John Shanrock, Joshua Smith

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Laboratory 3: Active Current Sources

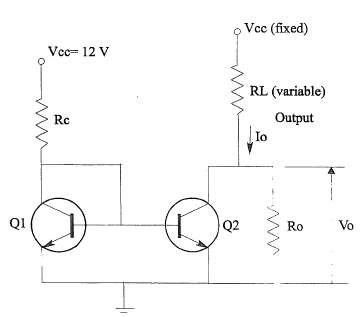
**Objective**

Many linear integrated circuit designs require a current source. For example, an independent current source is frequently used in the production of a differential amplifier since it is undesirable to fabricate large resistors on an IC. The goal of this lab is to design a two-transistor current source and a Widlar current source. This design requires calculating the resistors values based on the desired output current within a voltage range.

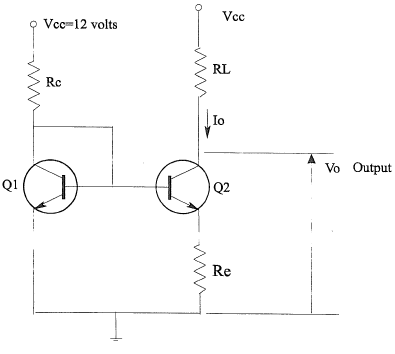
**Design Calculations**

**Conclusions**

In conclusion…



**Figure 1 – Simple Current Source**



**Figure 2 – Widlar Current Source**

**Table 1 – Results**

|  |  |  |
| --- | --- | --- |
|  | **Figure 1** | **Figure 2** |
| **RC** | 9.2321 | 9.2338 |
| **RL** | 4.0386 | 2.3979 |
| **VO** | 5.9440 | 7.5635 |
| **RE** |  | 0.10111 |