

Electronics II

Differential Pair

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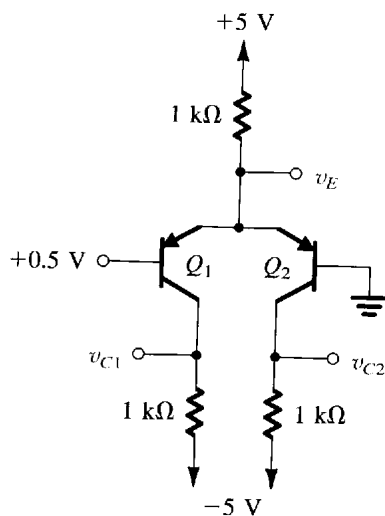
1:

For a multi-current source, prove that the current in each of the individual current mirrors is equal to $I_1 = I_2 = \dots = \beta/(\beta+1+n) I_{ref}$

2:

Current sources/mirrors

For the current source of the lecture notes, calculate the non-idealities introduced by finite β and r_o .

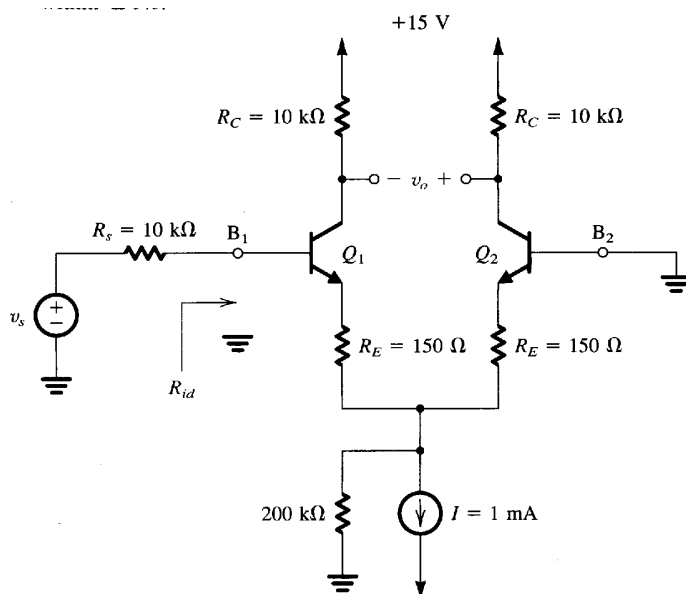


3:

$\beta = 99$, $V_A = 100$ V. $V_{BE} = 0.7$ V, $\alpha = 1$.

Calculate

- V_E
- V_{C1}
- V_{C2}



4:

$\beta = 99$, $V_A = 100$ V

Calculate

- r_{in} (common mode)
- r_{in} (differential mode)
- A_{dm}
- A_{cm}
- CMRR

