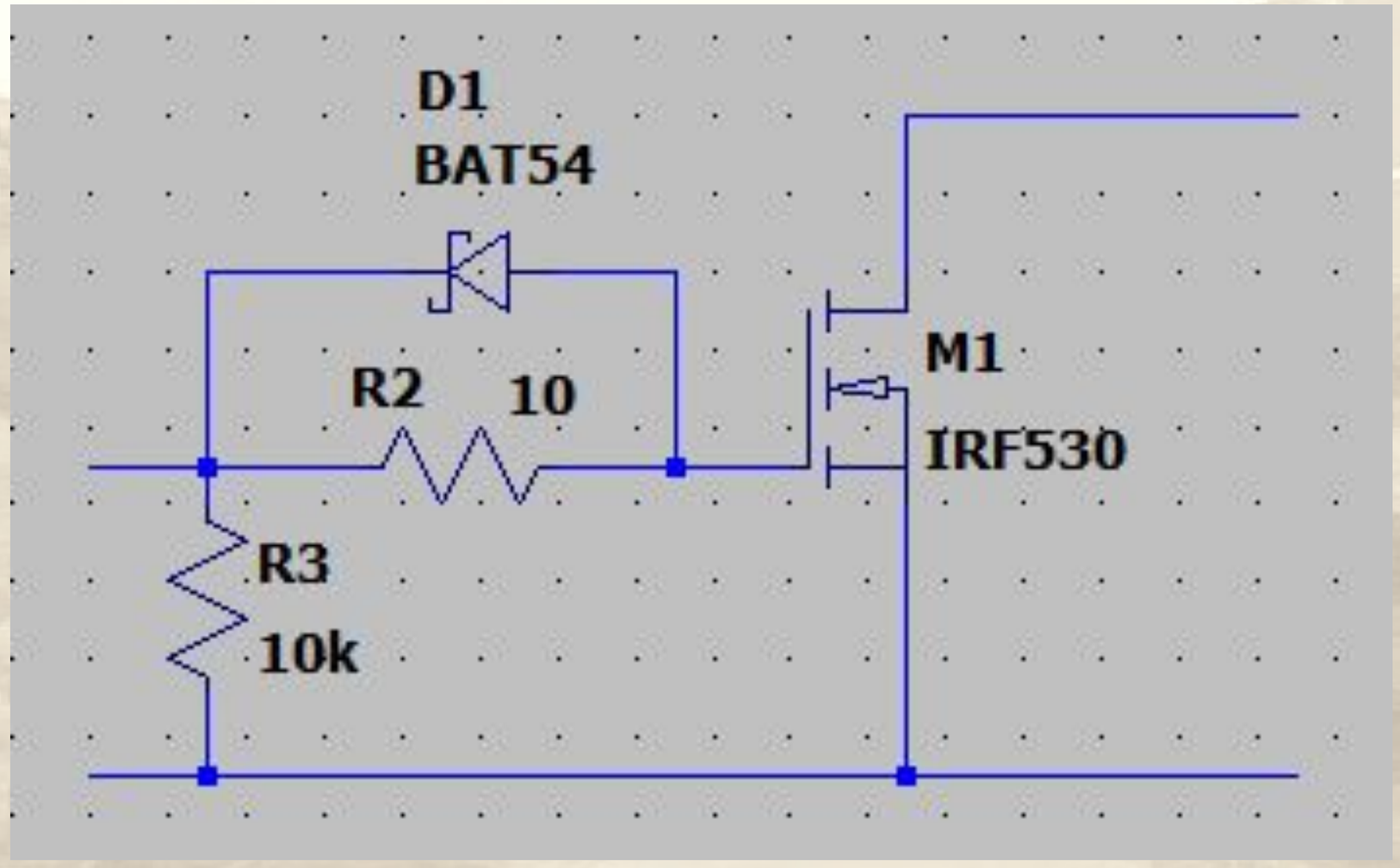
Drops of LTSpice

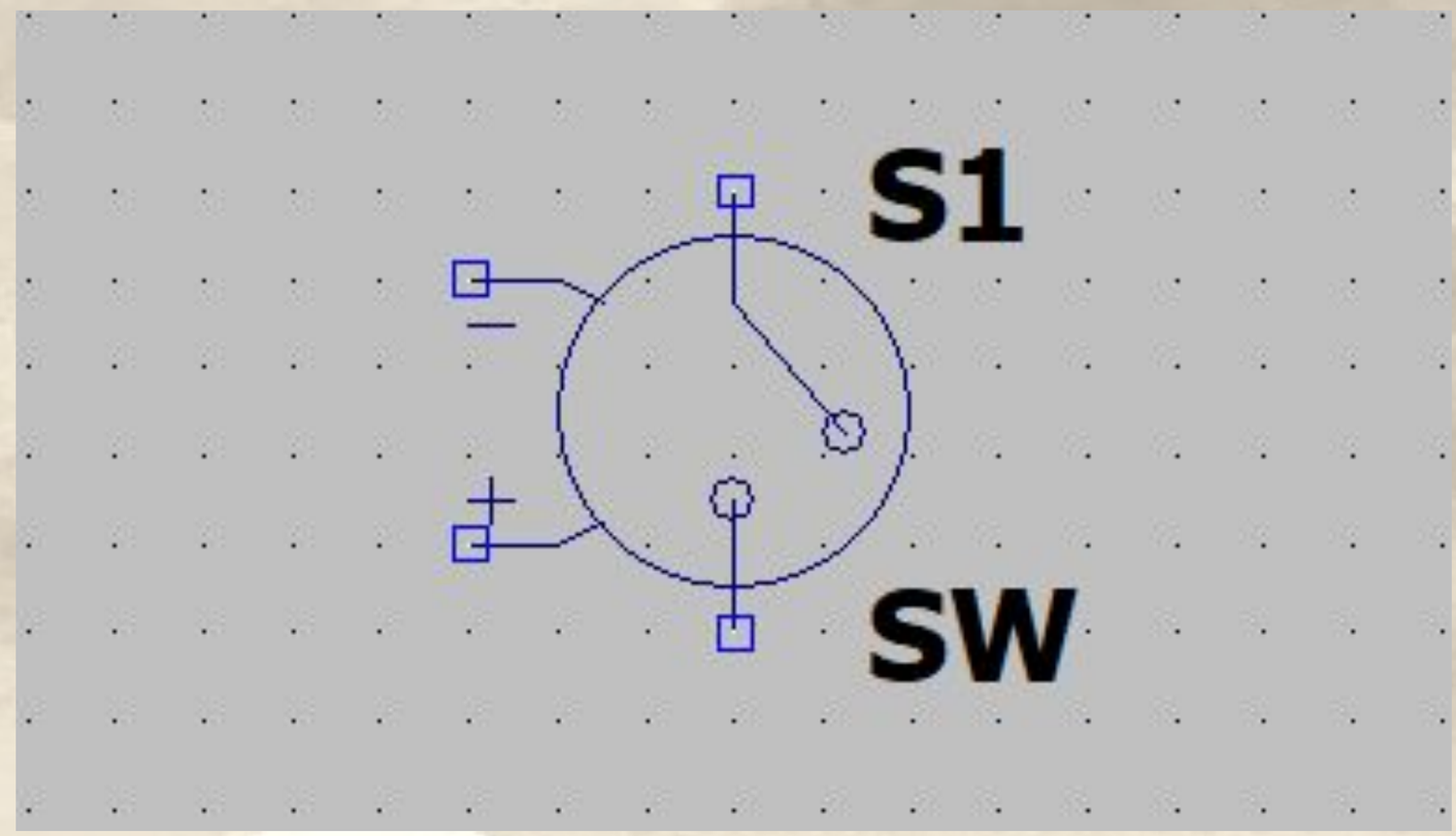
How to use Switches?

We often need switches in our circuits.



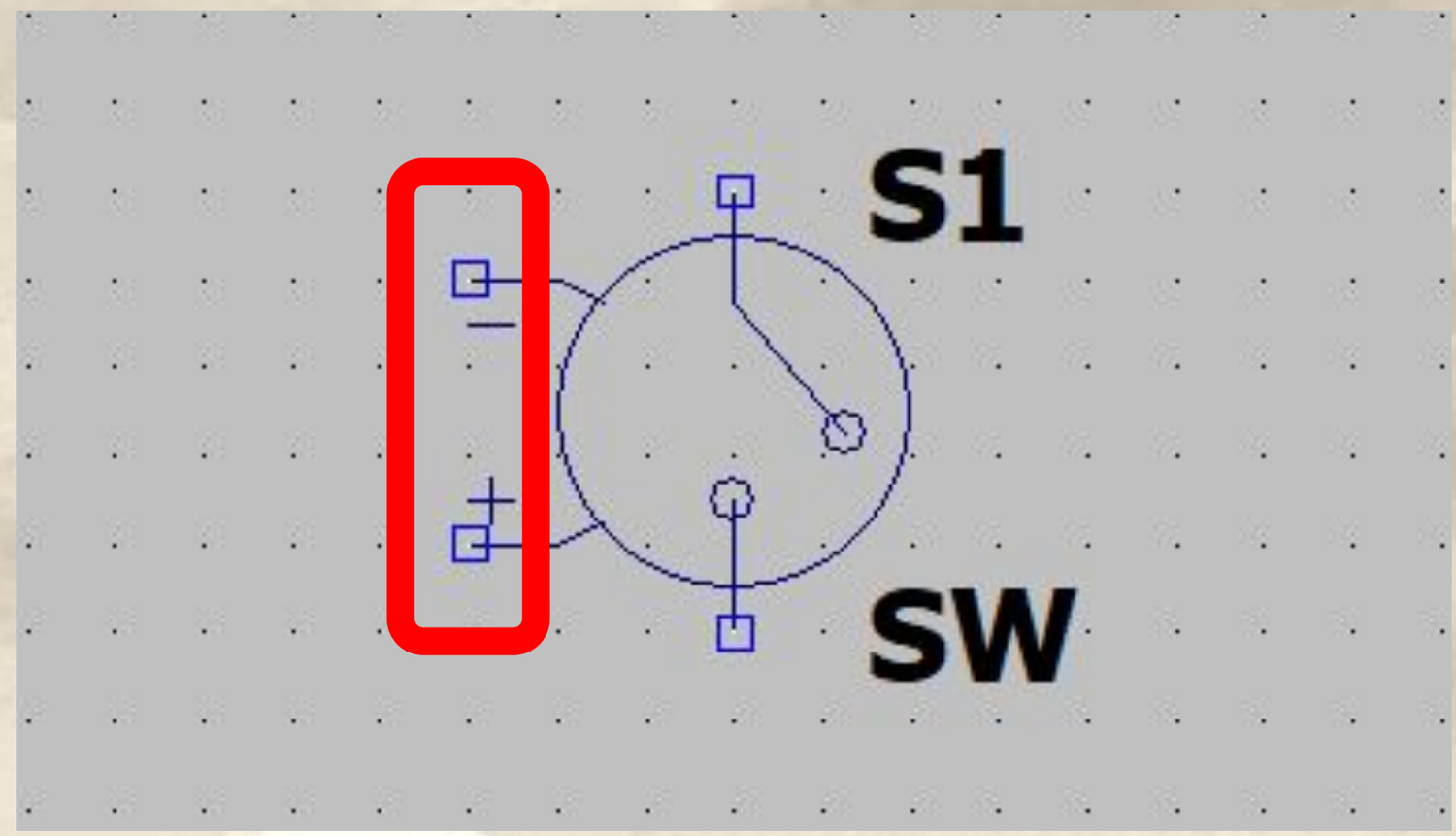
However, sometimes it's annoying to have to deal with calculations and values just for a proof of concept.

LTSpice provides a perfect component for this.
The Voltage Controlled Switch.



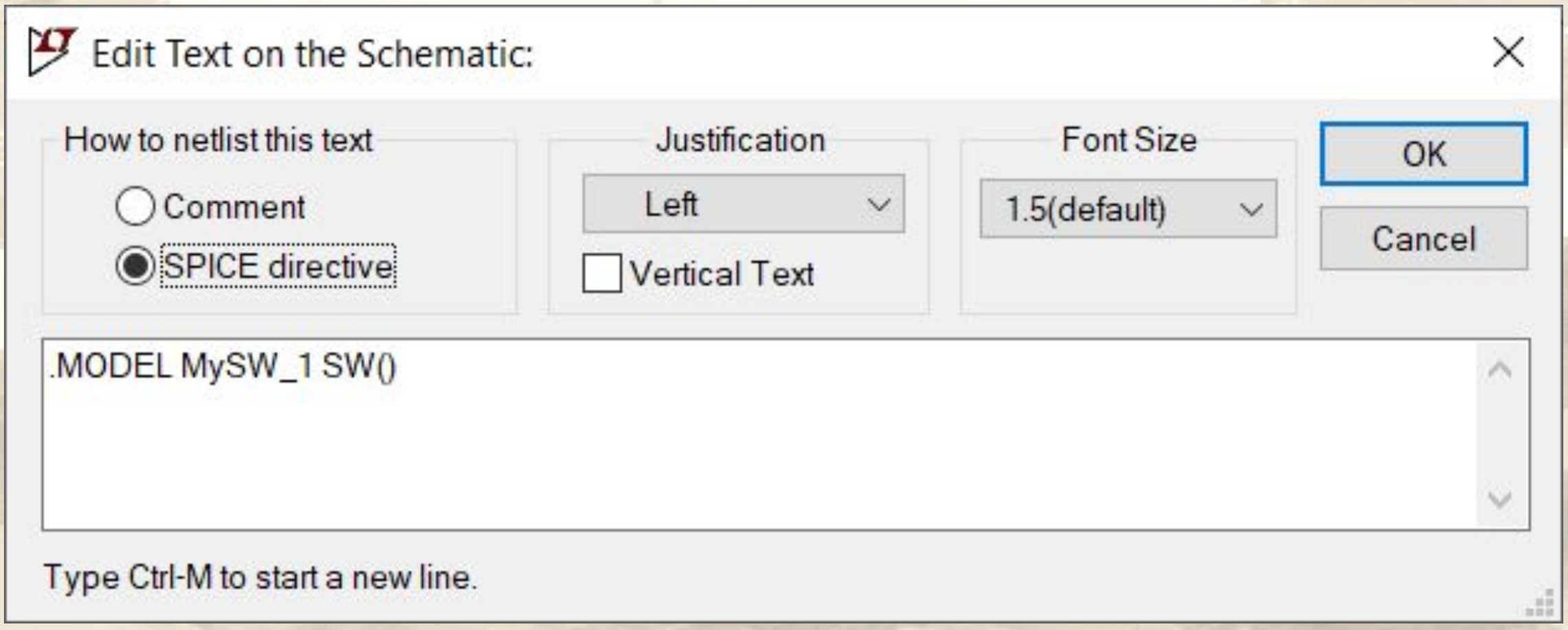
Let's see how to use it.

The switch opens and closes depending on the voltage at the control terminals.



You need to set a directive for your switch.

This is the simplest directive.



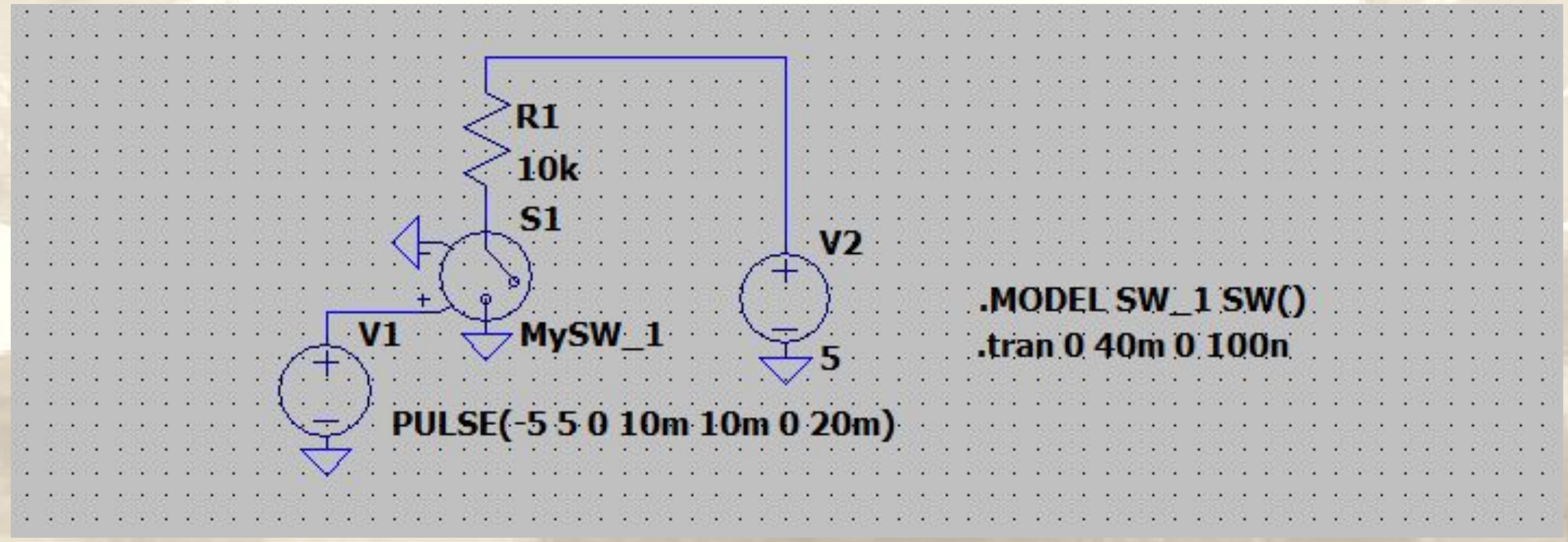
Note that it has the name we defined for the switch, in SW() with an empty parameter.

LTSpice will assume default values.

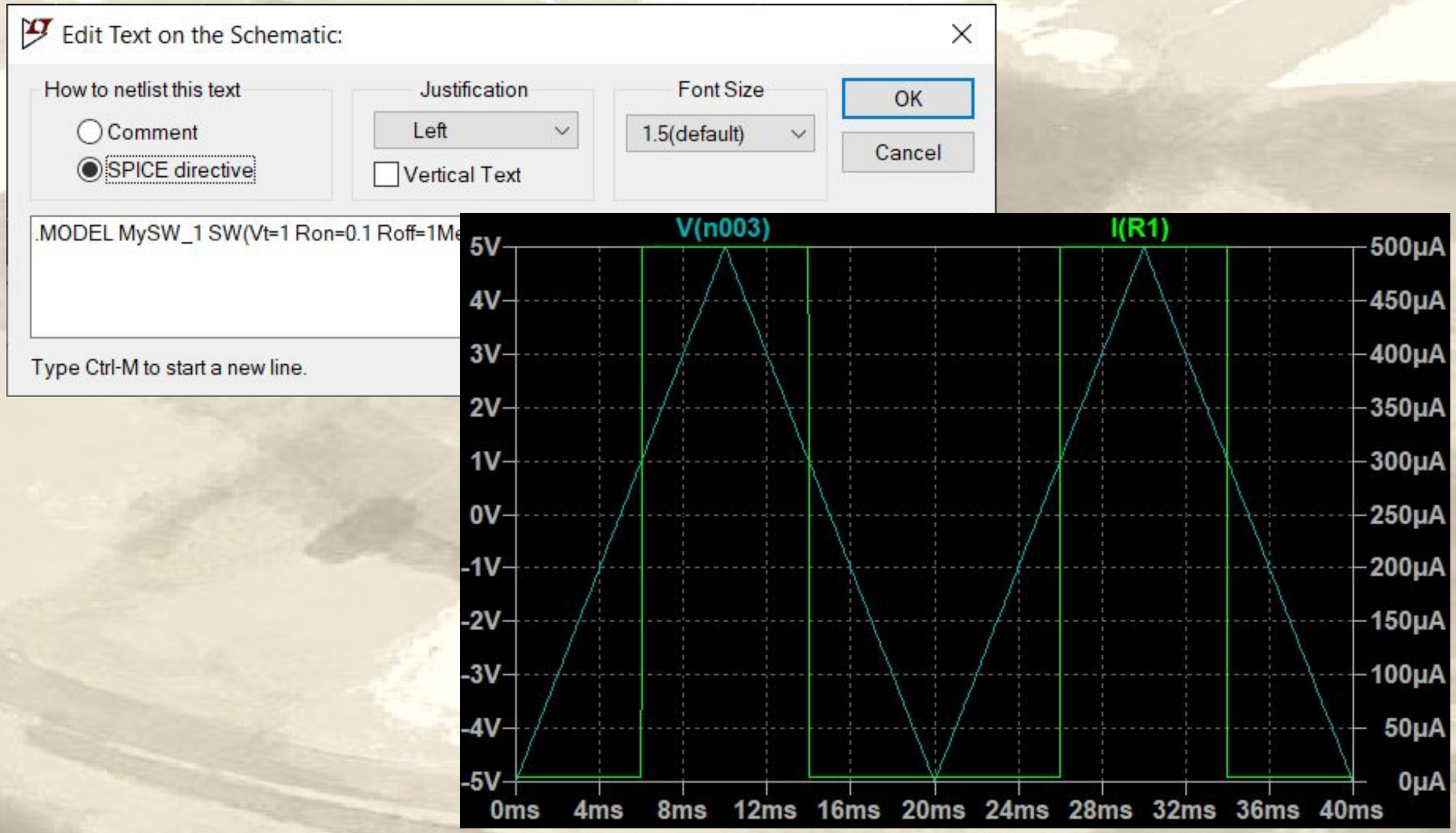
Name	Description	Default Values
Vt	Threshold voltage	0.0 V
Vh	Hysteresis voltage	0.0 V
Ron	On resistance	1.0 Ω
Roff	Off resistance	1.0 GΩ
Lser	Series inductance	0.0 H
Vser	Series voltage	0.0 V
Ilimit	Current limit	Infinite

In this case, any positive voltage will close the switch.

And out tests shows that any positive voltage closes the switch.

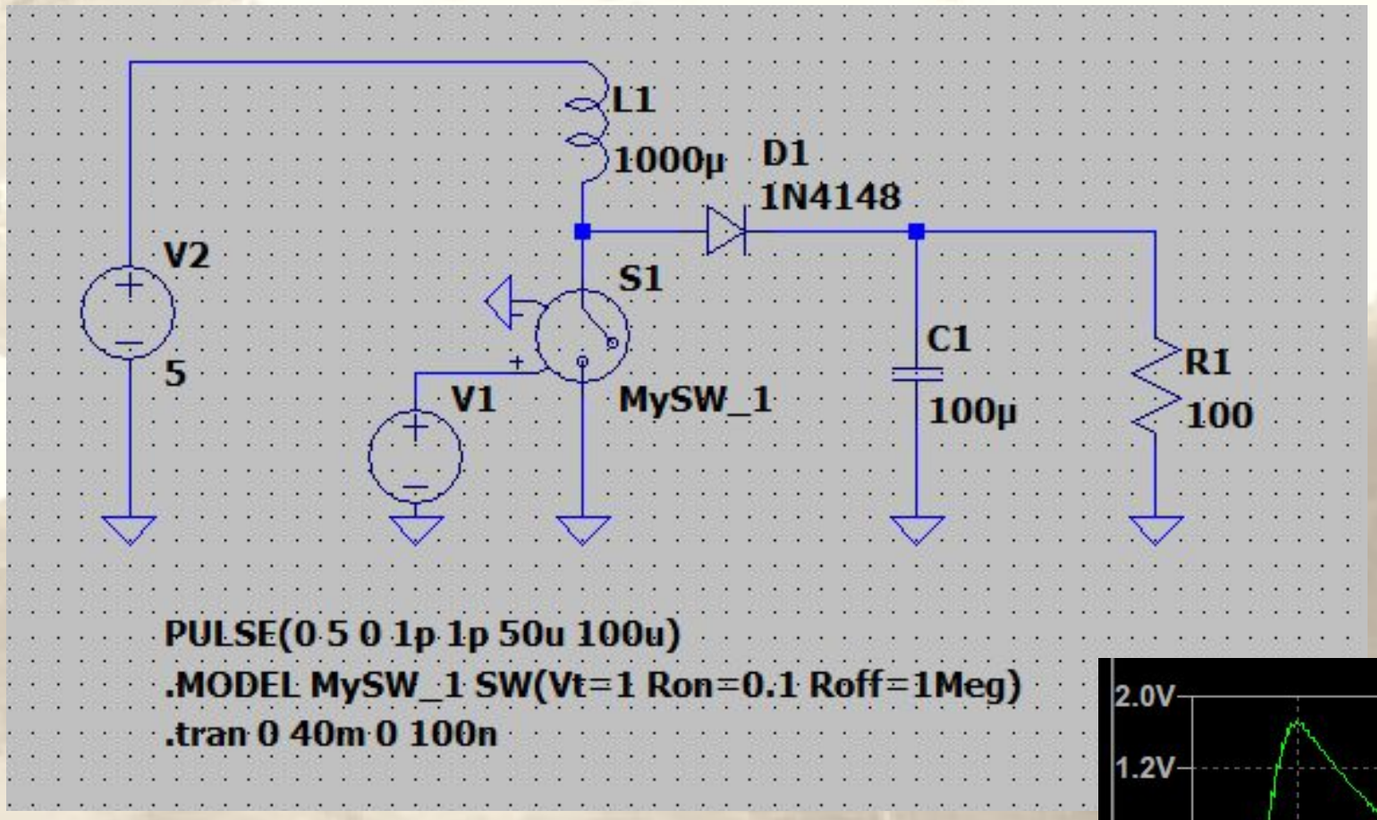


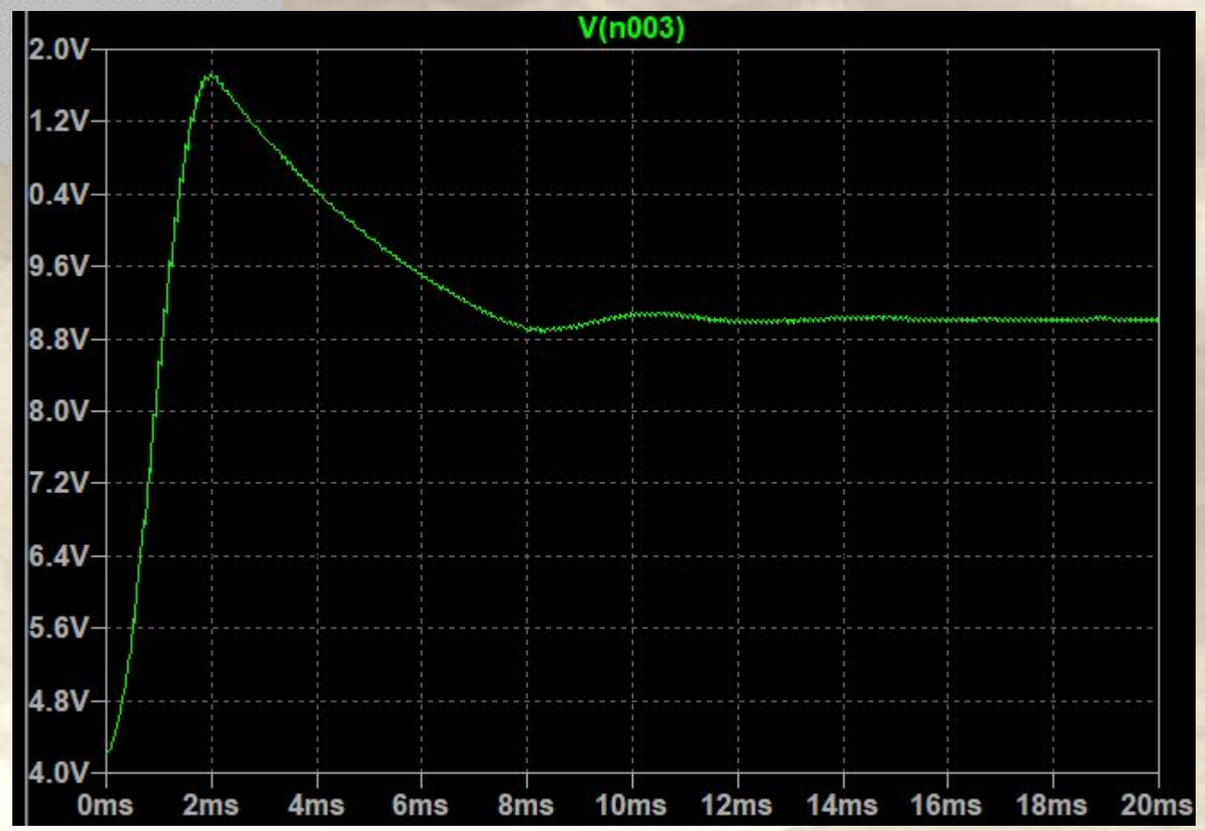
We can also set a different threshold voltage and resistances by changing the directive parameters.



Now, the threshold is 1V.

And you can easily use it instead of a transistor, for example.





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