

Art of Electronics

Ohm's law

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

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

$R_{\text{tot}} = (R_1 * R_2) / (R_1 + R_2)$ $R_1 == R_2$: $R_{\text{tot}} = R_1 / 2$ $R_1 == 2R_2$: $2R/3$ ## Voltage Divider

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

Thevenin

$V_{\text{th}} = V_{\text{open circuit}} \text{ (no load)} = V_{\text{in}} * R_2 / (R_1 + R_2)$ $R_{\text{th}} = R_1 || R_2 = (R_1 * R_2) / (R_1 + R_2)$

to find impedance: apply ΔV , find ΔI