Notes for ECE310LIB library elements for proper simulation

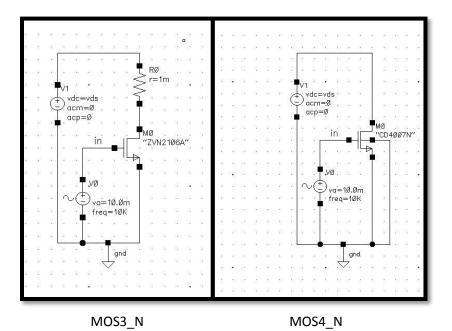
1. ECE310 Library was designed to accommodate discrete electronics components including diodes, opamps, and transistors. Following elements are available for SPICE simulation in Cadence.

*/	OPAMPs						
*/		- LM741					
*/	DIODEs						
*/		- 1N4001 50V ,1A,0	GP Diode/Rectifier				
*/		- 1N4002 100V,1A					
*/			GP Diode/Rectifier				
*/			GP Diode/Rectifier				
*/		- 1N4005 600V,1A	GP Diode/Rectifier				
*/		- 1N4006 800V,1A,	GP Diode/Rectifier				
*/		- 1N4007 1000V,1/	A,GP Diode/Rectifier				
*/		- 1N5231 5.1V Zen	er diode				
*/		- 1N5226 3.3V Zen	er diode				
*/	- 1N5233 6.0V Zener diode						
*/		- 1N4761A	75.0V Zener diode				
*/	MOSFET	s 3-PORT					
*/		- ZVN2106A	NMOS				
*/		- ZVP2106A	PMOS				
*/	MOSFETs 4-PORT						
*/		- CD4007N	NMOS				
*/		- CD4007P	PMOS				
*/	BJTs						
*/		- 2N2222A	NPN				
*/		- 2N3904 PNP					

 mentsThere are two types of discrete MOSFET transistors; 3 port (transistors ZVN2106A and ZVP2106A) and 4 port (transistors CD4007N and CD4007P) models. MOS3\_N and MOS3\_P cells are used for 3 port MOSFETS, and MOS4\_N and MOS4\_P cells are used for 4 port MOSFETS, as shown below.

ibrary	Cell	Vi	ew			
7	- T					-
ECE310LIB	• 1 MOS3_N		symbol			
ECE310LIB	BIT		View	Lock	Size	
US 8ths	DIODE		spectre	LOCK	SILC	20
ahdlLib	MOS3_N		symbol			20
analogLib	MOS3_P		Name: ECE310LIB/MOS3 N/symb			ho
basic cdsDefTechLib	MOS4_N MOS4_P		Size: 20228			
functional	OPAMP					
rfExamples	ZDIODE					
rfLib						
					_	
	55/iibManager.log*.			<u>P</u>		
	15/libManager.log*.					
<b>tessages</b> Log file is "/home/suatay/work0)	35/ibManager.log*.					

3. When doing SPICE simulation, IDS current of 3 port MOSFET devices could not be plotted directly (due to how the library cells MOS3\_N and MOS3\_P were build). Thus, it is necessary to add a small resistor (i.e. 1mOhm) in series to drain or source side of the transistor as shown in following figure to monitor drain or source current. This is not the case for the 4 port devices.



4. ...