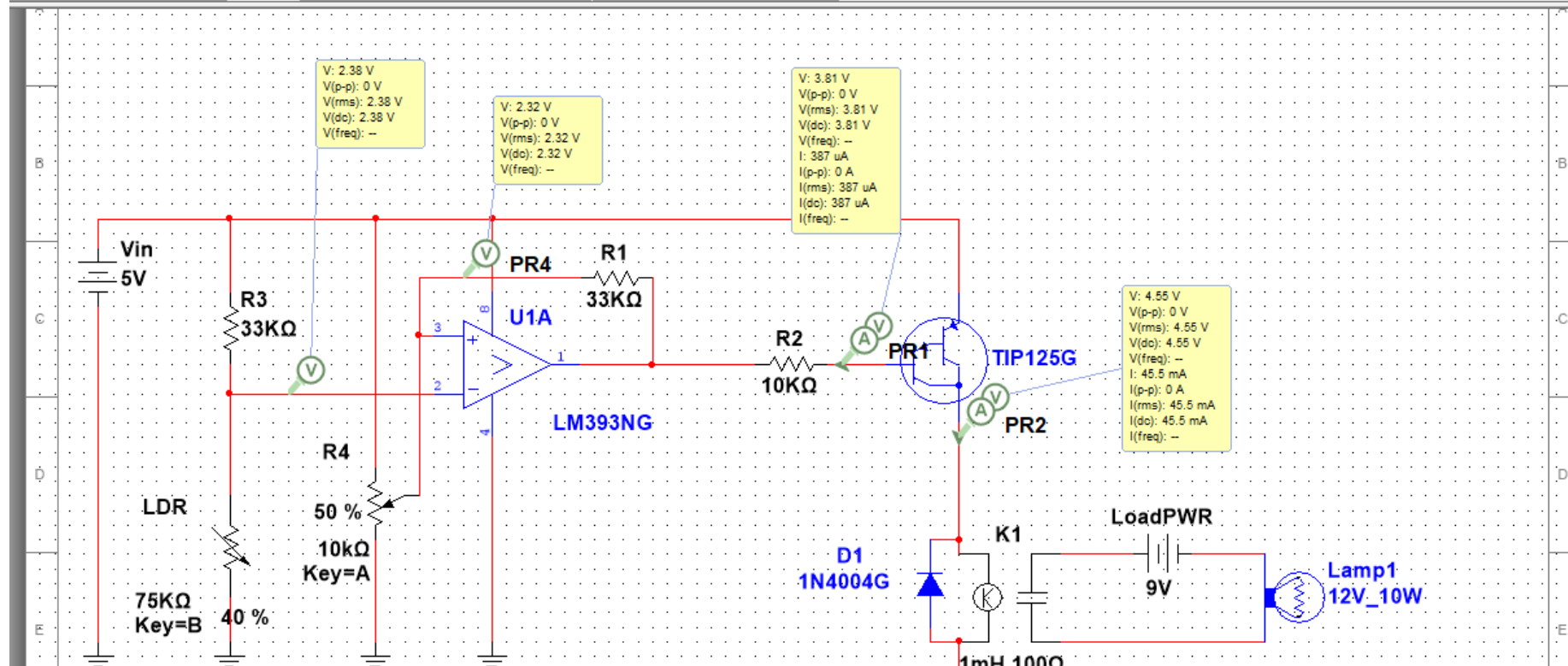
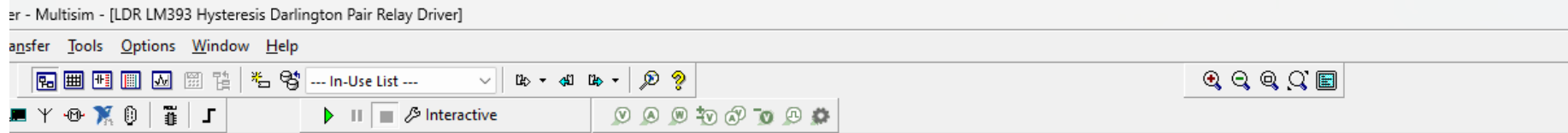



Here I used a Darlington Pair eg. TIP120. This package has two PNP matched transistors that can handle a lot of power.



When LDR resistance  $\geq 45\%$ , Pin 2 on U1 is greater than Pin 3. This turns ON the relay and lamp. When pin 2 is less than pin 3 then it is turned off.  
Use Keyboard "B" and Shift-B to adjust the LDR resistance to see the light change states.

The relay coil current is:  $I = 4.55 / 100 = 45.5 \text{ mA}$   
Where 100 = relay coil resistance and 4.55V = V at K1

Updated 9/24/2019

<b>Electronics Workbench</b> 801-111 Peter Street Toronto, ON M5V 2H1 (416) 977-5550		 A NATIONAL INSTRUMENTS COMPANY	
Title: Darlington Pair	Desc.: LDR Night Light Comparator Circuit w/Hysteresis		
Designed by: Ron Kessler	Document No: 1	Revision: 1.4	
Checked by:	Date: 2/21/2023	Size: A	
Approved by:	Sheet 1 of 1	7	8