

 Hollyland (China) Electronics Technology Corporation Ltd. Hollyland(XiaMen) Technology Corporation Ltd.		PRODUCT SPECIFICATION 产品规格书 TH SERIES THERMAL-LINK TH 系列温度保险丝		ISSUED DATE: 2018/02/23 REV. NO.: A05 DOC. NO.: HLD-PSI-8039 PAGE: Page 1 of 6	
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1. 适用范围/SCOPE

本规格书适用于公司按照IEC 60691、UL 60691、GB 9816 安全认证标准生产的HOLLY®商标TH系列温度保险丝。

This specification defines the technical requirements of TH series thermal-link with HOLLY® brand that are produced according to IEC 60691, UL 60691, GB 9816.

2. 相关标准/APPLICABLE STANDARDS

2.1 IEC 60691、UL 60691、GB 9816、METI ordinance appendix 3 section 3

2.2 认证情况/ APPROVED DETAILS

额定电压 RATED VOLTAGE	CCC			
	认证范围/APPROVED RANGE		认证号码/CERT. NO.	
250V	TH66、TH77、TH84、TH99、TH105、TH110、TH113、TH121、TH128、TH133、TH139、TH142、TH152、TH157、TH167、TH172、TH184、TH192、TH198、TH216、TH228、TH240		2005010205139329	
额定电压 RATED VOLTAGE	VDE			
	认证范围/APPROVED RANGE		认证号码/CERT. NO.	
250V	TH72、TH77、TH94、TH99、TH110、TH128、TH133、TH142、TH152、TH157、TH167、TH184、TH192、TH216、TH228		40015969	
额定电压 RATED VOLTAGE	cUR _{us}			
	认证范围/APPROVED RANGE		认证号码/CERT. NO.	
250V	TH72、TH77、TH93、TH94、TH99、TH110、TH128、TH133、TH142、TH152、TH157、TH167、TH192、TH228、TH240		E302531	
额定电压 RATED VOLTAGE	PSE			
	认证范围 APPROVED RANGE	认证号码 CERT. NO.	认证范围 APPROVED RANGE	认证号码 CERT. NO.
250V	TH66、TH72、TH77	JET2489-32001-1001A	TH84、TH93、TH94、TH99	JET2489-32001-1002A
	TH105、TH110、TH113	JET2489-32001-1003A	TH121、TH128、TH133、TH139	JET2489-32001-1004A
	TH142、TH152、TH157	JET2489-32001-1005A	TH167、TH172	JET2489-32001-1006A
	TH184、TH192、TH198	JET2489-32001-1007A	TH216	JET2489-32001-1008A
	TH228、TH240	JET2489-32001-1009A	/	/

3. 公司地址/ ADDRESS

中国福建省厦门市翔安区舫山东二路 829 号

829 Fangshan East 2nd Road, Xiang'an, Xiamen, China.

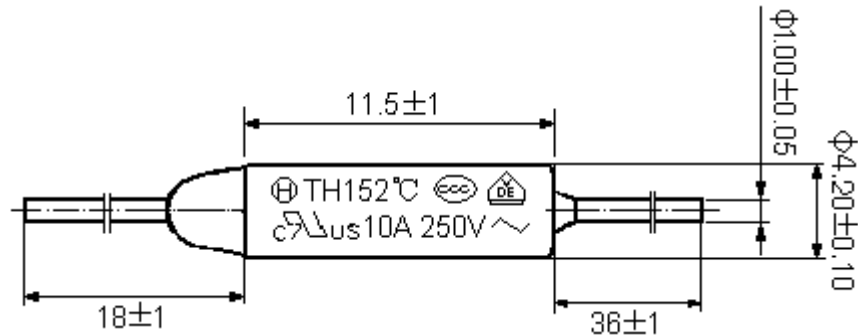
4. 材料/MATERIAL

部件/PART	材料/MATERIAL	备注/REMARK
壳体+尾线/Metal Case with Pig-tail	黄铜(壳体)/Brass (Metal Case) 纯铜(尾线)/Copper (Pig-tail)	镀银(壳体)/Silver Plated (Metal Case) 镀锡(尾线)/Tin Plated(Pig-tail)
感温体/Thermal Pellet	有机化合物/ Organic Compounds	
垫片/Shim	纯铜/Copper	
触片/Star Contact	纯铜/Copper	镀银/Silver Plated
弹簧/Spring	钢丝/Steel Wire	
瓷珠/Ceramic Bead	氧化铝/ Alumina	
引线/Lead Wire	纯铜/Copper	镀银/Silver Plated
封口胶/Sealing Resin	环氧树脂/Epoxy	黑色/Black

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5. 尺寸与结构/DIMENSION & STRUCTURE

5.1 尺寸/DEMENSION



5.2 壳体/Metal Case

壳体无破裂、缺损或污染等现象。

Metal case shall have no defects such as crack, injury and contamination.

5.3 引线/Lead Wire

引线可焊性符合中华人民共和国电子行业标准 SJ/T 10669。

The solder ability of the lead Wire shall be in accordance with the standard of SJ/T 10669.

5.4 封口胶/Sealing Resin

封口胶无破裂、脱落等现象。

Sealing resin shall have no defects such as crack, breaking off.

6. 机械特性/MECHANICAL PERFORMANCES

温度保险丝应能承受下列试验。

Thermal-links shall withstand the below experiments.

6.1 拉力试验/Tensile Test

为了防止温度保险丝管损坏，应固定好温度保险丝管，然后在引线端施加 16N 的拉力 1 分钟。试验后，保险丝管不能有破裂、松动现象。

The thermal-link shall be supported in any convenient manner in order not to damage it and 16N of tensile force shall be applied to each lead wire for 1 minute. After the test, the thermal-link shall not show any damage such as crack, breaking off.

6.2 推力试验/Thrust test

为了防止温度保险丝管损坏，应固定好温度保险丝管，然后在引线端施加 4N 的推力 1 分钟。试验后，保险丝管不能有破裂、松动现象。

The thermal-link shall be supported using any convenient means such that it is not damaged and 4N of thrust force shall be applied to each lead wire for 1 minute. After the test, the thermal-link shall not show any damage such as crack, breaking off.

6.3 弯曲试验/Bending test

为了防止温度保险丝管损坏，应固定好温度保险丝管。在离温度保险丝本体 10mm 处，弯曲引线 90° 然后反向弯曲180° 试验后引线无明显折痕、破损现象。

The thermal-link shall be rigidly supported such that it is not damaged. Each lead wire shall be bent through 90° at a location 10 mm from the body of the thermal-link and then twisted through 180°. After the test, the lead wire shall not show any damage such as crack, injury.

7. 电气与温度特性/ ELECTRICAL & TEMPERATURE PERFORMANCES

7.1 额定电压 U_r 与额定电流 I_r : 250V AC 10A

Rated Voltage U_r & Rated Current I_r : 250V AC 10A

7.2 额定动作温度 T_f : 66°C~240°C。

Rated Functioning Temperature T_f : 66°C~240°C.

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7.3 动作特性与安全认证/ Functioning Characteristics and Safety Approvals

型号 Type	额定动作温度 Rated Functioning Temp. T_f (°C)	实际动作温度 Fusing-off Temp. (°C)	保持温度 Holding Temp. T_h (°C)	最高极限温度 Maximum Temp. Limit T_m (°C)	安全认证 Safety Approvals			
					CCC	VDE	cURus	PSE
TH66	66	62±2	42	130	•			•
TH72	72	70±2	45	150		•	•	•
TH77	77	75±2	55	120	•	•	•	•
TH84	84	80±2	60	150	•			•
TH93	93	90±2	66	150			•	•
TH94	94	92±2	66	150		•	•	•
TH99	99	97±2	71	150	•	•	•	•
TH105	105	103±2	80	150	•			•
TH110	110	108±2	88	140	•	•	•	•
TH113	113	108±2	88	150	•			•
TH121	121	119±2	94	150	•			•
TH128	128	126±2	106	155	•	•	•	•
TH133	133	131±2	104	159	•	•	•	•
TH139	139	137±2	117	170	•			•
TH142	142	140±2	114	159	•	•	•	•
TH152	152	149±3	128	176	•	•	•	•
TH157	157	154±2	127	172	•	•	•	•
TH167	167	165±2	146	190	•	•	•	•
TH172	172	170±2	144	189	•			•
TH184	184	182±2	160	214	•	•		•
TH192	192	189±3	164	300	•	•	•	•
TH198	198	196±2	170	250	•			•
TH216	216	213±3	189	350	•	•		•
TH228	228	225±3	190	300	•	•		•
TH240	240	234±3	190	350	•		•	•

•表示通过认证/ Denotes for Approved

7.3.1 温度要求/Temperature Requirements

温度的测量精度为±1°C，试验箱内任何样品试验部位的温差不能超过 1°C，热熔断体动作的信号电流小于 10mA。

In order to ensure the accuracy of required temperature settings, indicated test temperatures shall be measured with an tolerance of ±1°C. Care shall furthermore be taken that temperature difference in that port of the test oven where the samples are tested, do not exceed 1°C at any point. The signal current for operation of thermal-links is limited to less than 10mA.

7.3.2 保持温度/ Holding Temperature (T_h)

试样封闭在试验箱内，保持在 T_h +0/-6°C 168 小时。试验结束时，所有的试样均不发生动作。

In the closed test oven, the temperature of thermal-links shall maintain T_h +0/-6°C for 168 hours. At the end of this test, all samples shall not function.

7.3.3 额定动作温度/Rated Functioning Temperature (T_f)

将热熔断体放置在温度为 T_f -20°C的试验箱内至少 20 分钟，后以每分钟 0.5°C/min.~1°C/min.的速率升温至所有的试样动作为止，每个试样的动作温度不低于 T_f -10°C和不大于 T_f 。

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Thermal-links shall be exposed in the test oven with the temperature of $T_f-20^{\circ}\text{C}$ for at least 20 minutes, Then increase the temperature steadily with a rate of rise between 0.5°C per minute to 1°C per minute until all samples have functioned. The individual functioning temperature shall not be less than $T_f-10^{\circ}\text{C}$ and not greater than T_f .

7.3.4 最高极限温度/Maximum Temperature Limit (T_m)

试样经受 $T_m+0/-5^{\circ}\text{C}$ 达10 分钟，在试样温度维持在 $T_m+0/-5^{\circ}\text{C}$ 情况下，在断开的触头端子间施加 $2U_r$ 试验电压。测试不得有闪络、击穿或重新动作。试验结束时，所有的试样均应发生动作。

The specimens shall be subjected to $T_m+0/-5^{\circ}\text{C}$ for 10 minutes, and then within the specimens maintained at $T_m+0/-5^{\circ}\text{C}$, a test voltage of $2U_r$ shall be applied between the open terminals. No flashover, breakdown or re-function shall occur. At the end of this test, all specimens shall have functioned.

7.4 绝缘强度/ Dielectric Strength

试验电压值按下表规定，试验电压为频率在 45Hz~62Hz 的正弦波电压。
Test voltage value shall comply with the ones indicated in the below table. The test voltage is the substantially sine-wave form with a frequency between 45Hz and 62Hz.

施加电压部位/Position tested	测试电压/test voltage
断开的触头端子之间 Between Disconnection (contact parts)	$2U_r$

试验中，如无闪络或击穿即为合格，允许有不引起电压下降的辉光放电。
The specimens are deemed to comply with the requirements if no flashover or breakdown occurs during the dielectric strength test. Glow discharges that do not cause a drop for the test voltage are neglected.

7.5 分断电流/Interrupting Current

分断电流测试应在 $1.1U_r$ 和 $1.5I_r$ 下，以 $(2\pm1)^{\circ}\text{C}/\text{min}$. 的速率升温，直到试样动作或烘箱温度高于额定动作温度 30°C 为止，试验过程中和试验后，不应出现持续的电弧或火焰，也不得排出任何直接损害环境或引起其他危险的物资。试验结束时，所有的试样均应发生动作。

The interrupting current of thermal-links shall be tested at a continual temperature rise of $(2\pm1)^{\circ}\text{C}$ Per minute with a test voltage of $1.1U_r$ and the $1.5I_r$, the test shall be continued until the specimens functions or the oven temperature reaches 30°C above T_f , during and after these tests, no arc or flame shall occur, and no materials are expelled that might impair the surrounding area or otherwise arouse something hazardous. At the end of this test, all specimens shall have functioned.

7.6 瞬间过载电流/Transient Overload Current

通 $15I_r$ 、3ms，间隔 10s，100 个周期作用后，热熔断体不应动作且无任何损坏。
DC current pulses, with an amplitude of $15I_r$ and a duration of 3ms with 10s intervals are applied for 100 successive cycles through the current path. After the test, there shall be no interruption of the current path nor other damage in thermal-links.

7.7 绝缘电阻/ Insulation Resistance

热熔断体在动作后与分断电流试验后均应测试其绝缘电阻。在断开的触头端子间施加 $2U_r$ 的直流电压来测试绝缘电阻。断开的触头端子之间绝缘电阻不小于 $0.2\text{M}\Omega$ 。
Compliance is checked by measuring the insulation resistance after interrupting current test, also after having operated in the temperature test. The insulation resistance shall be measured with a D.C. voltage of $2U_r$ between the open terminals. The measured between the open terminals is not less than $0.2\text{M}\Omega$.

8. 标志/MARKING

8.1 保险丝上的标志应清晰且耐擦拭，擦拭标志的方法是用一块布片浸水后轻轻擦拭15s。

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The marking on fuse shall be legible and rub-resistant. Compliance is checked by trying to rub out the marking lightly for 15s with a piece of cloth soaked with water.

8.2 每个保险丝应标有下列标记/ The markings for every fuse shall be prescribed as below:

- 1) 型号/Type
- 2) 商标/Trade Mark (H)
- 3) 额定动作温度/Rated Functioning Temperature
- 4) 额定电流与额定电压/Rated Current & Voltage
- 5) 安全认证标志/ Safety Approval Logo:   

8.3 小包装塑料袋里的标签应包括：型号、商标、额定动作温度、额定电压、额定电流、安标、批量号，符合 RoHS 指令的产品有 RoHS 标志。

The label in the smallest package in which the fuses are put shall contain the Type, Trade Mark, Rated Functioning Temperature, Rated Voltage, Rated Current, Safety Approval Logo, Lot. No., The products which meet the RoHS directive shall be marked with the RoHS symbol.

9. 包装要求/PACKING DETAILS

9.1 包装标准/Packing Standard:

100EA/小塑料袋→5 小塑料袋/内盒→20 内盒/外箱

小塑料袋：长×宽×厚=10.5 mm×9.0 mm×0.04 mm

内盒具体尺寸：长×宽×高=125mm×75mm×75mm

外箱具体尺寸：长×宽×高=400mm×320mm×150mm

100EA/little plastic bag→5 little plastic bags /inner box→20 inner boxes/ external carton

Little plastic bag dimensions: length×width×thickness=10.5mm×9.0mm×0.04mm

Inner box dimensions: length×width×height =125mm×75mm×75mm

External carton dimensions: length×width×height =400mm×320mm×150mm

9.2 根据客户的要求制定具体的包装标准。

We may pack according to the clients' requirements.

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

Packing should meet the requirements of anti-moisture and anti-shaking so that the products will not absorb the moisture or be damaged during transportation or storage.

10. 安装注意事项/Installation Notes

温度保险丝的功能会受到安装方法的影响，在安装过程中，应该采取适当措施以避免温度保险丝本体受到损坏及过早断开。

The function of thermal-link can be affected by installation methods, during installation you should take appropriate measures to avoid the thermal-link being damaged or cut off prematurely.

10.1 温度保险丝可使用焊接、压接、螺丝固定等方式进行安装，不论采用哪种安装方式，连接处都必须紧固不松动。安装完后请勿用力拉、拧引线。

Thermal-link can use welding, compression joint, screw fixing and other methods to install, but making sure the connection be tightening. After installation, please do not forcefully pull or screw the lead wire.

10.2 安装过程中引线需弯曲的处理。

The treatment of lead wire bending during installation process.

10.2.1 壳体铆接端弯折离壳体 3mm 以上，封口胶端弯折离封口胶 5mm 以上。

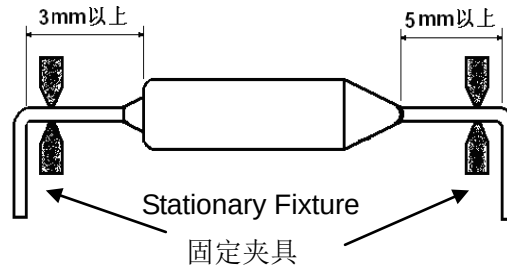
The bend of metal case riveting end is above 3mm away from the metal case, and the bend of sealing resin end is above 5mm away from the sealing resin.

10.2.2 弯折时，引线先用夹具固定，在固定点外侧弯折。

When bending the lead wire should be firstly fixed by the stationary fixture and then be bended

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beyond the fixed point.



- 10.3 若采用焊接或点焊方式安装时，焊接时的热量有可能引发温度保险丝的动作，为防止动作，请注意以下几点：

If adopting welding or point welding to install, the heat produced by welding may cause the functioning of thermal-link, to avoid the mentioned function, please pay attention to the following points:

- 10.3.1 121℃以下规格最好不用焊接方式安装。当更高额定动作温度的保险丝采用焊接方式安装时，应考虑温度保险丝使用时的环境温度、温度保险丝动作温度、焊锡熔点三者的协调关系。

Had better not to use welding method to install when the specification is below 121℃.

When installing the thermal-link of higher rated function temperature in welding method, it should consider the coordinating relationship among environment temperature, function temperature and the melting point of soldering tin.

- 10.3.2 焊接时，在焊接点与本体之间采用适当方法散热，例如：在此区间使用导热性好的金属夹具接触引线进行导热。

Apply appropriate method to cooling the space between welding point and thermal-link body when welding the thermal-link, for example, to use metal fixture with good conductivity to touch the lead wire to conduct heat in this space.

- 10.3.3 焊接点尽可能的远离温度保险丝本体，壳体铆接端焊接点离壳体 20mm 以上，封口胶端焊接点离封口胶 10mm 以上，焊接完后立刻对保险丝进行散热作业。

Try to make the welding point far away from the thermal-link body, the welding point of metal case riveting end should be above 20mm away from the metal case, the welding point of sealing resin end should be above 10mm away from the sealing resin, promptly cool the thermal-link after welding.

- 10.3.4 焊接温度不超过 300℃，焊接时间不超过 2S。尽量使用低的焊接温度，短时间内完成焊接；

Welding temperature within 300℃, welding time within 2 seconds. Try to employ low welding temperature and complete welding work in a short time.

- 10.4 连接器和端子不应由于振动、冲击、热循环或其他类似应力的作用而易于松脱。

Connectors and terminals should not be easily loosened because of the vibration, force, thermal circulation or other similar stress.

- 10.5 用来安装温度保险丝的部件应具有足够的机械强度和刚性。用来安装温度保险丝的支架、夹紧装置或螺钉应能承受设备在正常运行情况下可能遇到的推力、拉力、扭力、振动和周期性温度变化的作用。

The parts to install thermal-link should have enough mechanical strength and rigidity. The plank, cramping apparatus or bolt must be able to endure probable thrust force, tensile force, twisting moment, vibration and the impact of cyclical temperature changes.

- 10.6 安装好的温度保险丝应有足够的保护以防止设备的可能的液体的溢出带来的有害的影响。

Installed thermal-link should have enough protection to prevent the harmful effect brought by probable liquid spill of the equipment.

- 10.7 请勿在水、有机溶剂、腐蚀性气体、高湿、高压环境下使用温度保险丝。

Please do not use thermal-link under the environment of water, organic solvents, corrosive gas, high humidity or high pressure.