Figure 12-38

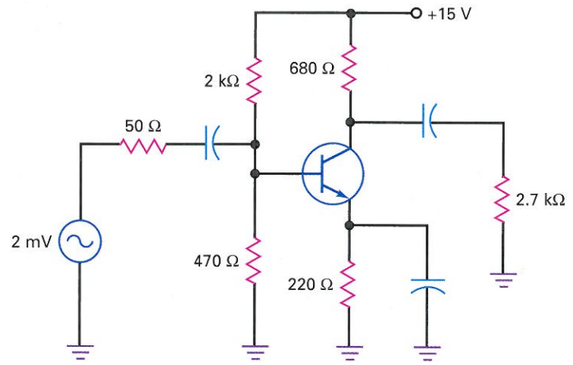


Figure 12-39

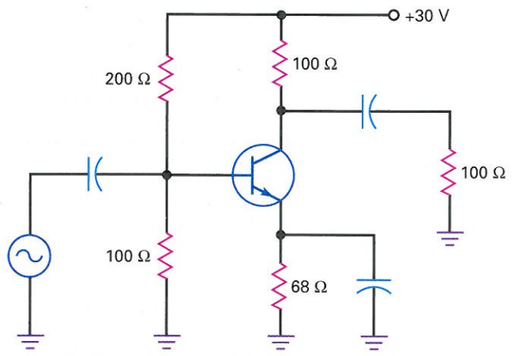
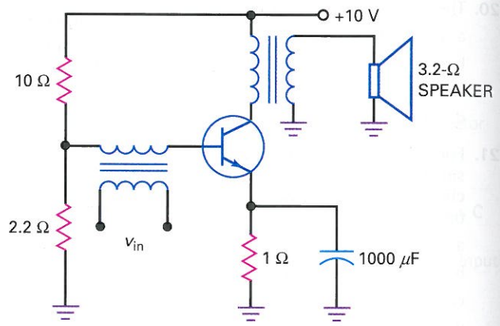


Figure 12-40



12-6 What is the dc collector resistance in Fig. 12-39? What is the dc saturation current?

12-7 In Fig. 12-39, what is the ac collector resistance? What is the ac saturation current?

12-8 What is the maximum peak-to-peak output in Fig. 12-39?

12-9 All resistances are doubled in Fig. 12-39. What is the ac collector resistance?

12-10 All resistances are tripled in Fig. 12-39. What is the maximum peak-to-peak output?

SEC. 12-3 CLASS A OPERATION

12-11 An amplifier has an input power of 4 mW and output power of 2 W. What is the power gain?

12-12 If an amplifier has a peak-to-peak output voltage of 15 V across a load resistance of 1 kΩ, what is the power gain if the input power is 400 μW?

12-13 What is the current drain in Fig. 12-38?

12-14 What is the dc power supplied to the amplifier of Fig. 12-38?

12-15 The input signal of Fig. 12-38 is increased until maximum peak-to-peak output voltage is across the load resistor. What is the efficiency?

12-16 What is the quiescent power dissipation in Fig. 12-38?

12-17 What is the current drain in Fig. 12-39?

12-18 What is the dc power supplied to the amplifier of Fig. 12-39?

12-19 The input signal of Fig. 12-39 is increased until maximum peak-to-peak output voltage is across the load resistor. What is the efficiency?

12-20 What is the quiescent power dissipation in Fig. 12-39?

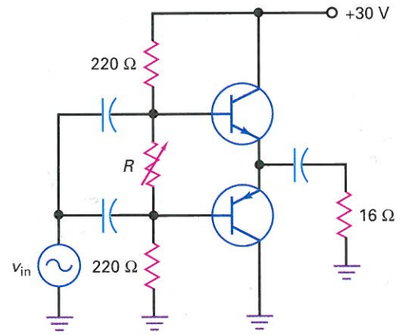
12-21 If $V_{BE} = 0.7$ V in Fig. 12-40, what is the dc emitter current?

12-22 The speaker of Fig. 12-40 is equivalent to a load resistance of 3.2 Ω. If the voltage across the speaker is 5 V pp, what is the output power? What is the efficiency of the stage?

SEC. 12-6 BIASING CLASS B/AB AMPLIFIERS

12-23 The ac load line of a class B push-pull emitter follower has a cutoff voltage of 12 V. What is the maximum peak-to-peak voltage?

Figure 12-41



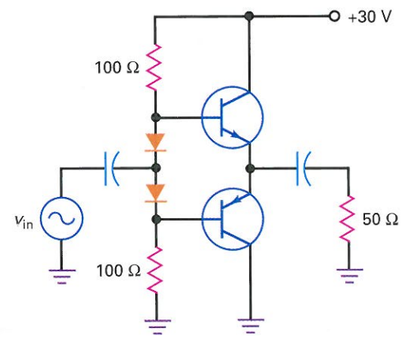
12-24 What is the maximum power dissipation of each transistor of Fig. 12-41?

12-25 What is the maximum output power in Fig. 12-41?

12-26 What is the quiescent collector current in Fig. 12-42?

12-27 In Fig. 12-42, what is the maximum efficiency of the amplifier?

Figure 12-42



12-28 If the biasing resistors of Fig. 12-42 are changed to 1 kΩ, what is the quiescent collector current? The efficiency of the amplifier?

SEC. 12-7 CLASS B/AB DRIVERS

12-29 What is the maximum output power in Fig. 12-43?

12-30 In Fig. 12-43, what is the voltage gain of the first stage if $\beta = 200$?

12-31 If Q_3 and Q_4 have current gains of 200 in Fig. 12-43, what is the voltage gain of the second stage?

12-32 What is the quiescent collector current in Fig. 12-43?

12-33 What is the overall voltage gain for the three-stage amplifier in Fig. 12-43?

SEC. 12-8 CLASS C OPERATION

12-34 MultiSim If the input voltage equals 5 V rms in Fig. 12-44, what is the peak-to-peak input voltage? If the dc voltage between the base and ground is measured, what will the voltmeter indicate?

12-35 MultiSim What is the resonant frequency in Fig. 12-44?

12-36 MultiSim If the inductance is doubled in Fig. 12-44, what is the resonant frequency?

12-37 MultiSim What is the resonance in Fig. 12-44 if the capacitance is changed to 100 pF?

SEC. 12-9 CLASS C FORMULAS

12-38 If the class C amplifier of Fig. 12-44 has an output power of 11 mW and an input power of 50 μW, what is the power gain?

12-39 What is the output power in Fig. 12-44 if the output voltage is 50 V pp?

12-40 What is the maximum ac output power in Fig. 12-44?

12-41 If the current drain in Fig. 12-44 is 0.5 mA, what is the dc input power?

12-42 What is the efficiency of Fig. 12-44 if the current drain is 0.4 mA and the output voltage is 30 V pp?

Figure 12-43