uebung_2.1.2

Student Group

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Exercise 2.1.2 Calculating a series resistor for a diode

You want to drive a red light-emitting diode on a voltage source of $U_s = 5.0 ~V$ with a current of $I_D = 20 ~mA$. On the web, you have found a voltage drop of $U_D = 2.3 ~V$ for red LEDs. Now you want to know which resistor from the E12 series (available to you) is the correct one.

1. Draw the circuit of the LED with series resistor and plot the voltages.
2. What must be the value of the series resistor R_V to give the voltage drop U_S above?
3. In the red LED datasheet TLUR6400, find the relationship between forward voltage and forward current. What voltage drop U_D can be determined from this for $I_D = 20 ~mA$ and what is the correct series resistance?

4. Briefly compare the different results considering the E12 series.

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