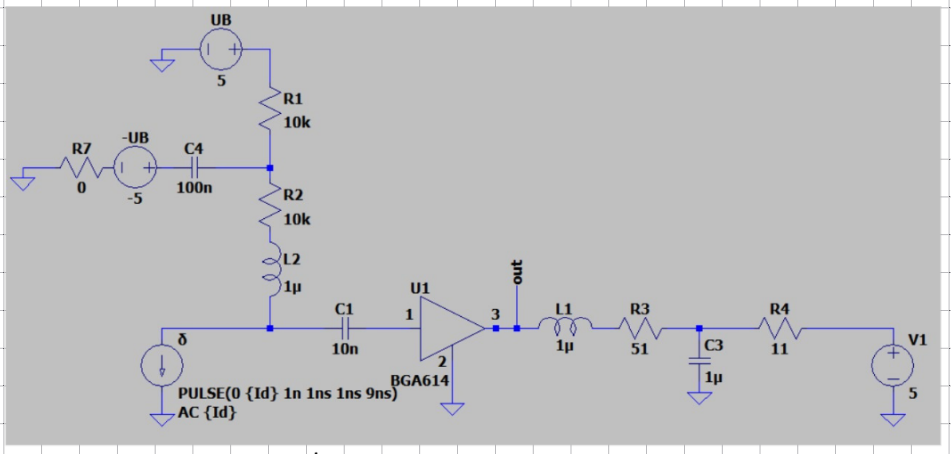
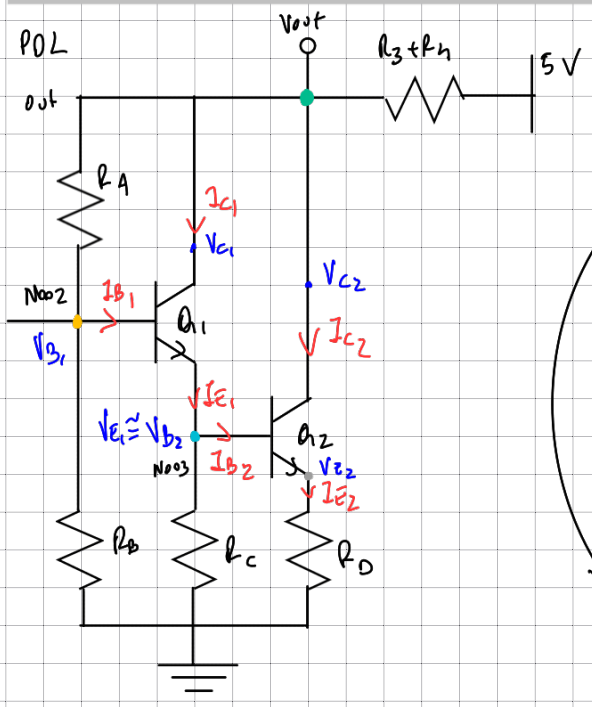




I_p: $\beta \gg 1$ $(=105) \rightarrow I_C = I_E$, $I_B = 0$, $V_{BE} \simeq 0,6\ V$

$V_B - V_E = 0,6$ $\quad V_E = V_B - 0,6$ $\quad V_{E1} = V_{B1} - V_{BE} = \frac{10}{13} V_{out} - V_{BE}$ $\quad V_{E2} = V_{B2} - V_{BE} = V_{B1} - 2V_{BE} = \frac{10}{13} V_{out} - 2V_{BE}$

$$\frac{5 - V_{out}}{62} = \frac{V_{out} - V_{B1}}{600} + I_{C1} + I_{C2}$$

$$\frac{V_{out} - V_{B1}}{600} = \frac{V_{B1}}{2000} \qquad I_{C1} = \frac{V_{E1}}{100} \qquad I_{E2} = \frac{V_{E2}}{4}$$

$$V_{out} = V_{B1}\left(\frac{1}{600} + \frac{1}{2000}\right) \cdot 600 = 1,3\, V_{B1} \rightarrow V_{B1} = \frac{10}{13} V_{out}$$

$$\frac{5 - V_{out}}{62} = \frac{V_{out} - \frac{10}{13} V_{out}}{600} + \frac{V_{E1}}{100} + \frac{V_{E2}}{4}$$

$$\frac{5 - V_{out}}{62} = \frac{1}{2600} V_{out} + \frac{1}{130} V_{out} - \frac{2V_{BE}}{100} + \frac{5}{26} V_{out} - \frac{1}{2} V_{BE}$$

$$\frac{5}{62} + \frac{2V_{BE}}{100} + \frac{1}{2} V_{BE} = V_{out}\left(\frac{1}{62} + \frac{1}{2600} + \frac{1}{130} + \frac{5}{26}\right)$$

$V_{BE} = 0,6\ V$	$V_{BE} = 0,7$	$V_{BE} = 0,8$
$V_{B1} = 1,39\ V$	$V_{B1} = 1,58\ V$	$V_{B1} = 1,76\ V$
$V_{E1} = V_{B2} = 0,79\ V$	$V_{E1} = V_{B2} = 1,37\ V$	$V_{E1} = V_{B2} = 1,49\ V$
$V_{C1} = V_{C2} = V_{out} = 1,81\ V$	$V_{C1} = V_{C2} = V_{out} = 2,05\ V$	$V_{C1} = V_{C2} = 2,29\ V$
$V_{E2} = 0,19\ V$	$V_{E2} = 0,18\ V$	$V_{E2} = 0,16\ V$
$V_{CE1} = 1,02 > 200mV$	$V_{CE1} = 0,68 > 200mV$	$V_{CE1} = 0,8 > 200mV$
$V_{CE2} = 1,62 > 200mV$	$V_{CE2} = 1,87 > 200mV$	$V_{CE2} = 2,13 > 200mV$

↓ uso questo

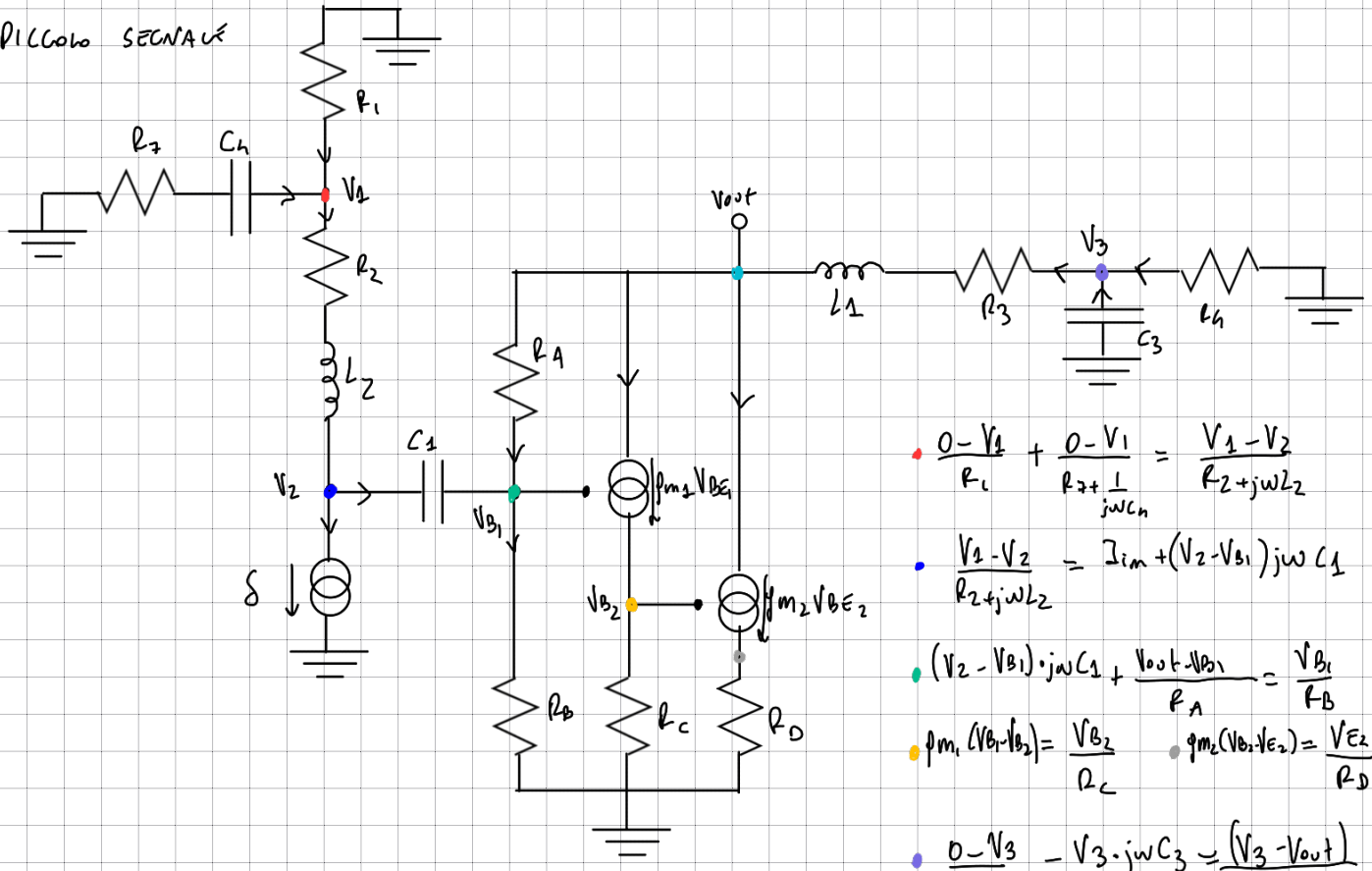
$I_{C1} = 7,9\ mA$

$$g_{m1} = \frac{I_{C1}}{V_{BE}} = 0,0132\ S$$

$I_{C2} = 0,317\ A$

$$g_{m2} = \frac{I_{C2}}{V_{BE}} = 0,528\ S$$

PICCOLO SEGNALE



- $\frac{0-V_1}{R_1} + \frac{0-V_1}{R_7+\frac{1}{jwC_4}} = \frac{V_1-V_2}{R_2+jwL_2}$
- $\frac{V_1-V_2}{R_2+jwL_2} = I_{im} + (V_2-V_{B1})jwC_1$
- $(V_2-V_{B1})\cdot jwC_1 + \frac{V_{out}-V_{B1}}{R_A} = \frac{V_{B1}}{R_B}$
- $g_{m1}(V_{B1}-V_{B2}) = \frac{V_{B2}}{R_C}$ $\quad$ $g_{m2}(V_{B2}-V_{E2}) = \frac{V_{E2}}{R_D}$
- $\frac{0-V_3}{R_4} - V_3\cdot jwC_3 = \frac{(V_3-V_{out})}{jwL_1+R_3}$
- $\frac{V_3-V_{out}}{jwL_1+R_3} = g_{m2}(V_{B2}-V_{E2}) + g_{m1}(V_{B1}-V_{B2}) + \frac{V_{out}-V_{B1}}{R_A}$

$V_{BE1} = V_{B1} - V_{B2}$

$V_{BE2} = V_{B2} - V_{E2}$

8 incognite e 7 eq?!