



产品规格书 SPECIFICATIONS		
名称 <u>DIVICE TYPE NAME</u> CL03-15C 型塑封高压硅堆 PLASTIC SEALED HIGH VOLTAGE SILICON RECTIFIER STACK CL03-15C		
1 . 适用范围 Scope 本规格书适用于 CL03-15C 型塑封高压硅堆 The present specifications shall apply to plastic sealed high voltage silicon Stack CL03-15C		
2 . 概要 General 2.1 类型 Type 硅整流二极管 Silicon Rectification Diode 2.2 结构 Structure 环氧树脂封装 Epoxy Resin Molded		
3. 外观、外形尺寸、标识 Appearance ,Dimensions and Marking 3.1 外观 Appearance 管体洁净，无任何沾污、锈迹或开裂 The body shall be clean and shall not bear any stain ,rust or flaw. 管体呈黑色。 The color of the case will be black.		
3.2 外形尺寸、标识：参见 7.1 Dimensions refer to 7.1		
拟制： 刘卉 2013.2.16 PREPARED BY:		
审核： 陈许平 2013.2.16 CHECKED BY :	规格说明书 SPECIFICATION NUMBER	1/7
批准： 陈许平 2013.2.16 APPROVED BY:	GHF/CGS-006	



4. 绝对最大数值

Absolute Maximum Ratings

序号 No.	项目 Item	符号 Symbol	单位 Unit	数值 Rating	条件 Conditions
1	反向重复峰值电压 Repetitive Peak Reverse Voltage	$V_{RRM}$	KV	15	
2	正向平均电流* Average Forward Current	$I_{F(AV)}$	mA	100	50HZ 正弦半波平均值, $T_{amb}=60^{\circ}C$ 50HZ Sine-half Wave Rectification Average Value
3	正向浪涌电流 Forward Surge Current	$I_{FSM}$	A	15	50HZ 正弦半波一次, $T_{amb}=25^{\circ}C$ 50HZ Sine-half Wave, One Shot
4	最高结温 Maximum Junction Temperature	$T_{jmax}$	$^{\circ}C$	130	
5	贮存温度 Storage Temperature	$T_{stg}$	$^{\circ}C$	-40~+130	

\* 相对于环境温度的关系见图 2 \* Derating for ambient temperature shall be as per Fig.2

为了散热,负极端应用螺丝钉安装在不少于 50mm×50mm,厚度 0.6 mm 的散热器上,冷却风速度不低于 0.5m/s.

For heat radiation ,a cathode terminal shall be fixed by a screw on a fin of 0.6 mm in thickness and 50mm×50mm of dimension or larger and wind cooling shall be made at the wind velocity of 0.5m/s or higher.

5. 电特性(除非另有规定,  $T_{amb}=25^{\circ}C$ )

Electrical Characteristics( $T_{amb}=25^{\circ}C$ , unless otherwise specified)

序号 NO.	项目 Item	符号 Symbol	单位 Unit	数值 Rating	测试条件 Test conditions
1	正向压降 Forward Voltage Drop	$V_{FM}$	V	30max	$I_{F(AV)}=100mA$
2	常温反向漏电流 Normal Temperature Reverse Current	$I_{RM1}$	$\mu A$	5max	$V_{RM}=15KV$
3	高温反向漏电流 High Temperature Reverse Current	$I_{RM2}$	$\mu A$	50max	$T_{amb}=100^{\circ}C$ $V_{RM}=15KV$
4	反向击穿电压 Reverse Breakdown Voltage	$V_Z$	KV	18min	$I_R=100uA$
5	反向恢复时间 Reverse Recovery Time	trr	$\mu S$	0.15 max	$I_F=2 mA,$ $I_R=4mA.$



6. 可靠性试验

Reliability Test

6.1 试验条件

Test Conditions

序号 NO.	试验项目 Item	数值 Rating	条件 Conditions
1	高温反偏试验 High Temperature Reverse Voltage Test	1000 小时 1000 hours	施加 $V_{RM}=V_{RRM}$ , $f=50\text{HZ}$ 正弦半波电压, $T_{amb}=100^{\circ}\text{C}$ Half sinewave voltage with $f=50\text{HZ}$ applied, $T_{amb}=100^{\circ}\text{C}$
2	高温贮存试验 High Temperature Storage Test	1000 小时 1000 hours	$T_{amb}=130\pm 2^{\circ}\text{C}$ (空气中) (in air)
3	温度变化继之以 变湿热试验 Temperature Change go on Damp Heat Cyclic Test	5 周期 2 周期 five cycle two cycle	<p><math>[-40^{\circ}\text{C}</math> (30 分钟) <math>\rightarrow</math> 室温 (3 分钟) <math>\rightarrow +130^{\circ}\text{C}</math> (30 分钟) <math>\rightarrow</math> 室温 (3 分钟)] <math>\times 5</math></p> <p><math>[25^{\circ}\text{C} \nearrow 55^{\circ}\text{C}</math>, 相对湿度:98%, (3 小时) <math>\rightarrow 55^{\circ}\text{C}</math>, 相对湿度:98% <math>\searrow</math> 93%, (10 分钟) <math>\rightarrow 55^{\circ}\text{C}</math>, 相对湿度: :93%, (8 小时 40 分钟) <math>\rightarrow 55^{\circ}\text{C}</math>, 相对湿度:93% <math>\nearrow</math> 98%, (10 分钟) <math>\rightarrow 55^{\circ}\text{C} \searrow 25^{\circ}\text{C}</math>, 相对湿度:98%, (3 小时) <math>\rightarrow 25^{\circ}\text{C}</math>, 相对湿度:98% (9 小时)] <math>\times 2</math></p> <p><math>[-40^{\circ}\text{C}</math> (30min) <math>\rightarrow</math> R.T.(3min) <math>\rightarrow +130^{\circ}\text{C}</math> (30min) <math>\rightarrow</math> R.T.(3min)] <math>\times 5</math></p> <p><math>[25^{\circ}\text{C} \nearrow 55^{\circ}\text{C}</math>, 98% R.H,(3h) <math>\rightarrow 55^{\circ}\text{C}</math>, 98% R.H <math>\searrow</math> 93% R.H, (10min) <math>\rightarrow 55^{\circ}\text{C}</math>, 93% R.H,(8h 40min) <math>\rightarrow 55^{\circ}\text{C}</math>, 93% R.H <math>\nearrow</math> 98% R.H,(10min) <math>\rightarrow 55^{\circ}\text{C} \searrow 25^{\circ}\text{C}</math> 98% R.H,(3h) <math>\rightarrow 25^{\circ}\text{C}</math>, 98% R.H,(9h)] <math>\times 2</math></p>
4	耐焊接热试验 Resistance to Soldering Heat Test	1 次 1Time	焊槽温度: $350^{\circ}\text{C} \pm 10^{\circ}\text{C}$ 浸渍时间: $3.5\text{s} \pm 0.5\text{s}$ Solder Trough Temperature : $350^{\circ}\text{C} \pm 10^{\circ}\text{C}$ Dip Time: $3.5\text{s} \pm 0.5\text{s}$
5	高压蒸气试验 High-pressure smoke Test	10 小时 ten hours	$121^{\circ}\text{C}, 2 \times 10^5\text{pa}$
6	绝缘电阻试验 Insulation Resistance Test	1000M $\Omega$ 以上 1000M $\Omega$ or more	管体中间与端子之间, 见图 1 Between the center of the body and terminal Sec Fig1
7	绝缘强度试验 Insulation Strength Test	10KV	管体中间与端子之间通电 1 分钟, 见图 1 1 minute between the center of the body and terminal Sec Fig1



序号 NO.	试验项目 Item	数值 Rating	条件 Conditions
8	弯曲试验 Lead Bend Test	1次 1 time	引出端加 10N 力，正反向弯曲各 90° Force 10N to the lead, bent it to positive and negative 90 degree
9	拉力试验 Lead Pull Test	1次 1 time	引出端加轴向力 70N，历时一分钟 Force 70 N of axial to the lead for one minute,
10	自由跌落试验 Drop Test	10次	从 1 米高处自然跌落到木板上 Naturally drop from 1 m height on maple plate

### 6.2 判定标准

(1) 项目 NO. 1—5 试验完成后，常温放置二小时后，产品符合电性能第 5 条。

Item NO.1-5 The product shall meet the electrical specifications in paragraph 5 after being exposed to normal temperature for two hour after completion of the test.

(2) 项目 NO. 6、7 产品应符合额定值。

Item NO.6、7 The product shall meet the rating.

(3) 项目 NO.8-10 在试验中无损坏，且满足第 5 条电特性的要求。

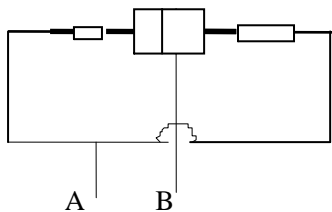
Item NO.8-10 There shall be no trouble in testing and the electrical characteristics in paragraph 5 shall be meet.

图 1 绝缘电阻试验和绝缘强度试验

Fig.1 Insulation resistance test and insulation strength test

宽度 3mm 带状金属箔卷绕于管体中间

Roll metal foil with 3mm width around center of the body



绝缘电阻试验条件：用绝缘电阻测试仪在 A、B 两点间加 500V 直流电压

绝缘强度试验条件：样品处于绝缘液中，在 A、B 两点间施加 10KV 的正弦半波电压

Insulation resistance test condition: Measure between A and B by using a DC 500V insulation resistance tester.

Insulation strength test condition: Apply half sine wave voltage with 10KV wave height between A and B in insulation liquid .

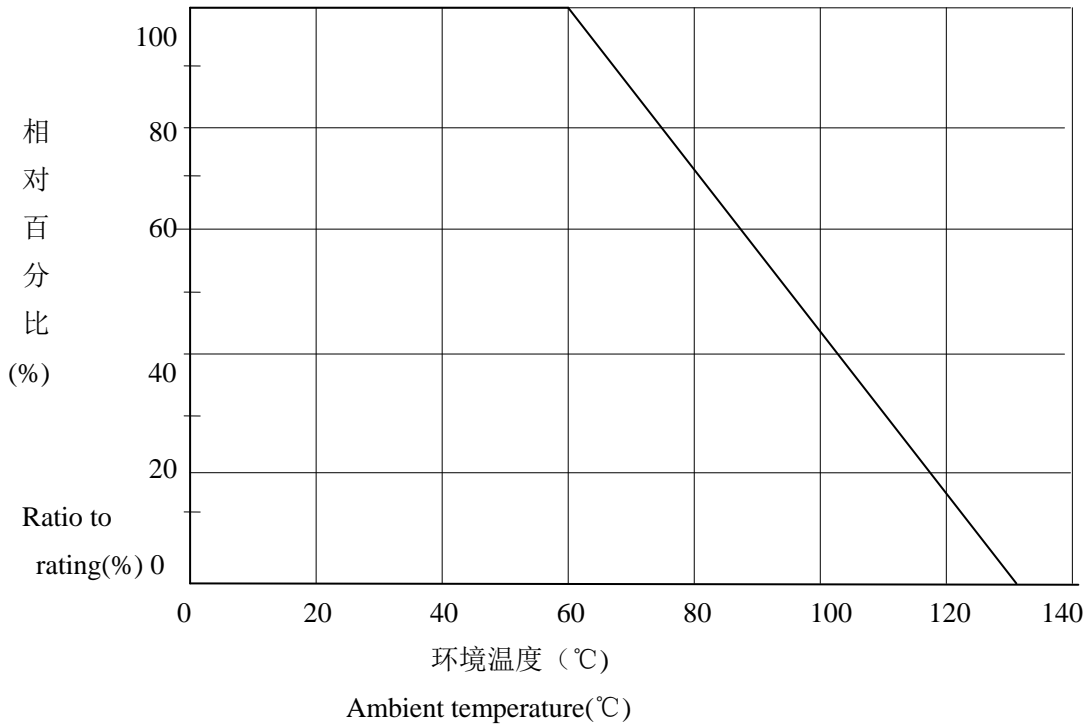


图 2. 正向电流与环境温度的关系

Fig2. Derating of forward current for ambient temperature

[在规定的阴极散热器和空气冷却(流速)条件下]

(On condition of provision of a fin on cathode side and air cooling)



7. 尺寸、标识和部件材料

Dimensions. Marking and component material

7.1 外形尺寸及标识

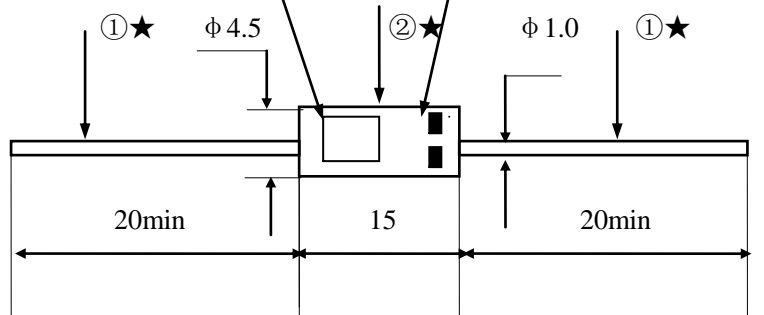
Dimensions and Marking

型号、批号、制造商标记※

负极标记

Type name, Lot No, Coporate mark

Cathode mark



单位: mm  
Dimensions in mm

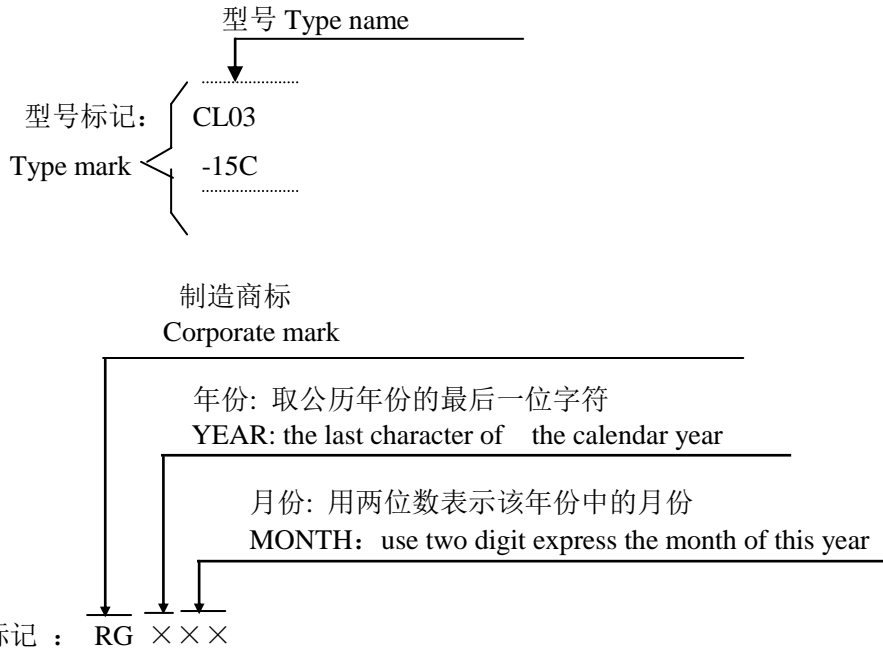
★部件材料见 7.2 款

Component material to 7.2



※型号、批号、制造商标标记:

Type name ,Lot NO,Corporate mark



Lot No mark

## 7.2 部件材料目录

List of component materials

NO	部 件 名 Part name	材料名称和型号 Material and type name
①	引 线 Lead wire	镀锡铜线 Sn clad Cu wire
②	树 脂 Molding resin	等效于 UL94V-0 环氧树脂 Epoxy Resin Equivalent to UL 94V-0



### 7.3 其它 Others

可应客户要求加装 250/187 系列接线端子

We can set 250/187 terminal on the top of the wire, according to customer' s requirement.

### 12.环保保证 Environment protect guarantee

本产品符合《欧洲议会和欧盟理事会 2003 年 1 月 27 日关于限制在电子和电气设备中使用某些有害物质的指令 2002/95/EC》。

The product accord with “Directive 2002/95/EC of the European parliament and of the council of 27 january 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment”