



Current Regulative Diode

Monday, 6 June 2016

Sirect Semiconductor Inc., announced that the new Current Regulative Diode (CRD) instead of AC-DC switching mode design for LED lighting application.

CRD device have provided the constant and stable working current for the design of LED field to simplify the complicated and expensive AC-DC switching mode power supply. The following is the detail specification:

Part Number	Current (I_p @ $V=20V$)		V_k	V_B	P_D	T_J & T_{stg}
	Min	Max	$V_{k@0.8I_p}$	max	Max	Range
	mA	mA	Max [V]	V	w	°C
CPC32S020HG	16	24	3.5	200	1.2	-55~150
CPC32S020HL	16	24	3.5	200	1.2	-55~150
CPC32S040HG	36	44	6.0	200	1.2	-55~150
CPC32S040HL	36	44	6.0	200	1.2	-55~150
CPC32S060HG	54	66	7.0	200	1.2	-55~150
CPC32S060HL	54	66	7.0	200	1.2	-55~150
CPC32S080HG	72	88	8.0	200	1.2	-55~150
CPC32S080HL	72	88	8.0	200	1.2	-55~150

Table 1: Electrical Characteristics of CRD (@TA=25°C)

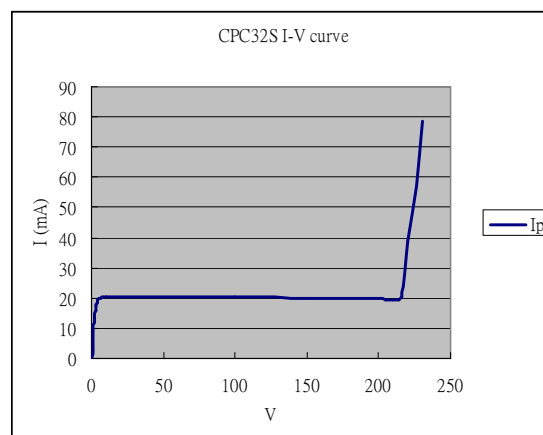


Table 2: I-V Curve of CRD (@TA=25°C)

The first fundamental of CRD on the LED lighting's circuit diagram is series connection. To give an example, if the AC input is 220V and the V_f of LED is 55V ($N=5$), and then we put the CPC32S020HG on the design. Therefore, the maximum break-down voltage on CRD is 36V $[(220V \times 1.414) - (55V \times 5) = 36V]$, and the maximum loading power on CRD is 0.72W ($20mA \times 36V = 0.72W$).

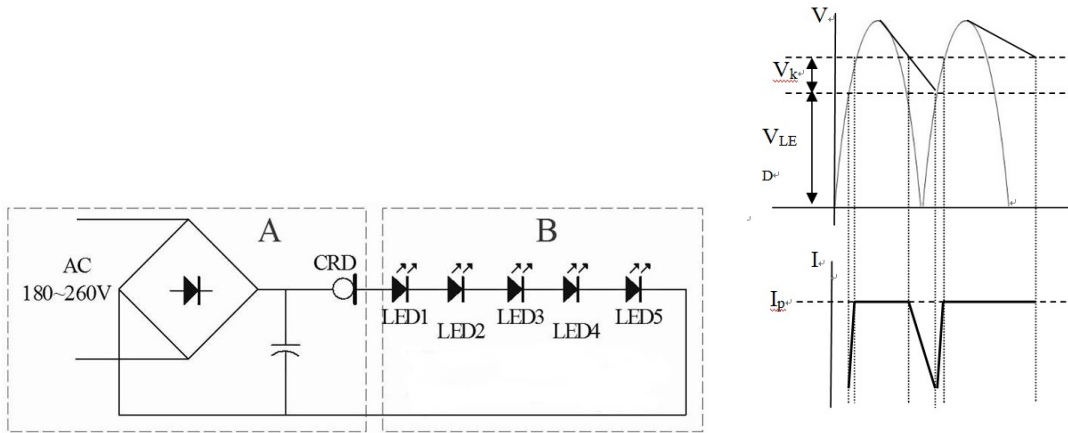


Fig. 1: Circuit diagram of series connection (Example A)

Besides, the parallel connection of circuit diagram on the LED lighting can reduce the actual voltage on CRD in force, and can meet different requirement of designed current. The total output current reduced with the increasing of temperature because of the negative temperature coefficient of CRD. Therefore, we can avoid the failure rate on LED from the bigger current that over specification.

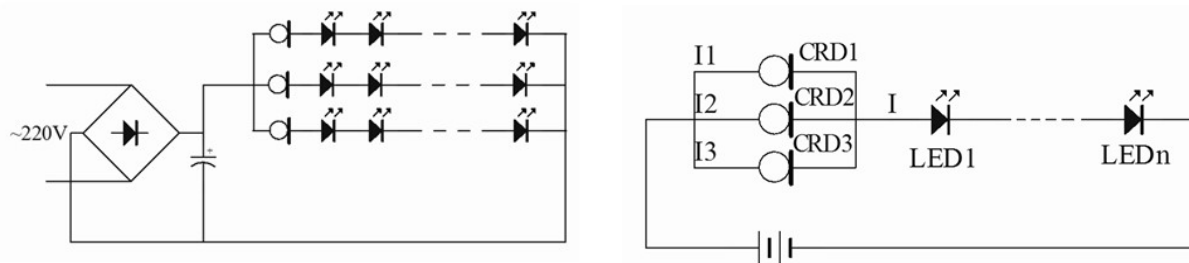


Fig. 2 & 3: Circuit diagram of series and parallel connection (Example B & C)

For further details, please contact Sirect at the location nearest you.



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