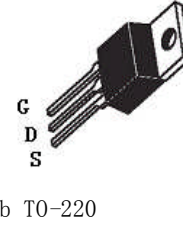
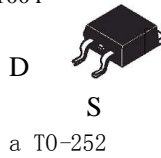


NEON uses the world first patented N-MOS depletion device, CCSL series, which supply constant current from 2 to 50 volts for LED lighting application. This series product connected in series with string of LED lights can be connected directly to the output of AC line voltage after full bridge rectifying. It will provide minimum power waste (< 2 %) at normal AC voltage when the number of LED lights is properly chosen so that the total voltage across the LED string is slightly below the normal AC rectified voltage minus the CCSL turn-on voltage. CCSL series product serves as voltage and current protection device for all LED lights in series with it. It is also an energy efficient and environmental friendly LED driver. It comes in TO-252 and TO-220 package form.

Features

- Constant Current Specification: 25mA, 50mA, 75mA, 100 mA
- Constant Current Voltage Range: 2.0V-40V
- Current Control Accuracy: ±10%
- Turn-on Voltage: 2-4V
- Working Voltage Range: 220VAC-265VAC
- Very Little EMC Radiation

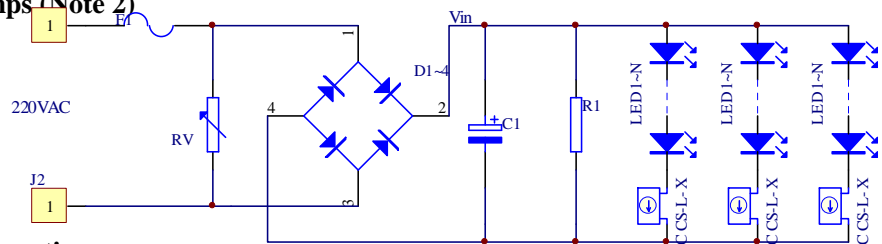


D: Current Input Port, S: Current Output Port

Electric Parameters (@T_J=25°C)

| Item NO. | Symbol | Description | Min. | Typ. | Max. | Unit | Remark |
|------------------|----------------------|---|-----------|-------------|------|------|-----------------------|
| CCSL-X | ΔV_{DSM} | Max. Working Voltage | | | 60 | V | Note 2 |
| | ΔV_{DSC} | Constant Current Voltage Range | V_{D50} | | 50 | V | Note 2 |
| | ΔI_P | Current Control Accuracy | | ±10 | | % | |
| | $\rho = P_{CCS}/P_i$ | CCS Power/ Input Power Ratio (Power Loss Ratio) | | ≤2.0 | | % | @ $\Delta V_{DSC}=5V$ |
| CCSL-1 | V_{D50} | Turn-on Voltage | | 2.0 | | V | @ $I_{OUT}=I_{D50}$ |
| CCSL-2 | | | | 3.0 | | | |
| CCSL-3 | | | | 3.5 | | | |
| CCSL-4 | | | | 4.0 | | | |
| CCSL-1 (A/B/C/D) | I_{D50} | Output Current | | 22/24/28/32 | | mA | TO-252 |
| CCSL-2 | | | | 50 | | | TO-220 |
| CCSL-3 | | | | 75 | | | |
| CCSL-4 | | | | 100 | | | |

Application Circuit for 220V AC Lamps (Note 2)



Application Note for LED Serial-Connection

$$V_{in} = V_F \times N + [V_{D50} + (2 \sim 5)]$$

- 1 V_F is the Forward Voltage of LED;
- 2 N is the number of LED connected in series, determined by input voltage V_{in} .
- 3 V_{D50} is the turn-on voltage of CCSL.