Re: voltage divider or series current resistor

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On Mar 5, 11:59 am, NJM <guitch...@xxxxxxxxxxx> wrote:

> I am just a beginner so forgive me if this question is stupid.
>
> On a simple circuit, like 2 LEDs with a 12v supply, which would be better,
> a voltage divider to lower the voltage or a series resistor to restrict
> the current? Or am I completly wrong in my understanding of a voltage
> divider?
>
> Please correct me if I am wrong, but it seems the divider would actually
> waste some energy because it is being sent to ground.

A little perhaps. When you put the LED into the split off of the the divider, you're basically going to be shorting the bottom resistor to ground. Not quite because there is a small voltage drop across the diode, and thus a small one across the the bottom resistor. Most of the voltage will be dropped across the top resistor, so in effect you have a current limiting resistor with another resistor that bleeds a little bit of current off to ground.

The voltage divider process depends on the fact that the resistance of whatever is being driven by the divider is much greater than the Thevenin resistance of the divider (in this case, the upper and lower resistances in parallel). If it is, then the output Voltage of the divider given by the Voltage Divider equation. If it isn't, then the output voltage sags due to the voltage dropped across the upper resistor.

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