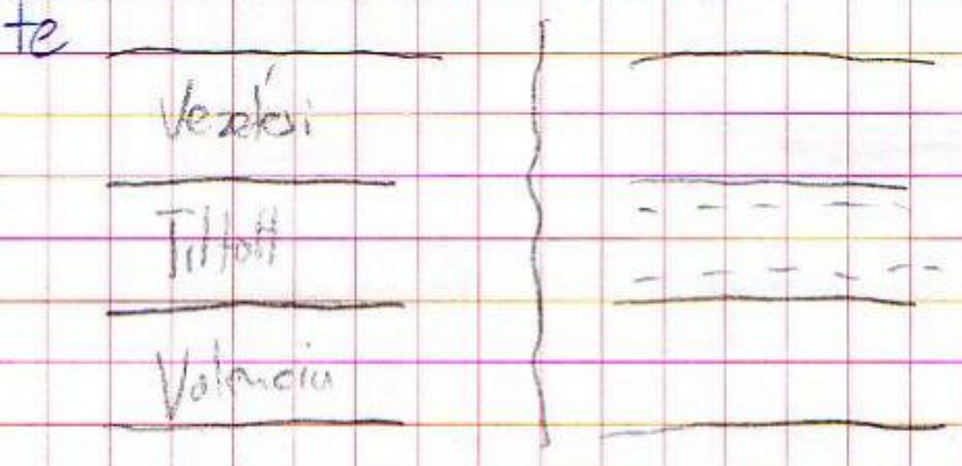
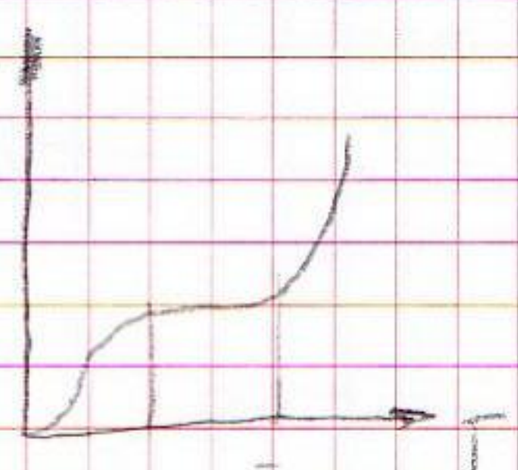
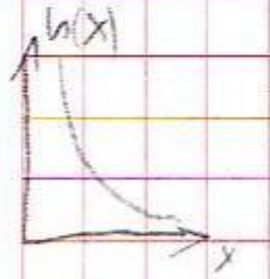
2007. 10. 31. szerda

XVIII. Előadás (8. hét)

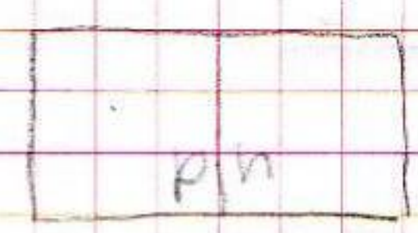


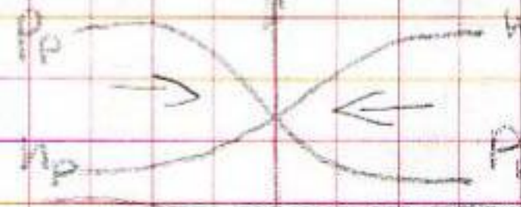


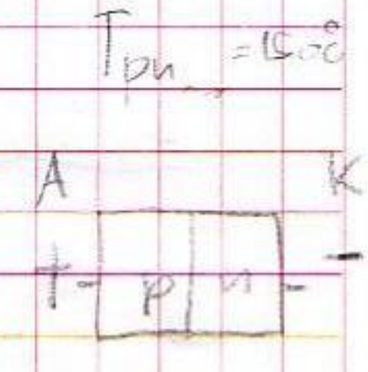


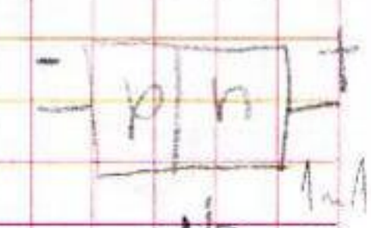
$\vec{E} \rightarrow \quad I_{drift} = E \cdot n \cdot \mu_n$

$I_{diff.} = E \cdot p \cdot \mu_p$

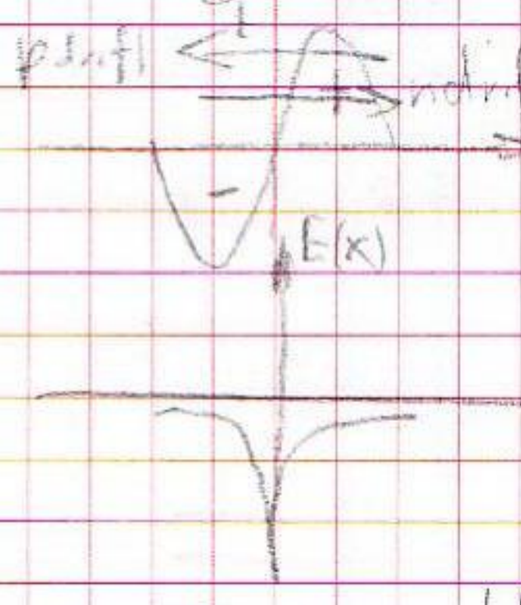




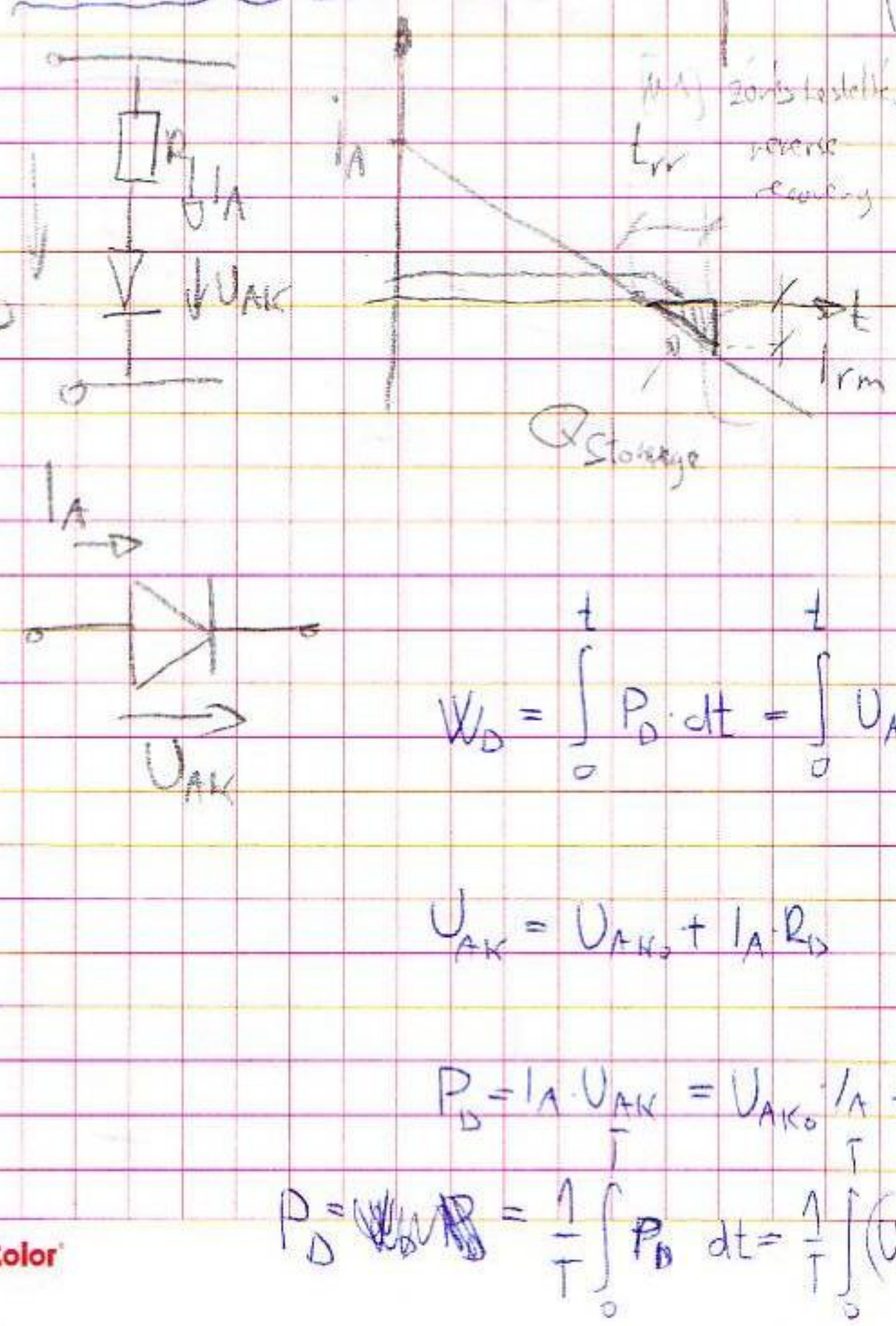


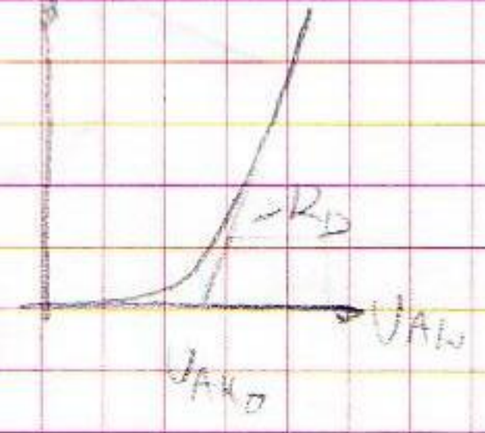


Si, Ge, Schottky



Dióda dinamikus viselkedése





$$W_D = \int_0^t P_D \cdot dt = \int_0^t U_{AK} \cdot I_A \cdot dt$$

$$U_{AK} = U_{AK_0} + I_A \cdot R_D$$

$$P_D = I_A \cdot U_{AK} = U_{AK_0} \cdot I_A + I_A^2 \cdot R_D$$

$$P_D = \frac{W_D}{T} = \frac{1}{T}\int_0^T P_D \, dt = \frac{1}{T}\int_0^T \left(U_{AK_0} I_A + I_A^2 R_D\right) dt \Rightarrow P_D = \frac{1}{T} U_{AK_0} \int_0^T I_A \, dt + R_D \frac{1}{T}\int_0^T I_A^2 \, dt$$

$I_{A,AV}$ $\qquad$ I_{ARMS}^2

$\Rightarrow P_D = V_{AK0} \cdot I_{A\,AV} + R_D \cdot I_{A\,RMS}^2$

$f(t) = f(t+T)$

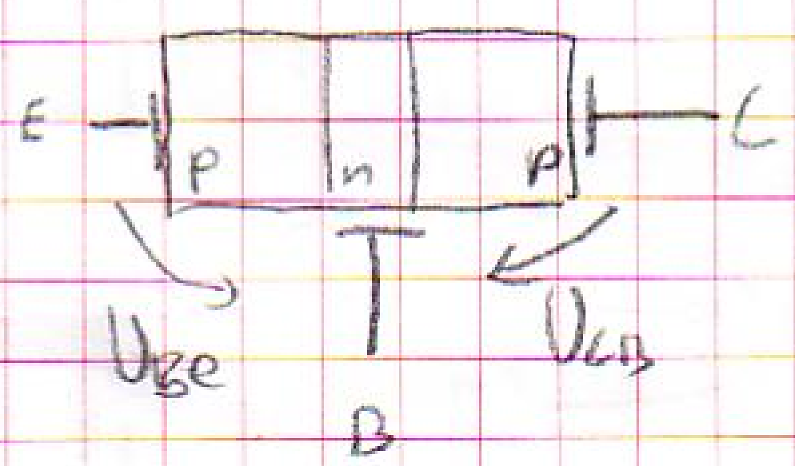
$F_{AV} = \frac{1}{T}\int_0^T f(t)\,dt$

↳ average

$F_{RMS} = \sqrt{\frac{1}{T}\int_0^T f^2(t)\,dt}$

↳ root mean square

Bipoláris tranzisztor



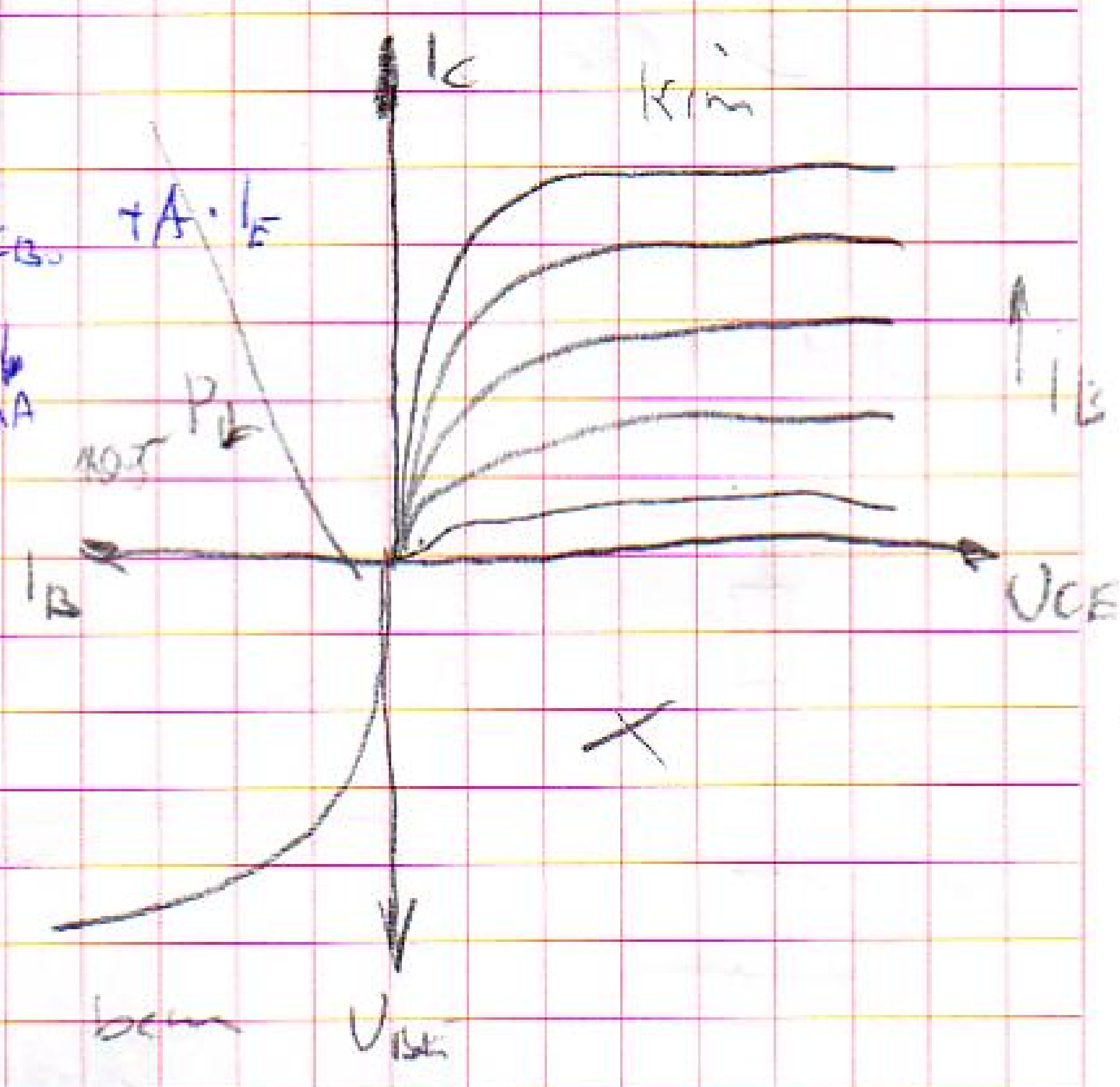
tranzisztor hatás alapja

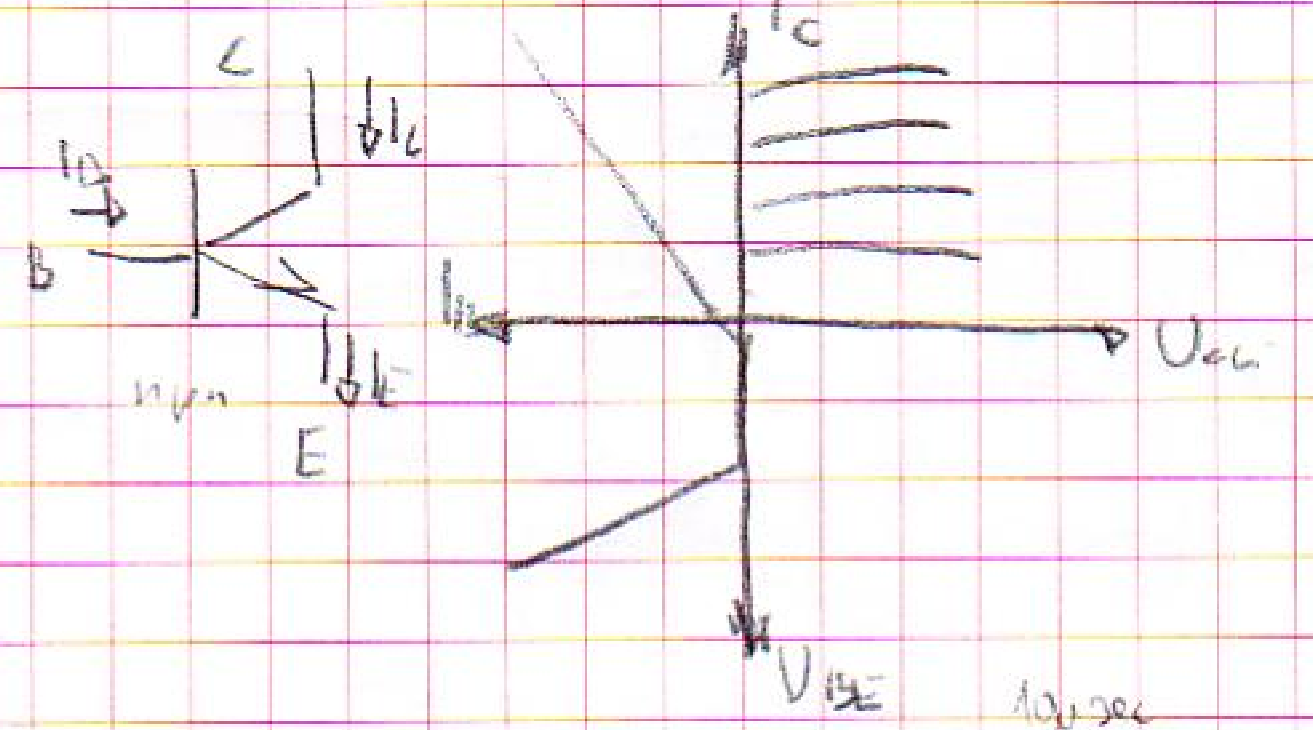
záró dióda áramát egy másikkal befolyásolja

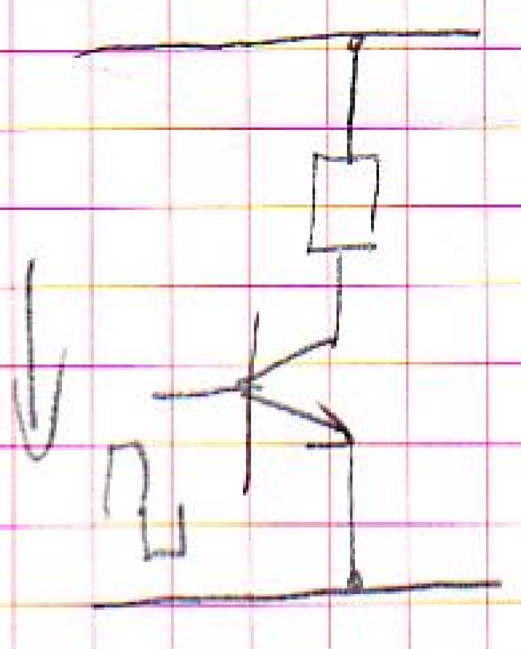
1.	U_{BE} nyitó (>0)	U_{CB} záró (<0)	normál aktív
2.	>0	>0	telítési
3.	<0	<0	zárási
4.	U_{BE} záró (<0)	U_{CB} nyitó (>0)	inverz aktív

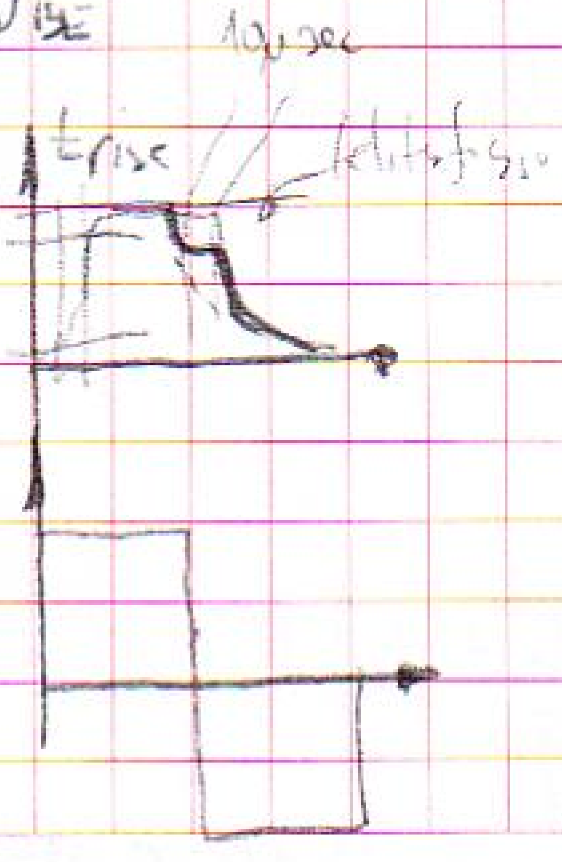
$I_C = I_{CB0} + A \cdot I_E$

↳ μA

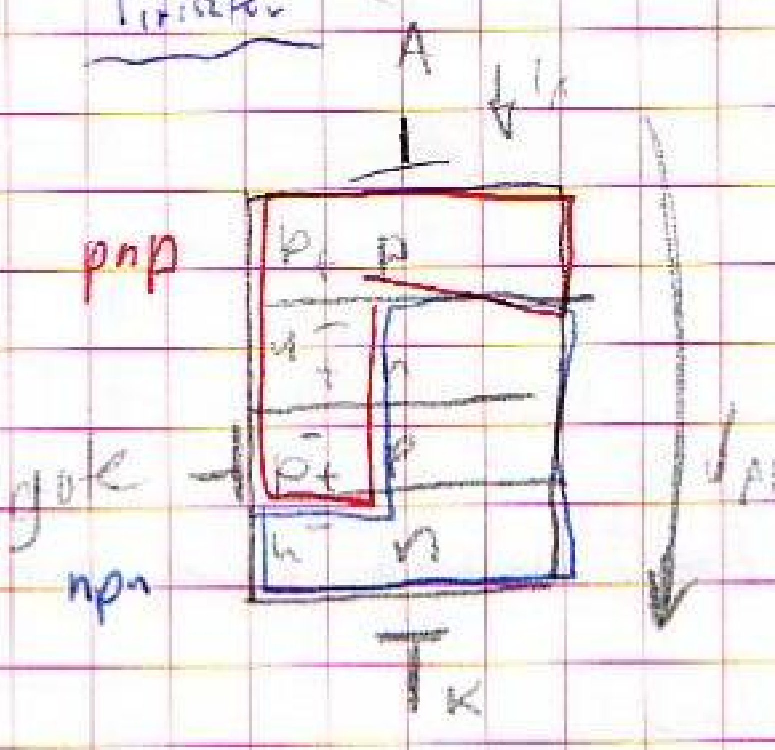


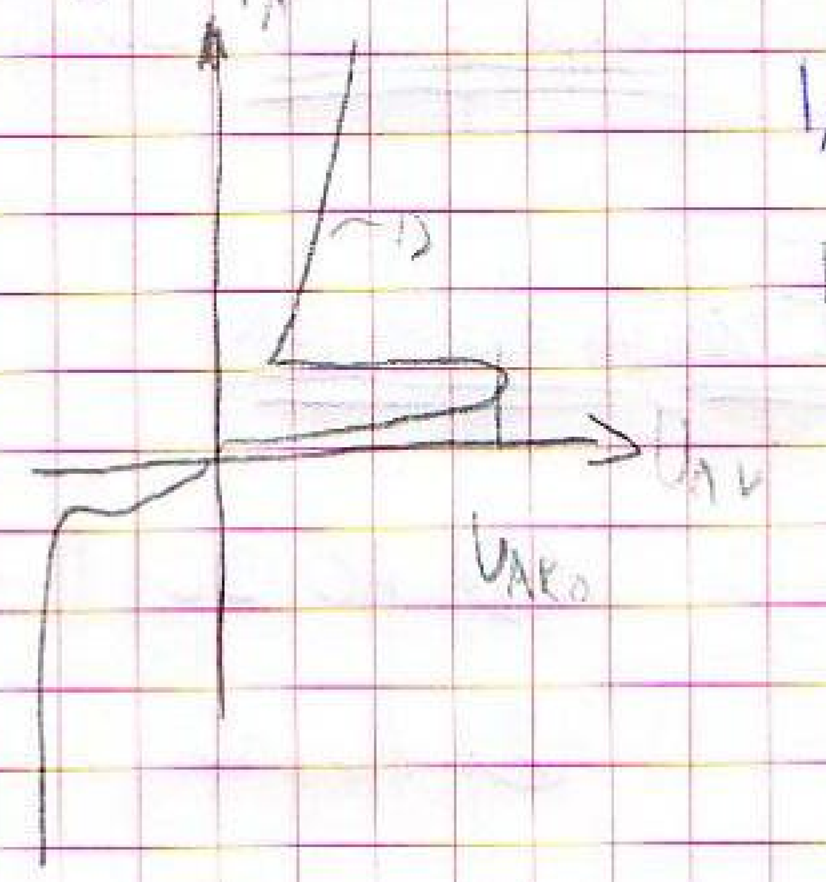






Tirisztor (négyrétegű kapcsoló) (SCR, si control rect!)





$I_A = I_0 + I_A \cdot A_\alpha + I_A A_\beta$

$I_A [1 - (A_\alpha A_\beta)] = I_0$

$I_A = \frac{I_0}{1 - A_\alpha A_\beta}$ → poz. vcs

FET (field effect tr.)