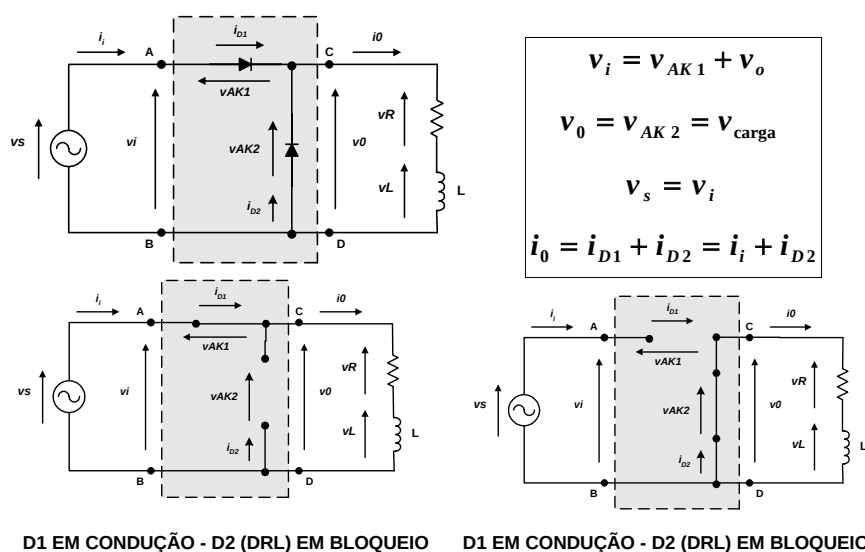


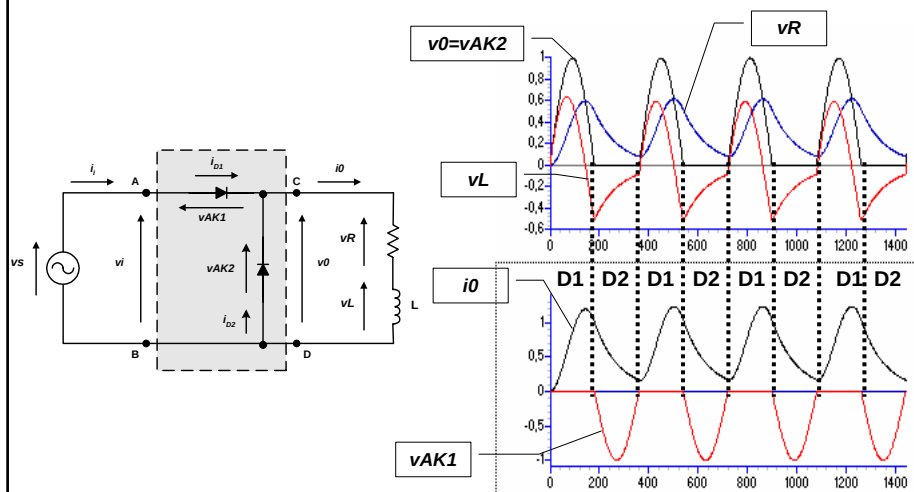
RETIFICADORES MONOFÁSICOS COM DIODO DE RODA LIVRE (DRL)

Prof. Azauri Albano de Oliveira Junior

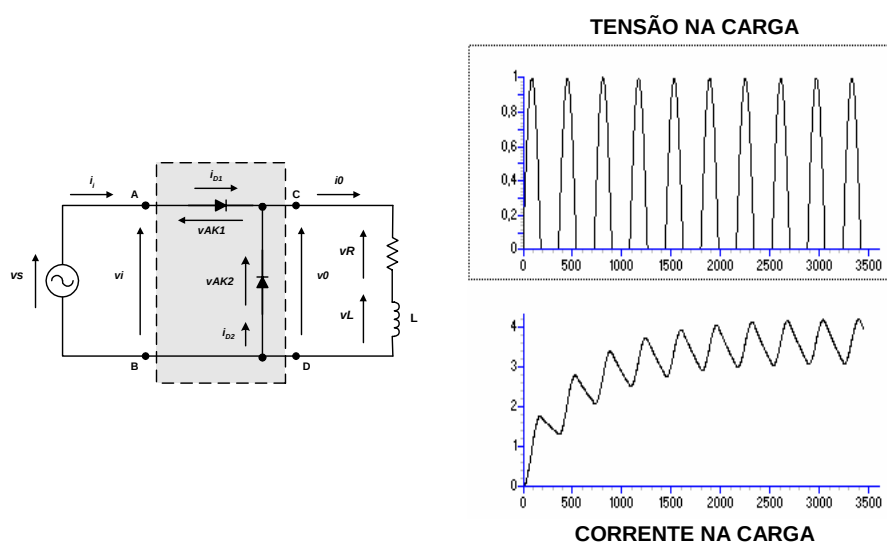
RETIFICADOR MONOFÁSICO DE MEIA-ONDA COM DIODO DE RODA LIVRE



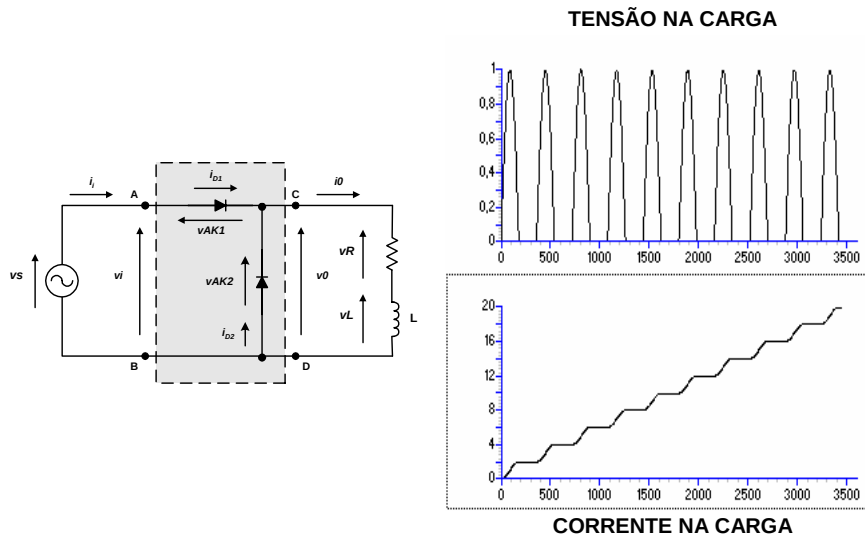
FORMAS DE ONDA ($\phi = 60^\circ$)



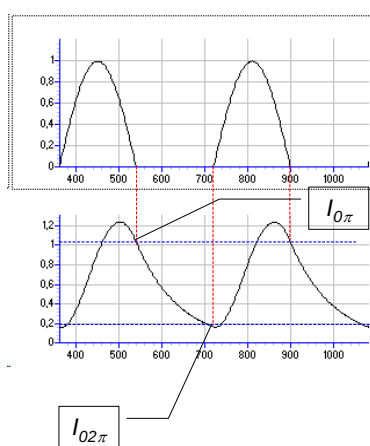
FORMAS DE ONDA ($\phi = 85^\circ$)



FORMAS DE ONDA ($\phi = 90^\circ$ – CARGA PURAMENTE INDUTIVA)



Retificador com DRL em Regime Permanente (Carga RL)



$$0 \leq \omega.t \leq \pi$$

$$i_0 = \frac{\sqrt{2}.V}{Z} \text{sen}(\omega.t - \phi) + \left(I_{02\pi} + \frac{\sqrt{2}.V}{Z} \text{sen}\phi \right) \cdot e^{-(R/L)}$$

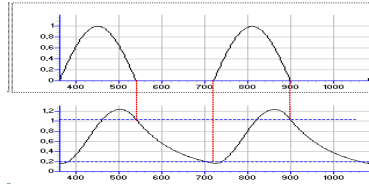
$$\pi \leq \omega.t \leq 2\pi$$

$$i_0 = I_{0\pi} \cdot e^{-(R/L)(t - \pi/\omega)}$$

$$I_{02\pi} = \frac{\frac{\sqrt{2}.V}{Z} \cdot \text{sen}\phi \left[1 + e^{-(\pi/\tan\phi)} \right]}{e^{(\pi/\tan\phi)} - e^{-(\pi/\tan\phi)}}$$

$$I_{0\pi} = I_{02\pi} \cdot e^{(\pi/\tan\phi)}$$

Retificador com DRL em Regime Permanente (Série de Fourier - Carga RL)



$$v_0 = \frac{\sqrt{2}.V}{\pi} + \frac{\sqrt{2}.V}{2} \text{sen}(\omega.t) - \frac{2\sqrt{2}.V}{3.\pi} \cos(2\omega.t) - \frac{2\sqrt{2}.V}{15.\pi} \cos(4\omega.t) - \dots$$

$$i_0 = \frac{\sqrt{2}.V}{\pi.R} + \frac{\sqrt{2}.V}{2.Z_1} \text{sen}(\omega.t) - \frac{2\sqrt{2}.V}{3.\pi.Z_2} \cos(2\omega.t) - \frac{2\sqrt{2}.V}{15.\pi.Z_4} \cos(4\omega.t) - \dots$$

$$Z_n = \sqrt{R^2 + X_{Ln}^2}$$

$$X_{Ln} = n.\omega.L$$

Retificador com DRL em Regime Permanente (Carga RL fortemente indutiva)

