

Art of Electronics

Ohm's law

- $V = I \cdot R$ (o Z)
- $R = V / I$
- $I = V / R$
- $P = I \times V$
- $P = I^2 \cdot R$
- $P = V^2 / R$
- $R_{\text{dyn}} = \frac{\Delta V}{\Delta I}$

Kirchoff's law

- **Serie:** $I_{\text{total}} = I_1 = I_2$
- **Parallelo:** $I_{\text{total}} = I_1 + I_2$
- **Serie:** $V_{\text{total}} = V_1 + V_2$
- **Parallelo:** $V_{\text{total}} = V_1 = V_2$

Resistenze in parallelo

$$R_{\text{tot}} = (R_1 \cdot R_2) / (R_1 + R_2) \quad R_1 \parallel R_2: R_{\text{tot}} = R_1 / 2 \quad R_1 \parallel R_2 \parallel R_3: R_{\text{tot}} = R_1 / 3 \quad \text{Voltage Divider}$$

$$V_{\text{out}} = V_{\text{in}} \cdot R_2 / (R_1 + R_2)$$

Thevenin

$$V_{\text{th}} = V_{\text{opencircuit}} \text{ (no load)} = V_{\text{in}} \cdot R_2 / (R_1 + R_2) \quad R_{\text{th}} = R_1 \parallel R_2 = (R_1 \cdot R_2) / (R_1 + R_2)$$

to find impedance: apply delta V, find delta I