1. Scope 适用范围

This product specification is applied to PTCR used for over-current protection .Please contact us when using this product for any other applications.

本产品是过流保护用正温度系数热敏电阻器。若用于其他领域，请联系我们。

2. Reference standard引用标准

YD/T741-2002Communications equipment over current protection with positive temperature coefficient (PTC) thermistor technology conditions.

YD/T741-2002 通信设备过电流保护用正温度系数（ＰＴＣ） 热敏电阻器技术条件

GB 7153 Direct thermal step type positive temperature coefficient thermistor general specification.

GB 7153 直热式阶跃型正温度系数热敏电阻器总规范

GB 2828 Batch-by-batch inspection counter sampling procedure and sample list.

GB 2828 逐批检查计数抽样程序及抽样表

3. Electrical requirements电气要求

3.1 Use and storage environment requirements使用及储存环境要求

Storage and transportation temperature range 储存和运输温度范围：-10℃~+40℃

Operating temperature range 工作温度范围：-40℃~+85℃

Relative humidity 相对湿度：≤95％RH（+40℃）

Atmospheric pressure 大气压：86～106kPa

3.2Electrical and electrical performance test requirements电气要求及电气性能测试方法

Test environment 试验环境：温度：25±2℃

Relative humidity 相对湿度：47％～75％RH

Pressure 气压：86～106kPa

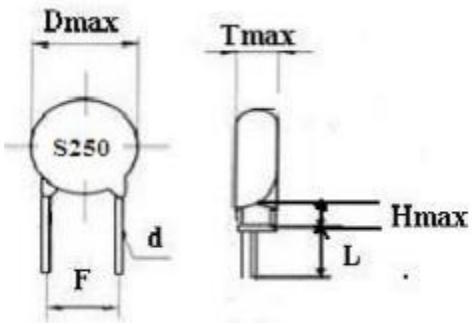
Before each test sample test need to be in this environment let stand for 30 minutes or more.

各试验样品试验前需在此环境下静置 30 分钟以上。

4. Configuration 结构

4.1 Dimensional drawing 外形尺寸

单位：mm



D max	9.5
H max	6.0
T max	5.0
L	25
d	0.6±0.05
F 中心距	5.0 ±0.4

4.2 Marking 标识

4.2.1 Color 颜色：Black 黑色 ；

S:标示；250：零功率电阻；

4.3 Coating 包封

4.3.1 Material 材料：Silicon 硅树脂

4.3.2 Color 颜色：Greey 绿色

4.4 Lead 引线

4.4.1 Material 材料：Tinned copper leads 镀锡铜线；镀层厚度：3μm≤δ≤6μm

4.4.2 Shape 形状：Axis kink

5.Electrical Characteristic. 电气性能

Item 项目	Specicication 规格	Method oc test 测 试 条 件 / 测 试 方 法
5.1 Rated Resistance 额定零功率电阻值	25Ω±25%	Measure the resistance value with a DC voltage less than2.0V at 25℃(With test circuit Fig.2) 环境温度范围：25±2℃ ， 测试直流电源小于2.0VDC。
5.2 Switching temperature 开关温度	Ts=105±10℃	Temperature at which resistance curve bends sharply(R_{min} ×2). 电阻—温度特性（曲线）上，2 倍Rmin 电阻值所对应的温度规定为开关温度。
5.3 Non-operatingCurrent 不动作电流	110/60mA ｜R-Rn/Rn ｜≤50%	Ambient temp. Range 环境温度范围:25±2℃/80±2℃ Instatic air在静止空气中； Voltageocpowersupply电压:60VDC， Hold current 电流:110/60mA，Energized time 持续时间: 60min (With test circuit Fig.3)
5.4 Operating Current 动作电流	220mA	Ambient temp. Range 环境温度范围：25±2℃ In static air在静止空气中精置：30min Voltage oc power supply 电源电压：220V Inrush current初始电流：220mA Response time：5min内应进入高阻态。（R≥10Rn）
5.5 Current shock withstanding 耐工频电流能力	｜ΔR/R|≤20%	The sample pass to 265V voltage and 1.2A initial current,on 60s/oc 180s,10 times.(With test circuit Fig.4) 将试样通以 265V 电压，1.2A 的电流初始值，通电 60s，断电 180s，冲击 10 次。
5.6 Maximum Voltage 最大工作电压	265V_{AC} ｜ΔR/R|≤20%	At 25℃, PTCR is applied 265 V_{AC} cor 180 seconds on (the inrush current is 1.2A).And acter the PTCR is being lect at room temperature cor 4-5Hr, the resistance measurement is percormed. 起始电流：1.2A，起始电压265 V_{AC}，持续180S； 在常温常压条件下恢复 4-5 小时后，复测额定零功率电阻值。

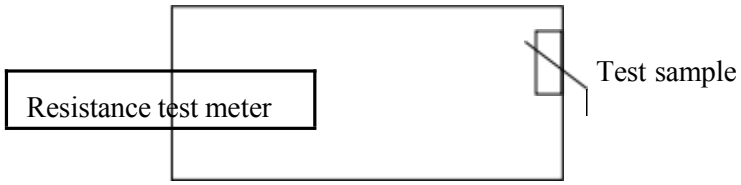


Fig.1 Zero-power resistance test circuit

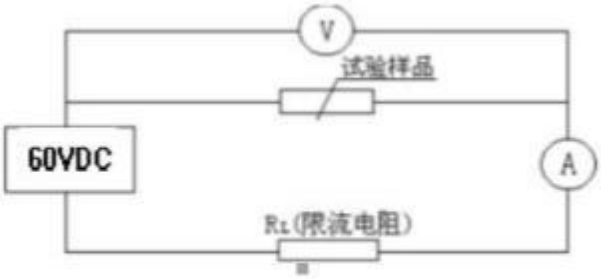


Fig 2 Non-operating Current test circuit

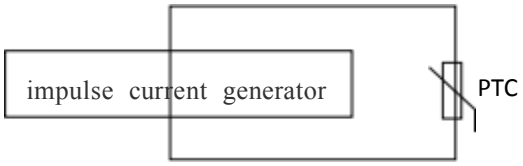


Fig.3 Lightning surge test circuit

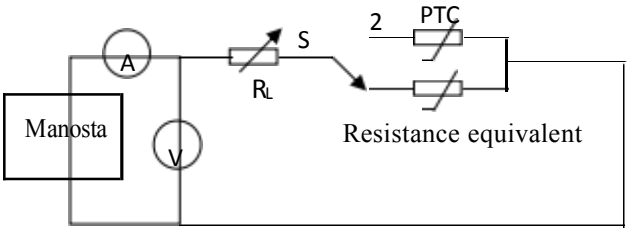


Fig.4 Current/voltage shock withstanding test circuit

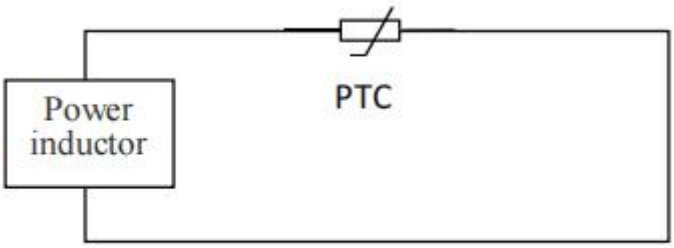


Fig.5 Power induction test circuit

6. Reliability Test可靠性测试

Item	Test condition	Specification
6.1Steady-state Damp heat 稳态湿热放置	Ta=40 ℃ ,RH=90% ～ 95%,Duration:48Hr.Retest rated zero power resistance after under normal temerature and humidity condition. 将热敏电阻放在温度40±2℃， 相，对湿度90%～95%的环境中放置48h，取出充分除去表面水滴，在室温下恢复4-5小时后测试零功率电阻。	外观应无可见损伤 ΔR/R <±20%
6.2Humidity load test 温度变化	-10℃/30min→+70℃/30min,Transfer time:2minutes. Cycle time:5times. Retest rated zero power resistance after under normal temerature and humidity condition, 在-10℃和+70℃下，每次30分钟，循环5次，每次循环持续时间30min 。在室温下恢复4-5小时后测试零功率电阻。	外观应无可见损伤 ΔR/R <±20%
6.3High temperature storage test 高温贮存试验	PTCR shall be exposed to a temperature of 70±3℃ for 2 hours with no loading. 将热敏电阻在规定的上限类别温度环境下，放置2h后，在常温下恢复后测试。	外观应无可见损伤 ΔR/R <±20%
6.4Low temperature storage test 低温贮存试验	PTCR shall be exposed to a temperature of -10±3℃ for 2 hours with no loading. 将热敏电阻在规定的下限类别温度环境下，放置2h 后，在常温下恢复后测试。	外观应无可见损伤 ΔR/R <±20%

7. Mechanical Characteristic 机械特性

Item 项目	Test condition 测试条件	Specification 测试结果
7.1Solder ability 可焊性试验	Dipping the PTC terminals to a depth of 15mm in a soldering bath of 255±5℃ and to the place of 2-2.5mm far from PTC body for 3～5s(See IEC68-2-20/GB2423.28 Ta). 将引出端浸助焊剂后，浸入到温度为255±5℃、深度为15mm 的锡槽中，锡面距PTC本体下端2-2.5mm处，持续3～5秒。	Min.95%terminalcovered 95% 以上的焊接面被上焊锡
7.2Resistance to soldering heat 耐焊接热	Dipping the terminals to a depth of 15mm in a soldering bath of250±5℃ and to the place of2-2.5mm far from PTC body for 5±0.5s.After recovering for 4-5 hours under normal temperature.The resistance shall be measured. (See IEC68-2-20/GB2423.28 Tb) 根据IEC68-2-20/GB2423.28试验Tb进行试验。在常温常湿条件下恢复4-5小时后，测试零功率电阻。	No visible mechanical damage ΔR/R≤±20%
7.3Strength of lead terminal 引出端强度	Fasten the body and apply a force gradually to each lead until 10N and then keep for 10sec, hold the body and apply a force to each lead until 90° slowly at 5N in the direction of lead axis and then keep for 10sec. And do this in the opposite direction repeat for other terminal. (See IEC68-2-21/GB2423.29 Ua/Ub) 根据 IEC68-2-21/GB2423.29 试验 U 进行试验。 试验 Ua：拉力10N，持续10S； 试验 Ub：弯曲 90°， 拉力5N，连续两次；试验 Uc：扭转180°， 连续两次。在常温常湿条件下恢复 4-5 小时后，复测零功率电阻。	No break out 外观无可见损伤 △R/R≤±20%
7. 4Vibration test 振动	The samples fixed on the test plate,From 10hz to 55hz,displacement amplitude is 0.75 within 1minute. Along the test sample X and Ydirections each vibration 45minutes.Rwtest rated zero power resistance after 4-5hours recovery undrer normal temperature and humidity condition. 将热敏电阻牢固固定在振动的平台上，然后在X和Y两个方向上分别振动45分钟，振动频率10～55Hz，位移幅值0.75mm。	No break out 外观无可见损伤 △R/R≤±20%
7.5Insulation 绝缘电阻	Terminal of PTC unit is connected and the insulation resistance between the connected terminal and case shall be measured at 500VAC. 测量电压应加上1分钟或为获得稳定读数所必须的较短时间。绝缘电阻应在这个时间之末读取。	绝缘电阻≥100M Ω

8. Packing包装

■Bulk散　　装：_500_PCS/Bag　　_1000_PCS/Box　_10000_PCS/箱
□Ammo条带式：_____PCS/Bar　　_____KPCS/Box
□Reel盘　　式：_____PCS/Reel　　_____KPCS/箱

9. Attention使用注意事项

9.1PTCR is designed for an application in circuit under normal condition (room temperature, normal humidity, and normal pressure).Please do not expose PTCR to any abnormal environment.Or it may deteriorate PTCR's character,worse,may cause malfunction (or damage).Please do keep PTCR away.

本产品是以用于一般环境（常温、常湿、常压的室内）下使用的电路为基础设计的，因此，如果在下列环境中使用，特性最坏时，将会出现故障（或烧坏）请不要在这样的环境下使用。

①From caustic and reductive gas (such as Cl_2,H_2S,NH_3,SOx,NOx,ECT.)
腐蚀性及还原性气体（Cl2，H2S，NH3，SOX，NOX等）

②From volatile and combustible gas.
具有挥发性、易燃性气体之中

③From dusty place
灰尘多的地方

④From reducing or compressing atmosphere.
减了压或加了压的地方

⑤From water or high humidity (easy to dew)
直接接触水的地方或多湿容易结露的地方

⑥From salt solution, oil, lotion and organic solvent
置于盐水、油、药液、有机溶液处

⑦From violent vibration
振动太大的地方

⑧From situations similar to (1)—(7)
其他类似于①——⑦的地方

9.2When PTCR malfunction.it may cause electric leakage or short circuit and come out with peculiar smell,abnormal noise and smoke.Please do series connect PTCR with a current protector.Before the current protector blowout,current continuously flows over the PTCR. Please use the specified rated fuse.

本产品发生异常时，会通过短路电流，有可能出现异味，异常声音，冒烟等情况，请务必与本产品串联电流保护器作为其他保护装置。

9.3On some conditions,PTCR generates heat of approximately 110℃.Please take appropriate measures to protect neighboring components and circuit board from the heat,Heat may deteriorate the component's character.The gas given by heated material also may deteriorate the component character.

本产品工作时，视场地（环境）情况，可能会超过110℃。请予以确认它是否对周围的零部件或材料产生影响。不光是会影响零部件或材料使之劣化，并且从零部件或材料里发出的气体，往往会成为导致元件劣化的原因。

9.4PTCR is ceramic production.Please do not crush or break PTCR unduly as they cause the crack and breakage.
本产品为陶瓷制品，摔落会造成的过度挤压、冲击，会使元件破裂、缺损，使用时请注意。

9.5Please store PTCR under following conditions,without breaking package:
保管时请注意以下事项，以免造成焊锡附着性劣化。

①Storage temperature:between-10℃and40℃;Storage humidity:less than 75%RH(no dew)
保管温度、湿度：周围温度，-10—40℃； 相对湿度，75%RH以下（不得结露）

②Storage place:keep away from sun,any halogen gas,such as chorine or sulfurous Materials
保管场所：请放置在阳光不能直射的地方，特殊气体（硫磺、氯等）不存放的地方。

9.6Please be sure to use PTCR at proper range of temperature.

请务必在规定的温度范围内使用，以免造成材质劣化和特性劣化。

10. Declaration声明

10. 1This delivery specification assures the quality of the PTCR.Please be sure to apply reliability test to PTCR in an actual application

本规格书是保证零部件单件的质量，使用时请务必安装在贵公司产品工作中的状态下进行评估（包括环境试验、寿命试验等）

10.2Please send one piece of specification to our company with your company's recipient seal.

对于确认在零部件阶段所不能预测的事态而言，进行整机评估是必要的。

10.3Please contact our company before you change the usage.

贵公司与本公司事先联系好的用途、使用方法改变时候，请与我们取得联系。

10.4If you have any question about this specification,Please do not hesitate to contact with us.

对本规格书产生疑义的时候，在双方迅速取得联系的基础之上协商解决。