$$\ln\left(\frac{U_{max}}{U_t}\right) = \frac{t}{\tau} \quad | \cdot t \quad | \text{Kehrwert}$$

$$\frac{t}{\ln\left(\frac{U_{max}}{U_t}\right)} = \tau \quad | \tau = R_{iso} \cdot C \quad | : C$$

$$\frac{t}{\ln\left(\frac{U_{max}}{U_t}\right) \cdot C} = R_{iso}$$

4.

Aufladung:

$$u_c = U \cdot (1 - e^{-\frac{t}{\tau}}) \quad (\tau = R \cdot C) \quad | u_c = U - i_c R$$

$$U - i_c R = U \cdot (1 - e^{-\frac{t}{\tau}}) \quad | -U$$

$$-i_c R = U - U e^{-\frac{t}{\tau}} - U$$

$$-i_c R = -U e^{-\frac{t}{\tau}} \quad | : -R$$

$$i_c = \frac{U}{R} \cdot e^{-\frac{t}{\tau}}$$

Entladung:

$$u_c = U \cdot e^{-\frac{t}{\tau}}$$

$$i_c = -\frac{U}{R} \cdot e^{-\frac{t}{\tau}}$$