

Design & Simulate 25

ECE2204 CRN:82929

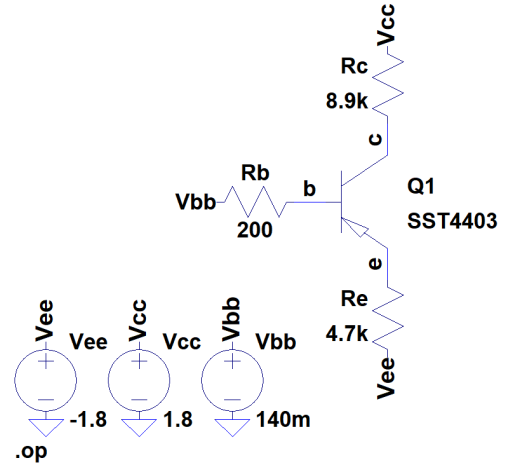
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Problem 25.5-7.b.1:

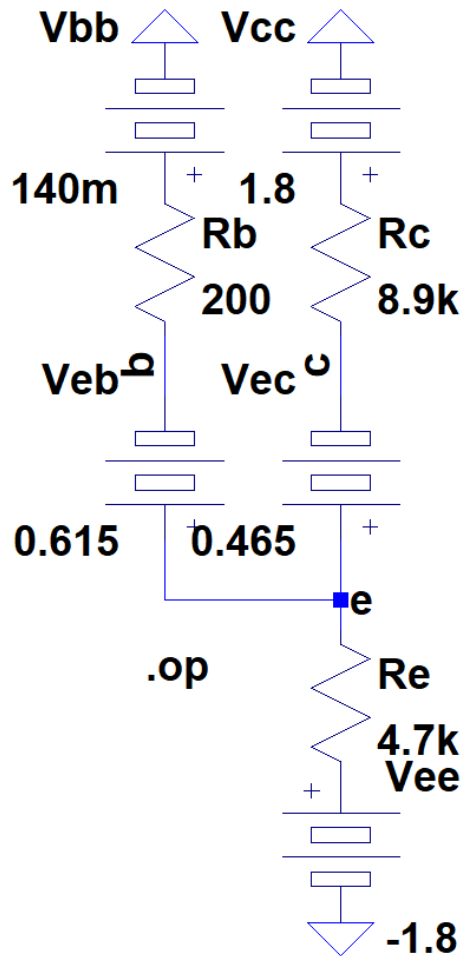
Design

Calculate the power of the transistor. The transistor is currently in Saturation mode with $\beta = 150$, $V_{ECon} = 0.465V$, and $V_{EBon} = 0.615V$.



Validation

LTSpice Implementation (All values of truth table match waveform)



V(e):	0.683066	voltage
V(b):	0.0700664	voltage
V(c):	0.210066	voltage
V(p001):	0.14	voltage
V(p002):	1.8	voltage
V(p003):	-1.8	voltage
I(Re):	0.000528312	device_current
I(Rc):	0.000178644	device_current
I(Rb):	0.000349668	device_current
I(Vee):	0.000528312	device_current
I(Vcc):	-0.000178644	device_current
I(Vbb):	-0.000349668	device_current
I(Vec):	-0.000178644	device_current
I(Veb):	-0.000349668	device_current

This problem should demonstrate a basic ability to analyse basic BJT circuits.

I have neither given nor received unauthorized assistance on this assignment.