Semitel International Ltd.,

晶訊國際有限公司

RoHS Compliant

承　　認　　書

SPECIFICATION FOR APPROVAL

CUSTOMER'S APPROVAL CHOP
客　戶　確　認　蓋　章

條 件 附 確 認:
Approval's condition: _____

確 認 日 期
Approved date: _____

確認這制品, 請簽回一套給我司并蓋上貴司的正式印章
KINDLY RETURN A SET WITH YOUR COMPANY'S OFFICIAL STAMP ON APPROVAL OF THIS ITEM

客　戶　名　稱　：
CUSTOMER'S NAME　： _____

客　戶　機　型　：
CUSTOMER'S MODEL NO. : _____

客戶型號 :
CUSTOMER'S PART NO. : _____

類 別 :
DESCRIPTION : **SLZ25R**

晶 讯 編 號 :
SEMITEL'S MODEL NO. : **Ceramic PTC 25ohm**

版本 :
VERSION : **A**

日期 :
DATE : **2016/4/12**

承認書附件:
Attachments:

- ☐ 制品規格書 Product specification
- ☐ 樣品/Sample Qty.:
- ☐ 測試參數 Test data

Prepared By	Checked By	Approved By
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变更记录
Revision Record

版本 Version	变更日期 Revision date	变更項目/Revision for items	变更原因/Reason For Revision
A	2012/4/8	New product release	

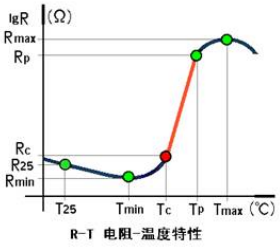
晶 讯 編 號 : SEMITEL'S MODEL NO. :	SLZ25R	客 戶 機 型: CUSTOMER'S MODEL NO.:	
版本/VERSION :	A	客戶型號 :	
日期/DATE :	2016/4/12		

晶 訊 國 際 有 限 公 司
Semitel International Ltd.

General

SLZ25R

PTCR(Positive Temperature Coefficient of Resistance) is a kind of positive temperature coefficient thermistor, mainly made up of $BaTiO_3$ ceramic.$BaTiO_3$ ceramic is a kind of typical ferroelectric material with the resistivity of greater than 10^{12} Ω* cm under normal temperature, through semi-conductor doping it has a strong PTC efficacy --- it has extremely low resistance under normal temperature but it experiences a sudden and large mutation around curie temperature as ambient temperature rises. This is because a barrier layer induced by the surface state exists on the crystal particle border of the multicrystal $BaTiO_3$ semiconductor material. Under curie temperature, the high-resistance crystal boundary has ferroelectric characteristics with great dielectric constant and low potential barrier, electrons can easily penetrate the potential barrier and corresponding material have low resistivity. When above Curie temperature, crystal lattice occurs at the high-resistance layer and the ferroelectric constant decreases quickly. The potential barrier increases because the dielectric constant drops in accordance with the Curie-Weiss Law. With the dramatic increase of the barrier height, it becomes difficult for electrons to pass potential barrier and the resistivity of the corresponding materials rises dramatically. This behaves as the PTC efficacy of the material in a macro manner. Due to this property, the PTC thermistor is widely used both on industrial electronic equipment and household appliances. The field of its application is classified in light of the three basic electric performances of the PTC thermistor. The fundamental parameters are as indicated in the following diagram. (Fig.1.)



Description

SLZxxR series ceramic PTC thermistor is a current protector and specific for voice edge SLIC impedance matching. We follow the Chip impedance requirement and development all necessary parameters, like resistance, surge response time etc……

Regards the resistance value in normal operation is very low and in abnormal situations like overcurrent or Overheating, will be increased to restrain overcurrent. SLZ25R series can be used for overcurrent protection against current fuse or temperature fuse, due to its ability to return to its initial condition when overcurrent is removed.

Application

* PBX
* IP PBX
* Telephony
* IAD, CO and CPE
* EMTA, CO and CPE
* Broadband enable voice line card, FXS and FXO
* Power resettable fuse

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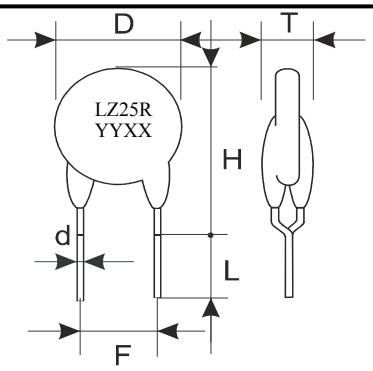
1. Structure and Dimensions:

Part No- SLZ25R



1-1.Dimension（unit：mm）

	D	T	H	F	d	L
Max	8. 0	5. 0	14. 0	5. 5	0. 62	4. 0
Min				4. 5	0. 58	3. 0

1-2 Coating material：Organic Silicon Resin

1-3 Encapsulation color：Grey

1-4 Lead type ：**lateral bending**

1-5 Lead material：tinned copper wire

2. Electrical characteristics:

N0.	Item	Testing condition	Requirement
2.1	Rated zero power resistance R25	At=25± 2 ℃, ,testing voltage ≤1.5$V_{DC;}$	25Ω±20% 2ohm sub-file
2.2	Non-trip current Int 25℃	Put PTC at 25±2℃ environment, supply power is 220VACrms，110mA，1 hour not-trip，PTC resistance shall be no significant change.	100mA |ΔR/Rn|≤50%
2.3	Non-trip current Int 40℃	Put PTC at 40±2℃ environment, supply power is 220VACrms，90mA，1 hour not-trip，PTC resistance shall be no significant change.	80mA |ΔR/Rn|≤50%
2.4	Trip current It	At =25±2 ℃,220Vrms /300S into high impedance	200mA
2.5	Trip Time	Ambient Temperature: 25 ± 2 ℃， Supply Voltage:220VACrms	2A→0.5A，＜0.5s 1A→0.5A，＜1s 0.5A→0.15A ＜5s
2.6	Resistance to power frequency current	At=25±2 ℃, Supper Voltage:220Vrms，Initial current: 3A,Power on 1 minute，Power fail 10 minutes，repeat 20 times. Recovery 4-5 hours under normal temperature and humidity after test. Retest rated zero power resistance	ΔR/Rn≤±20%
2.8	Resistance to power frequency voltage	At=25±2 ℃，Supply Voltage :250Vrms，Initial current :3A, Power on 24hours. Recovery 4-5 hours under normal	ΔR/Rn≤±20%

		temperature and humidity after test. Retest rated zero power resistance.	
2.9	Impact resistance current capacity	At=25±2 ℃，Short circuit current waveform :10/1000μs，The minimum open circuit voltage: 1.0KV，short-circuit current peak value 25A，spacing interval: 3 minutes，repeat 30 times.Recovery 4-5 hours under normal temperature and humidity after test. Retest rated zero power resistance.	ΔR/Rn≤±20%
2.10	Failure Mode	Ambient temperature: 25 ± 2 ℃,Supply voltage: 250Vrms.Series resistance 0Ω,Duration 15 minutes. Repeat 1 time. Recovery 4-5 hours under normal temperature and humidity after test. Retest rated zero power resistance.	Allow open circuit or high impedance. No allow burn and flashover.
N0.	Item	Testing condition	Requirement
2.1	Rated zero power resistance R25	At=25± 2 ℃, ,testing voltage ≤1.5$V_{DC;}$	25Ω±20% 2ohm sub-file

3. Reliability:

NO.	Item	Requirement	Test measurement
3.1	Appearance	No visible damage, clear marking	Visual testing
3.2	Solderability	At least 95% of terminal electrode covered by new solder	Refer to IEC68-2-20(GB2423.28) Ta Dip each lead into 235±5℃ solder for 3~5sec to the 5mm above body
3.3	Resistance to solder heat	|ΔR/Rn|≤20% No damage observed	Refer to IEC68-2-20(GB2423.28) Tb Recheck Rated zero power resistance after 4-5 hours recovery under normal temperature and humidity condition.
3.4	Tensile strength of terminal	|ΔR/Rn|≤20% No damage observed	Refer to IEC68-2-21(GB2423.29) Test Ua: Pull force10N, for 10 sec. Test Ub: Bending 90^0,pull force 5N,twice Test Uc: Rotating 180^0,twice. Recheck Rated zero power resistance after 4-5 hours recovery under normal temperature and humidity condition.
3.5	Fire resistance		According to the IEC695-2-2 standard carry out the needle flame test

3.6	vibration	No damage observed The change rate of resistance $\lvert \Delta R/Rn \rvert \leq 20\%$	The samples fixed on the test plate, From 10 hz to 55 hz, displacement amplitude is 0.75 mm within 1 minute. Along the test sample X and Y directions each vibration 45 minutes. Retest Rated zero power resistance after 4-5 hours recovery under normal temperature and humidity condition.
3.7	Collision	No damage observed The change rate of resistance $\lvert \Delta R/Rn \rvert \leq 20\%$	The samples fixed on the test plate, acceleration is 100 m/s^2, duration of 11ms, frequency: 60-80 times/minute. Along the test sample X Y two direction the collision 1000 times. Retest Rated zero power resistance after 4-5 hours recovery under normal temperature and humidity condition.
3.8	Steady damp-heat	No damage observed The change rate of resistance $\lvert \Delta R/Rn \rvert \leq 20\%$	Ambient Temperature:40℃ Humidity：90%-95% Duration：48h Retest Rated zero power resistance after 4-5 hours recovery under normal temperature and humidity condition.
3.9	temperature variation	No damage observed The change rate of resistance $\lvert \Delta R/Rn \rvert \leq 20\%$	Low Temperature: -10℃; High Temperature: +70℃ Exposure Duration:30 minutes Transfer time: 2 minutes Cycle time: 5 times Retest Rated zero power resistance after 4-5 hours recovery under normal temperature and humidity condition.
NO.	Item	Requirement	Test measurement

4. Standard Packaging and marking Information:

■ Bulk: 640/320 PCS / bag/box

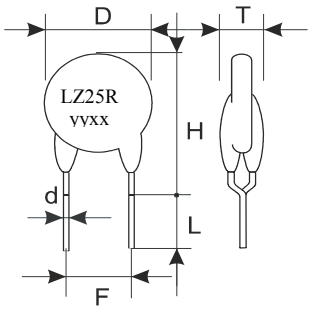
■ Carton: 16 (bag)box / per Carton

640pcs, 2ohm step pairing in a bag and in a white box

16 boxes in a carton.

Marking label-

LZ25R



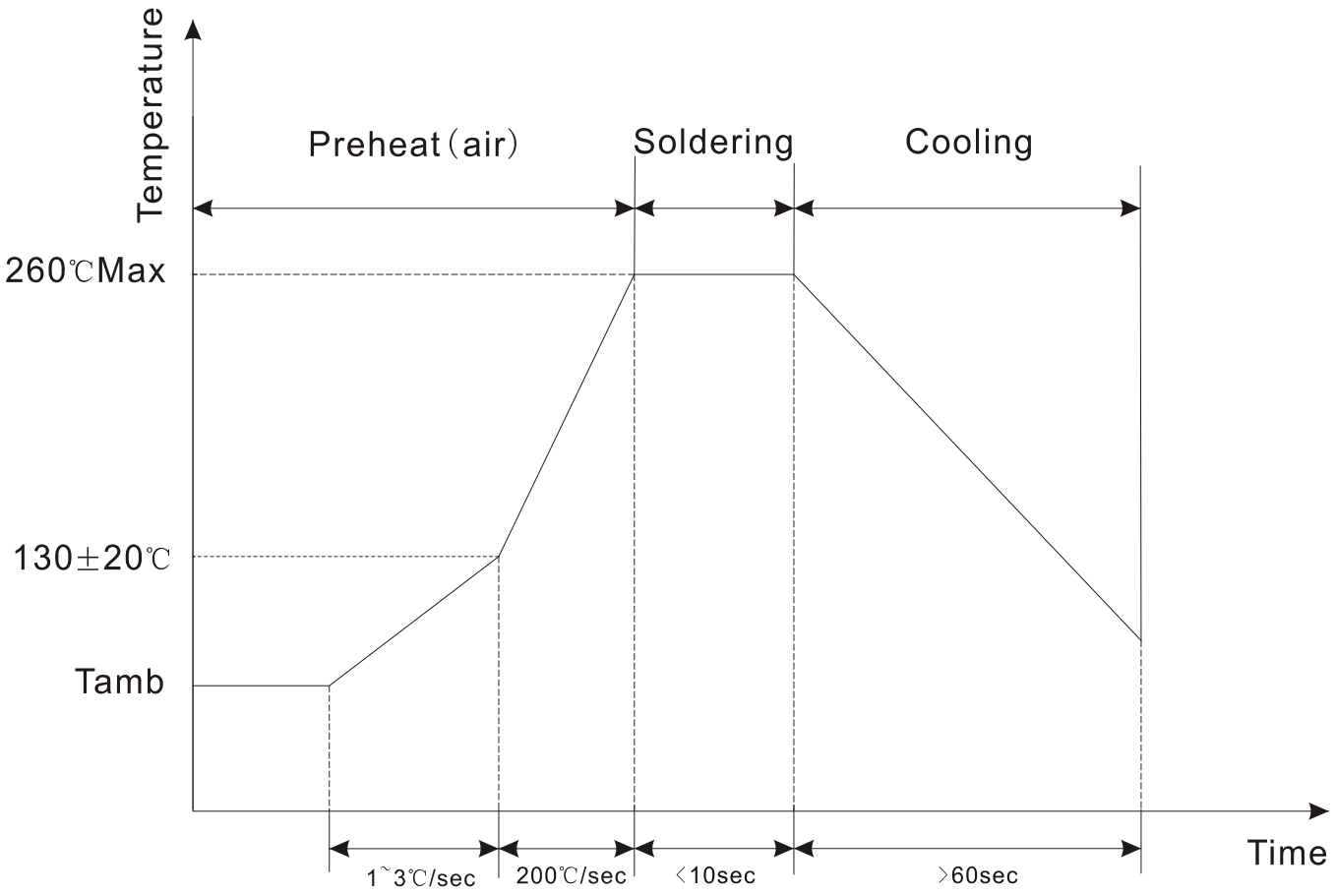
5.**Storage Condition of Products:**

Storage temperature	-40～85℃
Relative humidity	≤95%HR（+40℃）
Barometric pressure	86 ～106Kpa
Vibration frequency	10 Hz ～50Hz~10 Hz
Collision	100m/s^2 ： 16ms
Other requirement	No acid, alkali and reducing atmosphere

6. Recommended Reworking Conditions With Soldering Iron:

Welding condition	reference craftwork
Soldering iron temperature	360℃(max)
Soldering time	2sec(max)
Distance to coating material	6mm (min)

7.Wave Flow Soldering Profile



8.Inspection

NO.	Item	Inspection level	AQL	Remark
1	Appearance	II	0.65	
2	Size	II	0.65	
3	Rated Zero Power Resistance	II	0.65	
4	Non-Trip Current	S-3	2.5	
5	Trip Current	II	0.65	
6	Trip Time	S-3	2.5	
7	Failure Mode	S-3	2.5	
8	Resistance to high voltage induction ability	S-3	2.5	
9	Solderability	S-3	2.5	

10	Resistance to power frequency current capacity	S-3	2.5	
11	Resistance to power frequency voltage ability	S-3	2.5	
12	Impact resistance current capacity	S-3	2.5	
13	Tensile strength of terminal	S-3	2.5	
14	Curie temperature	-	-	10PCS/per lot，carry out（Ac=1，Re=2）Judge

9. Electrical performances tests

9-1 Testing of Non-trip Current

A 、Put the PTC in 25℃±2℃ for 1H,test the initial resistance R_n and record;

B、Refer the 4.24 standard to IEC60738-1 or GB/T 7153，connecting it as fig1 and put into the testing oven， adjust the temperature the same as required and keep the airflow fixed;

C、Put the PTC to the constant Voltage, and adjust the R_L, make the starting Current to the Non-trip Current Value and last as the required time, test the Voltage of PTC and record the data;

D、Calculating the Resistance(R) of the PTC by the tested Voltage, calculating it with R_n(the starting Current of the PTC) the changing Rate of the Resistance ;

E、PTC could not get the high resistance;

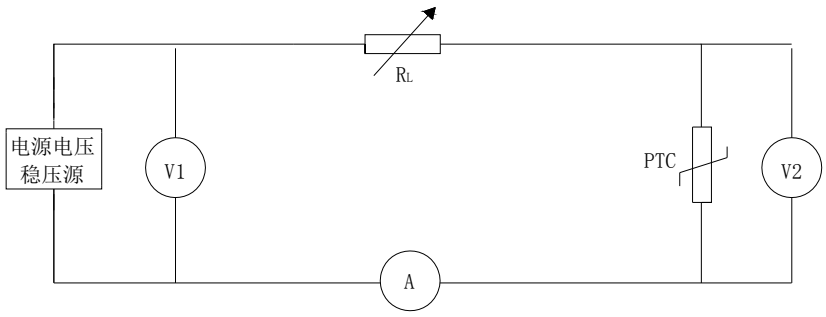
9-2 Testing of Trip Current

A、 Put the PTC in 25℃±2℃ for 1H,test the initial resistance R_n and record;

B、 Refer to IEC60738-1 or GB/T 7153 of 4.24，connecting it as fig1 and put into the testing oven; adjust the temperature the same as required and keep the airflow fixed，and keep the PTC under this temperature for 30 minutes;

C、 Put the PTC to the constant Voltage, and adjust the R_L, make the starting Current to the Trip Current;

D、 Decreasing the Current to a low Value after a certain time, and that means the PTC get its high resistance;（the Voltage Value is increasing and the reading number of the Ammeter is decreasing, record the data as the reading number decreases half of the starting Current.）



Picture 1:Non-trip and trip current test circuit diagram

10. Attention & Declaration

10.1 PTC thermistor is designed under normal environment, so do not use in following environment
A、Corrosiveness or reducibility gas, （Cl_2 、H_2S、NH_3、SO_x、Noxetc.）
B、volatile gas
C、The place which directly contact with water and easy to icing
D、The place which is put brine, oil, liquid medicine.
E、The place which vibrates badly
10.2.In high impedance state，the temperature itself will surpass 120℃,so confirm whether it has influence to other parts.
10.3 It is ceramic product; fall will make the components fracture and damage because of excessive extrusion
10.4 This specification approval is to assure the quality of each unit, estimate under the situation when the components are fixed to the customer's products.
10.5 PTC thermistor is designed according to the appointed function, so do not violate the rule
10.6 If there is any doubtful point, please notice our company asap.
10.7 If this specification is confirmed by customer, post back according to the cover address, if not, we will treat that the customer has confirmed the specification.

11. Contact Information

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