

东莞天瑞电子有限公司

Dongguan TianRui Electronics Co.,Ltd

产品规格书

PRODUCT SPECIFICATION

产品名称	超小型继电器	产品型号	KSD-01F 80 D	日期	2012-2-8
客户		版本	A	页	1/7
					http://www.fuse-china.com
编制	夏天宾		批准		梁辉

1 温控器型号 Type of thermostat

客户编号 Customer's type: _____

公司产品型号 Thermostat: KSD-01F 80°C D

2 执行标准 According to (safety standard)

GB14536.1-2008

3 型号命名方式 Nomenclature

KSD-01F80 D (例)

KS

D

_

01

F

80

D₁

温度继电器

超小型

短划线

产品序号

封闭型

动作温度

触点形式

4 构造 Structure

4.1 分类 Classification

属于温度固定单刀单掷型双金属瞬动式温度控制器。

They are temperature-fixed bi-metal Snap-Action temperature controller with

4.2 动作方式 Action forms

一组动合触电 (H 表示常开), 随温度的升高触电闭合, 随温度降低触电断开;

Cut in at temperature rise, cut out at temperature decreasing

一组动断触电 (D 表示常闭), 随温度升的高触点断开, 随温度降低触电闭合。

Cut out at temperature rise, cut in at temperature decreasing

4.3 外观及尺寸 Appearance

外观加工良好, 无有损于性能及商品价值的损伤、裂纹、变形、毛刺、污渍等缺陷, 标志清晰。

The appearance should be processed well, without any defect effecting the performance

or Value of the merchandise such as strain, crack, rust, distortion, besmirch, etc.

产品尺寸见图 (1) please see the enclosed drawing(1)

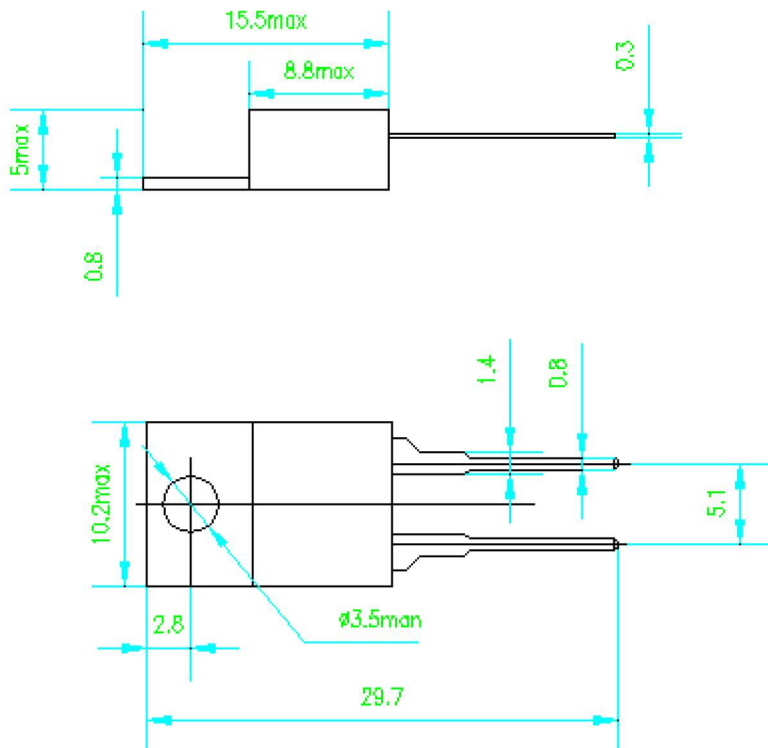


图 1

4.4 端子 Terminal

镀银，无铅。

Silver plated.Nought of lead.

4.5 安全认证 Safety Certificate

■ CQC:

■ CE:

4.6 环保认证

■ 符合 环保要求

■ RoHS PASSED

4.7 专利号

5 基本性能参数 Basic Performance

5.1 电气参数 Dielectric Parameter

Cycles 寿命周期	Voltage 工作电压	Amps(resistive)负载电流
>10,000	48VDC	1
>10,000	120VAC	1
100,000	5VDC	.020
100,000	5VDC	0.001

5.2 温度 Temperature

5.2.1 温度特性 Characteristic

动作温度: $80 \pm 5^{\circ}\text{C}$;

Operating temperature $80 \pm 5^{\circ}\text{C}$;;

回复温度上限值: 应低于相应动作温度 10°C ;

Max temperature restoration, Less than Operating temperature

回复温度下限最小值: $15 \pm 5^{\circ}\text{C}$;

5.2.2 测试方法 Test method

将温控器安装在测试夹具上并放置于测试区进行测试。以空气为热传导介质，在测温去放置温度计或温度传感器。在温度进入产品动作、回复温度下限值减 3K 至产品动作、回复温度上限值加 3K 的温度范围内，应保证升降温度速率不大于 1K/min，其间必须对测温区内的空气进行充分搅拌，使温度分布均匀：测温区内的温度均匀性在 0.4K 以内。

During testing,the samples are clamped in the testing zone.Testing begins when temperature in temperature-measuring zone stays in equilibrium.

The testing furnace is filed with air as heating medium,while thermometer or temperature sensor is Placed in temperature-measuring zone.Temperature increases or decreases from the first 3K of named Action temperature at a speed of 1k/min.During testing,air must be mixed up to make the temperature Distribute sufficiently equable.Distributing equality of temperature in temperature-measuring zone must Be within $\pm 0.4\text{K}$.

5.3 端子间电阻 Resistance Between Terminals

初始值 Before life: $\leq 50\text{m}\Omega$;

寿命后 After life: $\leq 500\text{m}\Omega$;

测试负载: 直流 6V, 10mA。

Tested load: DC6V, 10mA。

5.4 绝缘电阻 Insulation Resistance

在标准大气条件下，采用 DC500V 绝缘电阻表以额定电压测试大于等于 $100\text{M}\Omega$;

With a DC500V megger,borne DC 500V,the tested value is over $100\text{M}\Omega$.

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5.5 电气强度 Dielectric Strength

在标准大气条件下,采用 1800V 50Hz 的交流电压施加于引出端与塑料体之间 1min,无击穿、飞弧、闪络等。

Parts between electriferous components and non-electriferous ones can bear 1000V 50Hz AC current,which is nearly sine wave,for one minute as bearing test.Resulted no breakdown,no flashover.

5.6 使用环境温度 Ambient temperature range

-5[°]c ~+180[°]c

-5[°]c to +180[°]c

5.7 接地方式 Method Of Earth

通过温度温控器外金属板与设备接地金属相连

By means of the metal cup of thermostat connected in the earthing metal part.

6 可靠性参数 Reliability performance

6.1 实验条件 Test Conditions

- ◆ 环境温度 20 ± 5[°]c ;
- ◆ 环境相对湿度 60%~70% ;
- ◆ 电源应为额定电压及额定频率 50Hz 的正弦波电源。

在实验结果不发生异议的情况下,按下述条件实验亦可;

- ◆ 环境温度 5~20[°]c ;
- ◆ 环境相对湿度 45%~85% ;
- ◆ 电源为接近正弦波的交流电源。

◆ Ambient temperature: 20 ± 5[°]c

◆ Ambient Relative Humidity:50%~70%

◆ The power supply should be of sine wave,with rated volts and rated frequency of 50Hz.

Without discrepancing the result,test maybe implemented according to the following conditions:

- ◆ Ambient temperature vries between 5~20[°]c
- ◆ Ambient relative humidity varies between 45%~85% ;
- ◆ The power supply should be AC nearly sine wave;

6.2 工作寿命 Working life

6.2.1 测试方法 Test method

将温控器在额定负载下给以升、降温进行触电开闭试验,最大循环频率≤6次/min,每开闭一次作为一个周期。产品经过规定次数的耐久性试验后性能指针应符合下列规定:

Power the sample thermostats with rated volts and max current,increase and decrease the temperature to test the opening/closing of the thermostats's contacts.The max frequency should be 6 times/min,contact keep closed for one second.Then check the performance.

- ★ 动作温度 100[°]c 以下对试验初始值容许偏差再加上 ± 5[°]c , 100[°]c 以上为 ± 5%
- ★ 在标准大气条件下,采用 DC500V 绝缘电阻表以额定电压测试 ≥ 100MΩ 。
- ★ 在标准大气条件下,采用 1000V 50Hz 的交流电压施加于引出端与地之间 1min,无击穿、飞弧、闪络。
- ★ Initial value of experient caused by action temperature:<100[°]c : ± 5[°]c ; ≥ 100[°]c ± 5% ;
- ★ With a DC500V megger,borne DC 500V,the tested value is over 100 MΩ
- ★ Parts between electriferous compenets and non-electriferous ones can bear 1000V 50Hz Hz AC current,which is nearly sine wave,for one minute as bearing test.Resulted no breakdown,no flashover.

6.3 耐低温、高温和冷热冲击

Resistance of Low Temperature、High Temperature、Cold、Heat Strike

将产品试样置于 -20°C 的低温箱中恒温保持 1h, 取出放置 2h; 然后将产品放置于 150°C 的高温箱中恒温保持 1h, 取出放置 2h; 最后将产品试样置于 -20°C 的低温箱中恒温保持 0.5h, 取出在室温环境中放置 5min, 再放置 150°C 的高温箱中恒温保持 0.5h, 取出在室温环境中放置 5min, 如此往复 5 个循环。试验完成后, 产品性能指标应符合下列规定:

Sample thermostats are placed in the constant-temperature box with temperature of -20°C . When temperature inside levels off, keep it for 1h. Then take the samples out and place for 2h. And then place them in the constant-temperature box with the temperature of 150°C , keep for 1h after temperature levels off, and take place for 2h. Finally, keep the samples in the constant-temperature box of -20°C for 0.5h, then take out and place them in room temperature. (5 min as one circle, and for 5 circles in a row)

When experiment finished, samples should accord with the following guideline of specifications:

- ★ 动作温度 100°C 以下对试验初始值容许偏差再加上 $\pm 5^{\circ}\text{C}$, 100°C 以上为 $\pm 5\%$
- ★ 在标准大气条件下, 采用 DC500V 绝缘电阻表以额定电压测试 $\geq 100\text{M}\Omega$ 。
- ★ 在标准大气条件下, 采用 1000V 50Hz 的交流电压施加于引出端与地之间 1min, 无击穿、飞弧、闪络。
- ★ Initial value of experient caused by action temperature: $<100^{\circ}\text{C} : \pm 5^{\circ}\text{C} ; \geq 100^{\circ}\text{C} \pm 5\%$;
- ★ With a DC500V megger, borne DC 500V, the tested value is over $100\text{M}\Omega$
- ★ Parts between electriferous compenets and non-electriferous ones can bear 1000V 50Hz Hz AC current, which is nearly sine wave, for one minute as bearing test. Resulted no breakdown, no flashover.

6.4 耐潮湿 Dampness Resistance

将产品试样按 GJB360.6 规定置于温度 $40 \pm 5^{\circ}\text{C}$ 、相对湿度 90~95% 的恒温恒湿箱中 48h 后, 产品试样应符合下列性能指标:

Samples thermostat are sealed in the instrument (conatant temperature & constant humidity), detailed as temperature of $40 \pm 5^{\circ}\text{C}$ relative humidity of 90~95%, as per regulations of GJB360.6. After placed for 48, the samples should accord with the following guideline of specifications:

- ★ 动作温度 100°C 以下对试验初始值容许偏差再加上 $\pm 5^{\circ}\text{C}$, 100°C 以上为 $\pm 5\%$
- ★ 在标准大气条件下, 采用 DC500V 绝缘电阻表以额定电压测试 $\geq 100\text{M}\Omega$ 。
- ★ 在标准大气条件下, 采用 1000V 50Hz 的交流电压施加于引出端与地之间 1min, 无击穿、飞弧、闪络。
- ★ Initial value of experient caused by action temperature: $<100^{\circ}\text{C} : \pm 5^{\circ}\text{C} ; \geq 100^{\circ}\text{C} \pm 5\%$;
- ★ With a DC500V megger, borne DC 500V, the tested value is over $100\text{M}\Omega$
- ★ Parts between electriferous compenets and non-electriferous ones can bear 1000V 50Hz Hz AC current, which is nearly sine wave, for one minute as bearing test. Resulted no breakdown, no flashover.

6.5 耐振动 Vibration Resistance

将产品试样刚性连接并固定在振动试验台上, 相对上下、前后、左右各方向, 避开产品动作温度上下限 $\pm 10^{\circ}\text{C}$ 以外, 以频率 20~25Hz 振幅 3mm 来回时间 5min, 历时 1h。试验后, 产品试样应符合下列性能指标:

- ★ Sample thermostats ars fixed on the surface of board with full intension. Then vibrate the samples with frequency 20~25Hz, swing 3mm, come-and-go tine 5mm, in directions of fluctuation, front-back, left-righe, for 1h. After tested. The samples should accord with the following guideline of specifications:
- ★ 动作温度 100°C 以下对试验初始值容许偏差再加上 $\pm 5^{\circ}\text{C}$, 100°C 以上为 $\pm 5\%$
- ★ 在标准大气条件下, 采用 DC500V 绝缘电阻表以额定电压测试 $\geq 100\text{M}\Omega$ 。

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<p>★ 在标准大气条件下,采用 1000V 50Hz 的交流电压施加于引出端与地之间 1min,无击穿、飞弧、闪络。</p> <p>★ Initial value of experiment caused by action temperature:$< 100^{\circ}C : \pm 5^{\circ}C ; \geq 100^{\circ}C \pm 5\%$</p> <p>★ With a DC500V megger,borne DC 500V,the tested value is over 100 M Ω</p> <p>★ Parts between electriferous components and non-electriferous ones can bear 1000V 50Hz AC current,which is nearly sina wave,for one minute as bearing test.Resulted no breakdown,no flashover.</p> <p>6.6 耐跌落 Falling Resistance</p> <p>将产品试样从 200mm 高度自由跌落在水泥地、石板或钢板等坚硬的水平面上,分别在各个方向跌落一次。试验后,产品性能指标应符合下列规定:</p> <p>Sample thermostats fall down free,at the height of 200mm,to such solid horizontal like concrete ground,flagstone,armor plate.And falling begin respectively for one time,from the top,bottom,left,right,front and back.After experimented,the samples should accord with the following guideline of specifications:</p> <p>★ 动作温度 $100^{\circ}C$ 以下对试验初始值容许偏差再加上 $\pm 5^{\circ}C$, $100^{\circ}C$ 以上为 $\pm 5\%$</p> <p>★ 在标准大气条件下,采用 DC500V 绝缘电阻表以额定电压测试 $\geq 100M\Omega$。</p> <p>★ 在标准大气条件下,采用 1000V 50Hz 的交流电压施加于引出端与地之间 1min,无击穿、飞弧、闪络。</p> <p>★ Initial value of experient caused by action temperature:$<100^{\circ}C : \pm 5^{\circ}C ; \geq 100^{\circ}C \pm 5\%$;</p> <p>★ With a DC500V megger,borne DC 500V,the tested value is over 100 M Ω</p> <p>★ Parts between electriferous compenents and non-electriferous ones can bear 1000V 50Hz Hz AC current,which is nearly sine wave,for one minute as bearing test.Resulted no breakdown,no flashover.</p> <p>6.7 触电温升 Contacts' Temperature Raised</p> <p><40$^{\circ}C$</p> <p>Less than 40$^{\circ}C$</p> <p>6.8 可弹性 Solderability</p> <p>波峰焊接:将波峰焊炉设置温度最大 $260 \pm 5^{\circ}C$,将产品试样进行预热,预热温度 $\leq 150^{\circ}C / 1min$,然后将产品试样引脚进行就焊接,焊接时间 ≤ 7 秒。手工焊接:用 $\geq 60W$ 电烙铁,烙铁表面温度 $\geq 280^{\circ}C$,单个引脚焊接时间 ≤ 15 秒。</p> <p>Wavrsolder process:Pot Temperature max $260 \pm 5^{\circ}C$. Pre-heating Temperature $\geq 150^{\circ}C / 1min$. Terminals solder.Solder time $\leq 7s$.Ramp-down rate $\leq 7^{\circ}C / s$.Soldering iron $\geq 60W$.Temperature $\geq 280^{\circ}C$ Solder time $\leq 15s$.</p> <p>7 注意事项 Cautious</p> <p>◆ 产品应工作于空气相对湿度$<90\%$,无腐蚀性气体、可燃性气体和导电尘埃存在的环境内; The thermostat should work in environment with humidity not higher than 90%,free of caustic,flammable gas and conducting dust.</p> <p>◆ 产品安装时,应使安装板(金属板)紧贴所控器件的发热部位,并应在安装板涂上导热硅胶或其他性能类似的导热介质; When the thermostat is used to sense the temperature of solid items,its cup should be clung to the heating part of such items.Meanwhile,heat-conducting silicon grease,of other heat media of similar nature,should be applied to the cup's surface.</p> <p>◆ 任何情况下不可使产品变形,以免破坏产品电气连接、温度特性及封闭性; Must be kept out of the thermostat Characteristic it will influence temperature dependability of electric</p> <p>◆ 使用过程中不可折弯引线脚,以免破坏电气连接的可靠性; Terminals should not be inflected,of else,it will influence the dependability of electric connection.</p>						

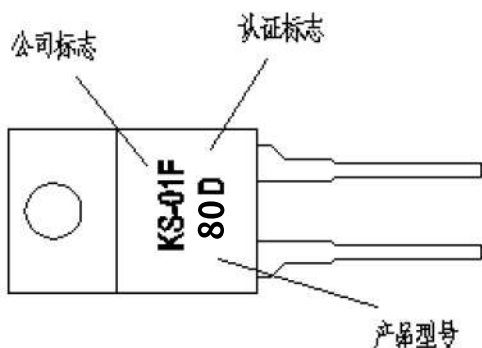


图 2

7.2 包装管 Packing Box

7.2.1 TO220 防静电透明包装管

Adopts TO220 packing Box

7.2.2 尺寸: 267mm*33mm*7mm, 见图 3

Box Size: 267 mm*33mm*7mm marking 3

7.2.3 每管数量: 最多 50 只

Quantity per box: max, 50 units

7.2.4 附属资料: 每一包装管上附不干胶标识和 ROHS 标识。

Enclosed file: one certificate per one box.

7.2.5 每箱合格证一份

Per one certificate per one box,

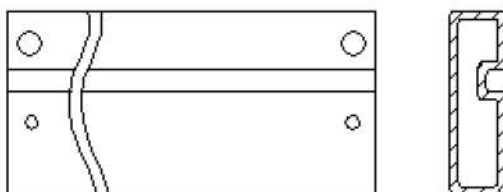


图 3

◆ 在任何情况下不得让液体渗入温控器内部。

Liquids must be kept out of the thermostat's inner part

8 包装及标志 **Packing & Marking**

8.1 温控器产品标志如下：

Mark On The Cover