 承认书之有效性 Validity**

本承认书提出后，於贵公司承认期间，可暂时使用，若经过1个月后贵公司无异议或无签回承认本时，则视同有效文件运用。

The contract will be used temporarily during the period of admission. If the client corporation have no opposite ideas the contract within one month, this contract will be used as a valid document.

