RC Circuit

au = time constant, amount of time for q to reach 63.2% of εC

$$q_{\max} = \varepsilon C$$

$$i_{\max} = \frac{\varepsilon}{R}$$

$$\tau = RC$$

Equations $q = Q_0 e^{-t/RC}$

$$q = Q_0 e^{-t/R}$$

$$i = \frac{\varepsilon}{R} e^{-t/\tau}$$

Charging

$$q = \varepsilon C \left(1 - e^{-t/\tau} \right)$$

$\begin{array}{l} \textbf{Discharging} \\ q = \varepsilon C e^{-t/\tau} \end{array}$

$$q = \varepsilon C e^{-t/\tau}$$