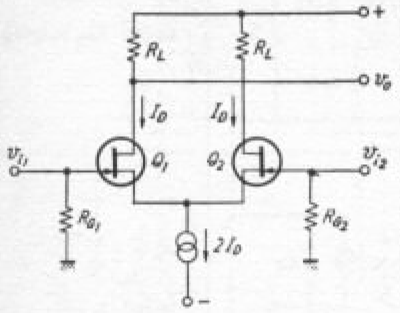
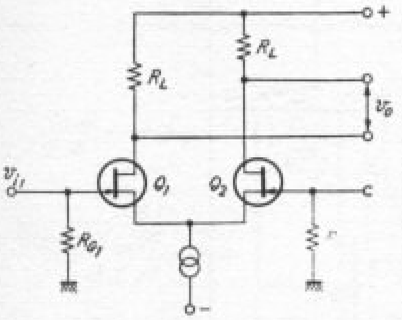
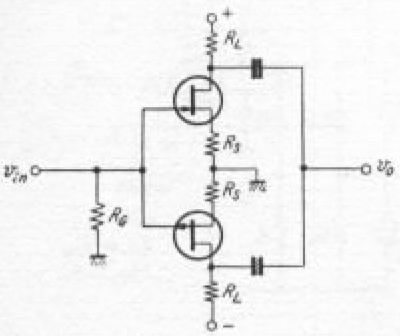
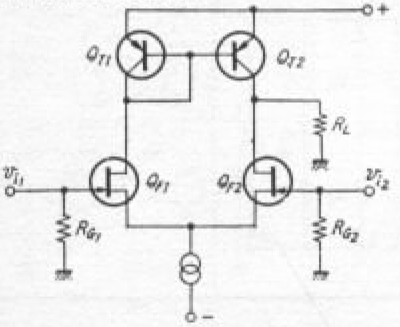
Circuit	Impédance d'entrée (en B.F.)	Impédance de sortie (en B.F.)
FET différentiel (1) 	$Z_{in_1}=R_{G_1}$ $Z_{in_2}=R_{G_2}$ En H.F. : $Z_{in_1}=\dfrac{R_{G_1}}{1+\frac{1}{2}j\omega R_{G_1}[C_{GS_1}+C_{DG_1}(1-A_v)]}$ $Z_{in_2}=\dfrac{R_{G_2}}{1+\frac{1}{2}j\omega R_{G_2}[C_{GS_2}+C_{DG_2}(1-A_v)]}$	$Z_o \doteqdot R_L$ Quand $\dfrac{1}{g_{DS}} \gg R_L$
FET différentiel (2) 	$Z_{in_1}\doteqdot R_{G_1}$ $Z_{in_2}\doteqdot R_{G_2}$ En H.F. : $Z_{in_1}\doteqdot\dfrac{R_{G_1}}{1+\frac{1}{2}j\omega R_{G_1}[C_{GS_1}+C_{DG_1}(1-A_v)]}$ $Z_{in_2}\doteqdot\dfrac{R_{G_2}}{1+\frac{1}{2}j\omega R_{G_2}[C_{GS_2}+C_{DG_2}(1-A_v)]}$	$Z_o \doteqdot R_L$ Quand $\dfrac{1}{g_{DS}} \gg R_L$
FET complémentaire 	$Z_{in}\doteqdot R_G$ En H.F. : $Z_{in}\doteqdot\dfrac{R_G}{1+2j\omega[C_{GS}+C_{DG}(1-A_v)]}$ Quand A_v : Gain en tension	$Z_o \doteqdot \dfrac{R_L}{2}$ Quand $\dfrac{1}{g_{DS}}+R_S \gg R_L$ En H.F : $Z_o \doteqdot \dfrac{1}{2}\left[\dfrac{R_L}{g_{DS}R_L+j\omega R_L(C_{DG}-C_{DS})}\right]$ Quand $\dfrac{1}{g_{DS}} \gg R_S$
FEt complémentaire avec miroir de courant 	$Z_{in_1}\doteqdot R_{G_1}$ $Z_{in_2}\doteqdot R_{G_2}$ En H.F. : $Z_{in_1}\doteqdot\dfrac{R_{G_1}}{1+\frac{1}{2}j\omega R_{G_1}[C_{GS_1}+C_{DG_1}(1-A_v)]}$ $Z_{in_2}\doteqdot\dfrac{R_{G_2}}{1+\frac{1}{2}j\omega R_{G_2}[C_{GS_2}+C_{DS_2}(1-A_v)]}$ Quand A_v : Gain en tension	$Z_o \doteqdot R_L$ Quand $g_{DS}+h_{oe} \ll \dfrac{1}{R_L}$

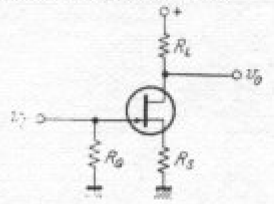
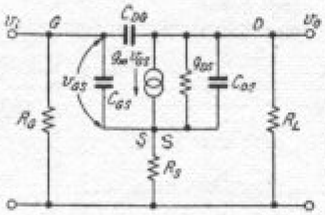
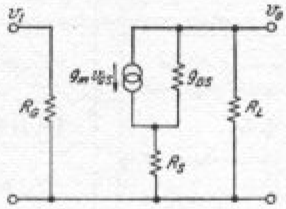
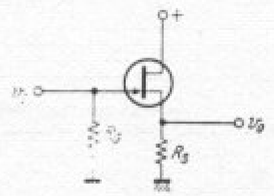
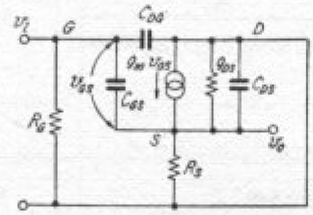
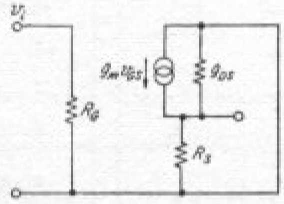
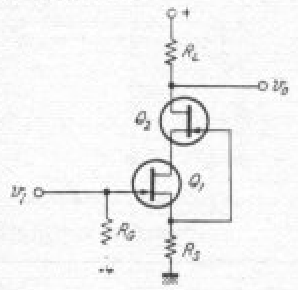
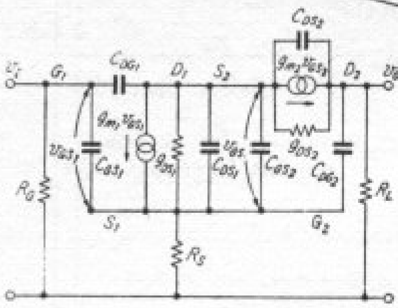
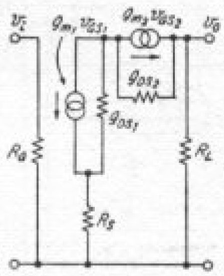
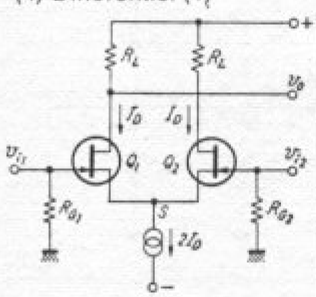
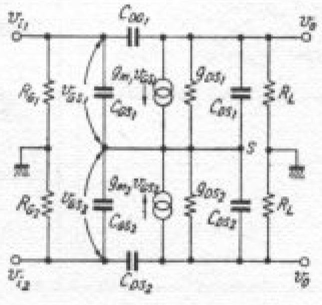
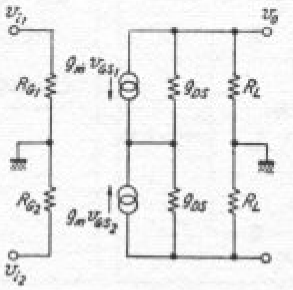
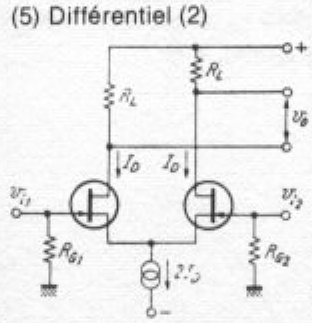
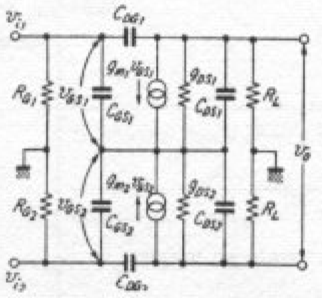
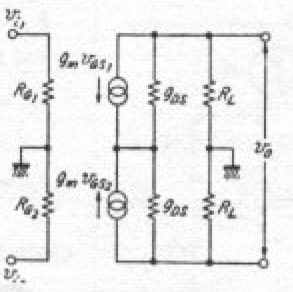
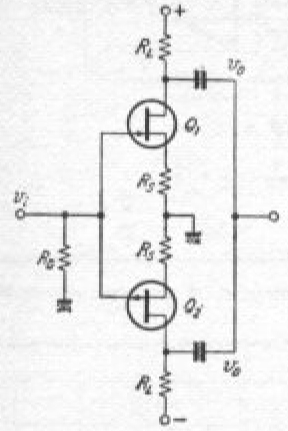
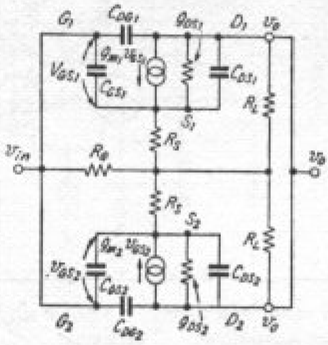
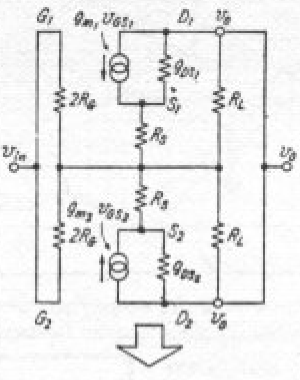
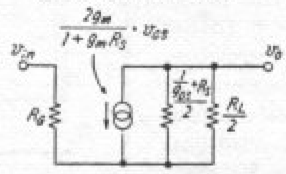
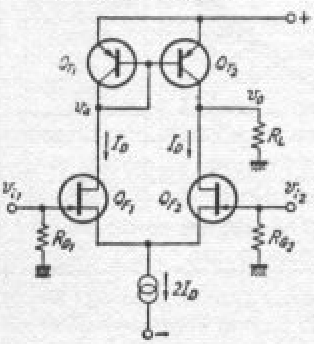
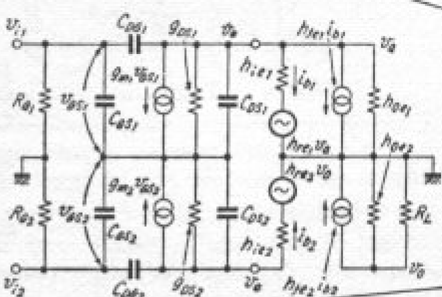
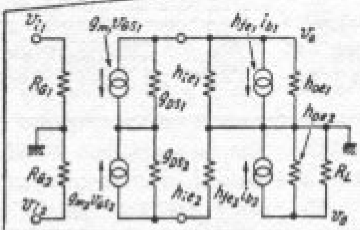
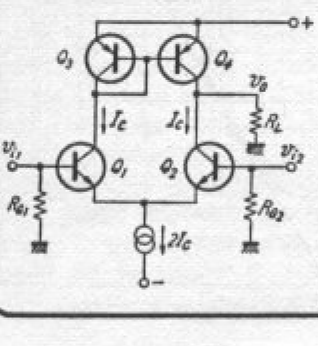
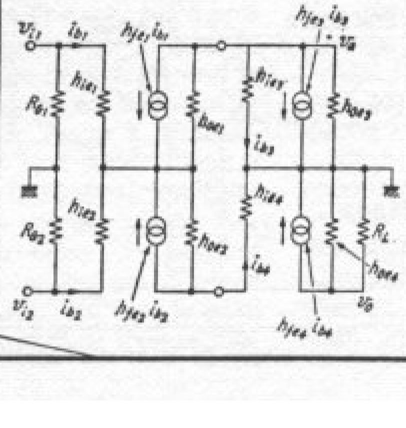
Circuit	Equivalent	Equivalent (en B.F.)	Gain (en B.F.)
(1) Source commune 			$A_v \doteqdot -\frac{g_m R_L}{1+g_m R_S}$ quand $1/g_{DS} \gg R_L + R_S$
(2) Source follower 			$A_v \doteqdot \frac{g_m R_S}{1+g_m R_S}$ quand $g_m \gg g_{DS}$
(3) Cascode 			$A_v \doteqdot -\frac{g_{m1} R_L}{1+g_{m1} R_S}$ Avec Q 1 travaillant en B.F. $1/g_{DS2} \gg R_L + R_S$ $g_{m2} \gg g_{DS2}$
(4) Différentiel (1) 			$A_v \doteqdot -\frac{g_m R_L}{2}$ $v_0 \doteqdot \frac{g_m R_L}{2}(v_{i1}-v_{i2})$ quand $g_{m1}=g_{m2}$ $g_{DS1}=g_{DS2}$ $1/g_{DS} \gg R_L$
(5) Différentiel (2) 			$A_v \doteqdot -g_m R_L$ $v_0 \doteqdot g_m R_L (v_{i1}-v_{i2})$ quand $g_{m1}=g_{m2}=g_{m3}$ $g_{DS1}=g_{DS2}=g_{DS3}$ $1/g_{DS} \gg R_L$

Fig. 5 : Transistors à effet de champ. Circuit, circuit équivalent et calcul du gain en basse fréquence.

Circuit	Equivalent	Equivalent (en B.F.)	Gain (en B.F.)
(6) Paire complémentaire 		 En considérant la paire comme étant parfaite. 	$A_v \doteqdot -\frac{g_m R_L}{1+g_m R_S}$ à condition que : $g_{m1}=g_{m2}=g_m$ $g_{OS1}=g_{OS2}=g_{OS}$ $1/g_{OS}+R_S \gg R_L$
(7) Différentiel avec miroir de courant 			A condition que tous les transistors soient parfaitement appairés. $g_{m1}=g_{m2}=g_m$ $h_{fe1}=h_{fe2}=h_{fe}$ $h_{ie1}=h_{ie2}=h_{ie}$ soit : $v_a \doteqdot -\frac{1}{2} g_m \cdot \frac{h_{ie}}{h_{fe}} (v_{i1}-v_{i2})$ $v_0 \doteqdot \frac{1}{2} g_m \cdot \frac{h_{ie}}{h_{fe}} \cdot \frac{h_{fe}}{h_{ie}} \cdot R_L (v_{i1}-v_{i2})$ $-\frac{1}{2} g_m R_L (v_{i2}-v_{i1})$ $= g_m R_L (v_{i2}-v_{i1})$ $\therefore A_v = \frac{v_0}{(v_{i1}-v_{i2})}$ $\doteqdot g_m R_L$ à condition que : $h_{oe1}=h_{oe2} \ll \frac{1}{R_L}$
(8) Différentiel bipolaire avec miroir de courant 			A condition que tous les transistors soient pairfaitement appairés. $h_{fe1}=h_{fe2}=h_{fe}$ $h_{ie1}=h_{ie2}=h_{ie}$ ce qui donne : $A_v = \frac{v_0}{(v_{i1}-v_{i2})}$ $\doteqdot \frac{h_{fe}}{h_{ie}} R_L$