

Bias the amplifier

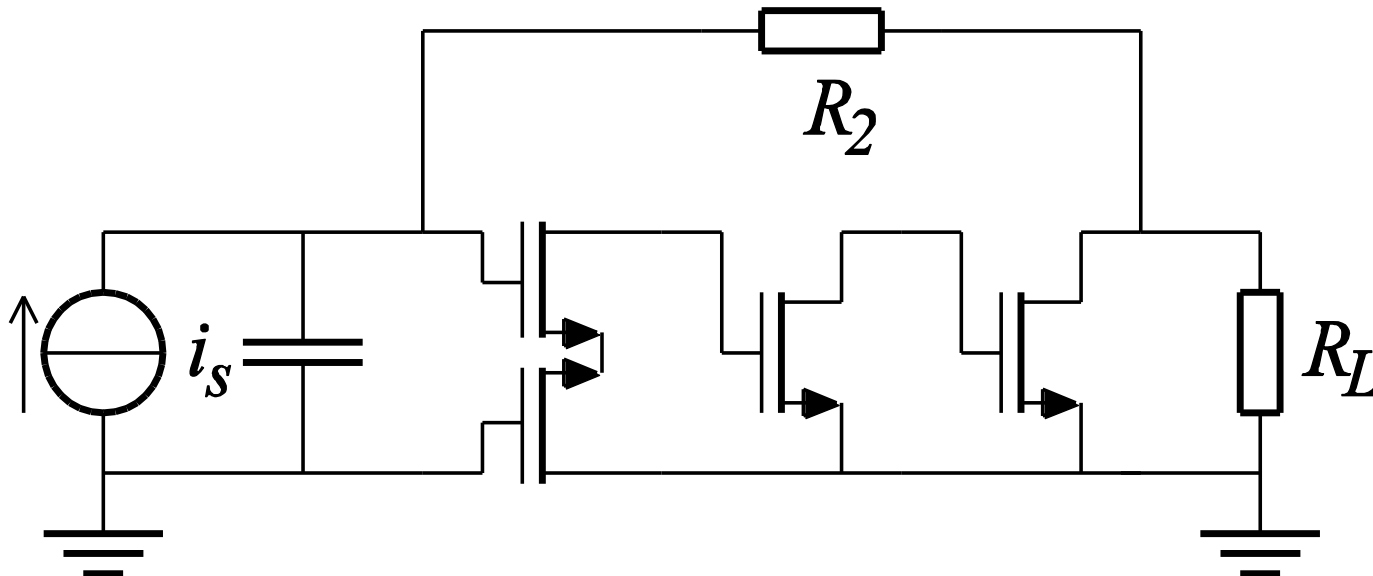
An amplifier shown in the figure is to be biased.

a) Draw a schematic using ideal current sources and indicate voltage levels.

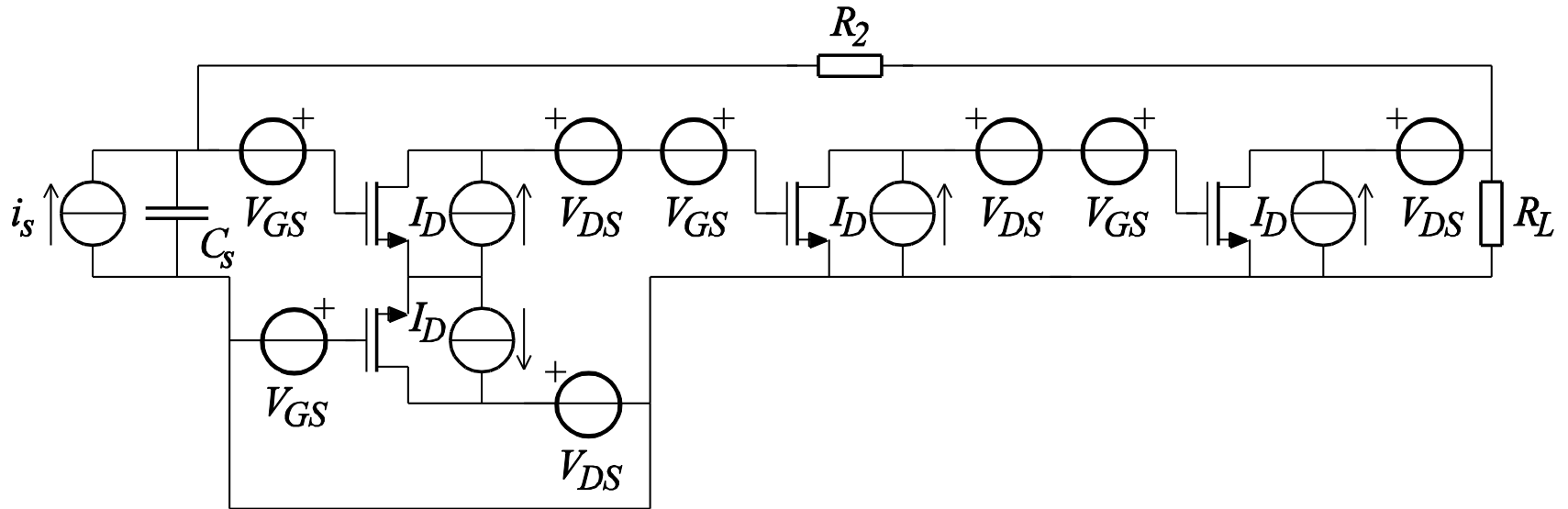
Input, i_s , and output, v_L , has ground potential.

Output voltage swing is max 1,6V and $V_{GS} = 0,8V$. (2p)

b) Minimize the number of bias sources and resolve conflicts. (2p)

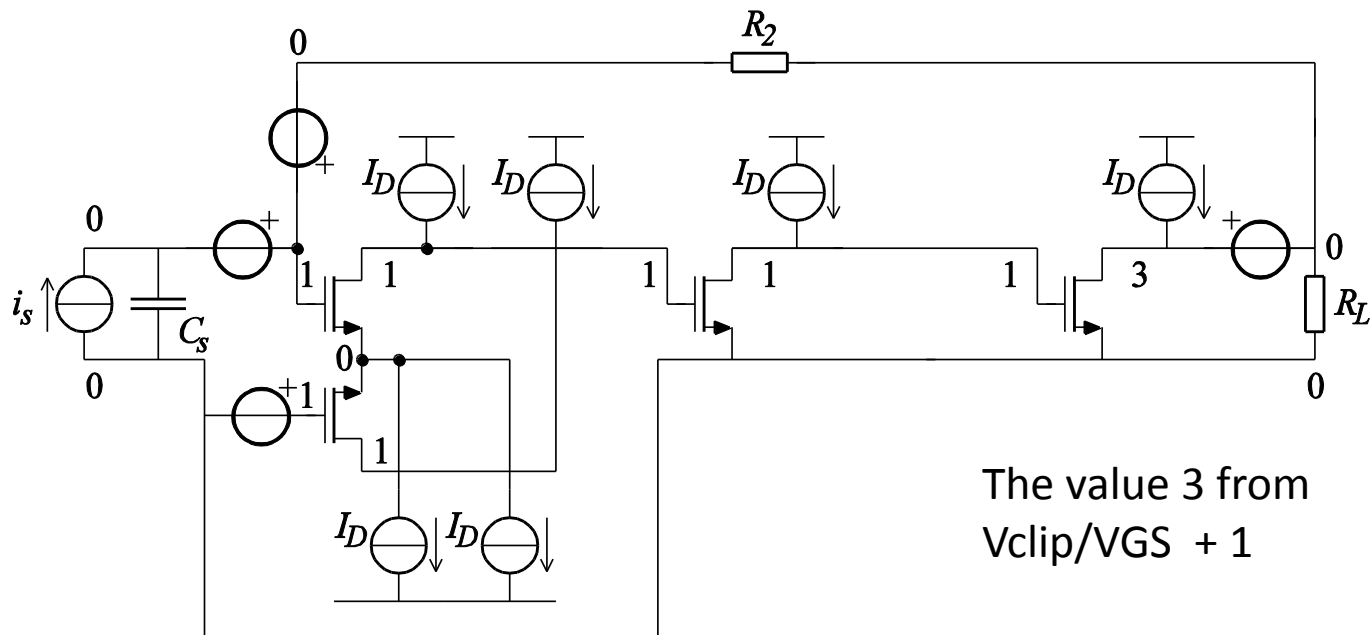
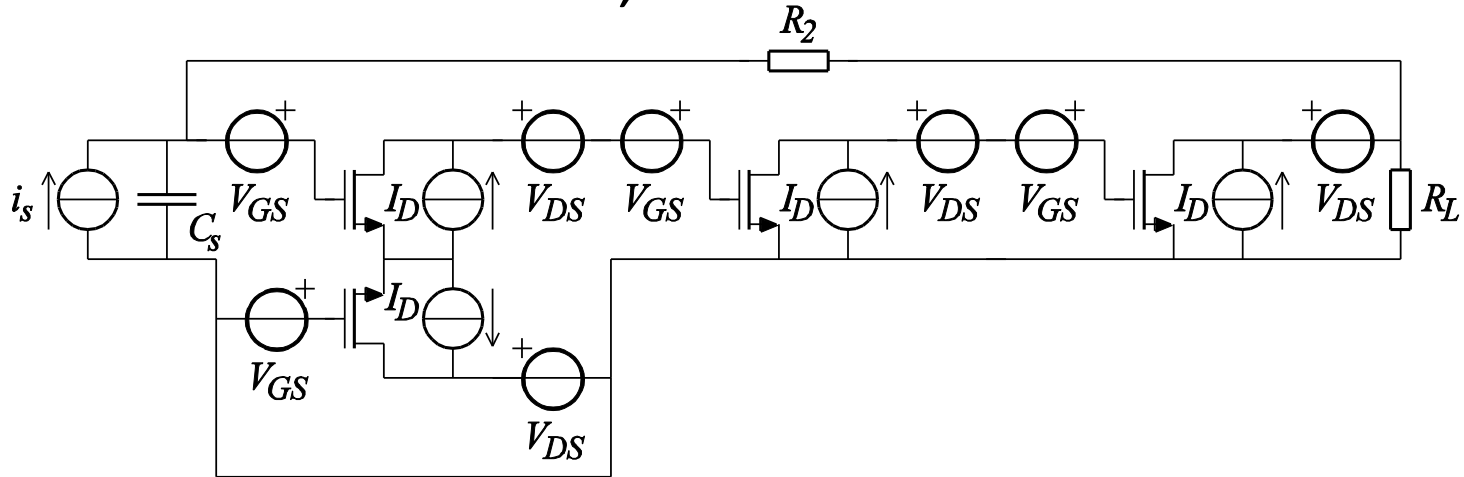


Add sources



Shift current sources and set voltage levels.

$$1,6V = 2V_{GS}$$



The value 3 from $V_{clip}/V_{GS} + 1$

Swap output transistor for P-channel

