Many amplifiers look roughly like this 2-pole.

H1-2
Misform #1
Single pole amplifier

By inspection, very few figures

Capacitors are often component to any parallel resistors

Long compared to any parallel conductors

Parallel conductors

\[ \frac{1}{2} \] \[ \frac{1}{3} \]

DC sources charged

\[ V_i \]

\[ R_L \]

\[ C_0 \]

\[ V_o \]
whole scheme

KCL @ V0

\[ -5C_{sd}(V_i - V_0) + \frac{5}{g_m} - \frac{N_0}{R_0} + 5C_0N_0 = 0 \]

\[ -(g_m - 5C_{sd})V_i = \left( \frac{1}{R_0} + 5C_0 + 5C_{sd} \right) V_0 \]

\[ \frac{V_o}{V_i} = -\frac{g_m - 5C_{sd}}{\frac{1}{R_0} + 5(C_0 + C_{sd})} = -\frac{g_m R_0}{1 + 5R_0(C_0 + C_{sd})} \]

\[ w_2 = \frac{-g_m}{C_{sd}} \quad \text{RHP zero} \]

\[ w_p = \frac{1}{R_0(C_0 + C_{sd})} \quad \text{pole} \]

\[ \frac{V_o}{V_i} = \frac{-S_m R_0}{\frac{1}{w_p} - \frac{S_m R_0}{w_2}} \]

\[ \frac{V_o}{V_i} = \frac{-S_m R_0}{\frac{R_0(C_0 + C_{sd})}{S_m}} \]

\[ \frac{V_o}{V_i} = \frac{-S_m C_{sd}}{C_0 + C_{sd}} \]

\[ H(s) = \left\{ \begin{array}{ll}
S_m R_0 & |s| < 1/2R_0 \quad \text{low} \\
\frac{w_2}{5} |s| |w_2| & 1/2R_0 < |s| < w_2 \quad \text{mid} \\
\frac{w_p}{5} |s| |w_p| & |s| > w_p \quad \text{high} 
\end{array} \right. \]