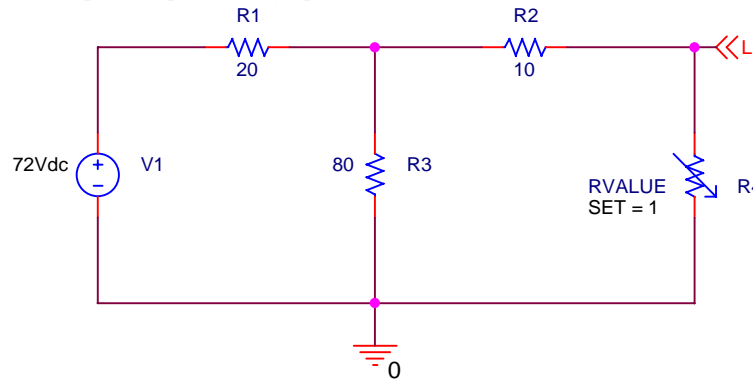


## Maximum Power Transfer (varying a component value)

Purpose: Graph the power to the load resistor as the load resistance varies in order to determine the maximum value of power that can be delivered to the load.

Analysis: Perform a DC Sweep where the load resistor is varied as a global parameter from 1 ohm to 1000 ohms. Graph load power by graphing  $V(L)*V(L)/RVALUE$ .



PARAMETERS:  
RVALUE = 1

Place the part PARAM in the schematic from the SPECIAL library.

Edit the properties of PARAM and ADD a NEW property named RVALUE (for example). Right-click on RVALUE (while still in the property editor) and change the DISPLAY FORMAT so that both the name and the value will be displayed. Go back to the schematic and double-click on RVALUE and give it the value 1 (for example).

Note that the part R\_var from the ANALOG library was used for the variable resistor. A regular resistor (part R) would work as well.

Be sure to change the SET attribute to 1 on the variable resistor or else all resistor values will be multiplied by the default value of 0.5.

An OFFPAGE symbol was used to label the node as L above the capacitor.  
A voltage marker was added so that V(L) will be automatically graphed after analysis.

The part Sw\_tClose from the EVAL library was used to model the closing switch.

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