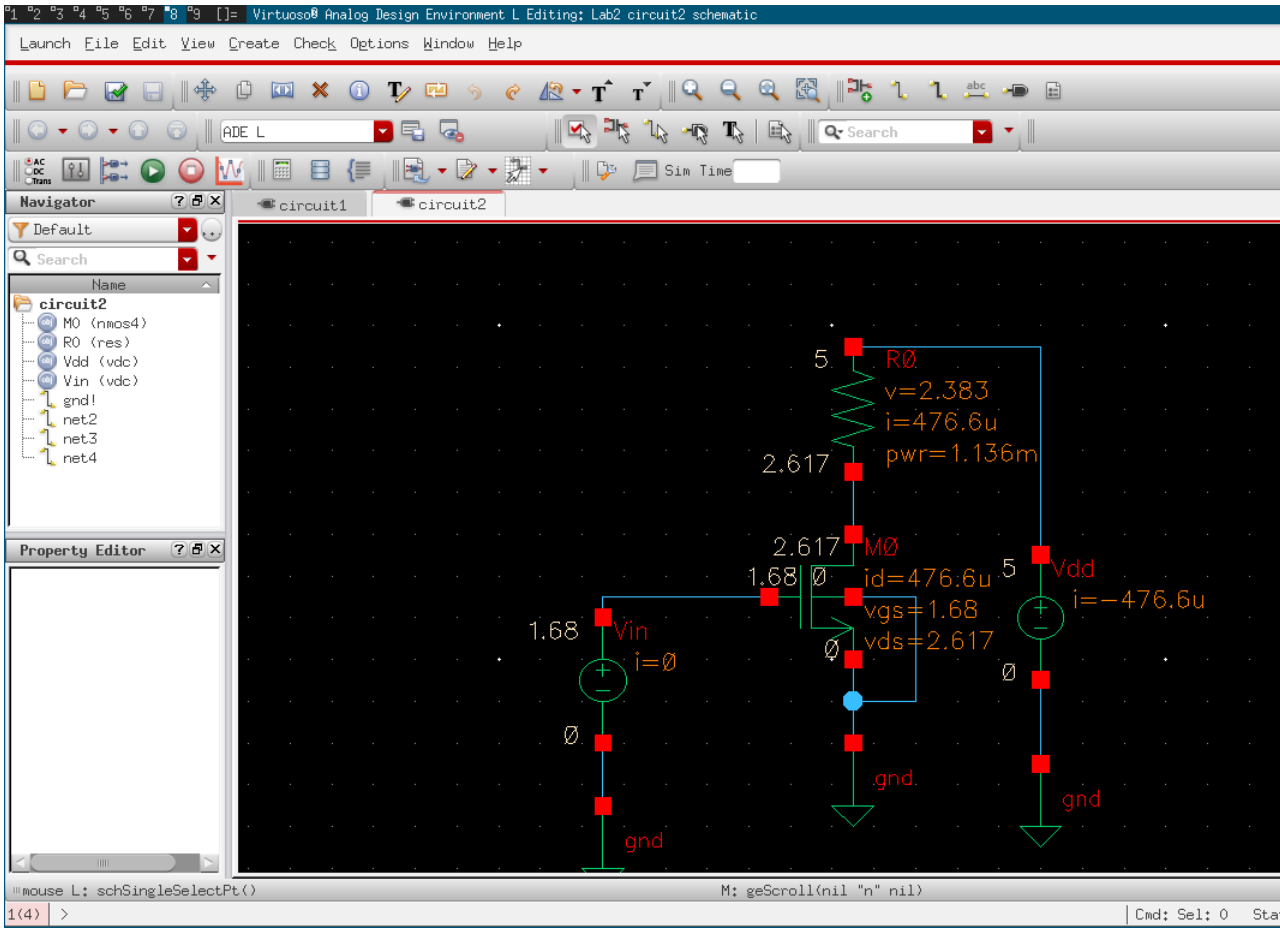

Figure 1: Common-Source Amplifier

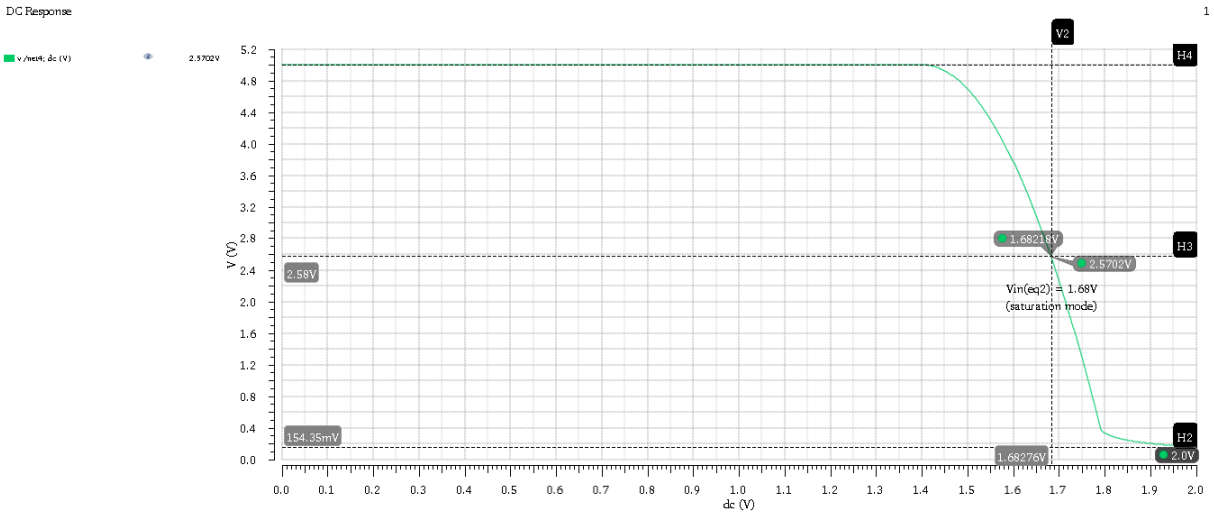

Figure 2: Voltage Transfer Characteristic for Common-Source Amplifier

$V_{in(eq2)} = 1.68$V for this particular amplifier. The transistor operates in the saturation region at this point. Common-source amplifiers start in cutoff mode for V_{in} below the threshold voltage V_{tn}. When V_{in} is too large, they typically enter the triode mode. For the region in between these two modes, the amplifier operates in saturation. Figure (1) shows the results of a DC operating point simulation. These results can be used to calculate g_m and r_o.

Table 1: g_m for Common-Source Amplifier

gm from Op Point Listing [mA / V]	Calculated gm [mA / V]	Error from Listing
3.41	3.40	0.02%

Table 2: r_o for Common-Source Amplifier

ro from Op Point Listing [kiloohms]	Calculated ro [kiloohms]	Error from Listing
414.08	610.31	47.39%