$C_L := 1pF \qquad C_F := 500fF \qquad C_S := 100fF \qquad \varepsilon := 0.001$

Use piecewise linear approximation for gm1:

$g_{m1} := \frac{100\mu A}{200mV} \qquad g_{m1} = 0.5\,mS$ for $V_{GS1} > V_{TH1} + 200mV$

$g_{m1} = 0$ otherwise.

(We certainly could do better than that ... at the expense of more math. Let's leave that for SPICE ...).

$C_{FL} := \frac{C_F \cdot C_L}{C_F + C_L} \qquad C_{FL} = 333.333\,fF$

$C_{SF} := \frac{C_S \cdot C_F}{C_S + C_F} \qquad C_{SF} = 83.333\,fF$

$F := \frac{C_F}{C_F + C_S} \qquad F = 0.833$

$\tau := \frac{C_L + C_{SF}}{g_{m1}} \cdot \frac{1}{F} \qquad \tau = 2.6\,ns \qquad \omega_u := \frac{g_{m1}}{C_L + C_{SF}} \qquad \omega_u = 4.615 \times 10^{8}\,Hz$

$SR := \frac{100\mu A}{C_L + C_{SF}} \qquad SR = 92.308\,\frac{V}{\mu s}$

slewing response ...

$V_i := 2V$

$\Delta V_x := V_i \cdot \frac{C_S}{C_S + C_{FL}} \qquad \Delta V_x = 0.462\,V$

$\Delta V_o := V_i \cdot \frac{C_{SF}}{C_{SF} + C_L} \qquad \Delta V_o = 0.154\,V$

$t_{slew} := \frac{262mV}{F} \cdot \frac{1}{SR} \qquad t_{slew} = 3.406\,ns$

$V_{oslew} := 154mV - t_{slew} \cdot SR \qquad V_{oslew} = -0.16\,V \qquad V_{odes} := \frac{-2V}{5} \qquad V_{odes} = -0.4\,V$

linear settling ...

$\varepsilon_p := \varepsilon \cdot \frac{V_{odes}}{V_{odes} - V_{oslew}} \qquad \varepsilon_p = 1.669 \times 10^{-3}$

$t_{lin} := -\tau \cdot \ln(\varepsilon_p) \qquad t_{lin} = 16.628\,ns$

settling time ...

$t_s := t_{slew} + t_{lin} \qquad t_s = 20.034\,ns$