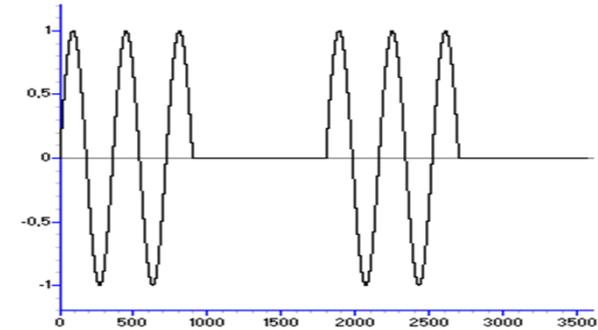
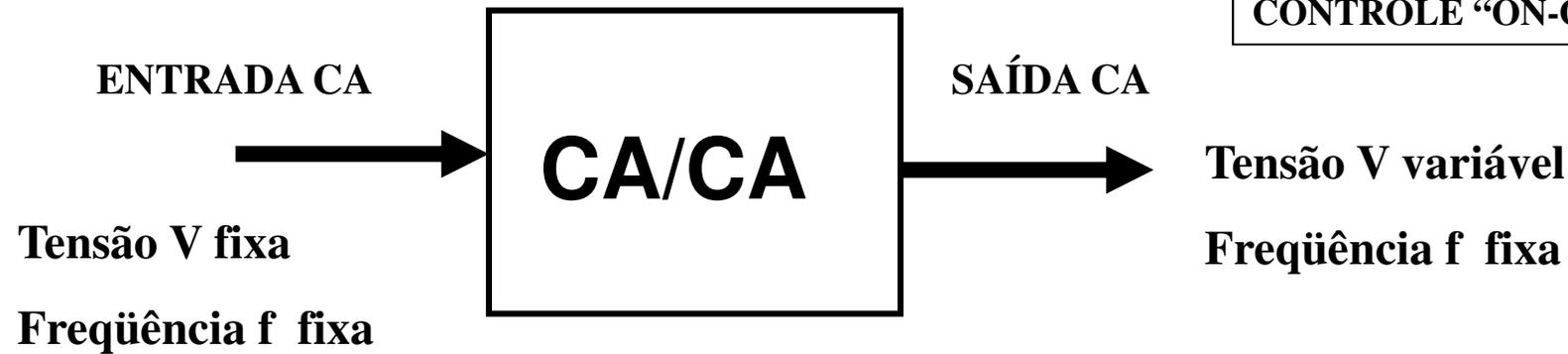


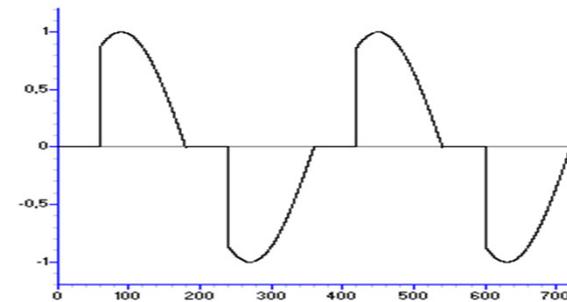
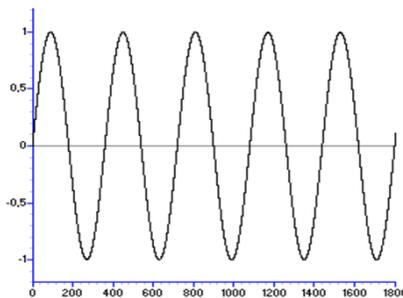
CONTROLADORES DE TENSÃO CA MONOFÁSICOS

Prof. Azauri A. de Oliveira Jr.

CONTROLADOR CA – CONVERSOR TIPO CA/CA

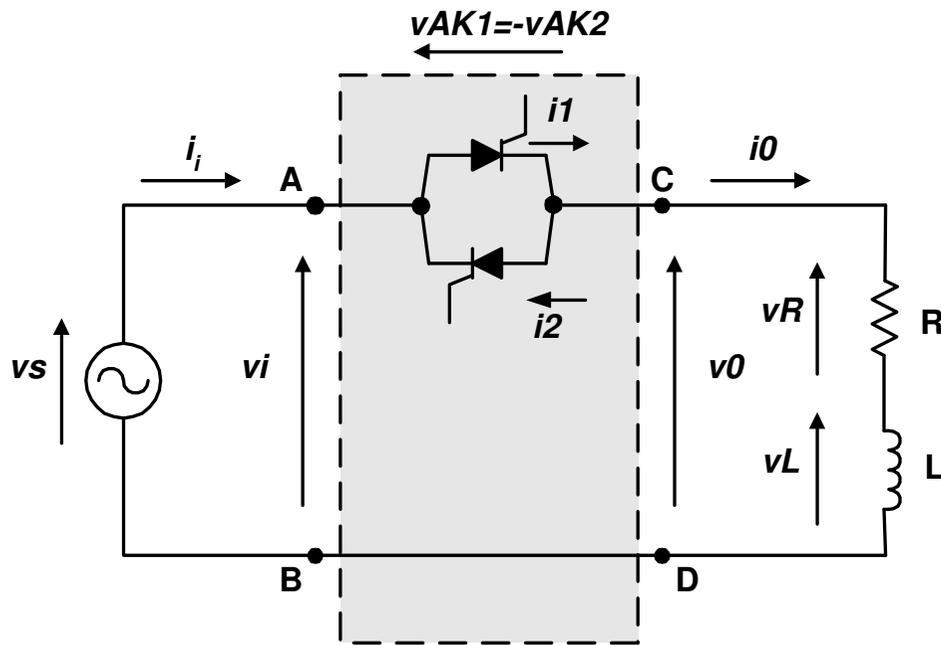


CONTROLE “ON-OFF”



CONTROLE DE FASE

CONTROLADOR DE TENSÃO CA MONOFÁSICO



$$v_{AK1} = -v_{AK2}$$

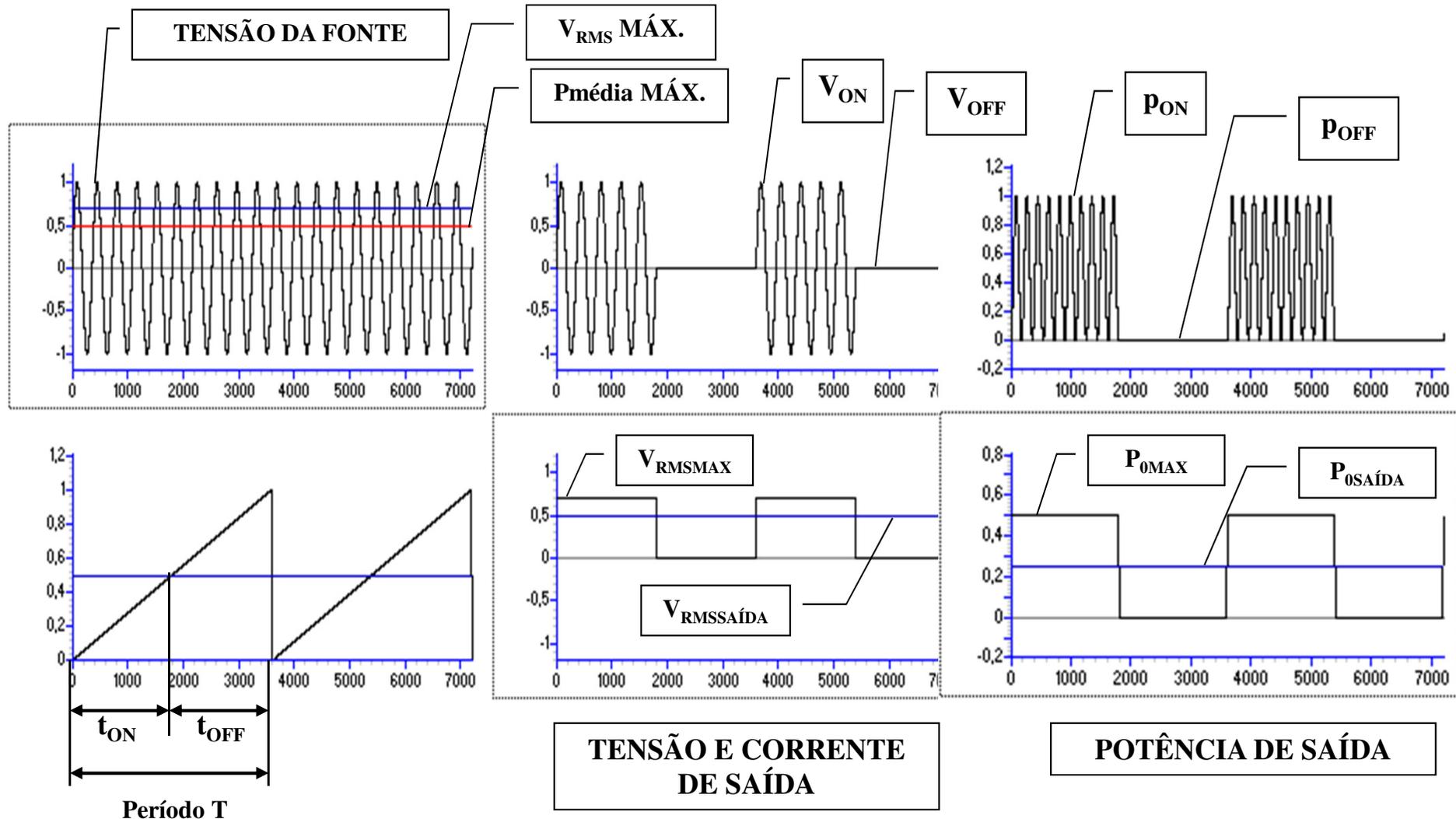
$$v_i = v_o + v_{AK1} = v_o - v_{AK2}$$

$$v_o = v_{\text{carga}}$$

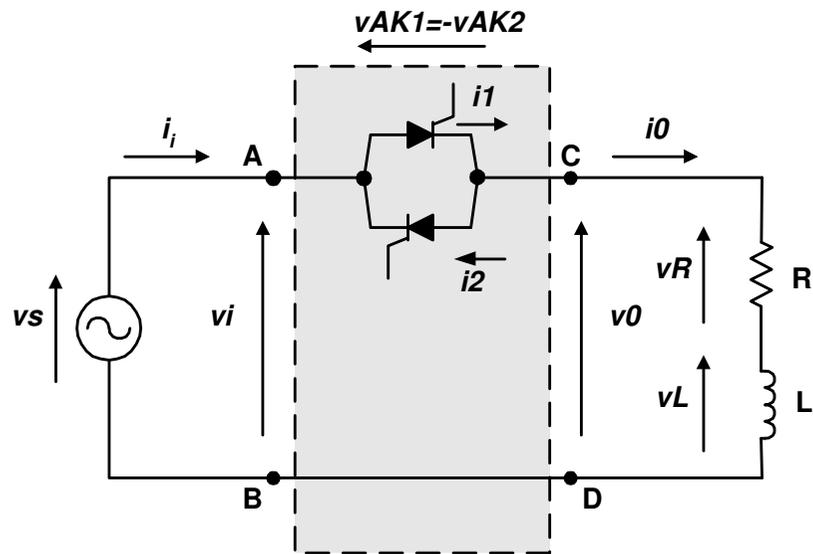
$$v_s = v_i$$

$$i_o = i_i = i_1 - i_2$$

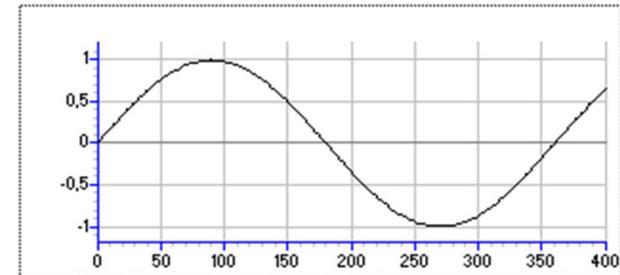
CONTROLADOR DE TENSÃO CA MONOFÁSICO CONTROLE LIGA/DESLIGA (“ON/OFF”) - CARGA R



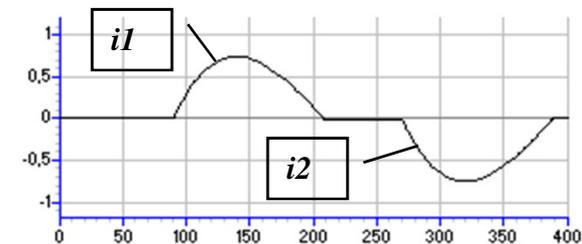
CONTROLADOR DE TENSÃO CA MONOFÁSICO CONTROLE DE FASE



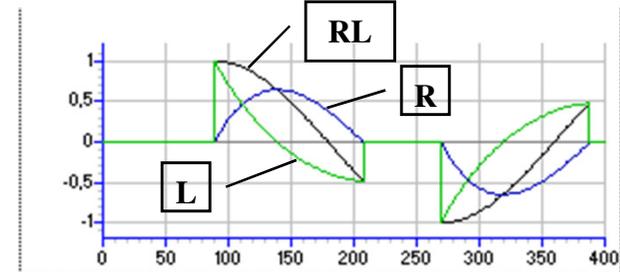
Tensão da Fonte



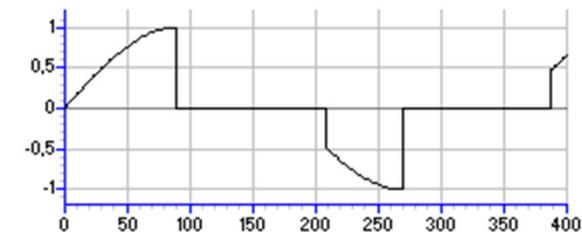
Corrente na Carga



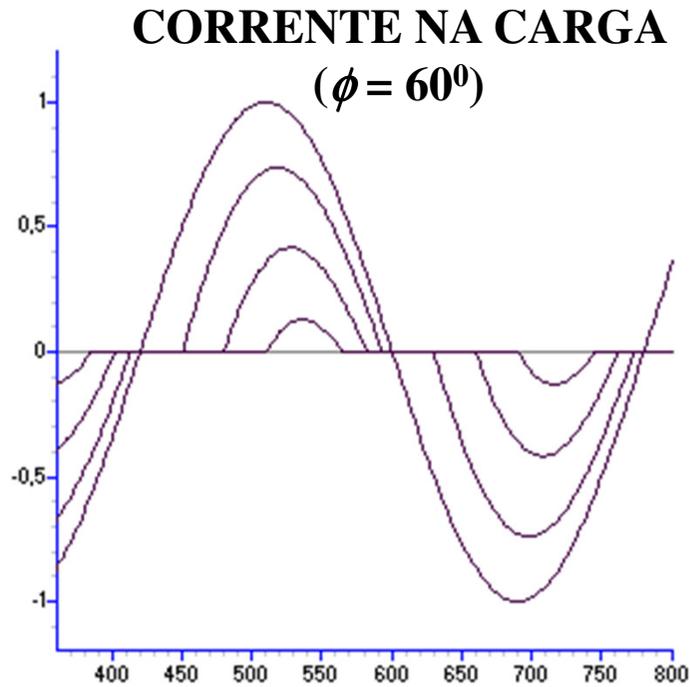
Tensão na Carga



Tensão nos SCR's

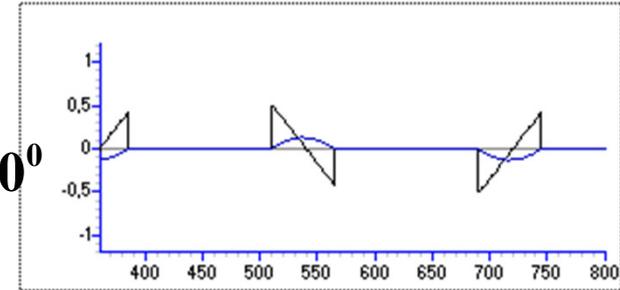


FAIXA DE CONTROLE DO ÂNGULO DE DISPARO

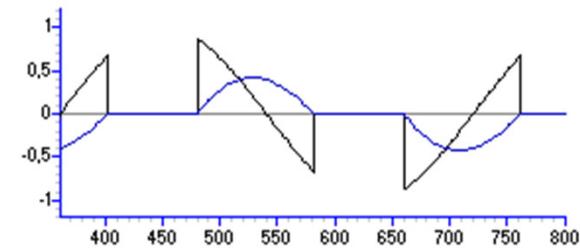


$$\phi \leq \alpha \leq 180^\circ$$

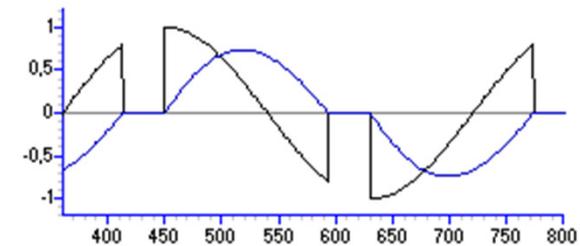
$$\alpha = 150^\circ$$



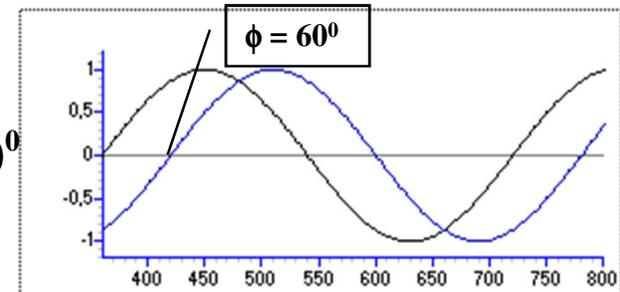
$$\alpha = 120^\circ$$



$$\alpha = 90^\circ$$

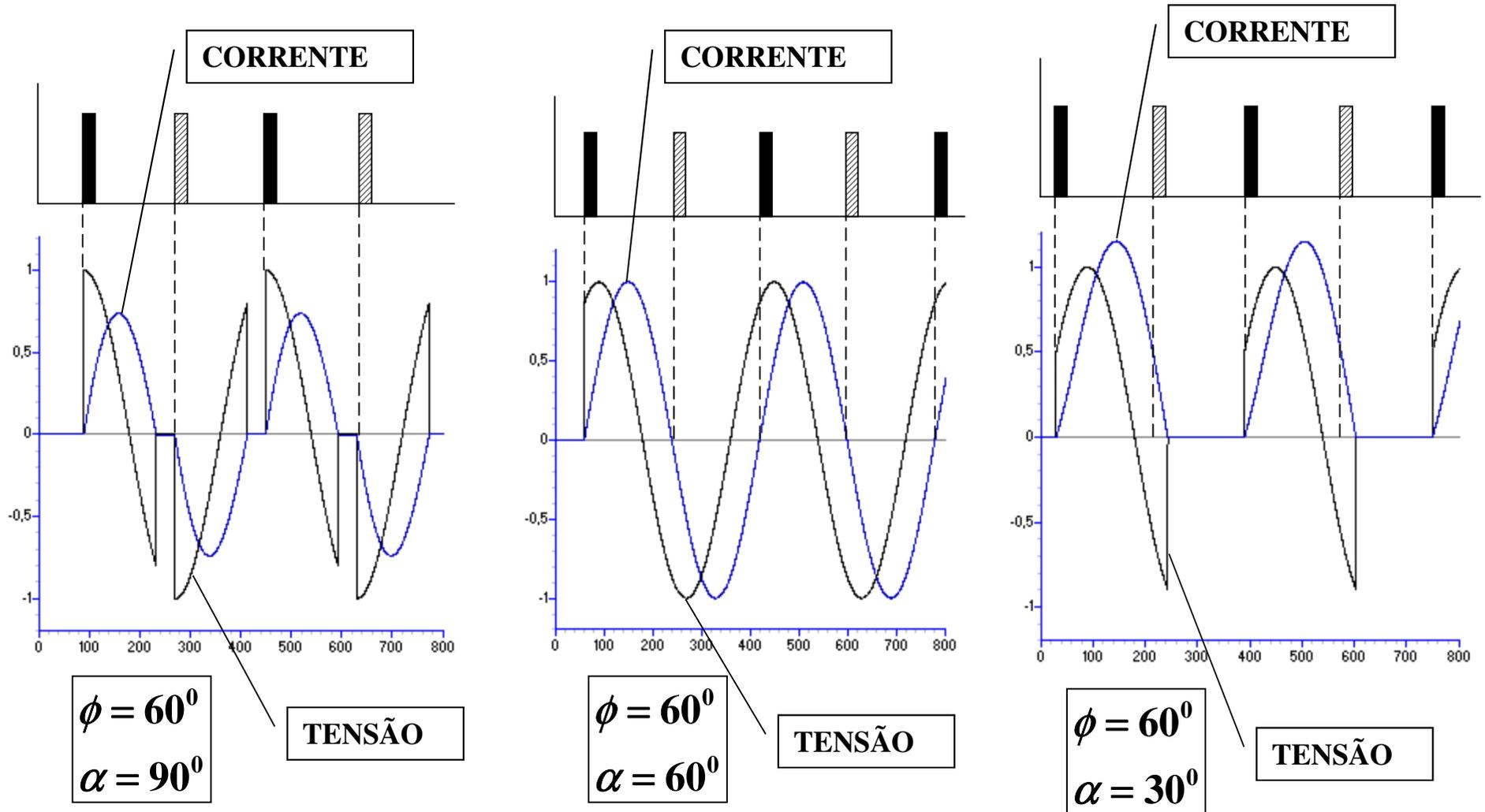


$$\alpha = 60^\circ$$

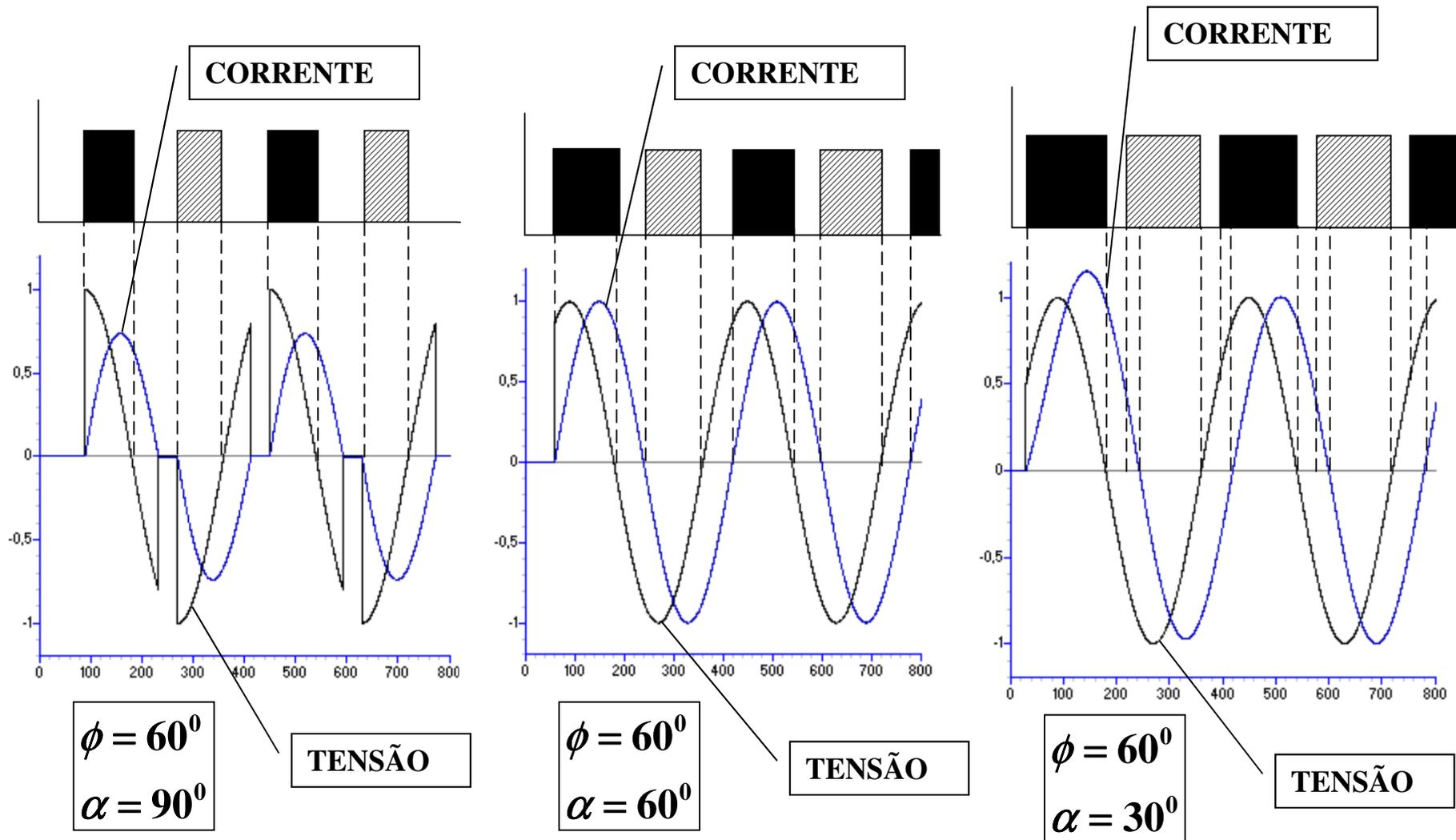


CORRENTES E TENSÕES NA CARGA
($\phi = 60^\circ$)

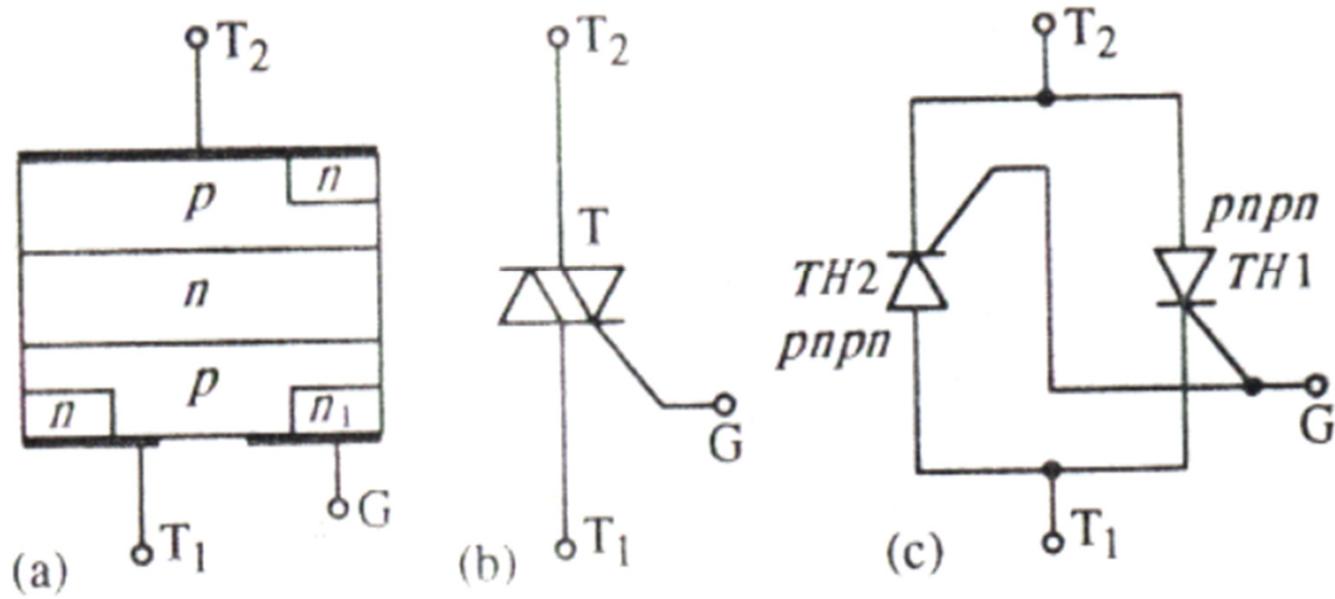
TÉCNICA DE DISPARO COM PULSO ESTREITO (EFEITO PARA $\alpha < \phi$)



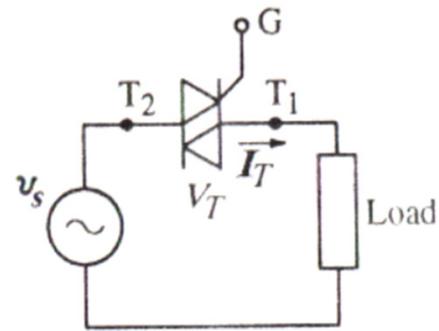
TÉCNICA DE DISPARO COM PULSO LARGO (EFEITO PARA $\alpha < \phi$)



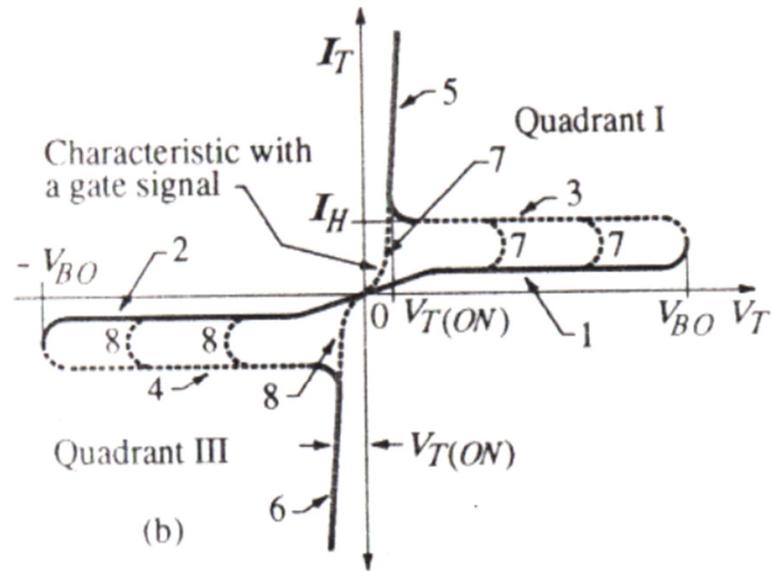
TRIAC – TRANSISTOR AC (TIRISTOR AC) ESTRUTURA FÍSICA



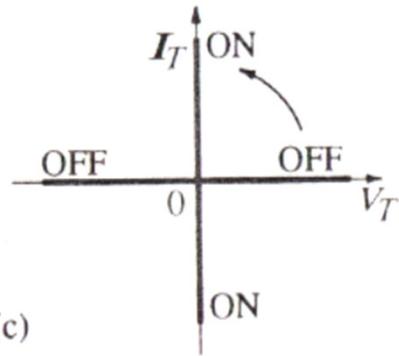
TRIAC – TRANSISTOR AC (TIRISTOR AC) CARACTERÍSTICAS ESTÁTICAS



(a)



(b)



(c)