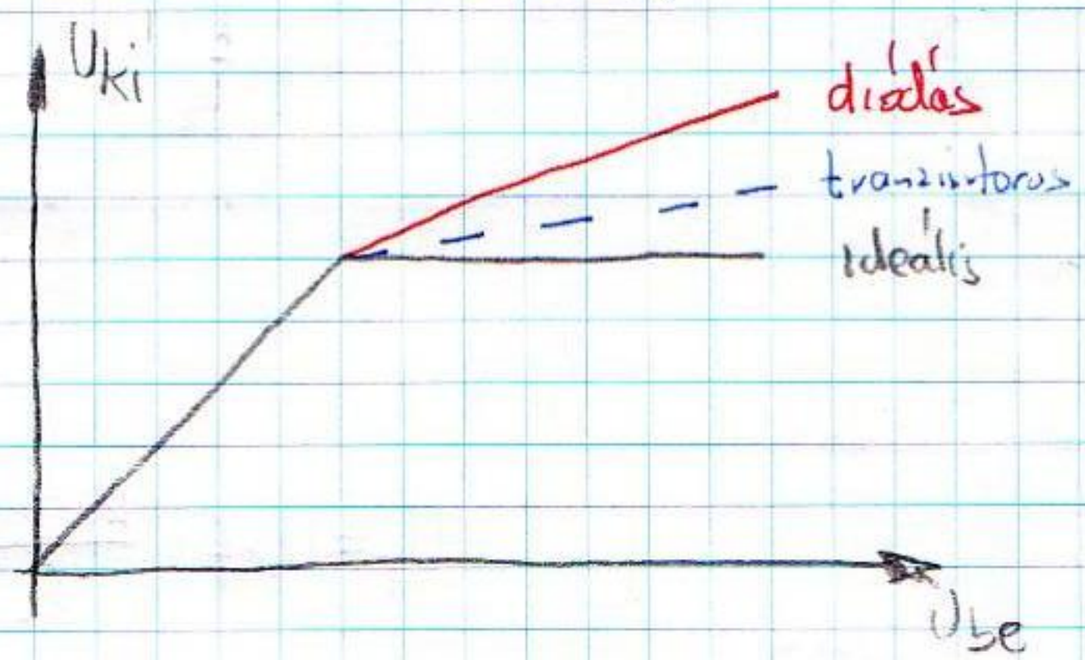
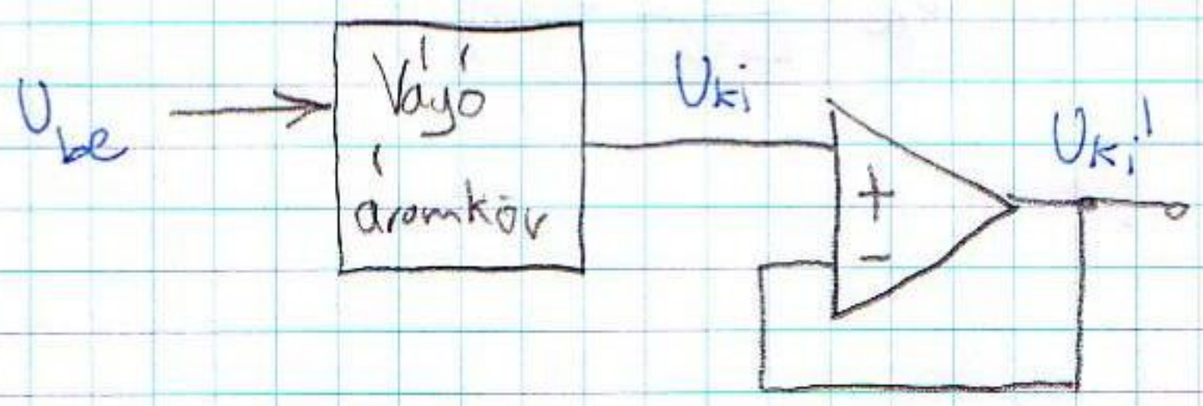
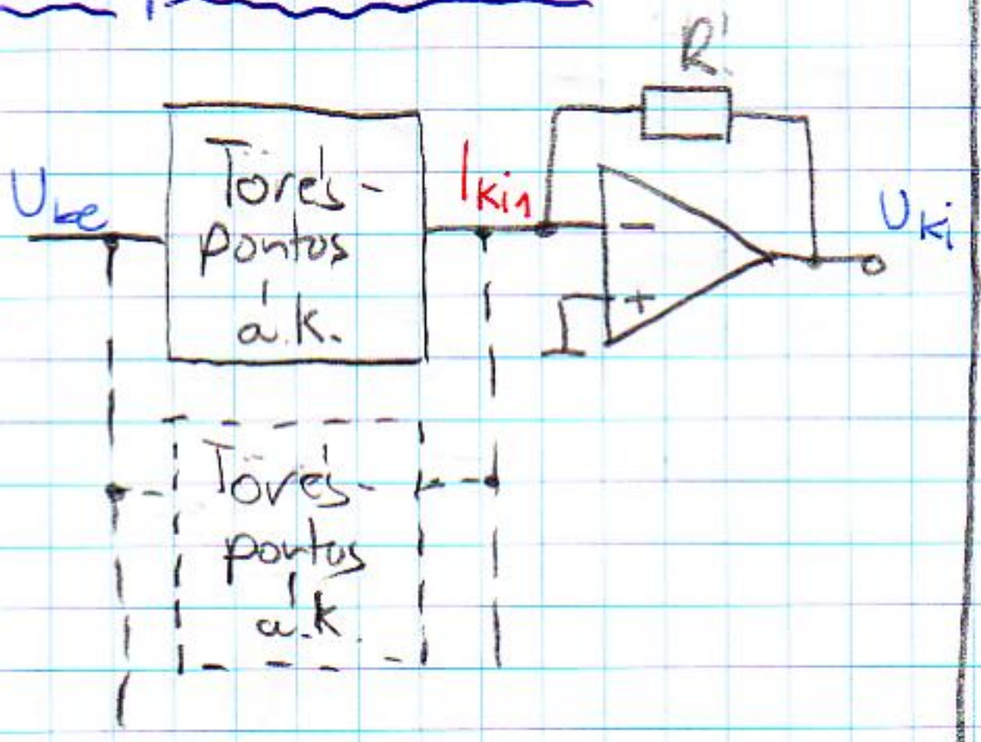
2007.09.20. csütörtök

IV Előadás (2. hét)

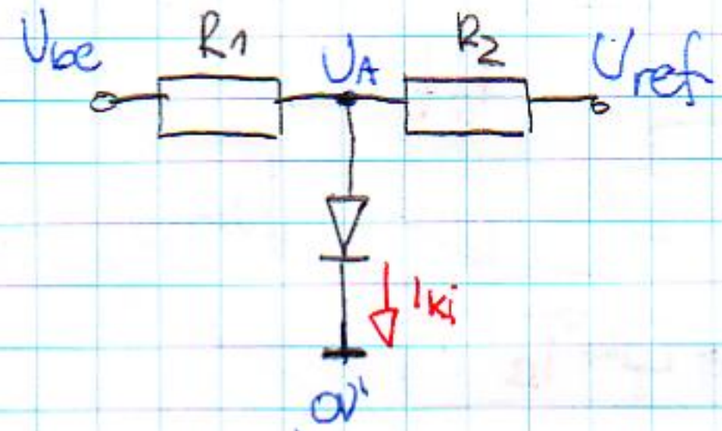




Töréspontos áramkörök:



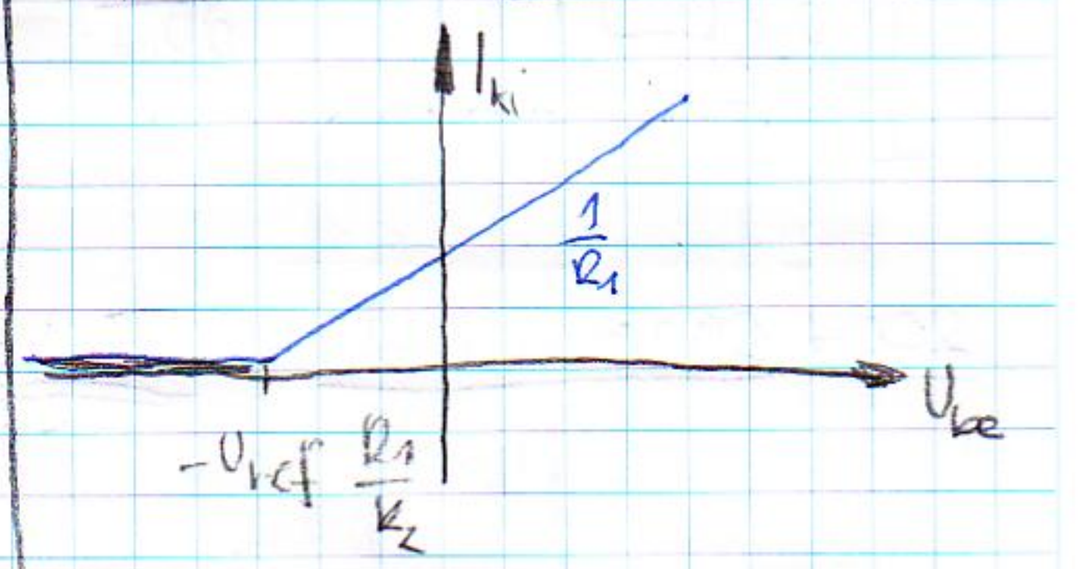
①



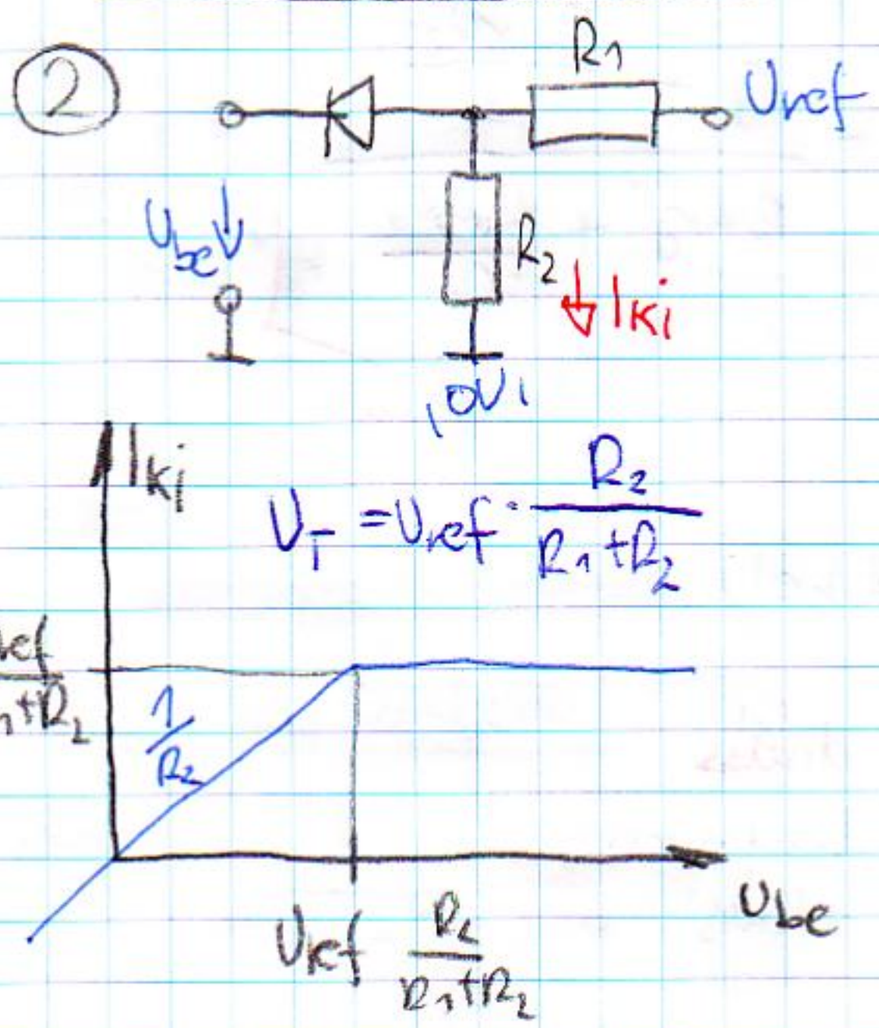
$$U_A = \frac{U_{be} \cdot R_2 + U_{ref} \cdot R_1}{R_1 + R_2}$$

$$\phi = \frac{U_T \cdot R_2 + U_{ref} \cdot R_1}{}$$

$$U_T = -U_{ref} \frac{R_1}{R_2}$$

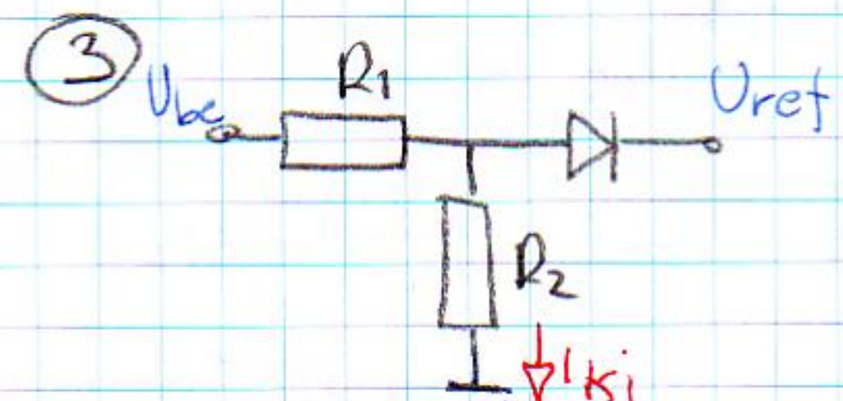


②



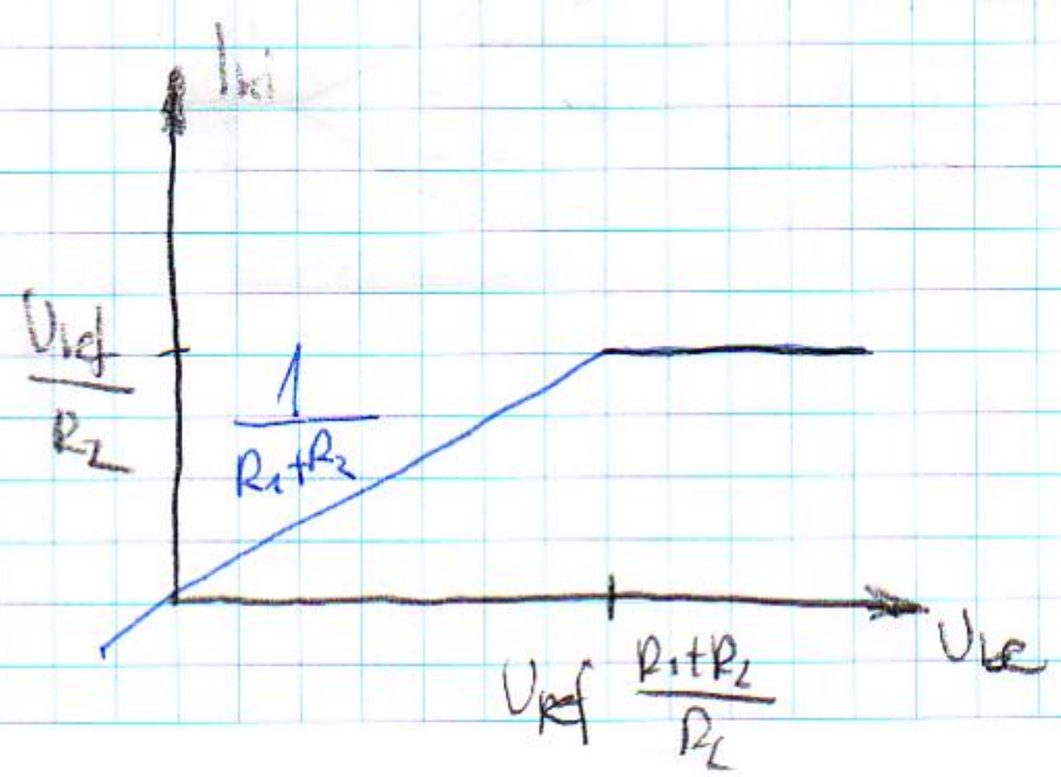
$$U_T = U_{ref} \cdot \frac{R_2}{R_1 + R_2}$$

③

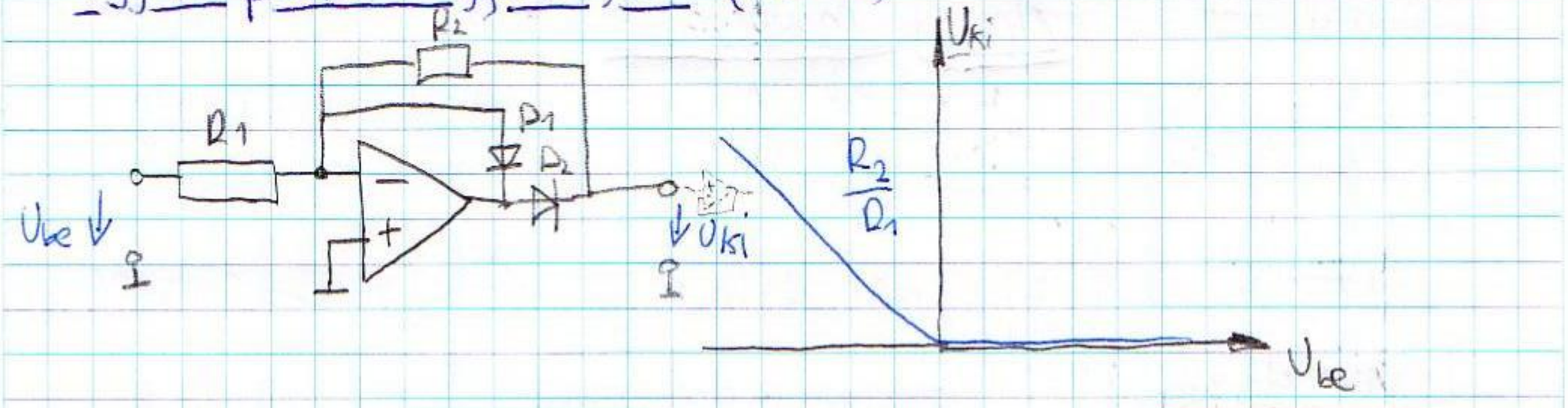


$$U_T = U_{ref} \cdot \frac{R_1 + R_2}{R_2}$$

$$U_{be} \cdot \frac{R_2}{R_1 + R_2} = U_{ref}$$

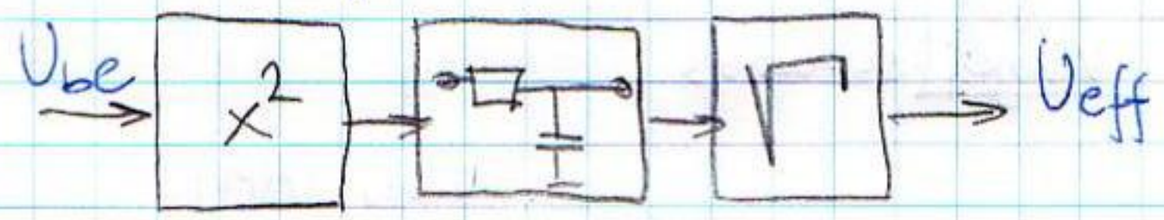


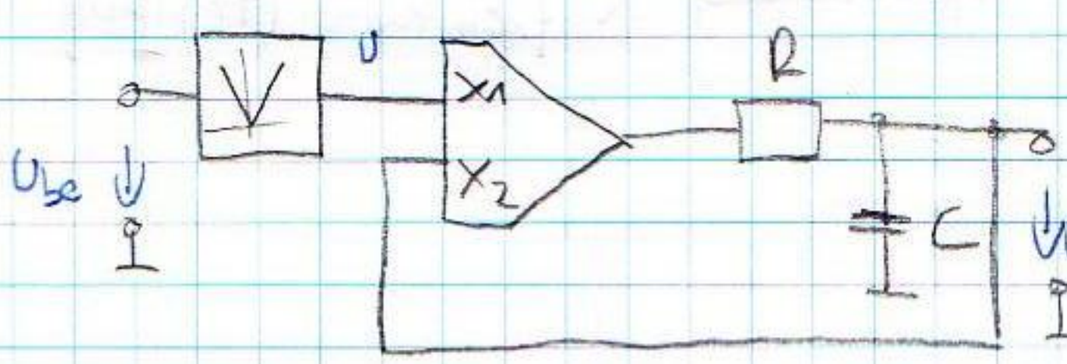
Egyutas precízós egyenirányító (m.e.-vel)



Effektív-érték mérő

$$U_{eff} = \sqrt{\frac{1}{T}\int_0^T U^2(t)\,dt}$$





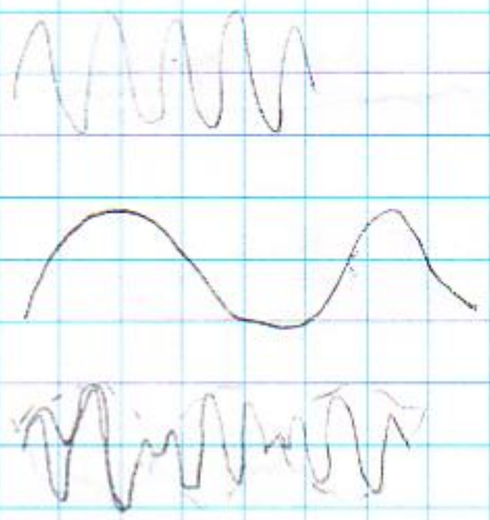
$$y = k \cdot x_1^{c_1} \cdot x_2^{c_2} = k\,\frac{x_1^2}{x_2}$$

$$y = \frac{U^2}{U_{ki}} \Rightarrow AV$$

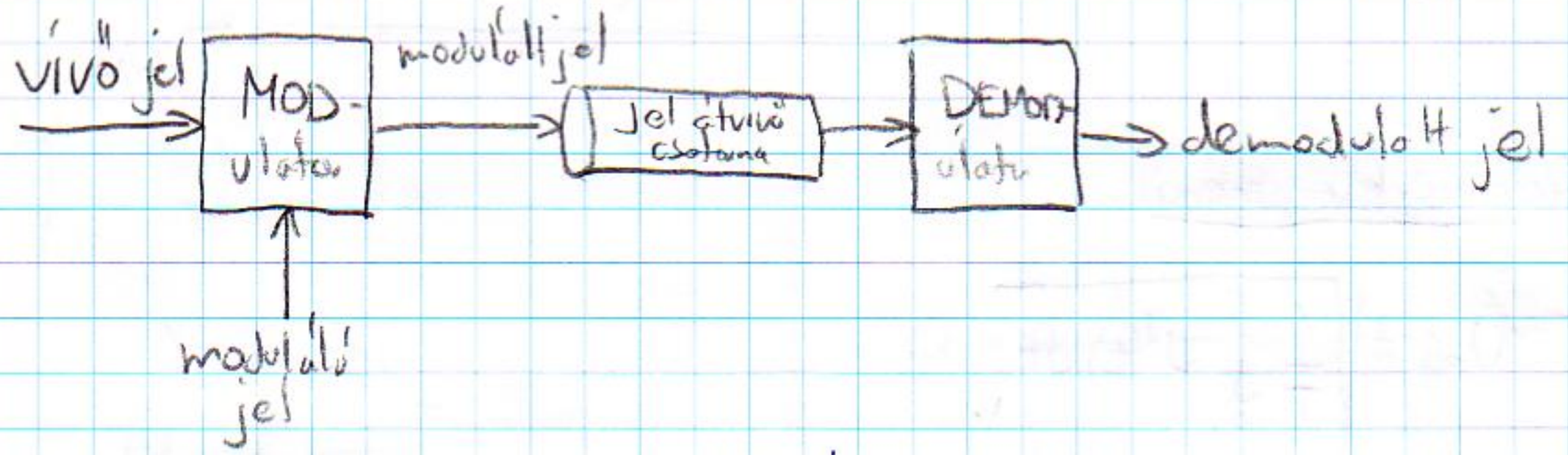
$$U_{ki} \approx y_{AV}$$

$$U_{ki} = \frac{(U^2)_{AV}}{U_{ki}} \Rightarrow U_{ki} = \sqrt{(U^2)_{AV}}$$

$RC \gg \frac{1}{f}$ · Vizsgált jel



Analóg modulációk



OK
- jel/zaj viszony
- szelektivitás

jel
- audió
- video
- adat, stb..

vivőjel: szinuszos

modulláció
- amplitudó (AM)
- frekvencia (FM) [PM]

$U_{ki} = U_a(t) \cdot \cos \varphi(t)$

modulálatlan: $U_a = áll$, $\varphi = \omega t$, $\omega = áll$

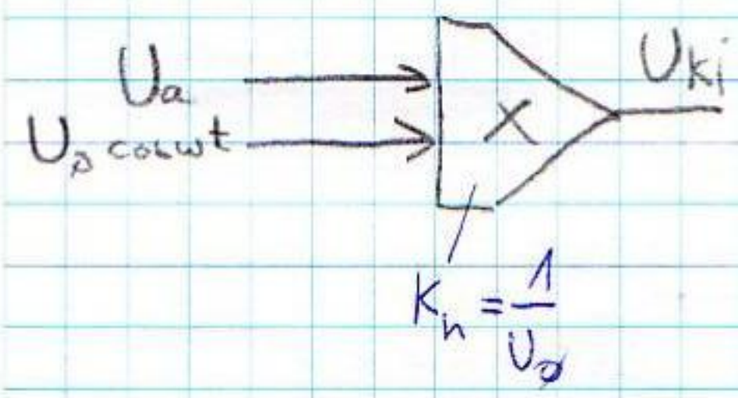
AM	$U_a = U_a(t)$	$\omega = áll$
FM	$U_a = áll$	$\omega = \omega(t)$

Amplitudó moduláció

$$\sin\alpha \cdot \cos\beta = \frac{1}{2}\left(\sin(\alpha+\beta) + \sin(\alpha-\beta)\right)$$

$$U_a(t) = \underset{\text{vivo}}{U_v} + \underset{\text{mod}}{U_m(t)}$$

$f_v \gg f_m$

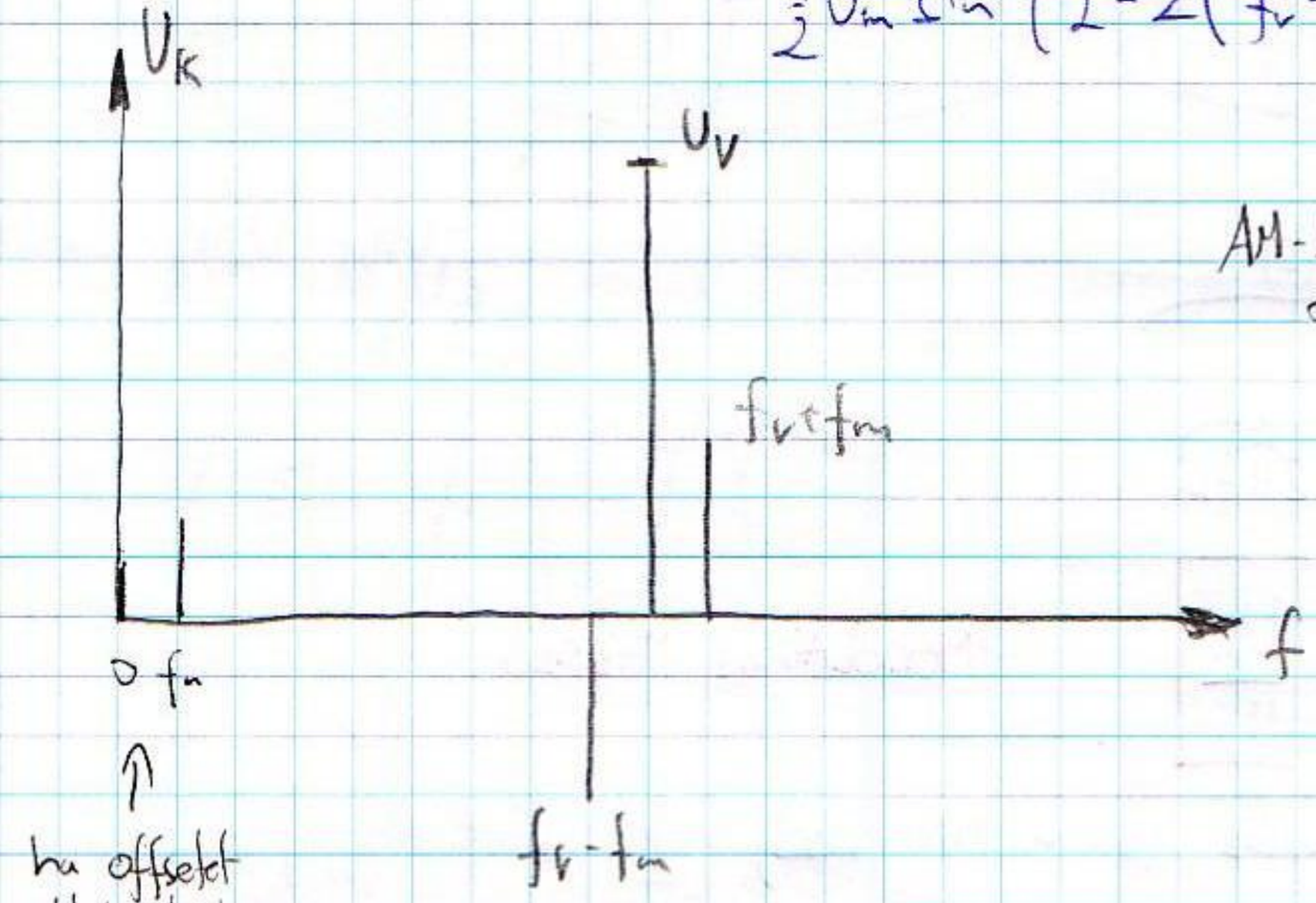


$$u_m(t) = U_m \sin(2\pi f_m t)$$

$$U_{ki}(t) = (U_v + U_m \cdot \sin(2\pi f_m t)) \cdot \cos(2\pi \cdot f_v t) =$$

$$= U_v \cdot \cos 2\pi f_v t + \frac{1}{2} U_m \cdot \sin(2-2(f_m+f_v)t) -$$

$$- \frac{1}{2} U_m \sin(2-2(f_v-f_m)t)$$



AM-DSB
double side band