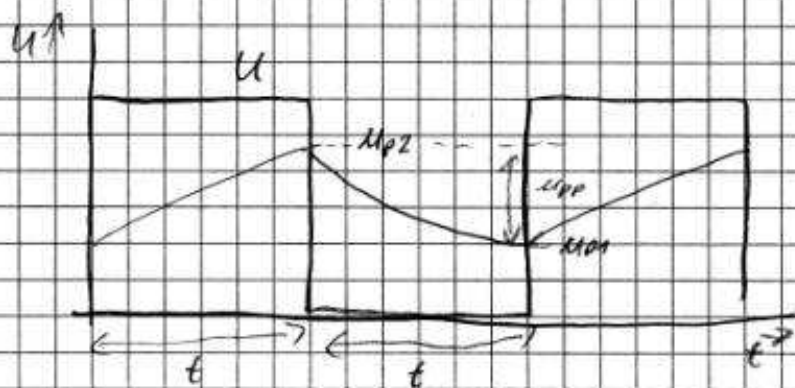


Ladung

$$u_c = U(1 - e^{-\frac{t}{\tau_c}})$$

Entladung

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

$$e^{-\frac{t}{\tau_c}} = x$$

$$u_{p2} = (U - u_{p1})(1 - x) + u_{p1}$$

$$u_{p1} = u_{p2} \cdot x$$

$$u_{p2} = U - Ux - u_{p1} + u_{p1}x + u_{p1}$$

$$u_{p2} = U(1 - x) + u_{p1}x$$

$$u_{p2} = U(1 - x) + u_{p2}x^2$$

$$u_{p2}(1 - x^2) = U(1 - x)$$

$$u_{p2} = \frac{U(1 - x)}{1 - x^2}$$

$$u_{p2} = \frac{U(1 - x)}{(1 + x)(1 - x)}$$

$$u_{p2} = \frac{U}{1 + x}$$

$$u_{p1}(1 - x)^2 = Ux(1 - x)$$

$$u_{p1} = \frac{Ux(1 - x)}{(1 - x)^2}$$

$$u_{p1} = \frac{Ux}{1 + x}$$

$$u_{pp} = u_{p2} - u_{p1} = \frac{U - Ux}{1 + x}$$

$$u_{pp} = U \frac{1 - x}{1 + x} = U \frac{1 - e^{-\frac{t}{\tau_c}}}{1 + e^{-\frac{t}{\tau_c}}}$$