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LINEAR INTEGRATED CIRCUITS

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Part-01: Differential Amplifier

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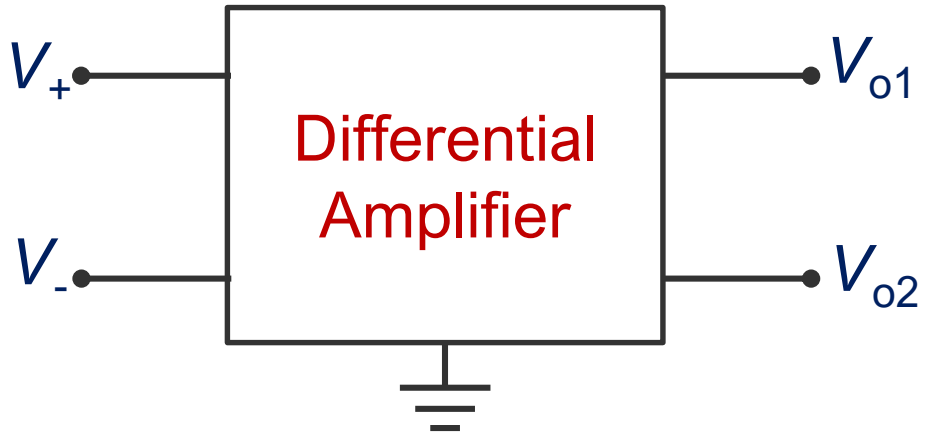
Differential Amplifier

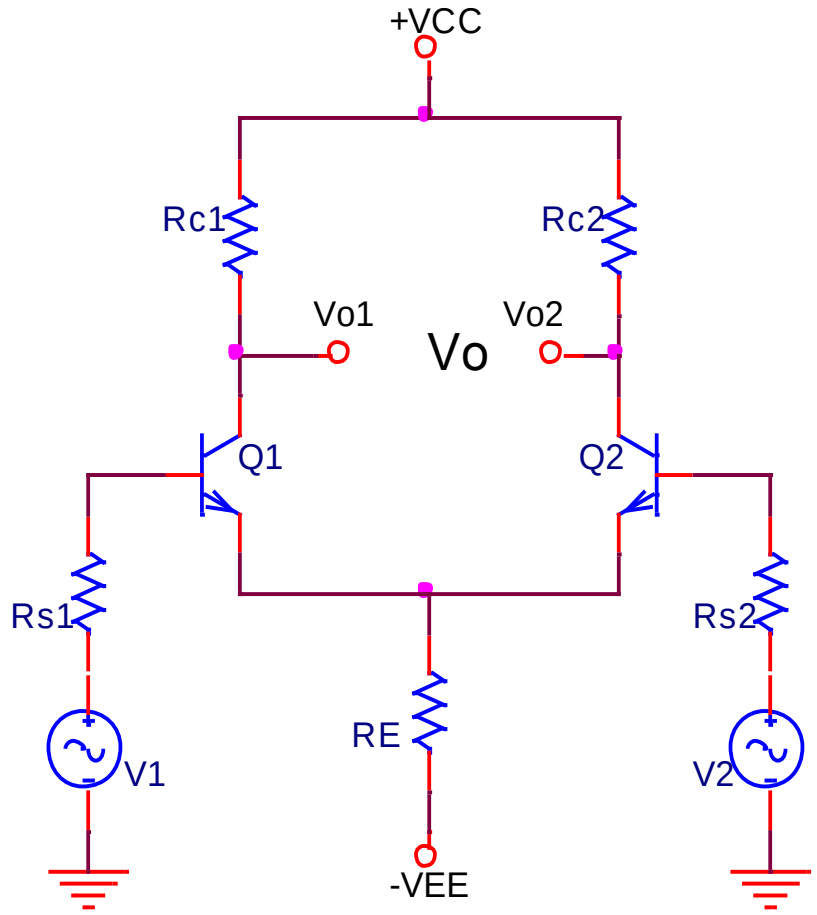
1. Differential Amplifier amplifies the difference between two input voltages.
2. These two inputs are
   - Inverting Input Terminal
   - Non-Inverting Input Terminal
3. It also suppresses any common voltage (noise) applied at both input terminals.

$$V_o = A_d(V_+ - V_-)$$



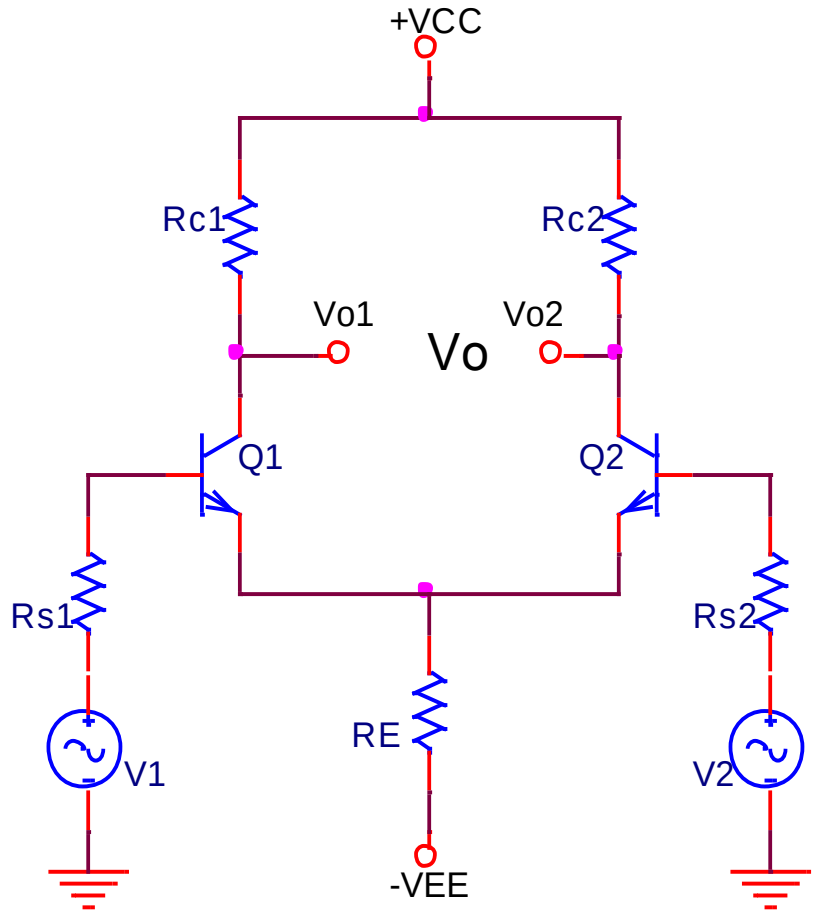
Differential Amplifier Structure

- Two identical transistor
- Two biasing supplies voltages $+V_{CC}$ and $-V_{EE}$
- Inputs applied at BJT base terminals
- Output obtained from collector terminals



Types of Differential Amplifier

1. Dual Input Balanced Output
2. Dual Input Unbalanced Output
3. Single-input Balanced Output
4. Single-input Unbalanced Output



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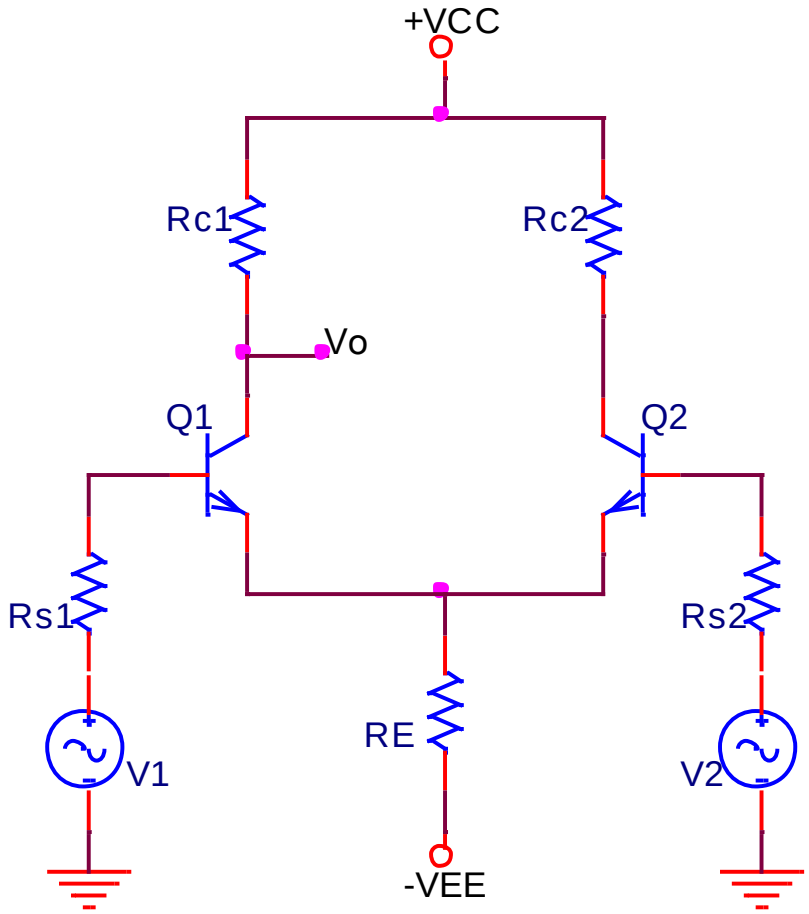

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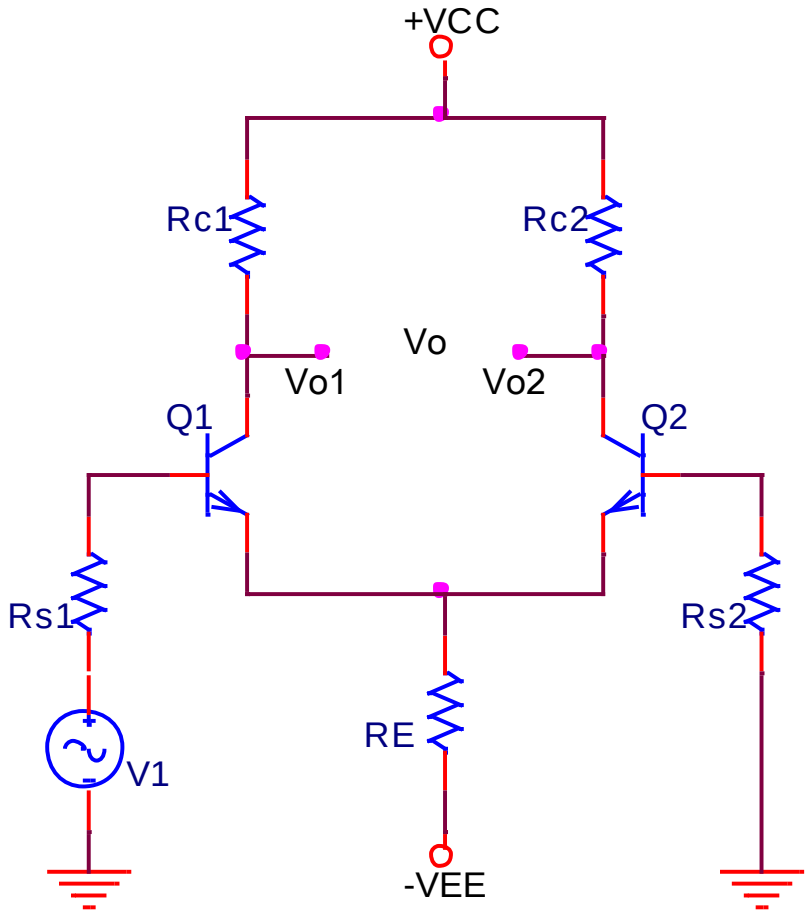

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