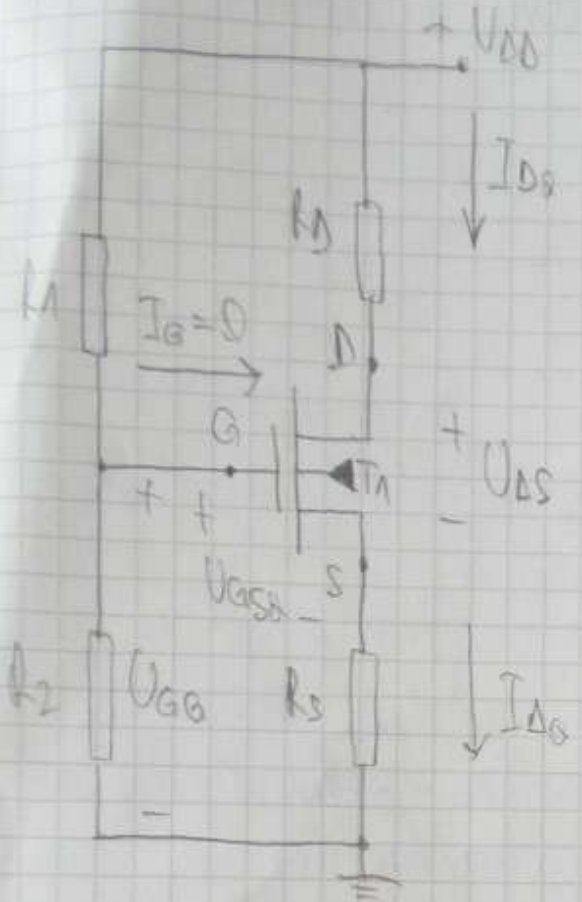
RADNA TOČKA



$$U_{GG} = \frac{R_2}{R_1 + R_2} U_{DD}$$

$$U_{GG} = U_{GSQ} + R_S I_{DS}$$

$$I_{DQ} = \frac{K}{2}(U_{GSQ} - U_{GSO})^2$$

$$U_{DSQ} = U_{DD} - (R_D + R_S) I_{DQ}$$

$$R_G = R_1 \| R_2$$

STRUJA ZASIĆENJE

$I_{DQ} = \frac{K}{2}(U_{GSQ} - U_{GSO})^2 (1 + \lambda U_{DSQ})$

STRUJA TRIODNO

$I_{DQ} = K\left[(U_{GSQ} - U_{GSO}) U_{DSQ} - \frac{U_{DSQ}^2}{2}\right]$

$\Rightarrow$ p-kanal $U_{GSQ} < U_{GSO}$

$\Rightarrow$ n-kanal $U_{GSQ} > U_{GSO}$

DIFERENCIJALNI PARAMETRI

$\mu = g_m r_d$ $\quad r_d = \frac{1}{g_d}$

ZASIĆENJE

$$g_m = \frac{\partial I_{DQ}}{\partial U_{GSQ}} = \frac{K}{2}(U_{GSQ} - U_{GSO})(1 + \lambda U_{DSQ})$$

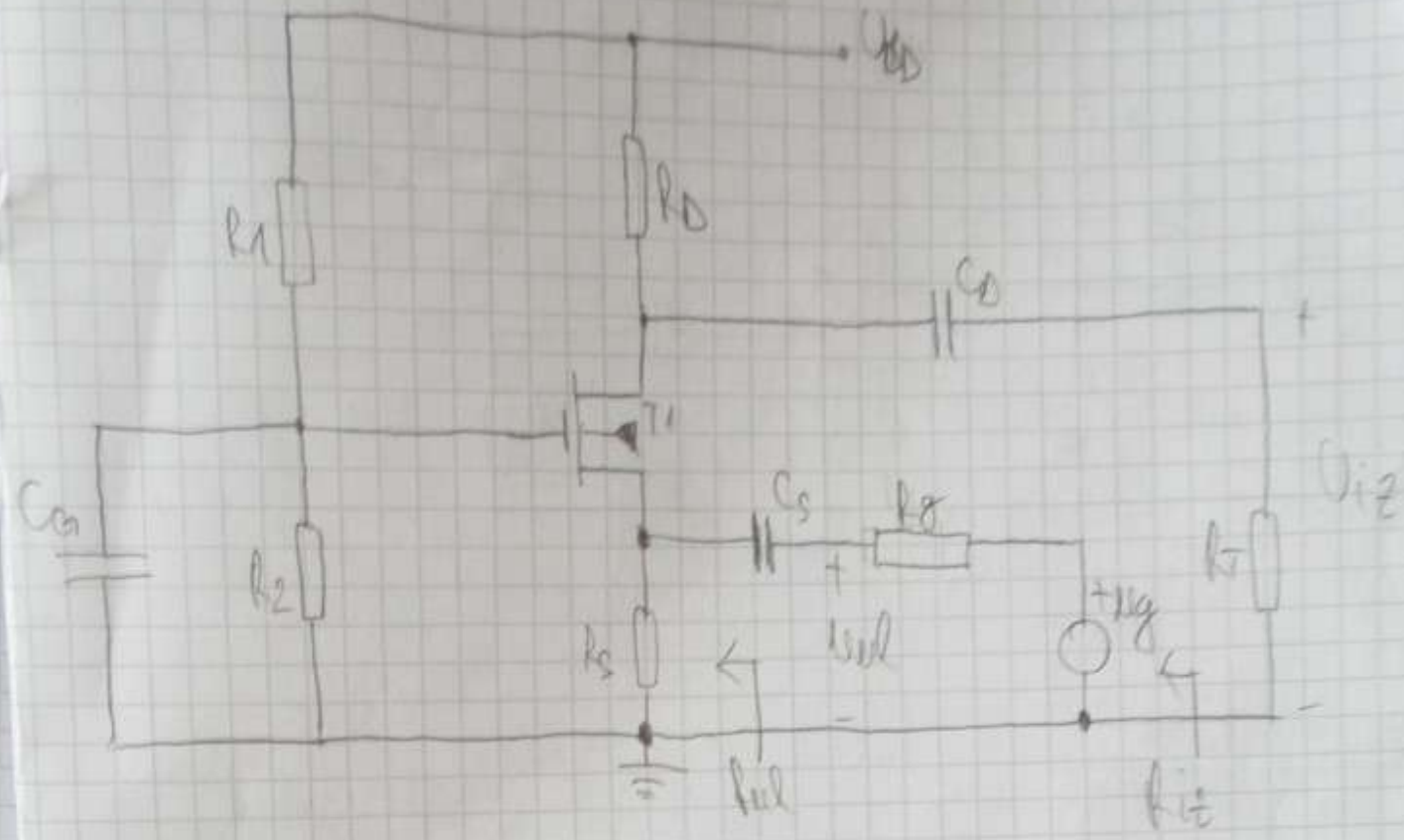
$$g_d = \frac{1}{r_d} = \frac{\partial I_{DQ}}{\partial U_{DSQ}} = \frac{K\lambda}{2}(U_{GSQ} - U_{GSO})^2 = \lambda I_{DQ}$$

TRIODNO

$$g_m = \frac{\partial I_{DQ}}{\partial U_{GSQ}} = K U_{DSQ}$$

$$g_d = \frac{\partial I_{DQ}}{\partial U_{DSQ}} = K[U_{GSQ} - U_{GSO} - U_{DSQ}]$$

POJAČALO U SPOJU ZAJEDNIČKE UPRAVLJAČKE ELEKTRODE (GATE-a)



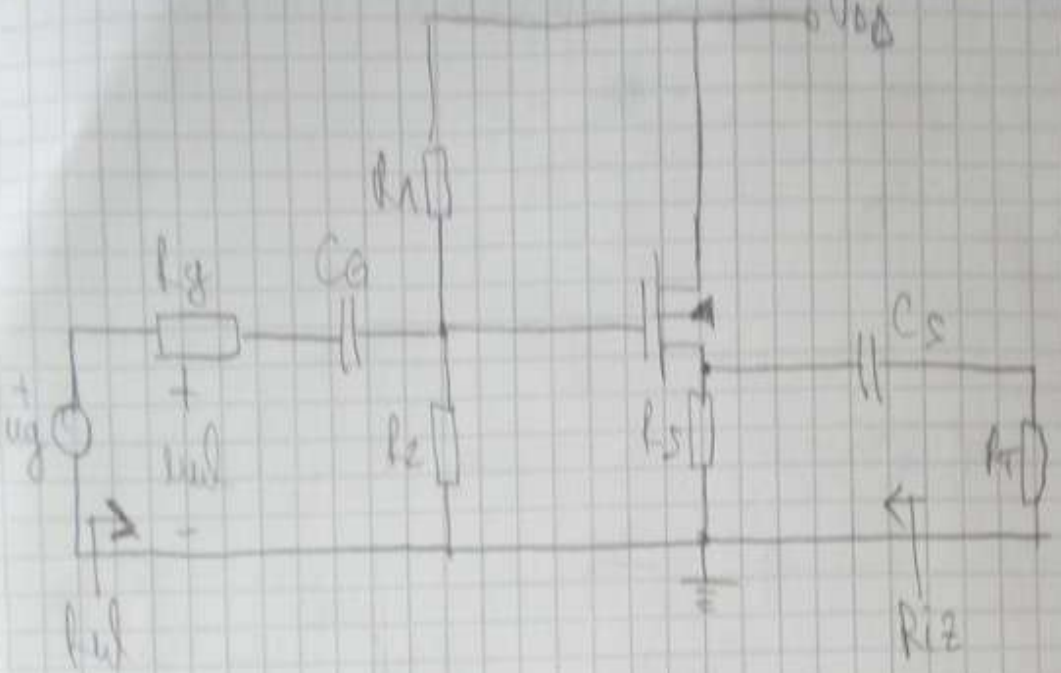
$A_V = g_m \, r_d \| R_D \| R_T$

$R_{ul} = R_S \| \frac{r_d + R_D \| R_T}{r_d \cdot g_m}$ ili $R_{ul} = R_S \| \frac{1}{g_m}$

$R_{iz} = R_D \| [r_d + (n+1) R_S \| R_g]$

$A_{Vg} = A_V \frac{R_{ul}}{R_g + R_{ul}}$

POJAČALO U SPOJU ZAJEDNIČKOG [illegible] ODVODA (ZAJEDNIČKA)



$$A_V = \frac{g_m (r_d \| R_S \| R_T)}{1 + g_m (r_d \| R_S \| R_T)} \qquad R_{ul} = R_G \qquad R_{iz} = \frac{r_d \| R_S}{1 + g_m (r_d \| R_S)}$$

ili

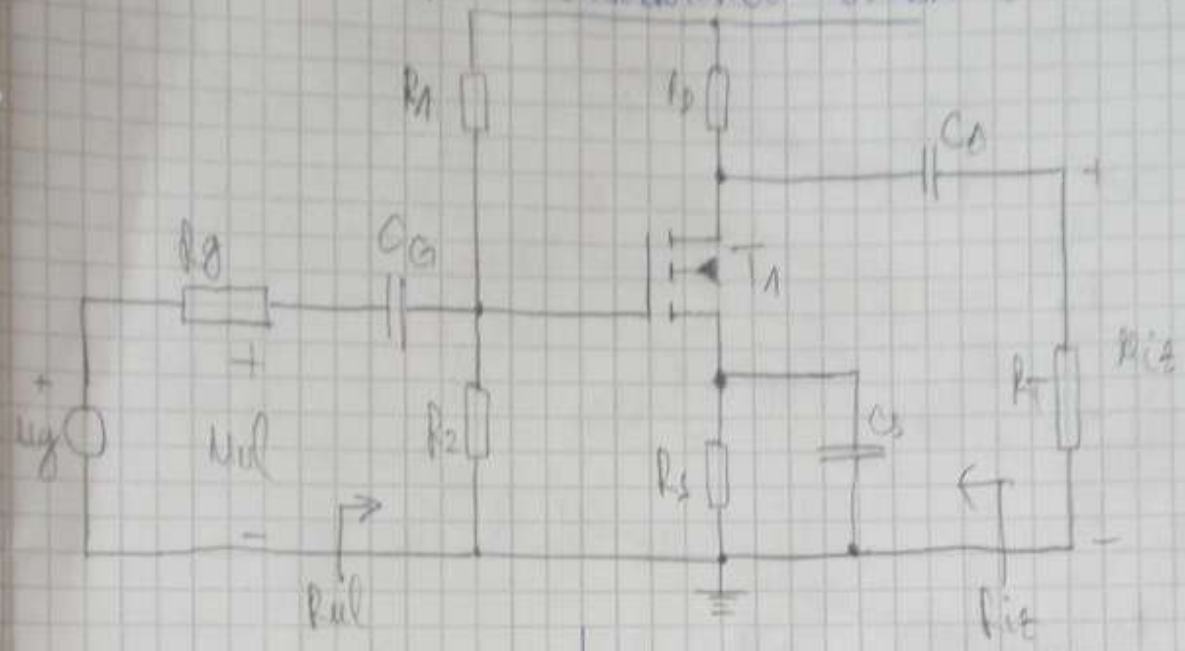
$$R_{iz} = R_S \| \frac{1}{g_m}$$

$$A_{vg} = A_V \frac{R_G}{R_g + R_G}$$

POJAČALO	A_V	A_{vg}	R_{ul}	R_{iz}
UVOD (S)	$A_V = -g_m (r_d \| R_D \| R_T)$	$A_{vg} = A_V \frac{R_G}{R_g + R_G}$	$R_{ul} = R_G$	$R_{iz} = r_d \| R_D$
UVODSKA DEGENERACIJA	$A_V = -\frac{g_m R_D \| R_T}{1 + g_m R_S}$	$A_{vg} = A_V \frac{R_G}{R_g + R_G}$	$R_{ul} = R_G$	$R_{iz} = R_S \| (r_d (1 + g_m R_S) + R_D)$
UPRAVLJAČKA ELEKTRODA (G)	$A_V = g_m (r_d \| R_D \| R_T)$	$A_{vg} = A_V \frac{R_{ul}}{R_g + R_{ul}}$	$R_{ul} = R_S \| \frac{1}{g_m}$	$R_{iz} = R_S \| [r_d + (1 + g_m R_S \| R_D)]$
ODVOD (D)	$A_V = \frac{g_m r_d \| R_S \| R_T}{1 + g_m r_d \| R_S \| R_T}$	$A_{vg} = A_V \frac{R_G}{R_g + R_G}$	$R_{ul} = R_G$	$R_{iz} = R_S \| \frac{1}{g_m}$

POJAČALA S UNIPOLARNIM TRANZISTORIMA

POJAČALO U SKLOPU ZAJEDNIČKOG UVODA (SOURCE-a)



$A_V = -g_m \, r_d \| R_D \| R_T$

$A_{Vg} = A_V \frac{R_G}{R_g + R_G}$

$R_{ul} = R_G$

$R_{iz} = r_d \| R_D$

POJAČALO U SKLOPU ZAJEDNIČKOG UVODA S UVODNOM DEGENERACIJOM

(ista slika samo bez C_S-a, sa otporom R_S gdje nije prespojen kondenzatorom)

$A_V = -g_m \frac{R_D \| R_T}{1 + g_m R_S}$

$R_{ul} = R_1 \| R_2$

$R_{iz} = R_D \| [(1+\mu) R_S + r_d]$

$A_{Vg} = A_V \frac{R_G}{R_g + R_G}$