What is power dissipation in a voltage regulator?

The efficiency of a regulator depends on the difference between its input and output voltages and how much the circuit draws current. The greater the difference, or the more the current, the more the heat or power dissipation by the regulator.

We can obtain this value using the following formula:

$$PD = (V_{\text{input}} - V_{\text{output}}) \times I_{\text{output}}$$

where:

PD – Power dissipation from the regulator;

V_{input} – Regulator voltage input;

V_{output} – Regulator voltage output; and

I_{output} – Regulator current output.