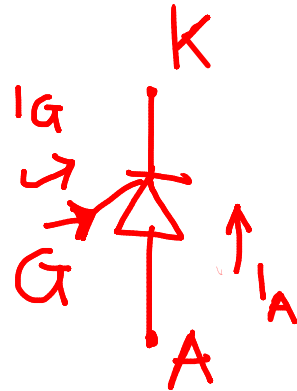


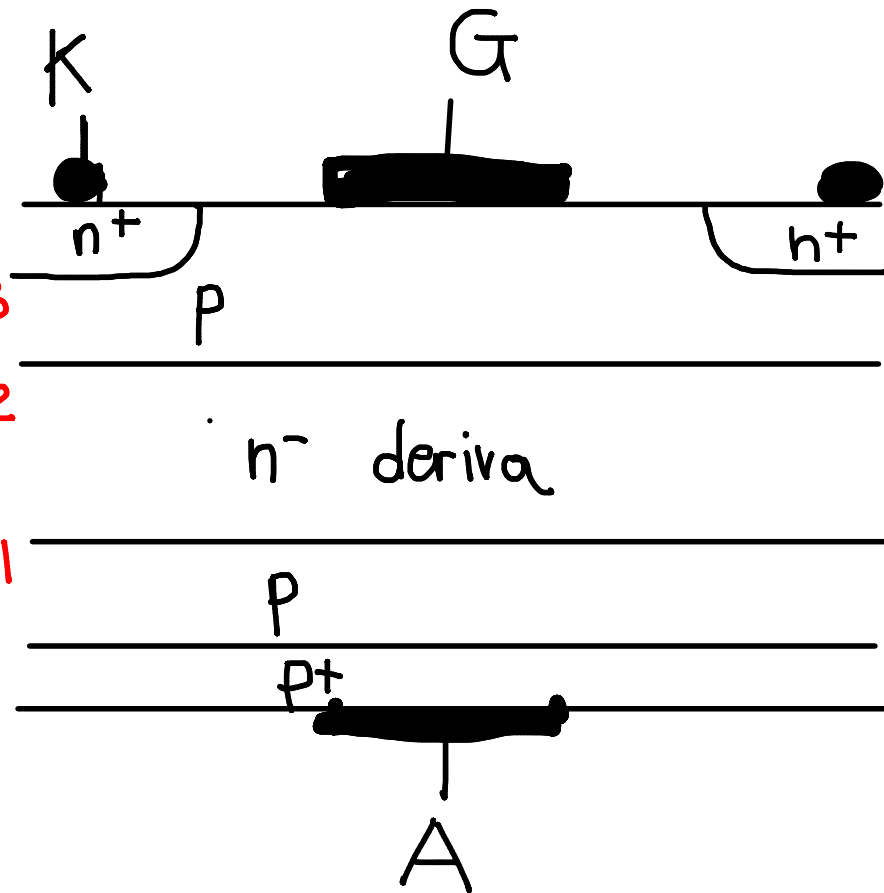
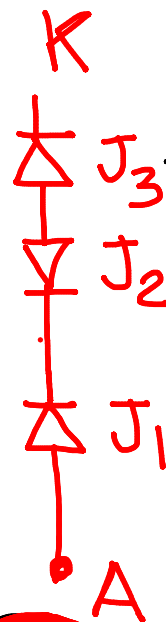
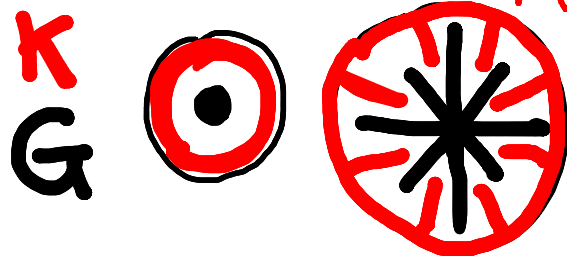
TIRISTORI

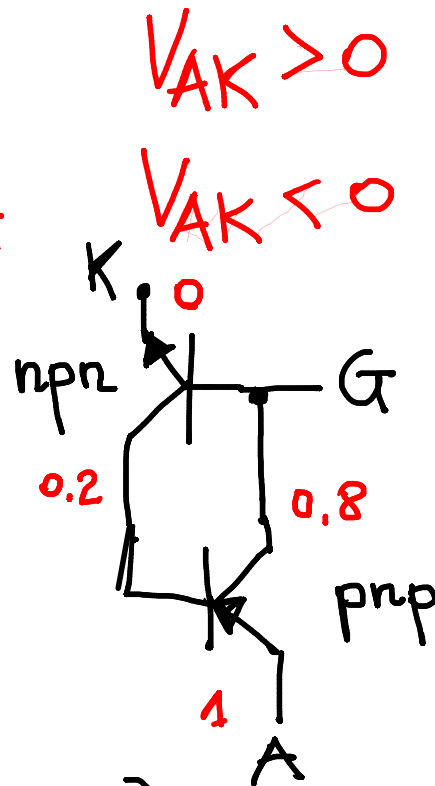
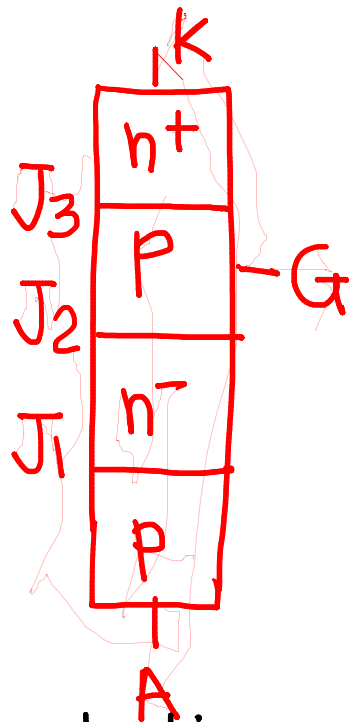
SCR - Silicon Controlled Rectifier

+ GE 56



SIMBOLO





J_2 sopporta I_{AV}
 J_1 " "

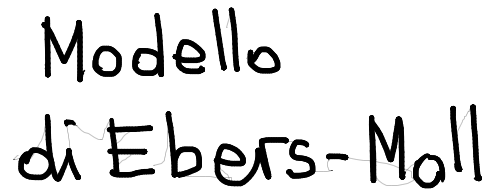
$$\alpha_{npn} \approx 1 \quad (0,9)$$

$$\alpha_{pnp} < 0,1$$

2 stati

OFF (blocco)

ON \rightarrow BJT in sat.

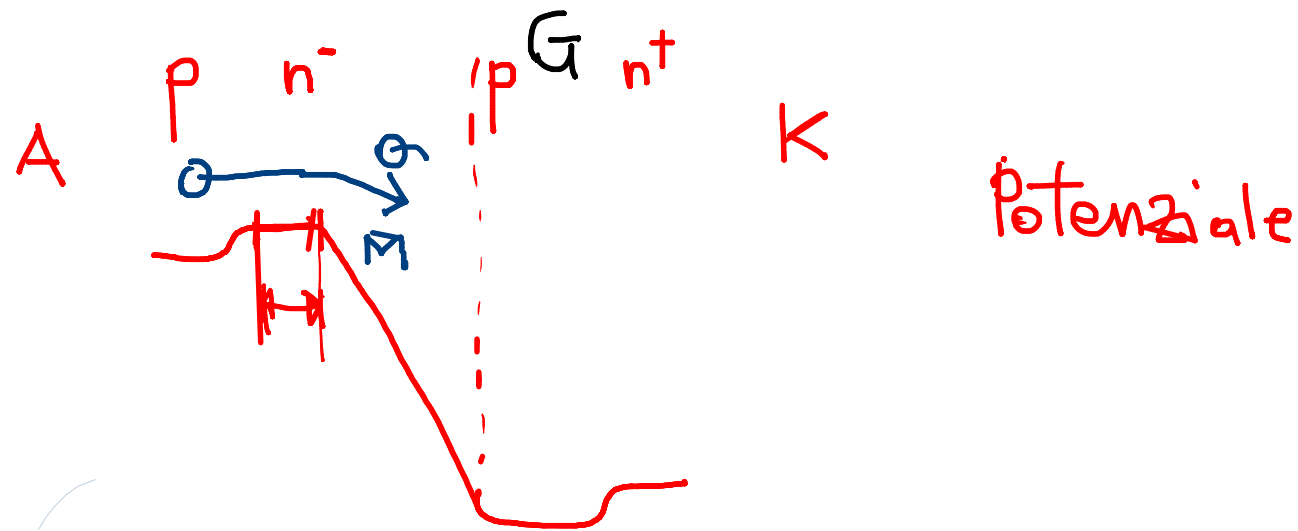

$$I_{CD} = -I_{CS}$$

$$I_C = \alpha_F I_{ED} + I_{CS} = -\alpha_F I_E + I_{\omega}$$

Hand-drawn circuit diagram of a Darlington pair. It consists of two transistors: Q_1 (PNP) and Q_2 (NPN). The emitter of Q_1 is connected to the base of Q_2 . The base of Q_1 is connected to input A, and its emitter is connected to input G. The collector of Q_1 is connected to the collector of Q_2 , which is then connected to output K. Currents are labeled: I_A at input A, I_G at input G, I_{C1} and I_{C2} at the collectors, and I_{A+} at the output K.

$$i_A = \alpha_{pnp} i_{e_1} - I_{C01} + \alpha_{npn} (i_A + i_G) + I_{C02}$$

$$i_A = \frac{+ \alpha_{npn} i_G - I_{C01} + I_{C02}}{(1 - \alpha_{pnp} - \alpha_{npn})}$$



Se Aumenta V_{AK} 1) si può avere un inizio di moltiplicazione che aumenta $\alpha_{pnp} \rightarrow$

2) aumenta lo svuotamento della regione di deriva,

\rightarrow si stringe la base del pnp $\rightarrow \uparrow \alpha_{pnp}$

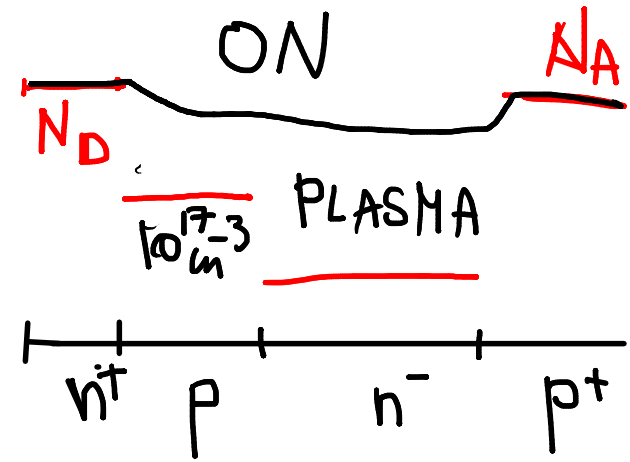
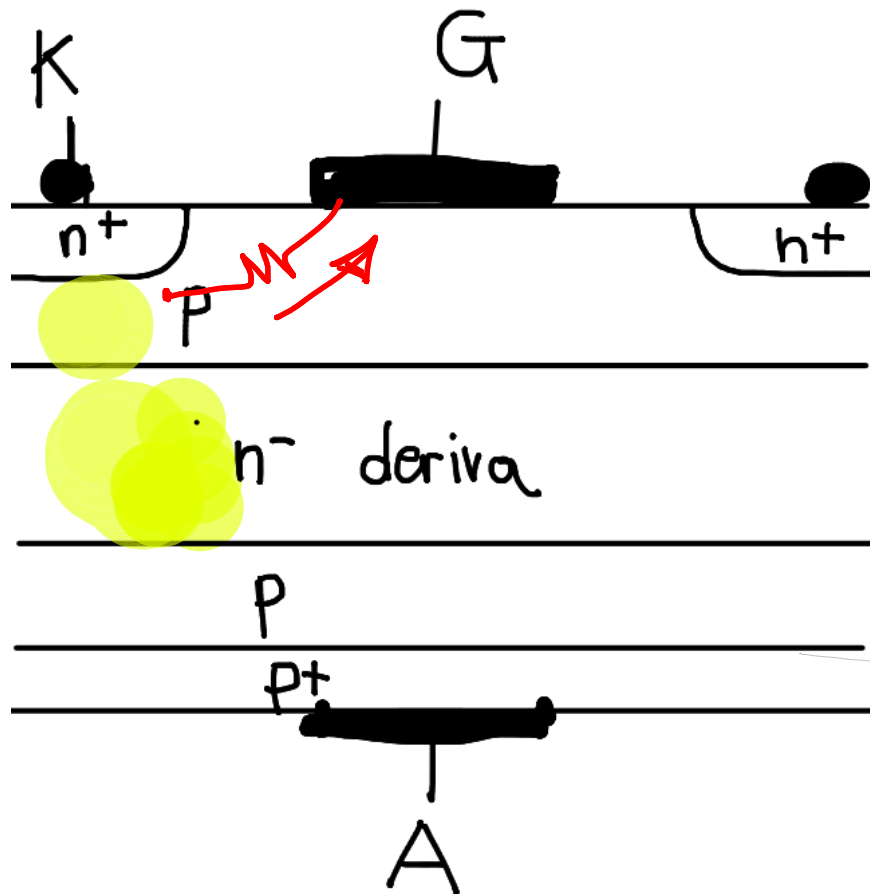
$i_G \uparrow$ $i_{C2} \uparrow$ $M \uparrow$ $\alpha_{pnp} \uparrow$

$$i_A = \frac{+ \alpha_{npn} i_G - I_{C01} + I_{C02}}{(1 - \alpha_{pnp} - \alpha_{npn})}$$

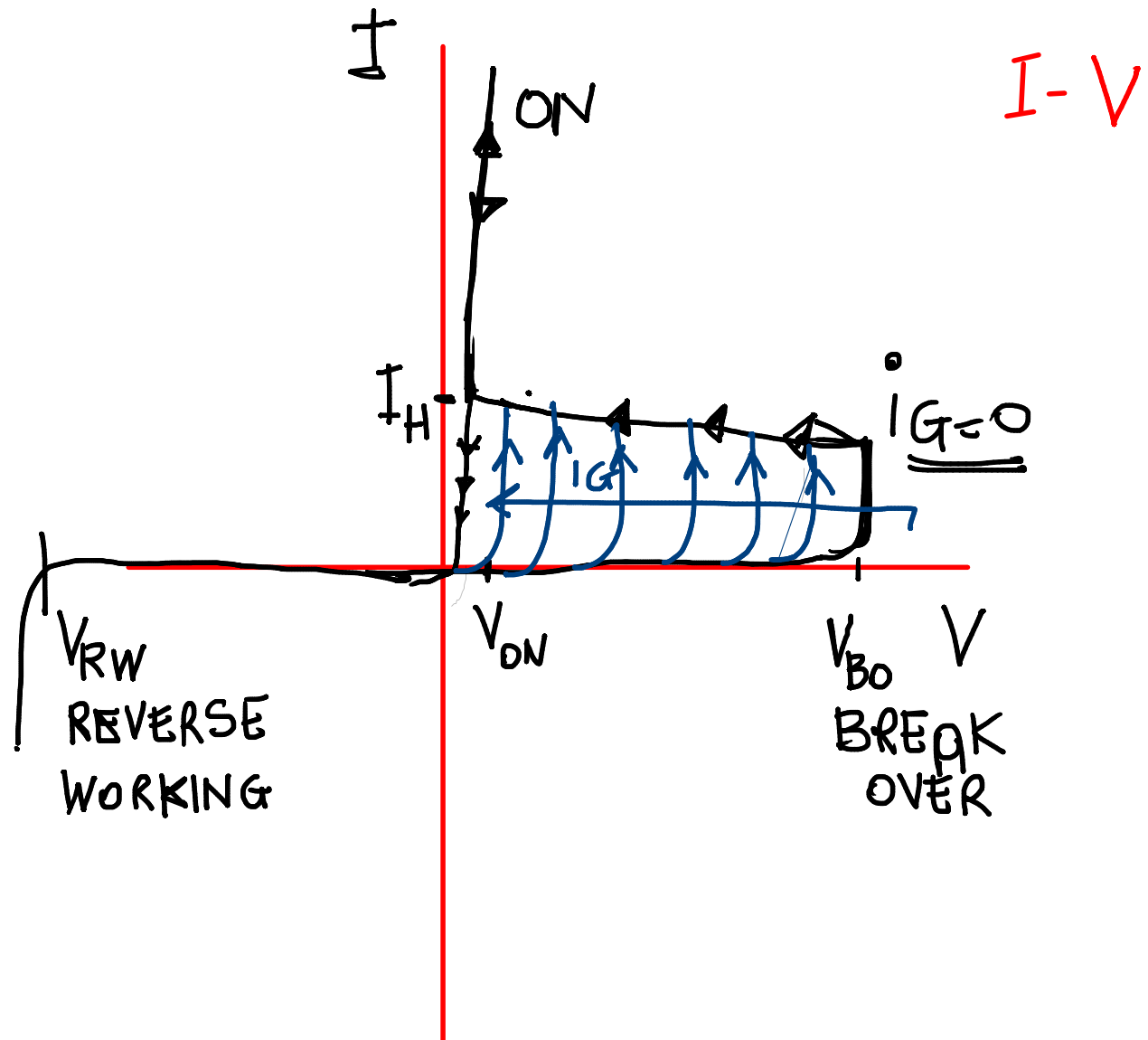
$$\alpha_{pnp} + \alpha_{npn} < 1 \quad \text{OFF}$$

ben
minore

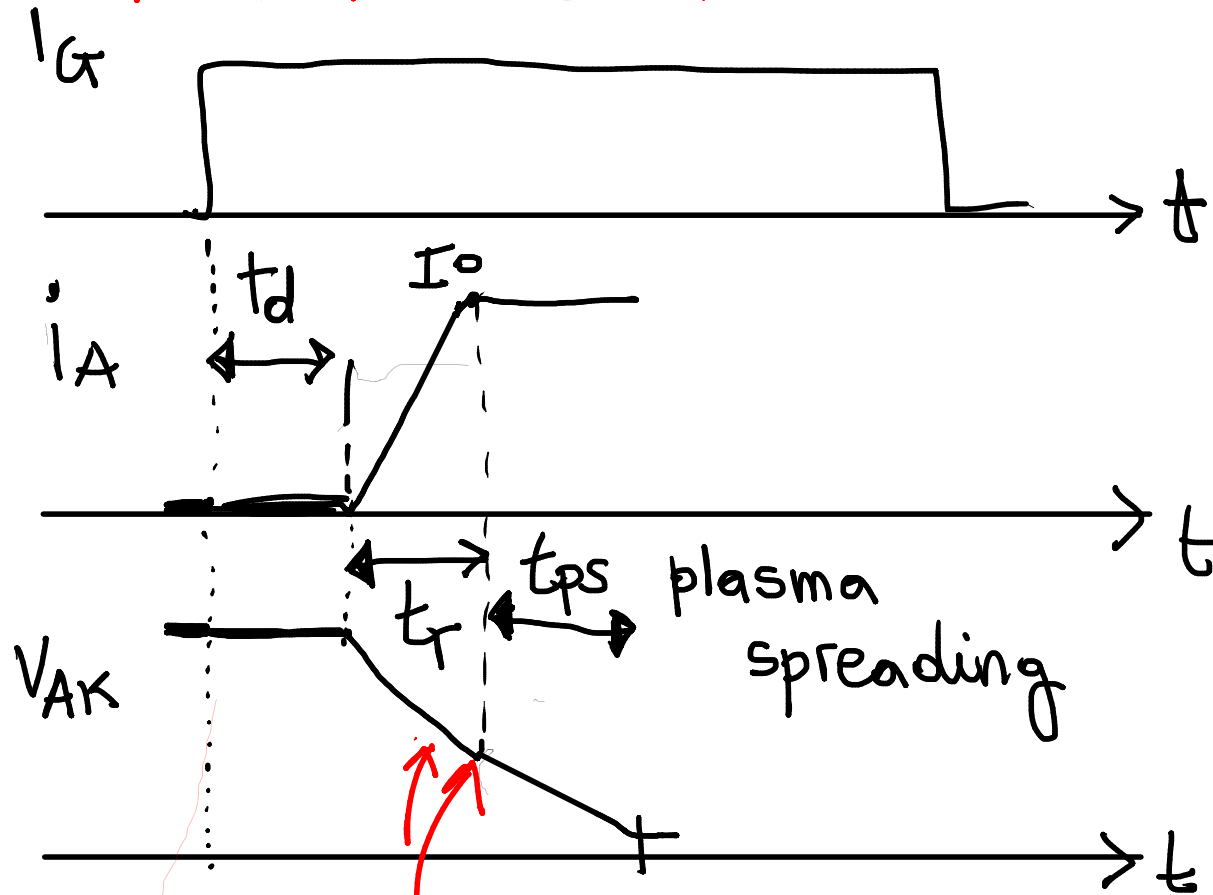
$$\alpha_{pnp} + \alpha_{npn} \sim 1 \quad \text{ON}$$



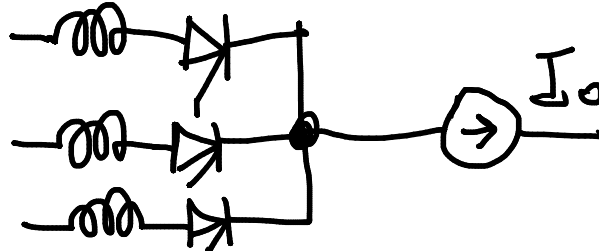
$$V_{ON} = V_{JT} + R_d I + V_{GSAT} \approx 2V$$



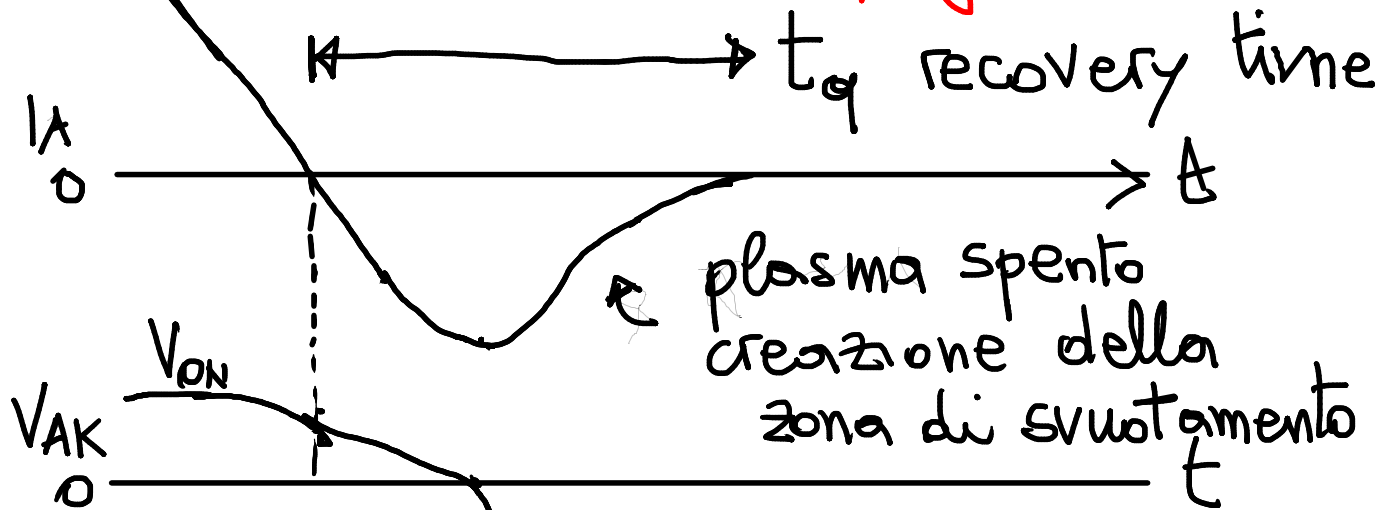
Transitorio di accensione



attenzione
alla fuga termica
↳ $\lim di/dt \max$

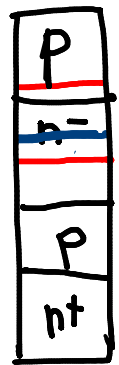
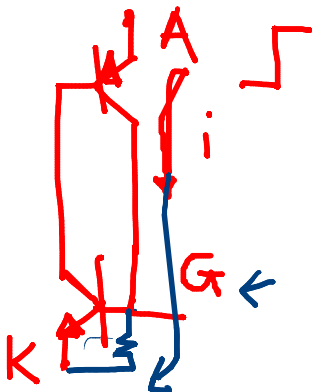


Transitorio di spegnimento



plasma spento
creazione della
zona di svuotamento

$[dv/dt \max]$



$(V_{AK} < 0)$

per aumentare
 $dv/dt \max$
corto circuito di K

