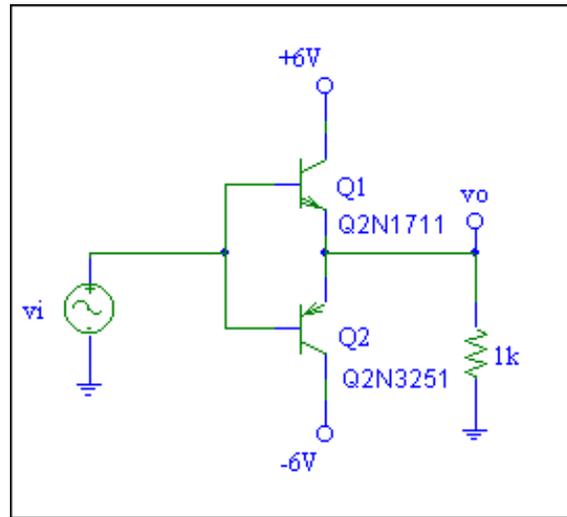


PUSH-PULL POWER AMPLIFIERS

1. For the circuit below, with  $v_i = 4\text{ Vp-p}$  :
  - a. Graph the expected output voltage,  $v_o$ .
  - b. Find the average load power, and the average power dissipated in each transistor, and the efficiency ( $\eta$ ) for this circuit.
2. Construct this circuit and observe  $v_o$ . Provide a scope picture of this waveform (choose v/div and s/div scales to show important effects).

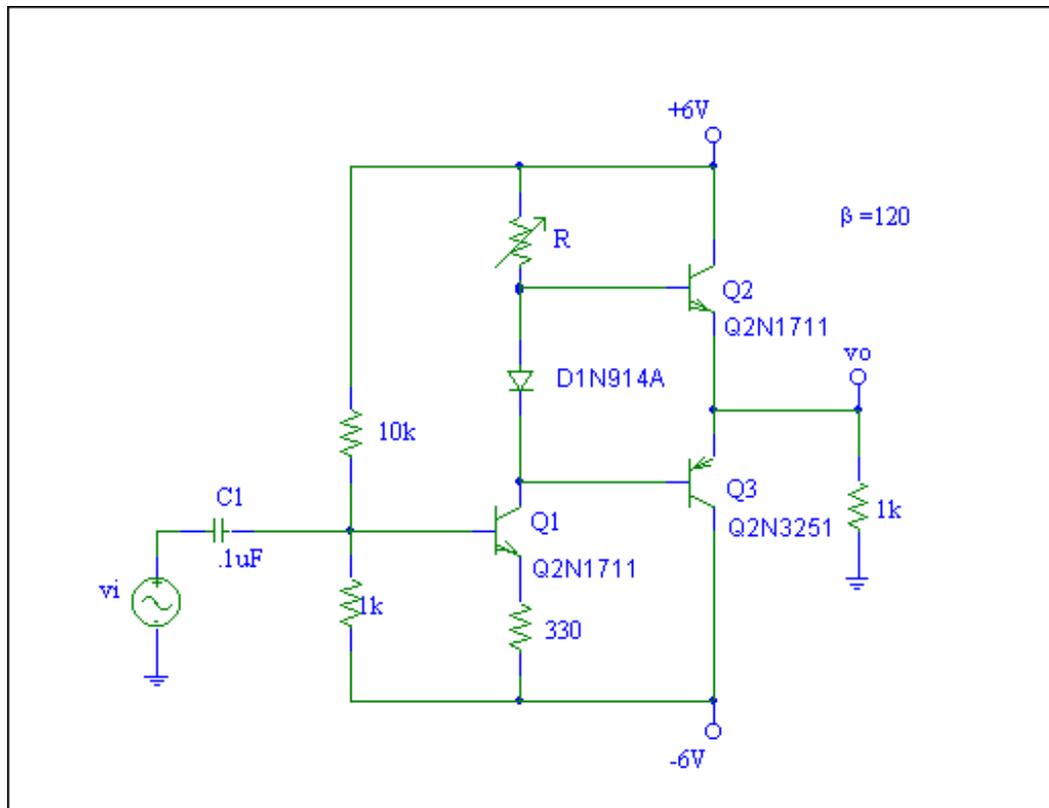


3. Analyze and design the amplifier below, using the base separation diode ( $\sim 0.6\text{V}$ ) to minimize crossover distortion. Use  $R$  to set  $V_{B2} = 0.3\text{V}$  and  $V_{B3} = -0.3\text{V}$ .

!!!!!!!

**CAUTION-**  
Do not connect driver Q2 and Q3 until you check for correct base separation voltages. Add AC input (4Vp-p) immediately and monitor the output driver for over- heating.

Observe  $v_o$  for various output levels, noting any

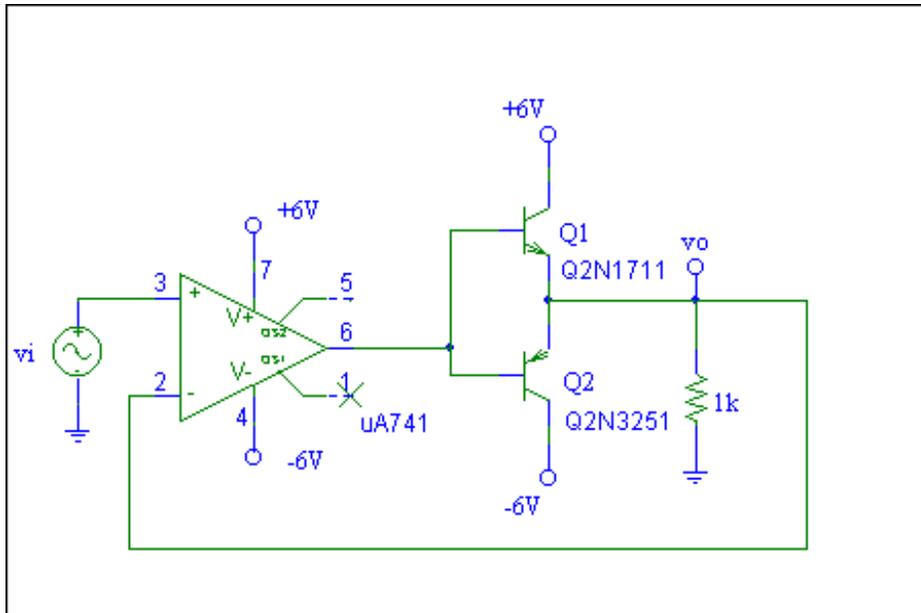


crossover distortion.

Obtain a picture from the scope of the output due to 4Vp-p and your least distorted output signal

Check over-heating frequently!!!

3. Build below the feedback the driver. p, and picture to others.



the circuit and investigate results if  $v_i$  is made from emitters of the Set  $v_i$  to 4Vp-p-obtain a scope of this output compare with

4. Compare all theoretical and experimental values.