

TAP 106- 2: The power of a torch bulb

3 V; 0.5 A is written on the packet of torch bulbs.

1. Use your ideas about electrons to describe the mechanism of the energy transfer when the torch is 'on'.
2. Calculate the power conversion for the bulb in normal use.
3. The life of the bulb is approximately 10 hours.
How much energy will it have dissipated in its lifetime?

Answers

1. Electrons going down a potential difference pass energy to vibrations of atoms in the filament. Energy leaves the filament carried by electromagnetic radiation (light and infrared)
2. 1.5 W
3. 54 000 J

External references

This activity is taken from Advancing Physics Chapter 2, 20S