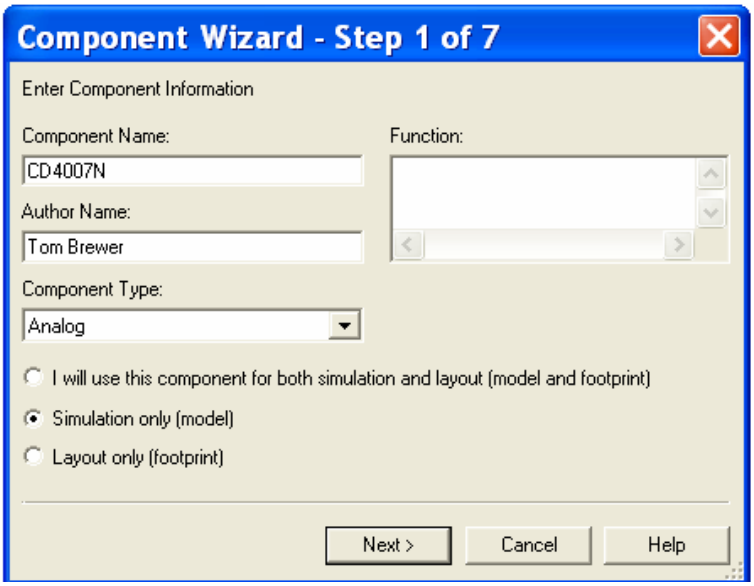
Creating Custom MOSFETs with Multisim's

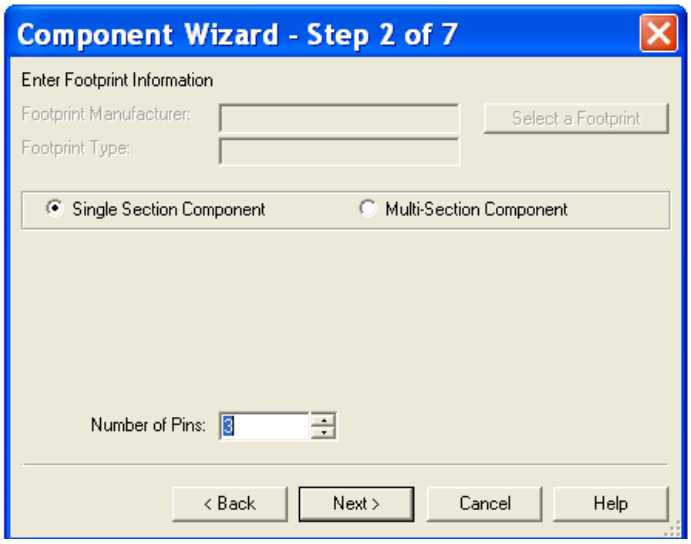
Component Wizard

N Channel Enhancement Mode MOSFET

Start the Component Wizard from Tools or the icon with the pencil. Select Simulation Only and provide a Component Name.

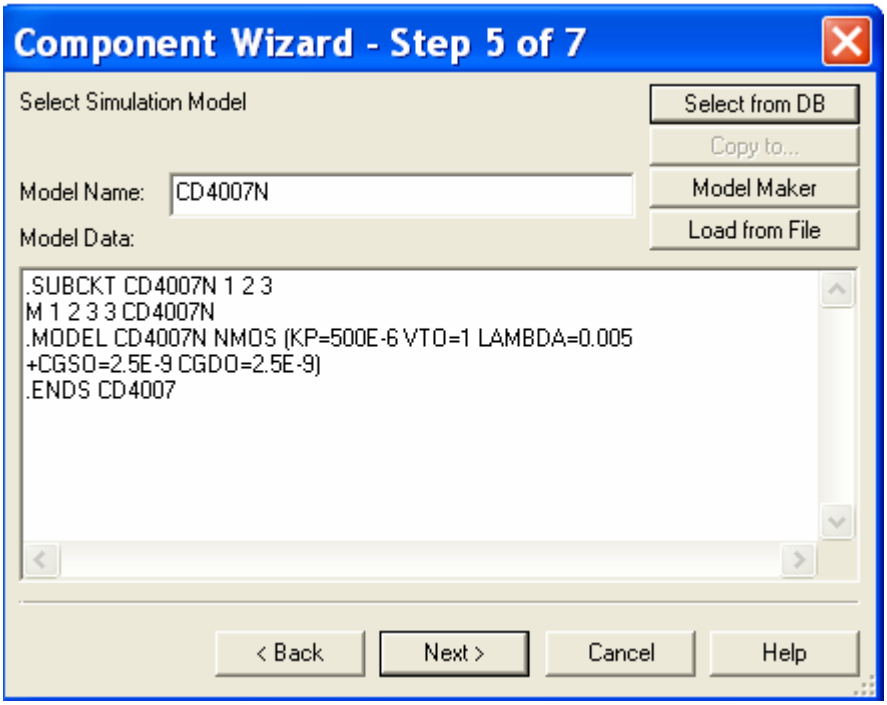


Click Next. Change the number of pins from the default 2 to 3.

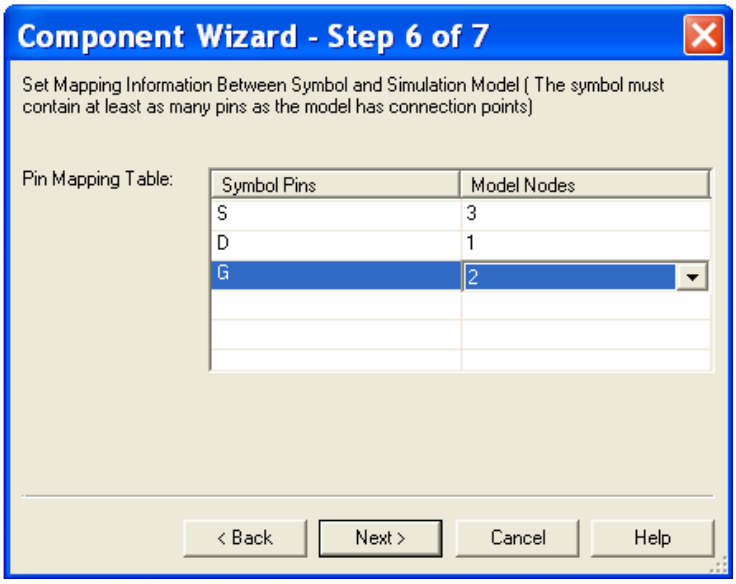


Click Next. Select copy from DB, transistors, MOS_3TEN, select the last transistor ZN3306F, OK, and Next. This bring up step 4 of 7, select Next. This bring up step 5 of 7

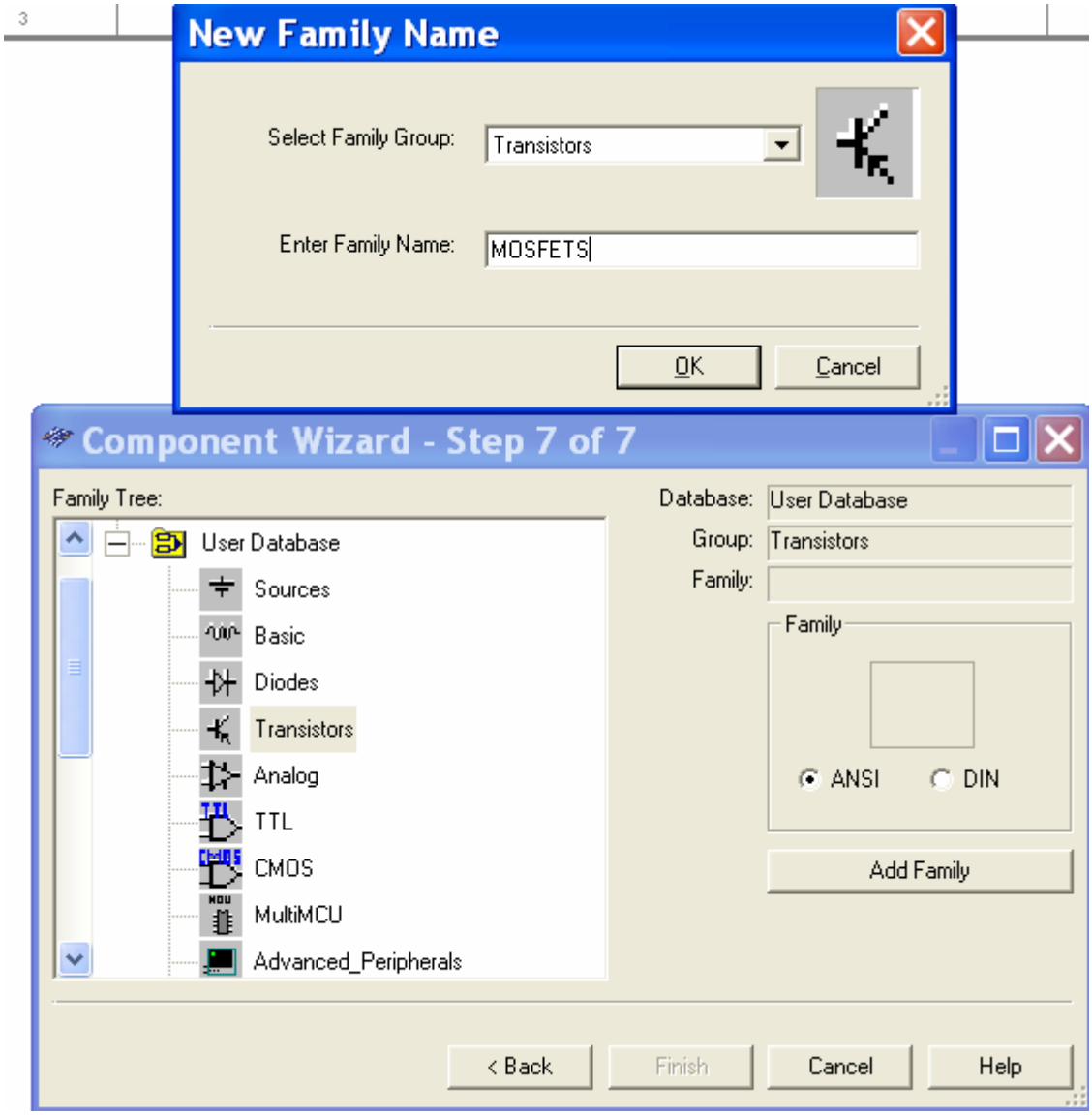
where the SPICE parameters are specified. Enter the code as shown using the desired SPICE parameters for the N Channel Enhancement Mode MOSFET. As shown this specifies the drain as pin 1, the gate as pin 2, and the source as pin 3. The body and source are connected in the model because both are specified as pin 3.



Click Next. This brings up step 6 of 7. Change the mapping of the Symbol Pins to the Model Nodes as shown. This makes it jibe with the previous step.



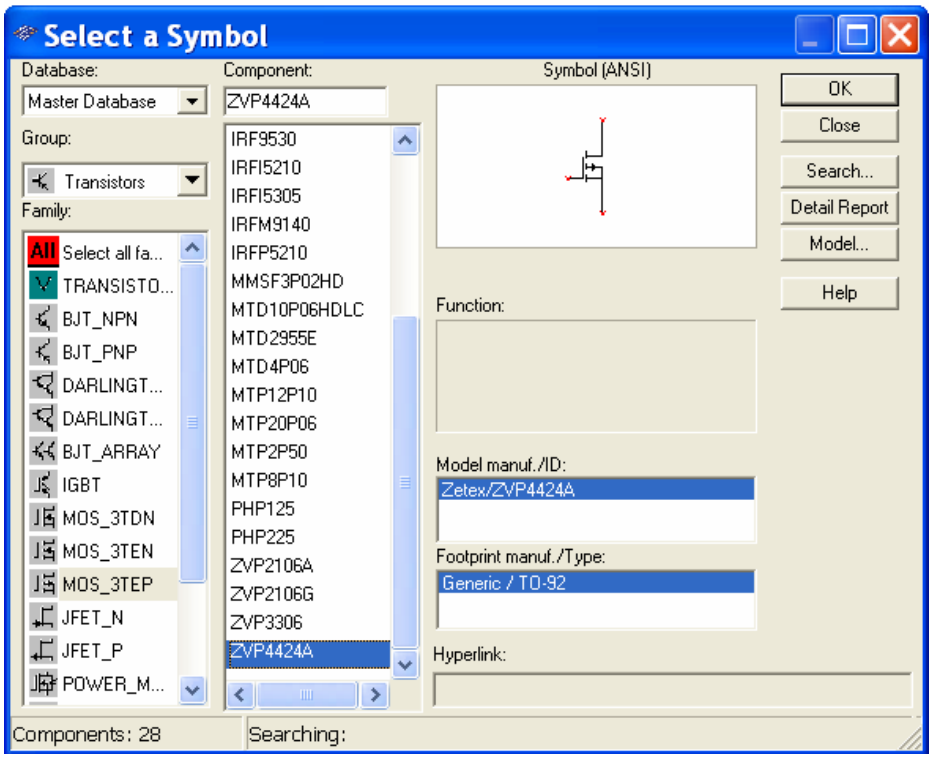
Click Next. The brings up the last step where the new part will be stored in the data base. Select the User Data base, transistors, and add a family known as MOSFETs.



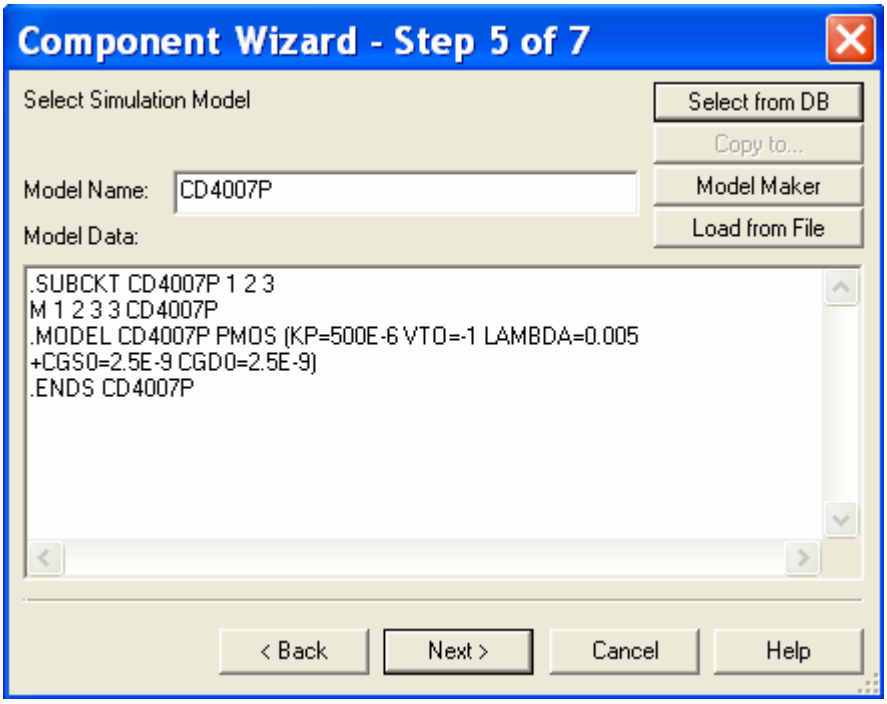
Click OK and Finish. When this part is needed for a circuit it will be found in the User data base in the MOSFET family with the part name CD4007N.

P Channel Enhancement Mode MOSFET

To create a P Channel Enhancement Mode MOSFET follow the same procedure as for the N Channel device. Select as the symbol for the part from the data base a 3 terminal P Channel Device such as

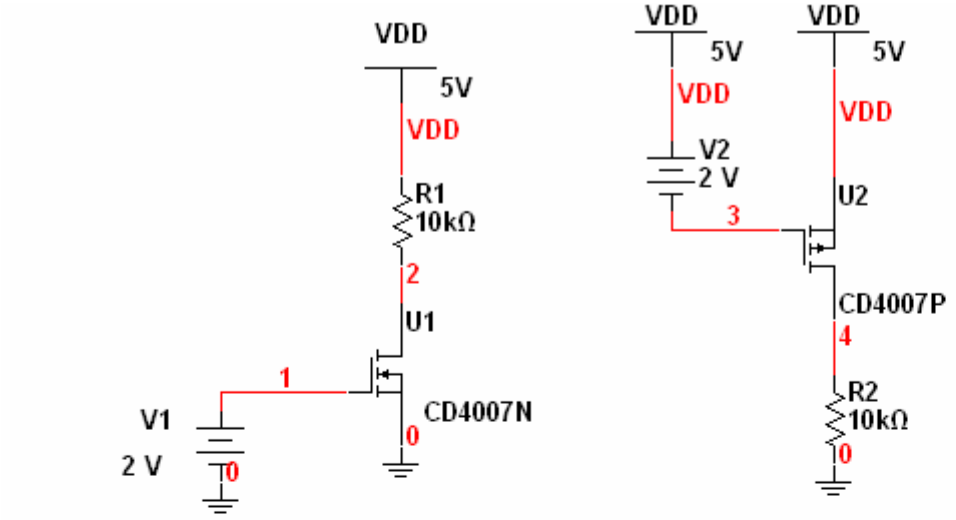


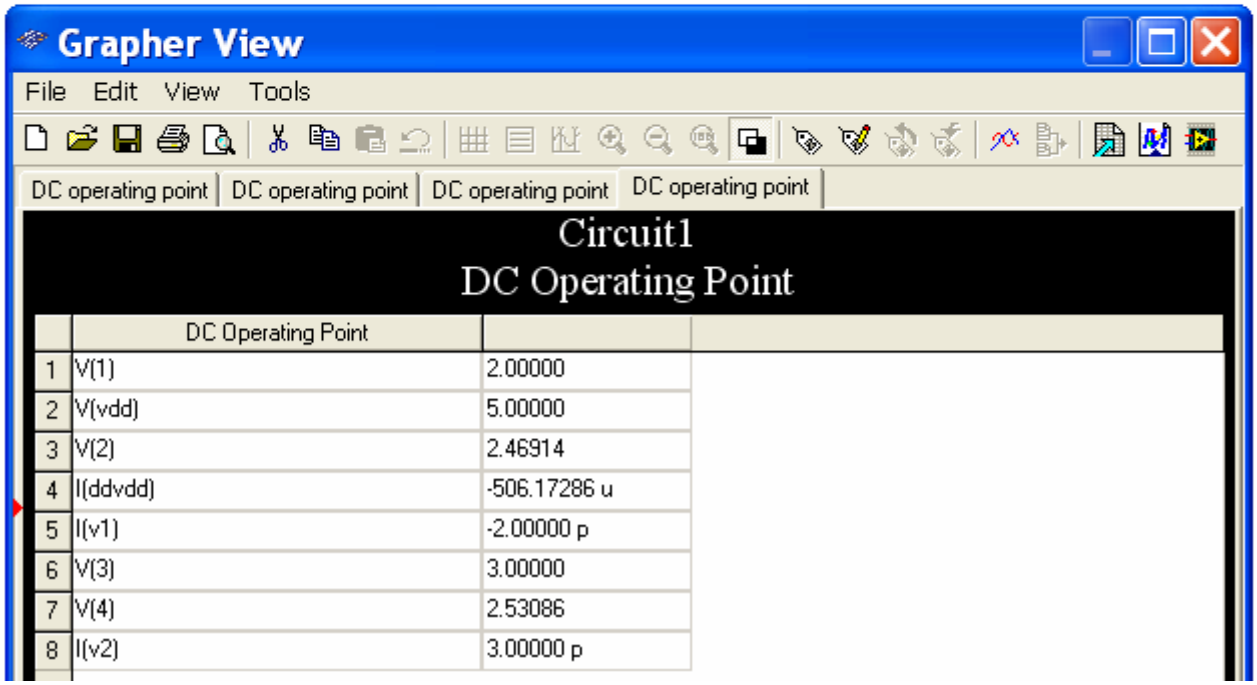
Enter the SPICE code. Note that the zero bias threshold voltage is entered as a negative number.



The next step is to match the Symbol Pins to the Model Nodes. As before pin 1 is the drain, pin 2 the gate, and pin 3 the source. Finally store the part is the User Data base under Transistor under the MOSFET family.

These two MOSFETs may now be used in circuits such as





	DC Operating Point	
1	V(1)	2.00000
2	V(vdd)	5.00000
3	V(2)	2.46914
4	I(ddvdd)	-506.17286 u
5	I(v1)	-2.00000 p
6	V(3)	3.00000
7	V(4)	2.53086
8	I(v2)	3.00000 p