

10-5. A full-wave precision rectifier is shown in Fig. P10-5. If the input voltage is $v_{in} = 0.1 \sin(2000\pi t)$, plot the transient response of the output voltage for a duration of 0 to 1 ms in steps of $10 \mu s$. The op-amp can be modeled by the circuit of Fig. 10-2(b), and has $R_i = 2 \text{ M}\Omega$, $R_o = 75 \Omega$, $C_1 = 1.5619 \mu\text{F}$, $R_1 = 10 \text{ k}\Omega$, and $A_o = 2 \times 10^5$. Use the default values for the diode model. The supply voltages are $V_{CC} = 12 \text{ V}$ and $V_{EE} = 12 \text{ V}$.

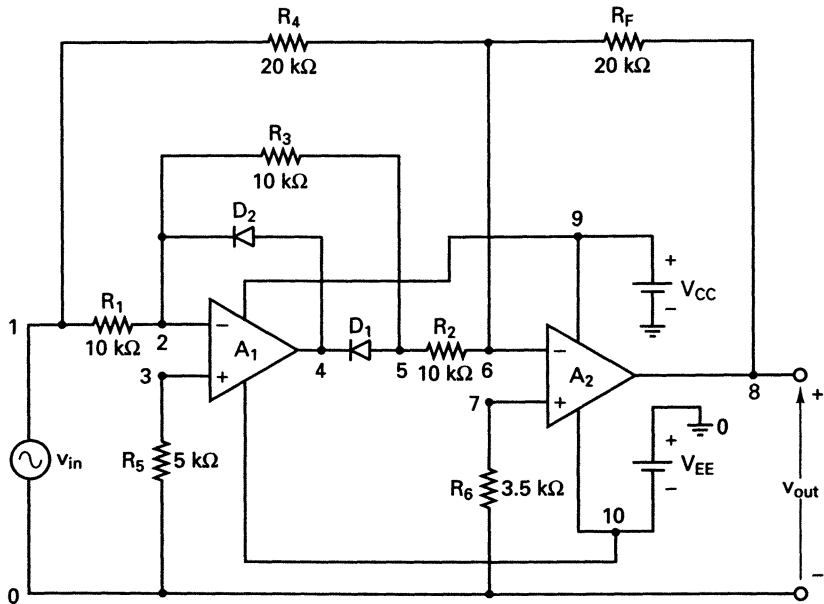
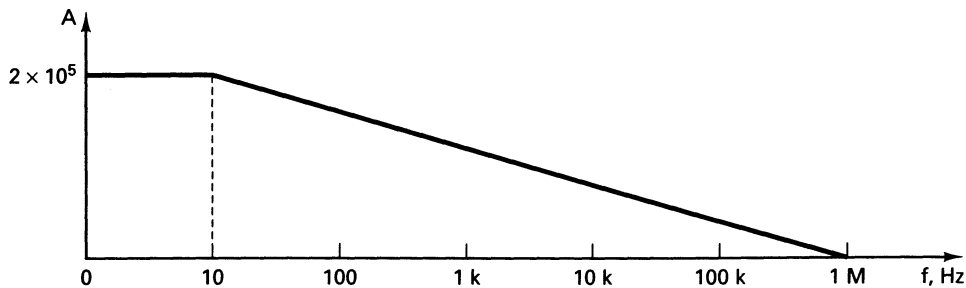
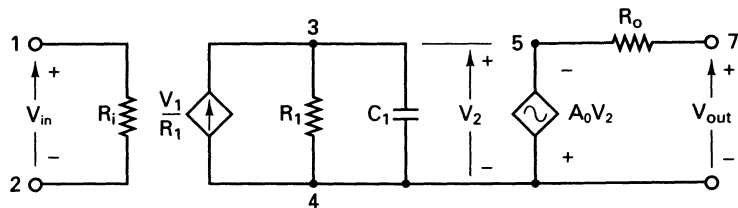


Figure P10-5



(a) Frequency response



(b) Circuit model

Figure 10-2 Ac linear model with a single break frequency.