Leiditech

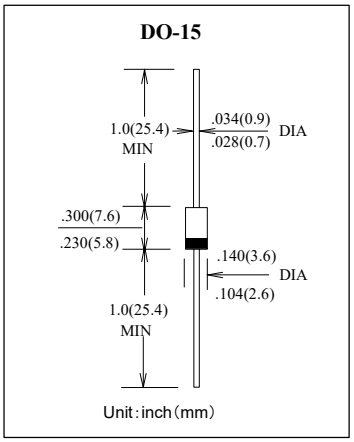
LM05-04

Schottky Barrier Restifier

1. **特征 Features**
   - 大电流承受能力。High Current Capability
   - 正向压降低。Low Forward Voltage Drop

2. **高温焊接保证** High temperature soldering guaranteed:
   250℃/10 秒, 0.375" (9.5mm)引线长度。
   250℃/10 seconds, 0.375" (9.5mm) lead length,

3. **机械数据 Mechanical Data**
   - **端子: 镀锡轴向引线** Terminals: Plated axial leads
   - **极性: 色环端为负极** Polarity: Color band denotes cathode end
   - **安装位置: 任意** Mounting Position: Any



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	3	
2	反向不重复峰值电压 Non-Repetitive Peak Reverse Voltage	V_{RSM}	KV	3.6	
3	正向平均电流 Average Forward Current	$I_{F(AV)}$	mA	50	50HZ 正弦半波平均值, (Tamb=50 ºC) 50HZ Sine-half Wave Rectification Average Value (Tamb=50 ºC)
4	正向(不重复)浪涌电流 Non-Repetitive Forward Surge Current	I_{FSM}	A	3	50HZ 10ms 正弦半波 (Tamb=25 ºC) 50HZ 10ms Sine-half Wave, (Tamb=25 ºC)
5	反向浪涌电流 Surge Reverse Current	I_{RSM}	mA	50	三角波 W_P=1ms (W_P=1ms triangular pulse)
6	工作环境温度 Ambient Temperature	Tamb	ºC	-40~+160	
7	最高结温 Maximum Junction Temperature	$T_{(VJ)}$	ºC	180	
8	贮存温度 Storage Temperature	T_{stg}	ºC	-60~+175	

5. 电特性(除非另有规定,Tamb=25ºC)

Electrical Characteristics(Tamb=25 ºC,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	5.6max	I_{FM}=10mA
2	常温反向漏电流 Normal Temperature Reverse Current	I_{RM1}	μA	2max	V_{RM}=3KV
3	高温反向漏电流 High Temperature Reverse Current	I_{RM2}	μA	25max	Tamb=175ºC V_{RM}=3KV
4	反向击穿电压 Reverse Breakdown Voltage	V_Z	KV	4.0min	I_R=100uA

6. 物理特性

Mechanical Characteristics

6.1 重量：约 0.16 g

Weight Ca. 0.16gr.

6.2 耐 震 性 ：5G

Vibration proof 5G

7 测试和检验

Test and Inspection

除非另有说明，所有的测试在环境温度(5-35)℃,相对湿度(40-85)%的环境中进行。

Unless otherwise specified for the individual test, all tests shall be conducted at an ambient temperature of (5-35)℃ and R.H. (40-85)%.

7.1 引线断裂试验：引线末端加力 0.5kg，在距管体 6mm 固定住并转 90^0，然后朝反向转 180^0，然后恢复原样，引线不松驰，不折断。

Lead bend test : With a 0.5kg weight attached to the end of the lead ,the same lead shall be clamped 6mm from the rectifier body and clamp turned 90 degrees ,then 180 degrees in the opposite direction ,then returned to the original position .The leads shall sustain this cycle without loosing and breaking.

7.2 正向压降试验：采用图 1 电路，I_F=10mA，正向压降不得超过 7.6V。

Forward voltage drop test: Measured in Fig. 1 circuit at I_F= 10mA,forward voltage drop (V_F)shall not exceed 7.6V.

7.3 反向电流试验：采用图 2 电路，V_R=4KV 单向正弦半波 50HZ，反向电流不得超过 2μA(25℃时)。

Reverse current test : Measured in Fig. 2 circuit at V_R =4KV at the half sine wave of 50HZ,reverse current shall not exceed 2μA at 25℃.

7.4 温度变化继之以变湿热试验：整流管必须经过 5 个周期温度和 2 个周期交变湿热循环，[-40℃（30 分钟）→室温（3 分钟）→+130℃（30 分钟）→室温（3 分钟）] ×5，[25℃↗55℃,相对湿度:98%,（3 小时）→55℃,相对湿度:98%↘93%,（10 分钟）→55℃,相对湿度：:93%，（8 小时 40 分钟）→55℃,相对湿度:93%↗98%，（10 分钟）→55℃↘25℃,,相对湿度:98%,（3 小时）→25℃,,相对湿度:98%（9 小时）] ×2，整流管须符合 7.2-7.3 要求。

Temperature Change go on Damp Heat Cyclic Test :The rectifier shall be subjected to 5 temperature cycles and 2 damp heat cyclic cycles , [-40℃(30min)→R.T.(3min)→+130℃(30min)→R.T.(3min)] ×5,[25℃↗55℃ ,98%R.H,(3h) → 55 ℃ ,98%R.H ↘ 93%R.H, (10min) → 55 ℃ ,93%R.H,(8h 40min) → 55 ℃ ,93%R.H ↗ 98%R.H,(10min)→55℃↘25℃98%R.H,(3h)→25℃, 98%R.H,(9h)] ×2 ,the rectifier shall satisfy item 7.2 to 7

7.5 贮存试验:整流管在环境温度为 120℃时放置 1000 小时,室温下稳定 1 小时,整流管须符合 7.2-7.3 要求。

Storage test : The rectifier shall be left in an ambient temperature of 120℃ for 1000 hours. Stabilized to room temperature for 1 hour, the rectifier shall satisfy item 7.2 to 7.3.

7.6 耐焊接热试验：将整流器的引线浸入熔融焊料中 5 秒钟，焊料温度 350±10℃,浸至距管体 10mm 外。室温中稳定一小时后，整流器应符合 7.2-7.3 要求。

Soldering heat test : The leads of the rectifier shall be immersed for 5 sec. in molten solder, at a temperature of 350±10℃,to a point 10mm from the body. Stabilized to room temperature for 1 hour, the rectifier shall satisfy item 7.2 to 7.3 .

7.7 易焊性试验：将元件引线浸入温度为 235±5℃的熔融焊料槽中,焊料表面应保持清洁，试验后，引线表面的 90%以上应覆盖焊料。

Solderability test : The surface of the solder bath shall be kept clean. The component termination shall be immersed into the bath of molten solder at 235±5℃. After the test, more than 90% of the surface must be covered with the solder.

7.8 高温反偏试验: 整流器在环境温度为 100℃时，施加 V_{RM}=V_{RRM}，f=50HZ 正弦半波电压 1000 小时，。整流器应符合 7.2-7.3 要求。

High Temperature Reverse Voltage Test: The rectifier shall be threw Half sinewave voltage (V_{RM}=V_{RRM})with f=50HZ for 1000 hours in an ambient temperature of 100 ℃. The rectifier shall satisfy item 7.2 to 7.3 .

7.9 高压蒸气试验: 整流器在 121℃,2×10^5pa 条件下放置 10 小时后，整流器应符合 7.2-7.3 要求。

High-pressure smoke Test: The rectifier shall be placed in 121℃,2×10^5pa for 10 hours, the rectifier shall satisfy item 7.2to 7.3 .

7.10 间隙通电试验: 将整流器施加I_F= 30mA,V_R=0 的正向脉冲电流,通电3 分钟,断电3 分钟,持续500 小时,最后测试应符合 7.2-7.3 要求。

Discontinuity Electrify Test: The rectifier shall be threw forward pulse current of I_F= 30mA,V_R=0,turn on 3 min, turn off 3 min,went on 500 hours, the rectifier shall satisfy item 7.2 to 7.3 .

8. 使用须知

Handling instructions

8.1 这种二极管在空气中不能保证其额定电压和反向特性，故应使用以环氧为主体的树脂进行再次封装改变外形尺寸以增大爬电距离。

These diodes have been developed to attain size reduction assuming remolding with epoxy-base resin to endure the creeping distance. It is therefore, impossible to guarantee the rated voltage and backward characteristics in the air.

8.2 装配注意点

Special note for assembly

a. 高压硅二极管表面必须保持清洁，高压硅二极管与再次封装树脂之间的界面必须保证足够的附着力。

The surface of a high voltage silicon diode must be kept clean. The interface between a high voltage silicon diode and the remolding resin must ensure sufficient adhesion.

b. 再次封装的树脂内不允许有气泡，因为气泡会降低绝缘性和可靠性，特别是在高压硅二极管的附近更另不允许有气泡。

No air bubble is allowed in the remolding, resin because it degrades the insulation and reliability. It must not exist especially near the high voltage silicon diode.

c.再次封装时使用环氧树脂会使膨胀或收缩的应力最小，从而避免对二极管产生影响。如果采用环氧系以外的树脂，应仔细查其附着力和密封性，以避免水气进入。

The resin material for remolding should be epoxy-base resin and minimum stress from expansion or contraction shall be generated as so to prevent bad influence on the diode .If any resin other than epoxy-base one is used, the adhesion and airtightness to prevent moisture entrance shall be well examined.

图 1 正向压降测试电路

Fig.1 Forward voltage drop test circuit

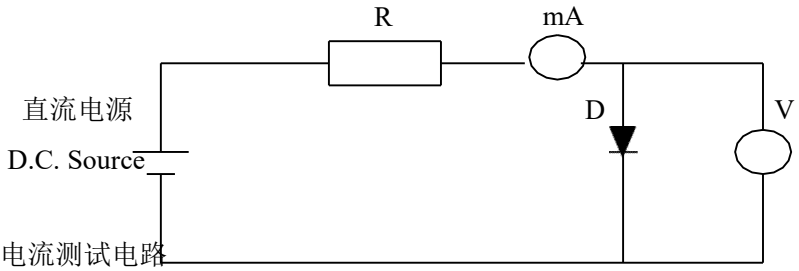
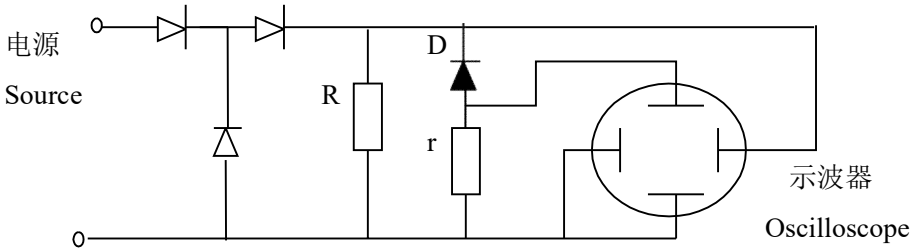


图 2 反向电流测试电路

Fig.2 Reverse current test circuit

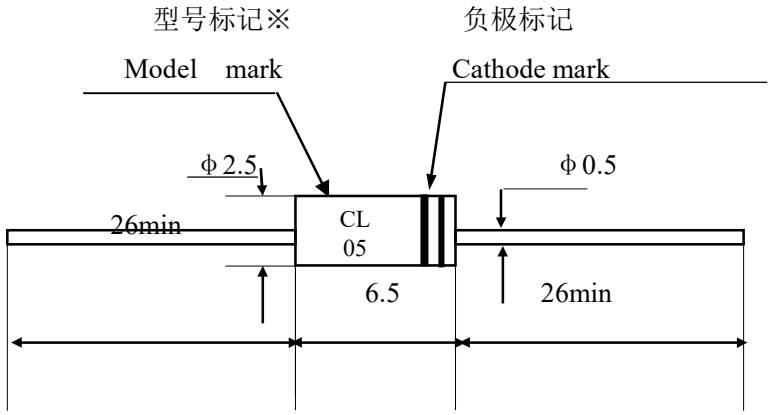


9.尺寸、标识、内部结构和材料

Dimensions， Marking， Inner Construction and Materials

9.1 外形尺寸及标识

Dimensions and Marking

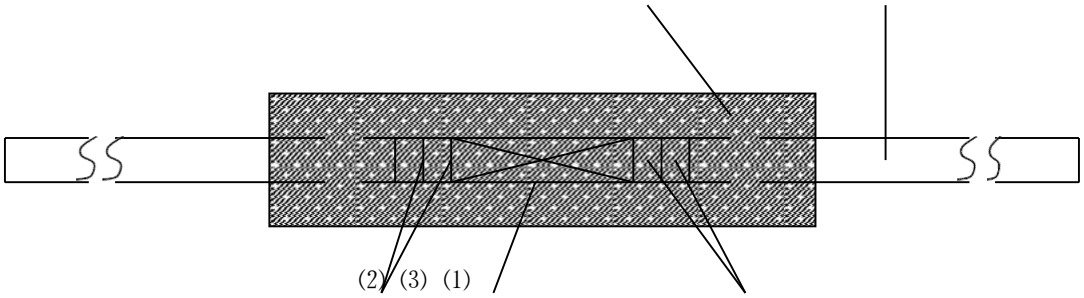


单 位 ： mm

Dimensions in mm

9.2 内部结构和材料

Inner Construction and Materials



NO	部 件 名 Part name	材料名称和型号 Material and type name	备注 Note
(1)	二极管芯片 Diode chip	N 型硅 N-type Silicon	台面型 Mesa Type
(2)	连接材料 Contact Materials	铅锡焊料 Pb-Sn Solder	
(3)	表面钝化 Surface Passivation	JRC 涂布树脂 JRC Coating Resin	刚性型 Rigid Type
(4)	封装材料 Molding Material	UL94V-0 环氧树脂 Epoxy Resin (UL 94V-0)	
(5)	引 线 Lead wire	镀锡铜线 Sn Plated Cu wire	

10. 包装箱上粘贴环保标识格式为：40mm 边长的正三角形，内部为大写 G，标记颜色白底蓝字。

The Carton use format of environment protect label：”G” in the equilateral triangle of 40mm. Label color is blue word and white grounding. G

11. SGS 测试报告有效期壹年 Period of SGS test report is one year.

12.环保保证 Environment protect guarantee

本产品符合《欧州议会和欧盟理事会 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”

Shanghai Leiditech Electronic Co.,Ltd
Email: sale1@leiditech.com
Tel : +86- 021 50828806
Fax : +86- 021 50477059