$$i(t) = \frac{\sqrt{2}|U|}{R}\left\{[cos\varphi \cdot sin(\omega t + \vartheta_Z - \varphi) - \varepsilon] + [\varepsilon - cos\varphi \cdot sin(\omega t + \vartheta_Z - \varphi)]e^{-\frac{R}{L}t}\right\}$$

$$\text{dla}: \varepsilon = \frac{E}{\sqrt{2}|U|} \qquad E = 0 \rightarrow \varepsilon = 0$$

$$i(t) = \frac{\sqrt{2}|U|}{R}\left\{[cos\varphi \cdot sin(\omega t + \vartheta_Z - \varphi)] - [cos\varphi \cdot sin(\omega t + \vartheta_Z - \varphi)]e^{-\frac{R}{L}t}\right\}$$

$$\text{dla } \vartheta_Z = 0$$

$$i(t) = \frac{\sqrt{2}|U|}{R}\left\{[cos\varphi \cdot sin(\omega t - \varphi)] - [cos\varphi \cdot sin(\omega t - \varphi)]e^{-\frac{R}{L}t}\right\}$$

$$i(t) = \frac{\sqrt{2}\,U}{R}\left\{[\cos\varphi\, \sin(\omega t + \upsilon_Z - \varphi) - \varepsilon] + [\varepsilon - \cos\varphi\, \sin(\upsilon_Z - \varphi)]\, e^{-\frac{\omega t}{\tan\varphi}}\right\}$$

Program symulacyjny „Power Electronics”:

https://www.ipes.ethz.ch/course/view.php?id=2