

Technical File

Advantages of LED lamps

LED lamps are solid state devices and contain inherent properties which provide the following

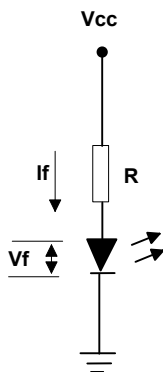
- High Reliability (when used within specification)
- Long operating life
- Low power consumption
- Shock and vibration resistant
- No UV or IR radiation
- Safe operating voltage
- Low heat dissipation
- Easily driven, switchable and dimmable

Electrical Considerations

Light Emitting Diodes are current dependant devices, when electrical current is passed through the junction in the forward direction energy is released in the form of light. The amount of energy is dependant on the material and proportional to the current applied within a given range.

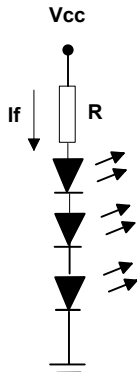
Drive circuits must overcome the LED'S rated forward voltage and control the current within the device's specification. Use Ohms law to calculate the resistance and current values dependant on the selected LED.

Basic DC Circuit



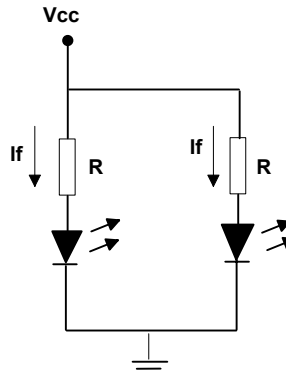
$$R = \frac{V_{cc} - V_f}{I_f}$$

Series Circuit



$$R = \frac{V_{cc} - n \cdot V_f}{I_f}$$

Parallel Circuit



$$I_f = \frac{V_{cc} - V_f}{R}$$