

Organic LEDs – let there be lights

The revolutionary discovery that light-emitting diodes can be made from polymers as well as from semiconductors is leading to a new generation of ultra-efficient, carbon-based LEDs. Produced in thin, transparent sheets, organic LEDs can now outshine their incandescent cousins

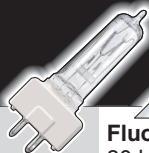
Performance – lumens per watt – and lifetime in hours



1900s: Carbon filament bulb.
5 lumens/watt, 1,500hrs



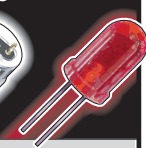
Modern bulb:
15 lumens/watt, 1,000hrs



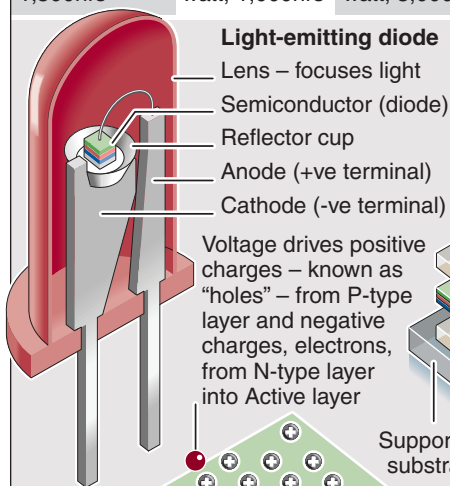
Halogen:
25 lumens/watt, 3,000hrs



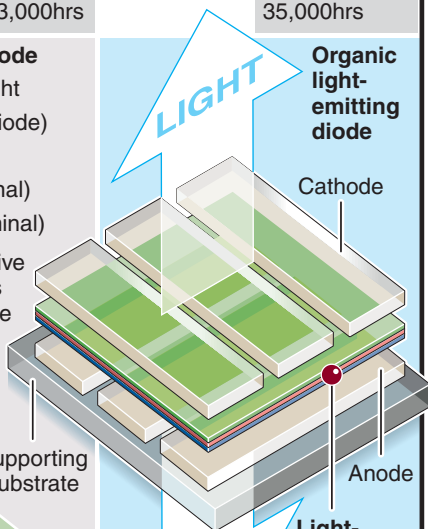
Fluorescent:
80 lumens/watt, 10,000hrs



LED: 40-plus lumens/watt, target of 100 lumens/watt, 35,000hrs



When particles meet, electrons release energy in form of light



Light-emitting polymer layer:
Three layers of diodes combined to release red, green and blue wavelength light. **Combination of primary colours results in pure white light**