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$g_{m8} = g_{m9} = g_{m7} = \sqrt{2 \cdot 40\mu \cdot \frac{14}{0,7} \cdot 0,2m} = 5,65 \cdot 10^{-4}\,S$

$g_{m1} = \sqrt{2 \cdot 40\mu \cdot \frac{28}{0,7} \cdot 0,1m} = 5,65 \cdot 10^{-4}\,S$

$g_{m2} = g_{m1}$

$g_{m3} = g_{m4} = \sqrt{2 \cdot 80\mu \cdot \frac{7}{0,2} \cdot 0,1m} = 4 \cdot 10^{-4}\,S$

$g_{m5} = g_{m6} = \sqrt{2 \cdot 60\mu \cdot 20 \cdot 0,2m} = 8 \cdot 10^{-4}\,S$

1) $V_{in2} = 0$

$A_{d11} = \frac{V_{o1}}{V_{in1}} = \frac{V_{d5}}{V_{g5}} \cdot \frac{V_{d7}}{V_{s2}} \cdot \frac{V_{s1}}{V_{g1}}$

$A_{d21} = \frac{V_{o2}}{V_{in1}} = \frac{V_{d6}}{V_{g6}} \cdot \frac{V_{d1}}{V_{g1}}$

$r_{di7} = r_{ds7} = 200k\Omega$

$r_{di1} = r_{ds1} + g_{m1} \cdot r_{ds7} \cdot r_{ds1} + r_{ds7}$

$r_{ds1} = 400k\Omega$

$r_{di8} =$

$\frac{V_{s1}}{V_{gs1}} \cong \frac{g_{m1} \cdot r_{ds7}}{1 + g_{m1} \cdot r_{ds7}}$ $\qquad$ $\frac{V_{d5}}{V_{g5}} \cong -g_{m5} \cdot r_{di8}$

$\frac{V_{d2}}{V_{s2}} \cong g_{m2} \cdot \frac{1}{g_{m3}}$

$\frac{V_{o1}}{V_{in1}} \cong \frac{g_{m1} \cdot r_{ds7}}{1 + g_{m1} \cdot r_{ds7}} \cdot (-g_{m5} \cdot r_{di8}) \cdot \left(\frac{g_{m2}}{g_{m3}}\right)$ ($\frac{g_{m1} \cdot r_{ds7}}{1 + g_{m1} \cdot r_{ds7}} \cong 1$, $\frac{g_{m2}}{g_{m3}} = 1,4$)

$\frac{V_{d1}}{V_{g1}} \cong -\frac{g_{m1} \cdot \frac{1}{g_{m3}}}{1 + g_{m1} \cdot r_{di7}}$ $\qquad$ $\frac{V_{d6}}{V_{g6}} = -g_{m6} \cdot r_{di7}$

$A_{d21} = \frac{V_{o2}}{V_{in1}} = -\frac{g_{m1} \cdot \frac{1}{g_{m3}}}{1 + g_{m1} \cdot r_{di7}} \cdot (-g_{m6} \cdot r_{di7})$

$0,012$