Answer to Question #69490, Physics / Electric Circuits

Question:

b) In a voltage regulator circuit, the output voltage under no load condition is 12V while under full load it is 11.8V. Over the full range of input voltage variation the nominal voltage output of 12V varies by 50 mV. Calculate percentage line and load regulation.

Solution:

Load regulation of constant voltage power supply is calculated as

$$\%\boldsymbol{LR} = \frac{V_{minimal_{load}} - V_{maximal_{load}}}{V_{nominal_{load}}} * 100\% = \frac{12 - 11.8}{12} * 100\% = \boldsymbol{1.67\%}$$

Line regulation can be calculated as

$$\%\boldsymbol{LineR} = \frac{\Delta}{V_{nominal_{load}}} * 100\% = \frac{0.05}{12} * 100\% = \boldsymbol{0.4167\%}$$

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