e_51_5_002

$$T = \frac{2\pi}{\omega} = 2\pi\sqrt{LC}$$

$$C = \left(\frac{T}{2\pi}\right)^2 \cdot \frac{1}{L}$$

$$i(0) = i_0$$

$$i(t) = i_0 \cos(\omega t)$$

$$q(t) = \frac{i_0}{\omega} \sin(\omega t)$$

$$q(t) = i_0\sqrt{LC} \sin\left(\frac{t}{\sqrt{LC}}\right)$$

$$E_C = \frac{1}{2}\frac{q^2(t)}{C}$$

$$E_L = \frac{1}{2} L\, i^2(t)$$