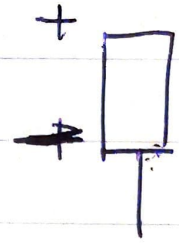
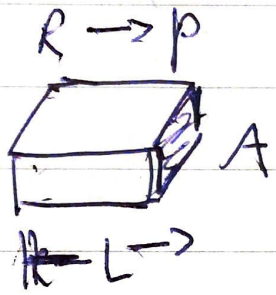
Resistors

$i \propto V$



$V = iR$ Ohm's Law

$R = \frac{V}{i} = \frac{V}{A} = \Omega$



$R = \frac{\rho L}{A}$ — ρ: resistivity of Material; L: Length; A: Area

ρ Values (Temperature dependent)

Teflon $\rho = 1 \times 10^{2} \ \Omega \cdot cm$

copper $\rho = 1.72 \times 10^{-6} \ \Omega \cdot cm$

$$\rho(T) = \rho_0 \left[1 + \alpha (T - T_0)\right]$$

α: Temperature coefficient of R (TCR)

Power on Resistor

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