

恒流二极管

产品特点

- 电流负温度系数
- 直流等效阻抗低
- 交流等效阻抗高
- 高效率 ($> 85\%$ @ $V_{in} = 220VAC$, $V_{out} = 270VDC$)
- 高恒流精度 ($\pm 1\%$)
- 高负载及线性调整率 ($\pm 1\%$)
- 宽输入电压范围 ($180V - 270V$)
- 宽工作温度范围 ($0 - 80^{\circ}C$)
- 耐压 $110V$
- ESD (HBM 模式) ($> 8KV$)

应用

- T5/T8 系列 LED 日光灯管
- 恒流源
- LED 球泡灯

封装

- TO-252

产品概述

252SE0XX (注意: XX 表示不同恒定电流, 具体参见第二页电参数表格) 恒流二极管(CRD)是为 LED 或其他电子元器件在电源输入电压或负载电压变化时提供恒定电流的元器件, 等效于一个恒流源或最大峰值电流的限制电路, 在供电电压波动和负载阻抗变化时, 能确保提供稳定的电流给负载。

引脚信息

Pin 1 – 阳极 (Anode)

Pin 2 – 阴极 (Cathode)



内部结构图



极限值

除非另有规定， $T_a = 25^{\circ}\text{C}$

参数名称	符号	最小值	典型值	最大值	单位
击穿电压	V_B	110	120		V
耗散功率	P_D			1.2	W
结温	T_J	-55		150	$^{\circ}\text{C}$
存储温度	T_{STG}	-55		150	$^{\circ}\text{C}$
热阻	$R_{\theta JC}$			80	$^{\circ}\text{C/W}$

电参数

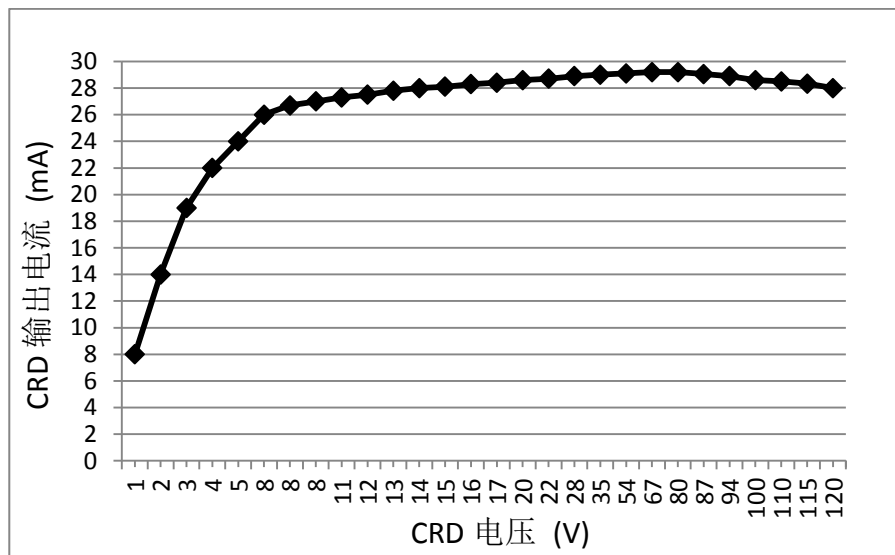
除非另有规定， $T_a = 25^{\circ}\text{C}$

产品料号	恒定电流 (mA)			开启电压 V_K (V)	
	最小 (>)	典型	最大 (\leq)	最大	典型
252SE020	15		20	8	4.5
252SE025	20		25	8	4.5
252SE030	25		30	8	4.5
252SE035	30		35	8	4.5

注意：1.表格中恒定电流最小值和最大值表示同一产品料号下不同个体的恒定电流差异区间

2.任意产品料号下单个产品的恒流精度和负载及线性调整率为 $\pm 1\%$

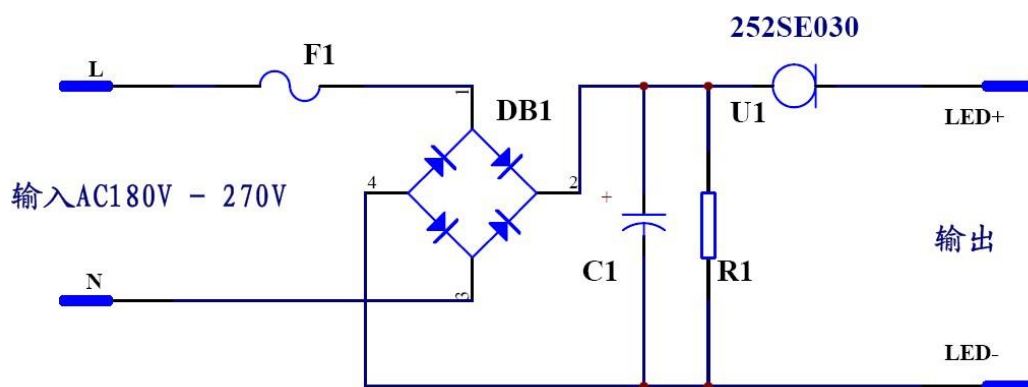
特性曲线



典型 V - I 特性图

典型应用电路及使用方法

● LED 驱动电路

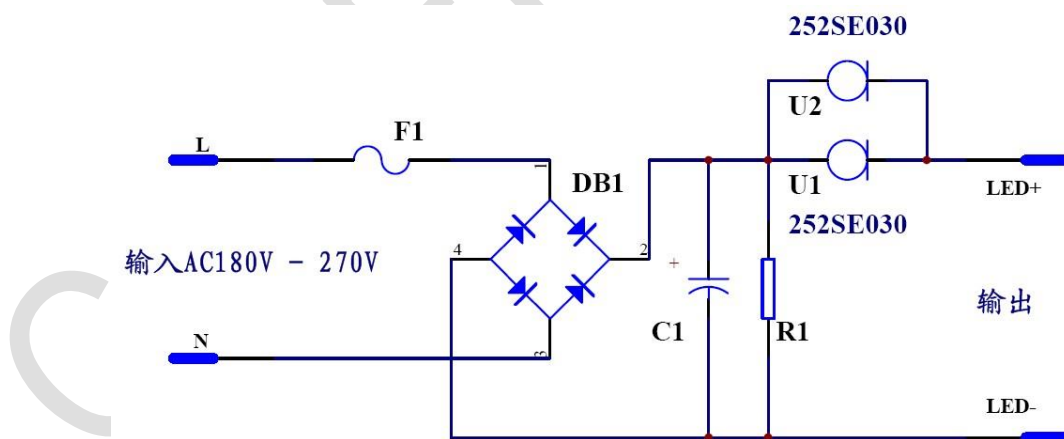


- ◆ 电路简单 – 220V 交流输入，通过整流桥，CRD 输出稳定的电流驱动 LED。无需变压器和电感，体积极小，所用元器件极少，极大降低方案成本并缩短生产周期。
- ◆ 亮度稳定 – 相比阻容降压方案，输出电流更加稳定，LED 亮度更亮并更稳定，闪烁减少。
- ◆ 高效率 – 功耗低，效率可达 85% 以上。
- ◆ 高可靠性 – 核心器件 CRD 的 ESD >8KV，开关 >4 万次；CRD 具有电流负温度特性，随着整个系统温度的增加电流会减小，对 LED 起到保护作用，提高整体系统的工作寿命。
- ◆ 良好的抗雷击浪涌能力。

● LED 负载回路计算公式

- ◆ (电源电压的最大值(含误差) $\times 1.414$ – CRD 最小击穿电压 V_B) \div LED 的 V_F = 所需 LED 的最小数量
- ◆ (电源电压的最小值(含误差) $\times 1.414$ – CRD 最小开启电压 V_K) \div LED 的 V_F = 所需 LED 的最大数量

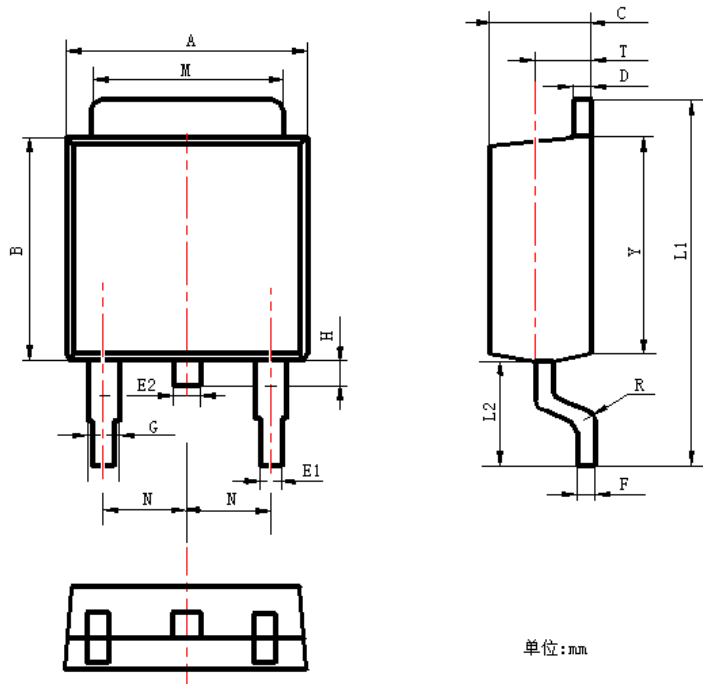
● CRD 的并联使用



- ◆ 应用灵活 – 可根据设计需求，对电路进行拓展，满足不同的输出功率。多颗 CRD 并联使用可实现 $I_{LED} = I_{U1} + I_{U2}$
- ◆ 并联使用时，电路的恒流开启电压为所用 CRD 中最大的开启电压，且动态电阻相对减小。

封装外形图

TO-252 封装



项目	规范 (mm)	
	Min	Max
A	6.40	6.80
B	5.80	6.20
C	2.20	2.40
D	0.40	0.60
E1	0.60	0.80
E2	0.70	0.90
F	0.40	0.60
G	0.80	1.00
H	0.60	0.90
L1	9.70	10.20
L2	2.70	3.10
M	5.10	5.50
N	2.09	2.49
R	0.3	
T	1.40	1.60
Y	5.90	6.30

包装说明

1. 产品的小包装，采用 2500 颗/盘的编带装
2. 产品的大包装，采用 2 盘/盒的纸盒包装



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