



Simple DC Voltage Stabilizer

By:

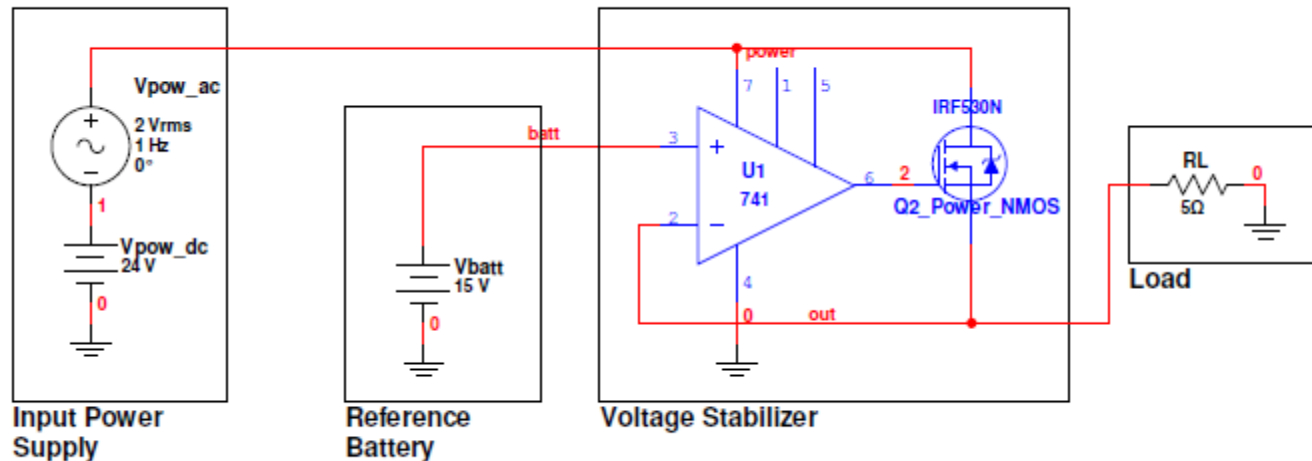
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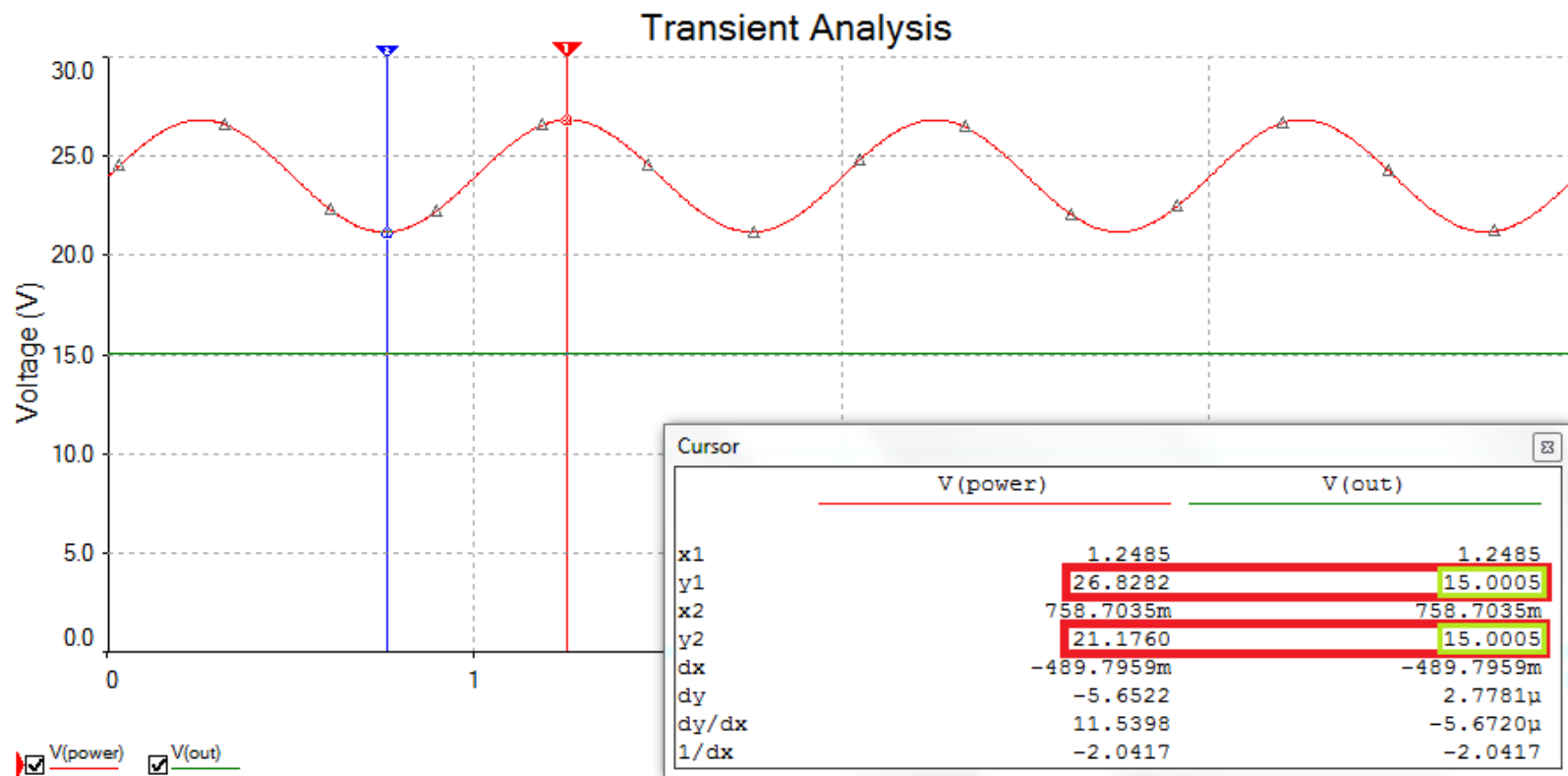
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Circuit Diagram



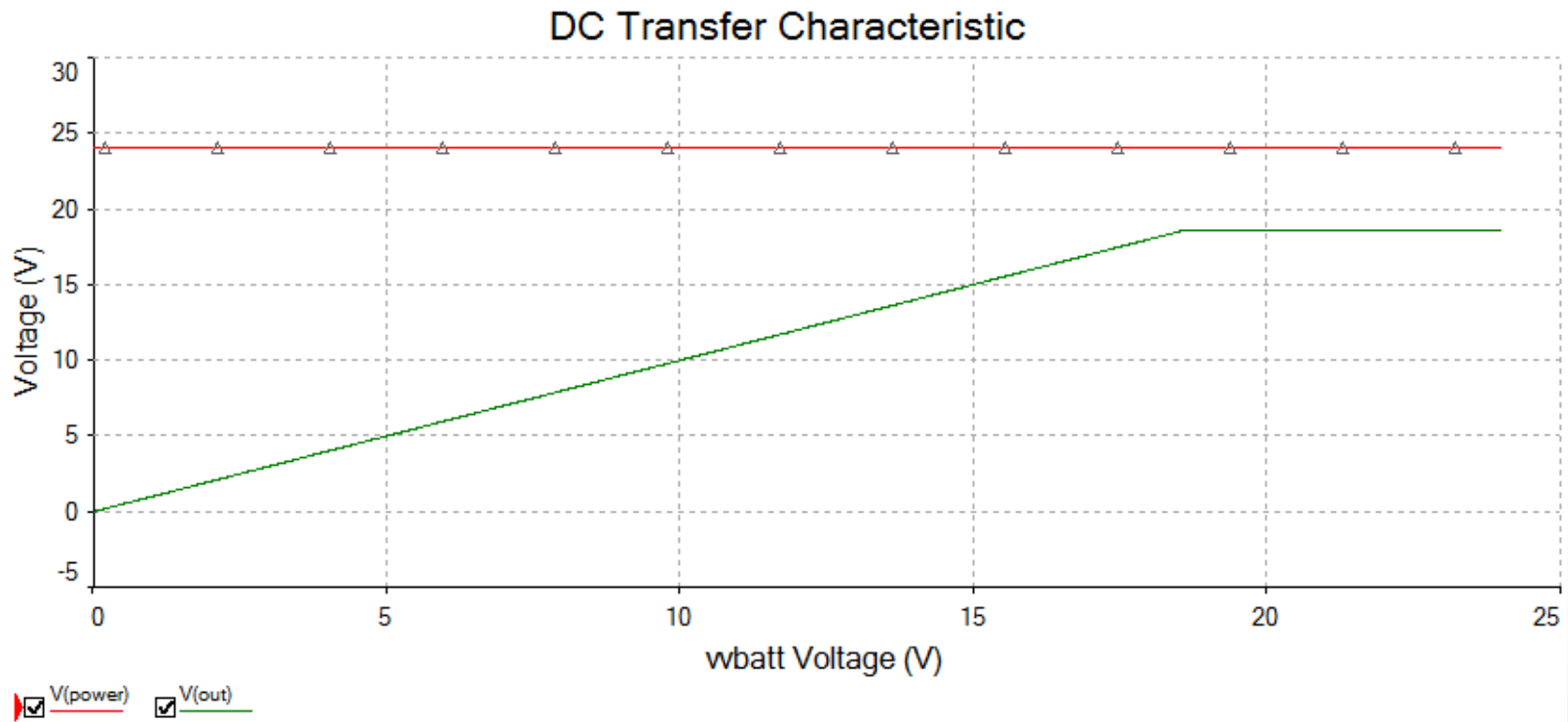
Power Supply DC Value = 24V, Power Supply AC Value = 2V RMS

Simulation: Transient Analysis



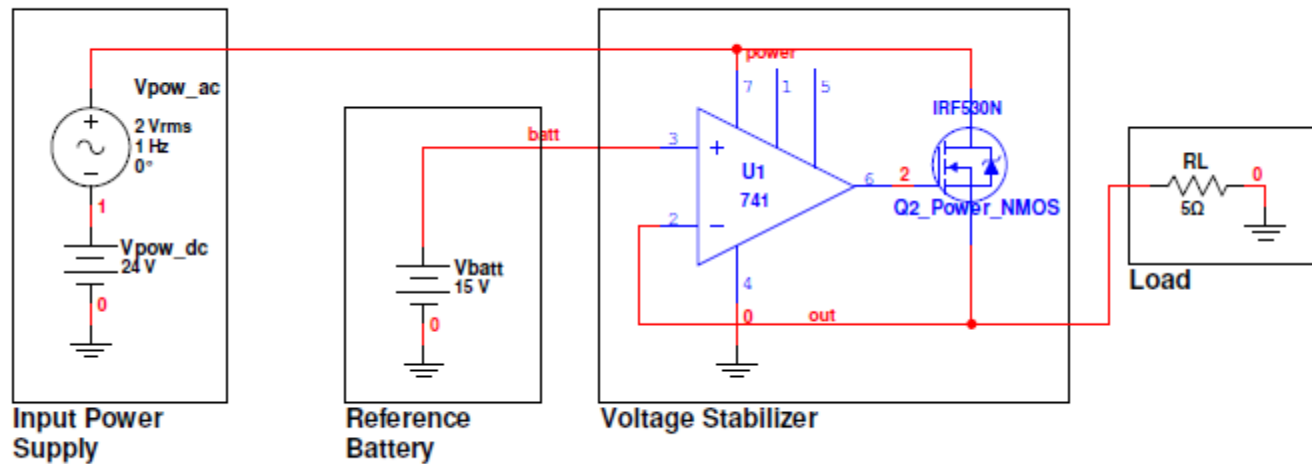
Voltage of reference battery = 15V

Simulation: DC Sweep Analysis



Voltage of reference battery = 0 to 24V

Working

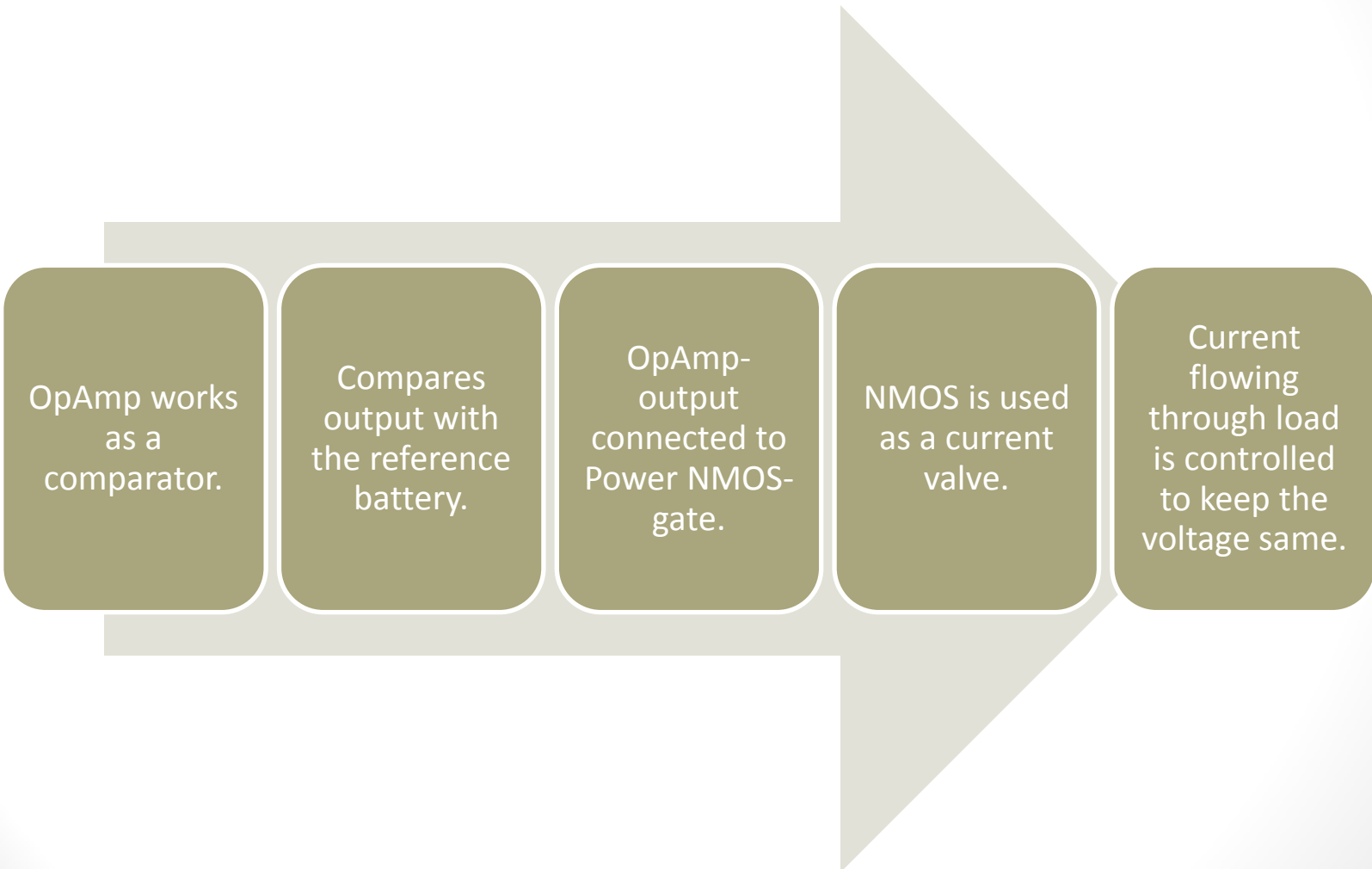


Assumptions

OpAmp has a definite slew Rate.

OpAmp can be used with a variable power supply.

Component Usage



OpAmp works
as a
comparator.


Compares
output with
the reference
battery.

OpAmp-
output
connected to
Power NMOS-
gate.

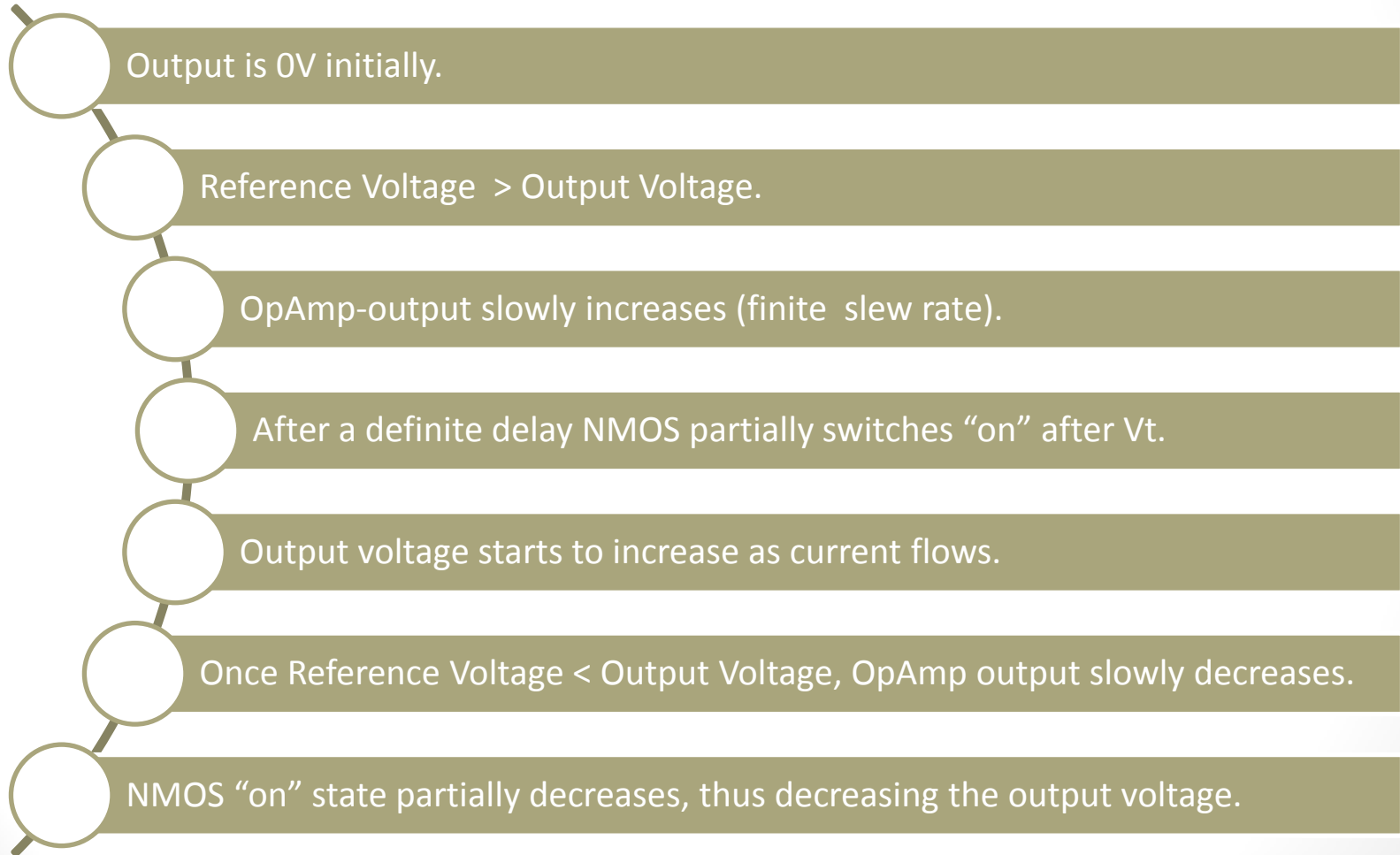
NMOS is used
as a current
valve.

Current
flowing
through load
is controlled
to keep the
voltage same.

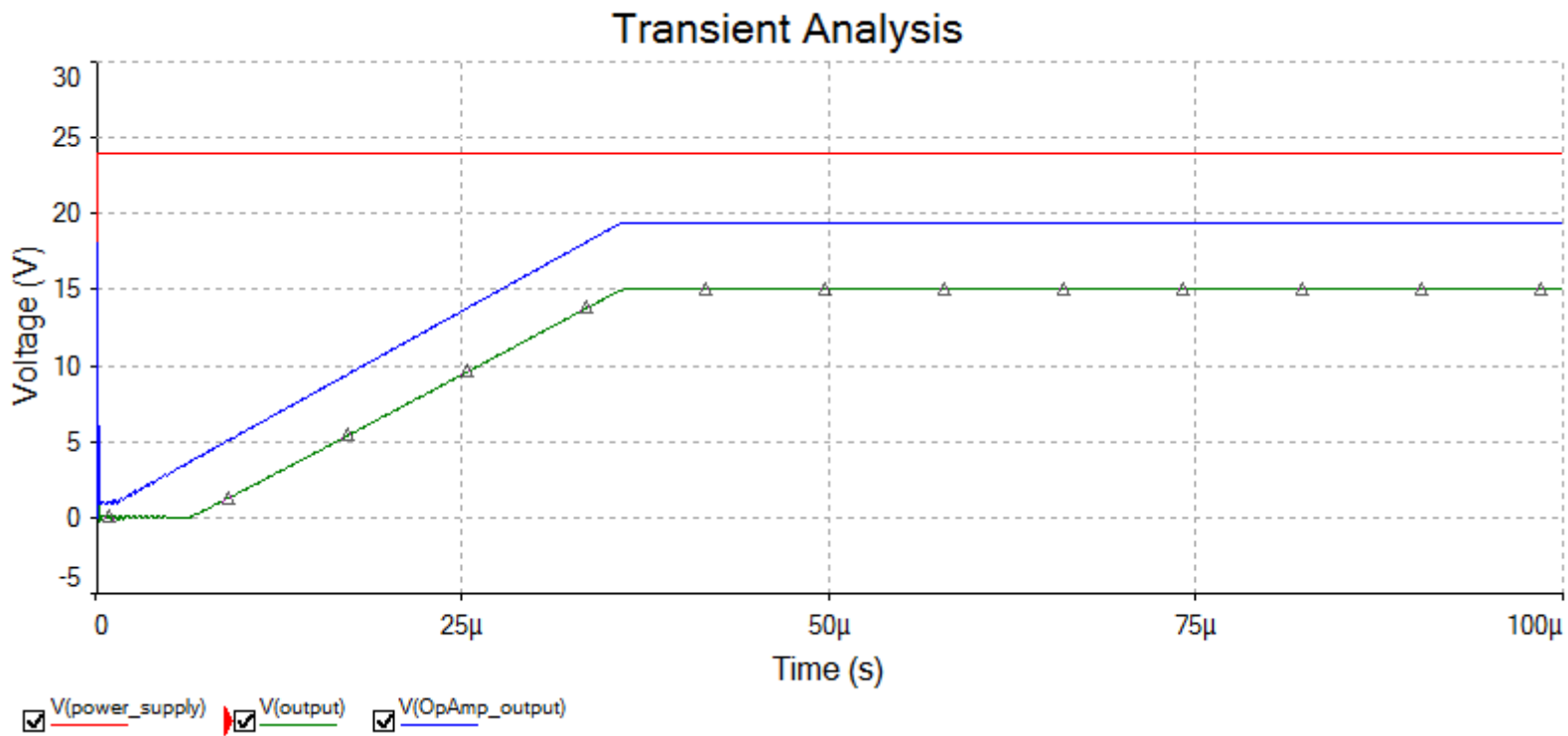
How do you bath?

- 
- 1 Cold water valve is already open.
 - 2 Cold water comes out initially.
 - 3 Temp. of Hot water you want $>$ Temp. of Cold water.
 - 4 Slowly open the Hot water valve.
 - 5 A definite delay after which mixed water starts to come.
 - 6 Once temp. of Hot water you want $<$ Temp. of mixed water.
 - 7 Slowly close the Hot water valve.

From Power up



Simulation: From Power Up



Voltage of reference battery = 15V

Conclusion

Simple and easy-to-implement circuit for voltage stabilization.

Lacks a lot of features wrt modern voltage stabilizers.

Modern voltage stabilizers are very efficient, allow a very large load current, and can also boost the output voltage to the required value, even if the supply voltage is less.

However, designing such circuits require a sufficient knowledge, technical people working together, and of course, a lot of experience.

This project is just like a seat belt to an aeroplane.

It was a great learning experience to be able to build a DC voltage stabilizer of our own.

Thank You