Description

In cases where the basic current source needs to be more stable over a large output voltage range, a higher output impedance current source may be desired. This is accomplished by putting two current sources in “cascade” to each other as shown. N channel cascode current source uses 4 N channel MOSFETs. The set current is given by the equation: \( I_{\text{SET}} = \frac{(V_+ - V_{GD1} - V_{GD3})}{R_{\text{SET}}} \). \( I_{\text{SOURCE}} \) is equal to \( I_{\text{SET}} \) for output voltages exceeding \( V_{GD1} + V_{GD3} \). \( I_{\text{SOURCE}} \) is a “sink” current to Ground. In the example given in the schematic, if \( V_T = 1.0V \), and \( V_+ = 5.0V \), then \( I_{\text{SOURCE}} \) is equal to \( 3/R_{\text{SET}} \). A P-channel current source works in the same manner, except that \( I_{\text{SOURCE}} \) is a “source” current from \( V_+ \) instead.

For full schematic diagram and notes, please register and login at aldinc.com