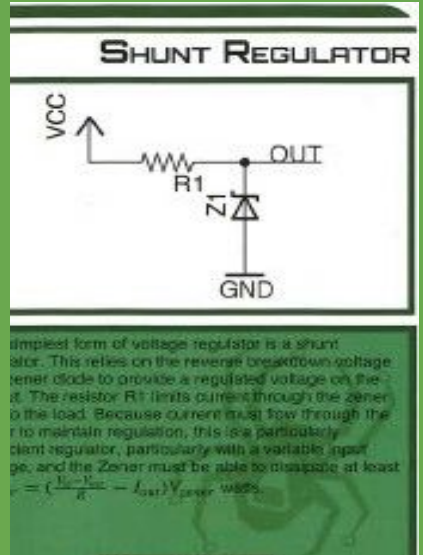


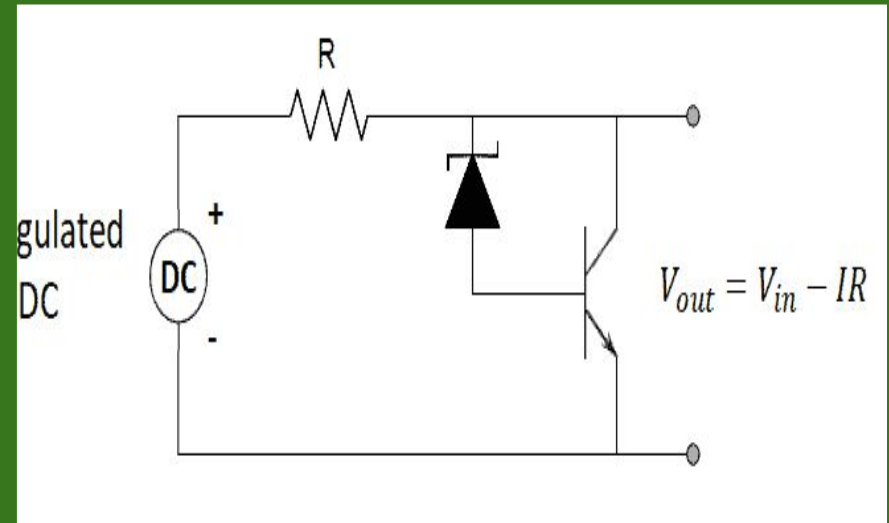
# Circuit Card Shunt Regulator

By Tony Baker



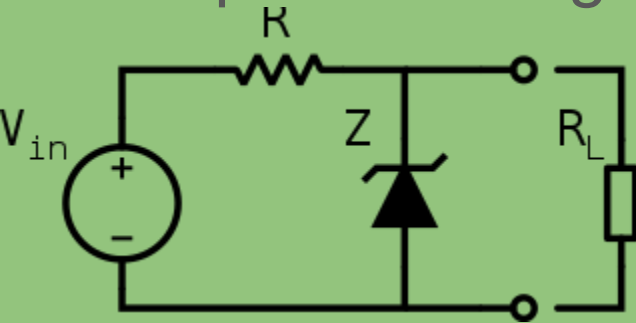
These simple linear voltage regulators are the simplest designs of a voltage regulator. Shunt regulators rely on zener diodes and resistors to help breakdown voltage to maintain a constant safe voltage at the output of a circuit. The Unregulated DC circuit is functioning with a reverse bias and pushes its exceeding current into a NPN transistor, it turns on conductive channel in the transistor so that current can flow to ground through the emitter. Step down adjustments are activated to maintain a safe output voltage. Resistors are used to help set the output voltage (Cadence, 2022).

## The Shunt Regulator and How it Functions...



# Usage of Shunt Regulators

As stated before, linear voltage regulators are the simplest design of voltage regulators. There are also switching voltage regulators. Voltage regulators are used in low power voltage systems (EI PRO CUS, 2013).



# Advantages of Shunt Regulators

Shunt regulators play a vital role in electrical and electronic systems and its advantages are beneficial. The simplicity of a shunt regulator is a major advantage. The design, operation of the regulator is a very attractive circuit to use in any low voltage and low power applications.

Another advantage is it requires less time to respond to unpredictable voltage variations (Electricity-Magnetism,2023).



## Disadvantages of a Shunt Regulator

One disadvantage for a shunt regulator is that there is a tremendous amount of heat because of the high voltages on the input and output voltage are too large. Another disadvantage is the only possibilities are there is only room for step-down voltage functionality (Torex,2023).



## Variations

Technically, the only two types of voltage regulators are the switch regulator and linear voltage regulators. With its rapid response, switch regulators turn on and off systems. These circuits are effective because the series elements conductive or switched off because it power loss is minimal. Voltage regulators create output voltages that continue to remain the same for variable input voltages or device conditions (EL PRO CUS,2023).

# References

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