

Electricity and Magnetism

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1 Resistance

$$R = \frac{\rho l}{A}$$

where:

R = Resistance

ρ = Resistivity

l = Length

A = Area

$$\rho = \frac{1}{\sigma}$$

Where:

ρ = Resistivity

σ = Conductivity

1.1 Power

Power is the energy dissipated per second, usually in the form of heat. The unit Watts (W) is used. The power, P , dissipated in a resistor, R , is given by

$$P = IV$$

Using Ohm's law

$$P = I^2 R$$

$$P = \frac{V^2}{R}$$