10-7. For Fig. P10-7, plot the dc transfer characteristics. The input voltage is varied from -10 V to 10 V in steps of 0.1 V. The op-amp can be modeled as a macromodel, as shown in Fig. 10-3. The description of the macromodel is listed in library file EVAL.LIB. Use the default values for the diode model.
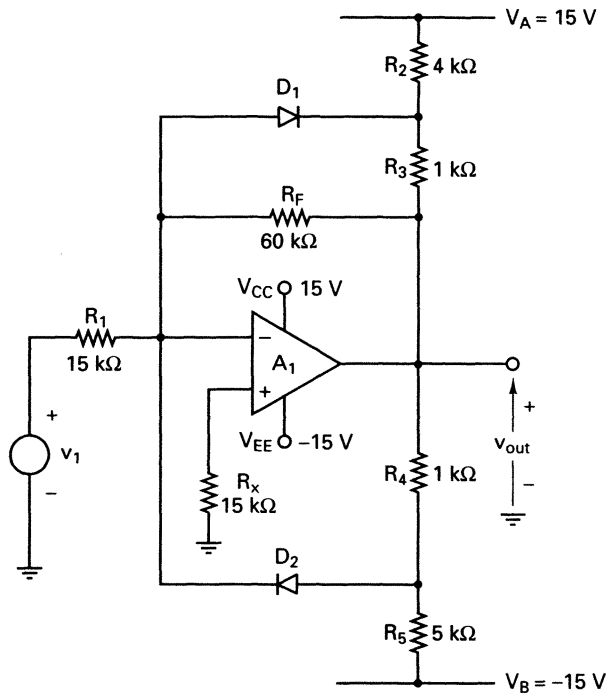
$V_A = 15$ V

R_2 4 kΩ

D_1

R_3 1 kΩ

R_F
60 kΩ

V_{CC} 15 V

R_1
15 kΩ

A_1

V_{EE} −15 V

V_{out}

R_4 1 kΩ

$+$
v_1
$-$

R_x
15 kΩ

D_2

R_5 5 kΩ

$V_B = -15$ V

Figure P10-7

10-13. Use PSpice to perform a Monte Carlo analysis for five runs and for the dc analysis of Example 10-7. The output voltage is taken between nodes 3 and 5. The model parameter is $R=1$ for resistors. The lot deviation for all resistances is $\pm 15\%$. The transistor parameter having uniform deviations is

$$BF = 50 \pm 20$$

(a) The greatest difference of the output voltage from the nominal run is to be printed.
(b) The maximum value of the output voltage is to be printed.
(c) The minimum value of the output voltage is to be printed.