Non-inverting Operational Amplifier

Student Group

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Op-Amp as current source

An Op-Amp can not only amplify voltages and currents, it can also act as a current source itself. Here is the schematic of a typical Op-Amp current source:

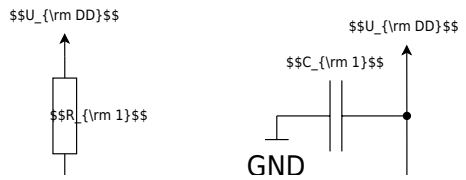

Fig. 1: Non-inverting Op-Amp: current source

$U_{\rm DD}{\rm~=10~V},~U_{\rm SS}{\rm~=-10~V},~R_{\rm 1}{\rm~=100~k\Omega},~R_{\rm 2}{\rm~=10~k\Omega},~R_{\rm 3}{\rm~=100~\Omega},~D_{\rm 1}{\rm~=100~nF},~D_{\rm 2}{\rm~=100~nF}$

Measure the values given in the table below.

Potentiometer	$U_{\rm R2}$	$U_{\rm R3}$	$I_{\rm OUT}$	$U_{\rm OUT}$	$I_{\rm OUT}$	$U_{\rm OUT}$
0%						
50%		...				

Tab. 1: Op-Amp as current source: measured and calculated values

Why does the current remain constant at the output of the Op-Amp?
Give a brief explanation of the circuit's operating principle.

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