Current Mirror Circuit Using CMOS

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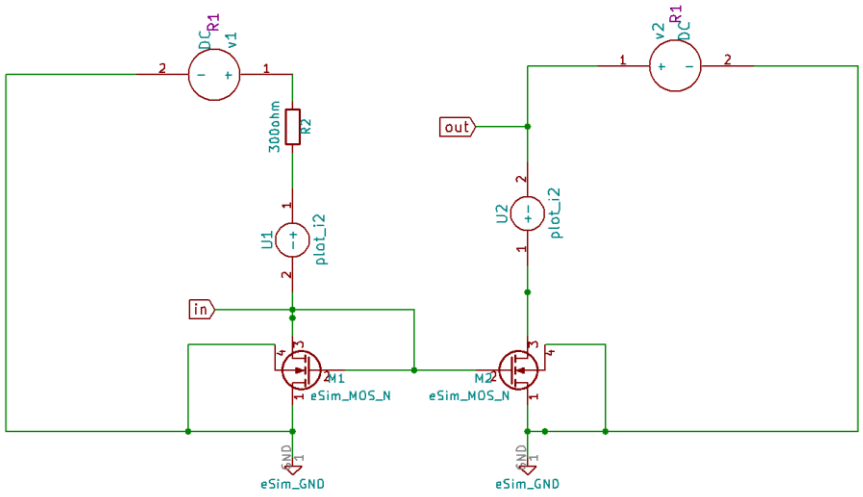
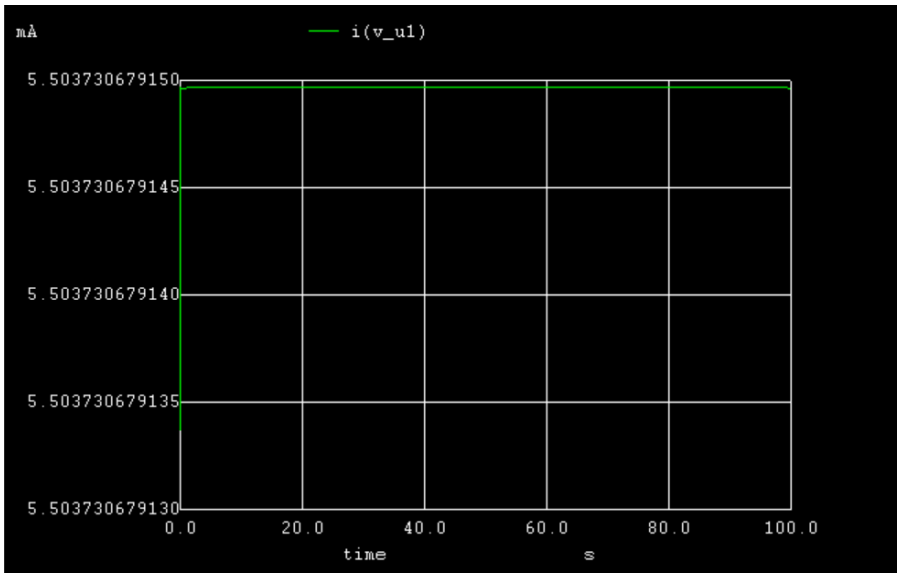
Introduction: This circuit copies the current through one active device to another active device with current control feature. Here the current flowing in one device is copied into another but in inverting form. If the current of the first device is changed, the mirrored current output of the other device will also change. So by controlling the current in one device, the current in another device can also be controlled. an ideal current mirror is simply an ideal inverting current amplifier that reverses the current direction as well.

I. CMOS based Current Mirror

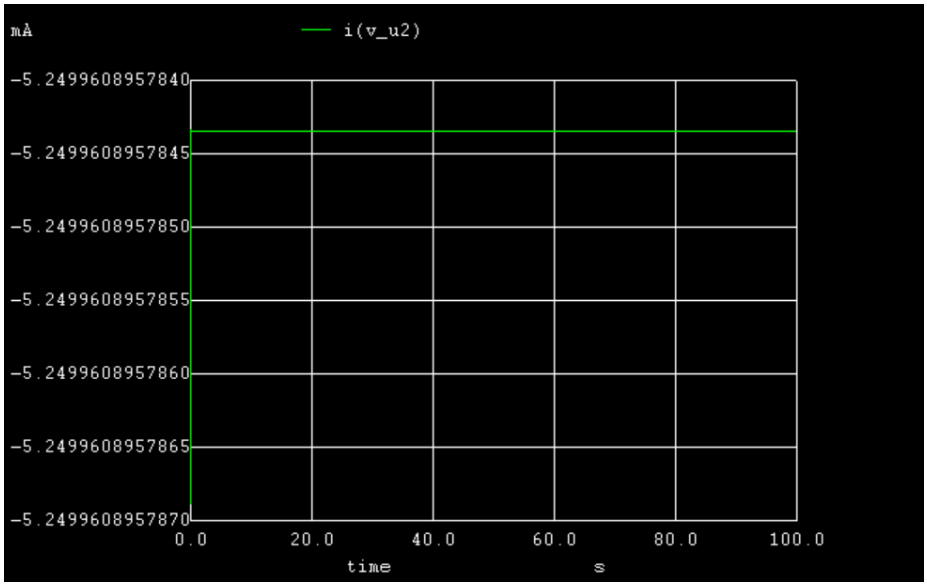
Schematic diagram:



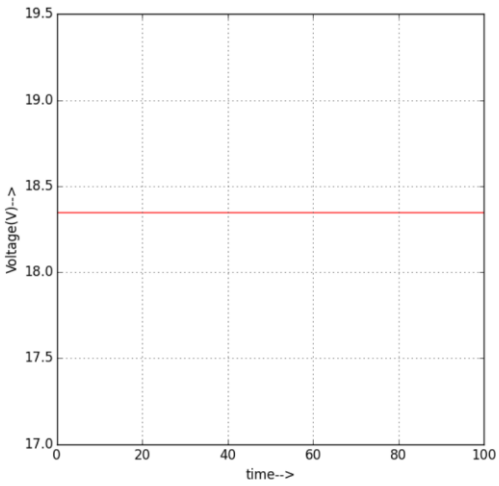
Simulation Results : Ngspice Plots- Input signal



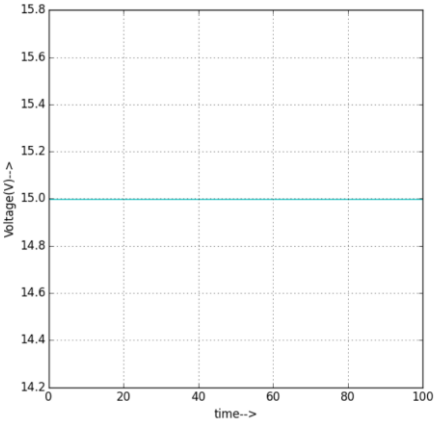
Ngspice Plots- Output signal



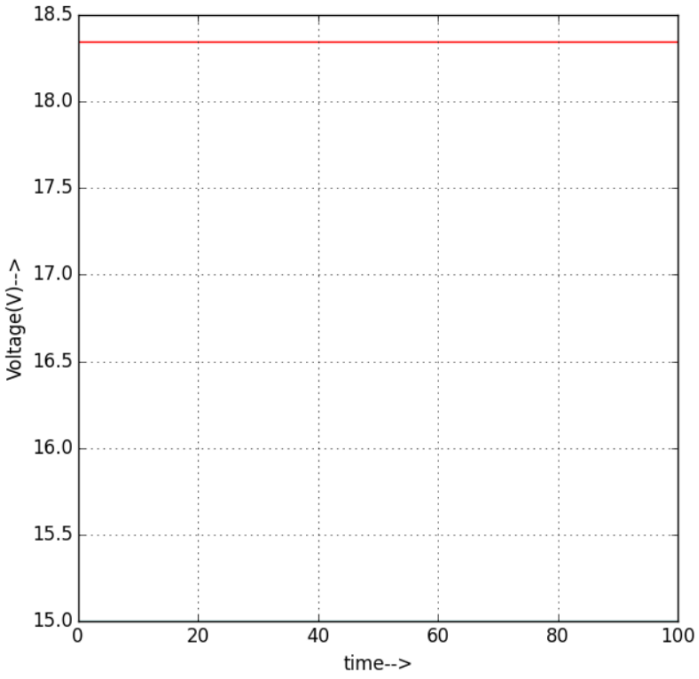
Python Plots - Input signal



Python Plots - Output signal



Python Plots - Input and Output signal overlapped



Conclusion:

CMOS based current mirror was simulated using esim and appropriate waveforms were obtained.

References:

1. https://circuitdigest.com/tutorial/current-mirror-circuit