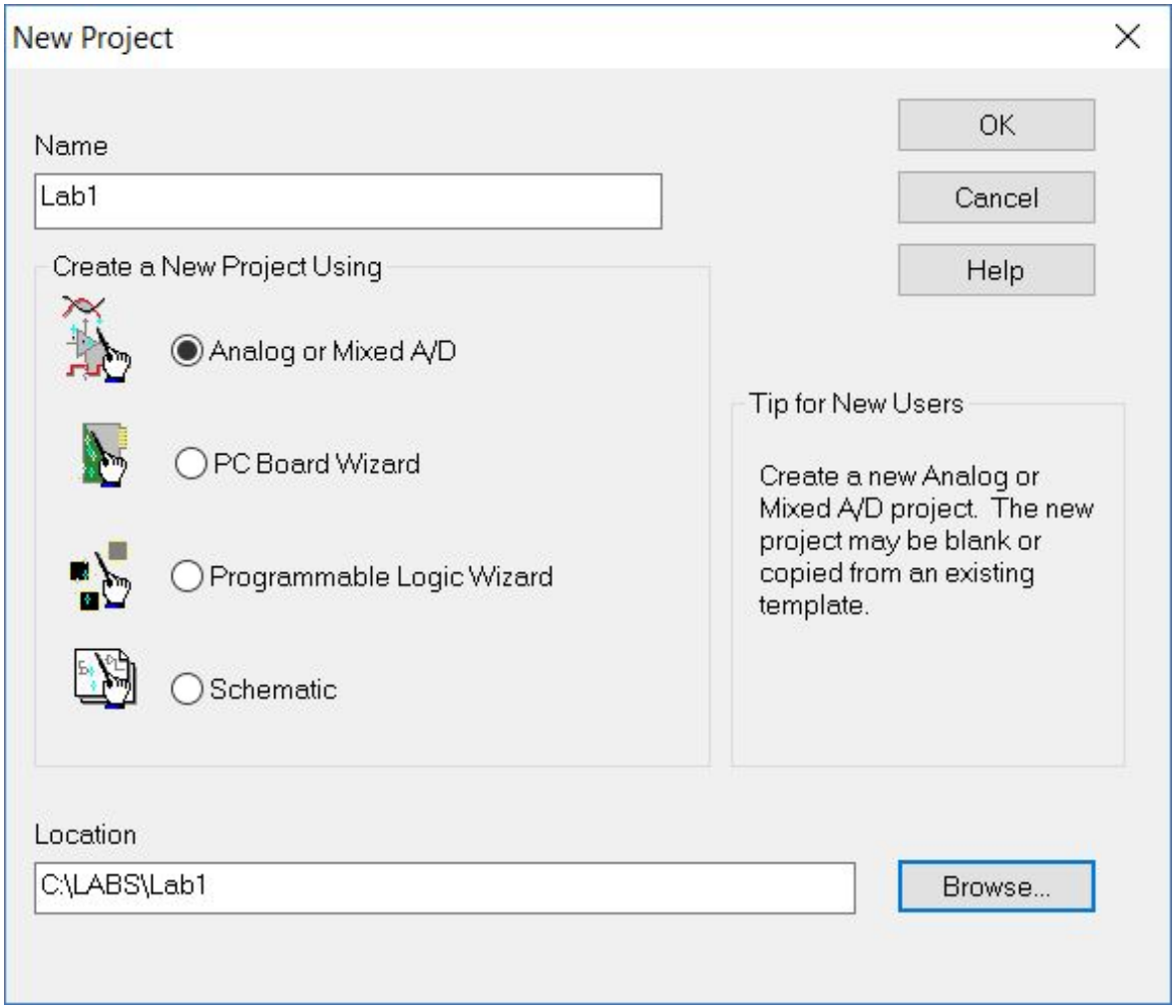
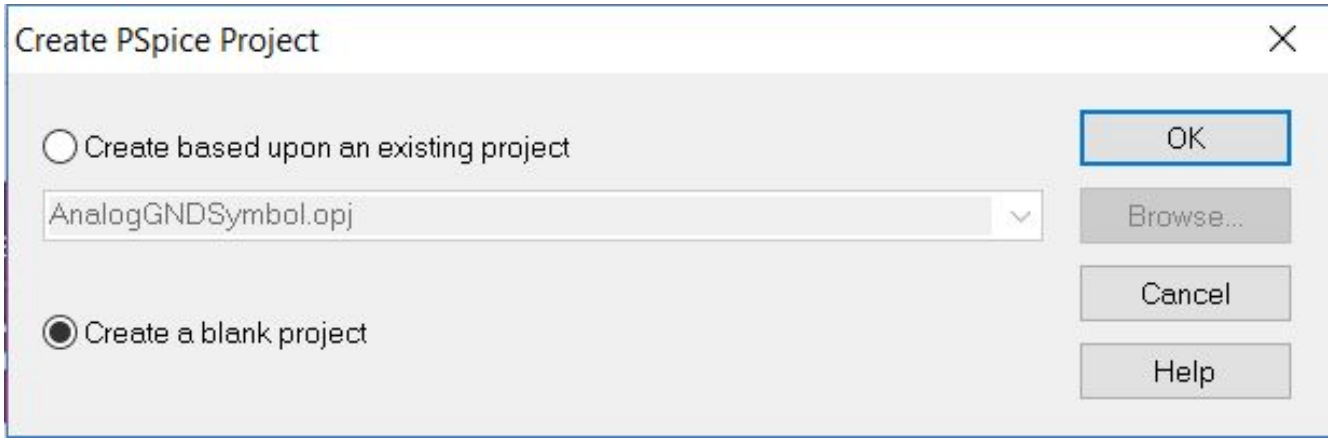
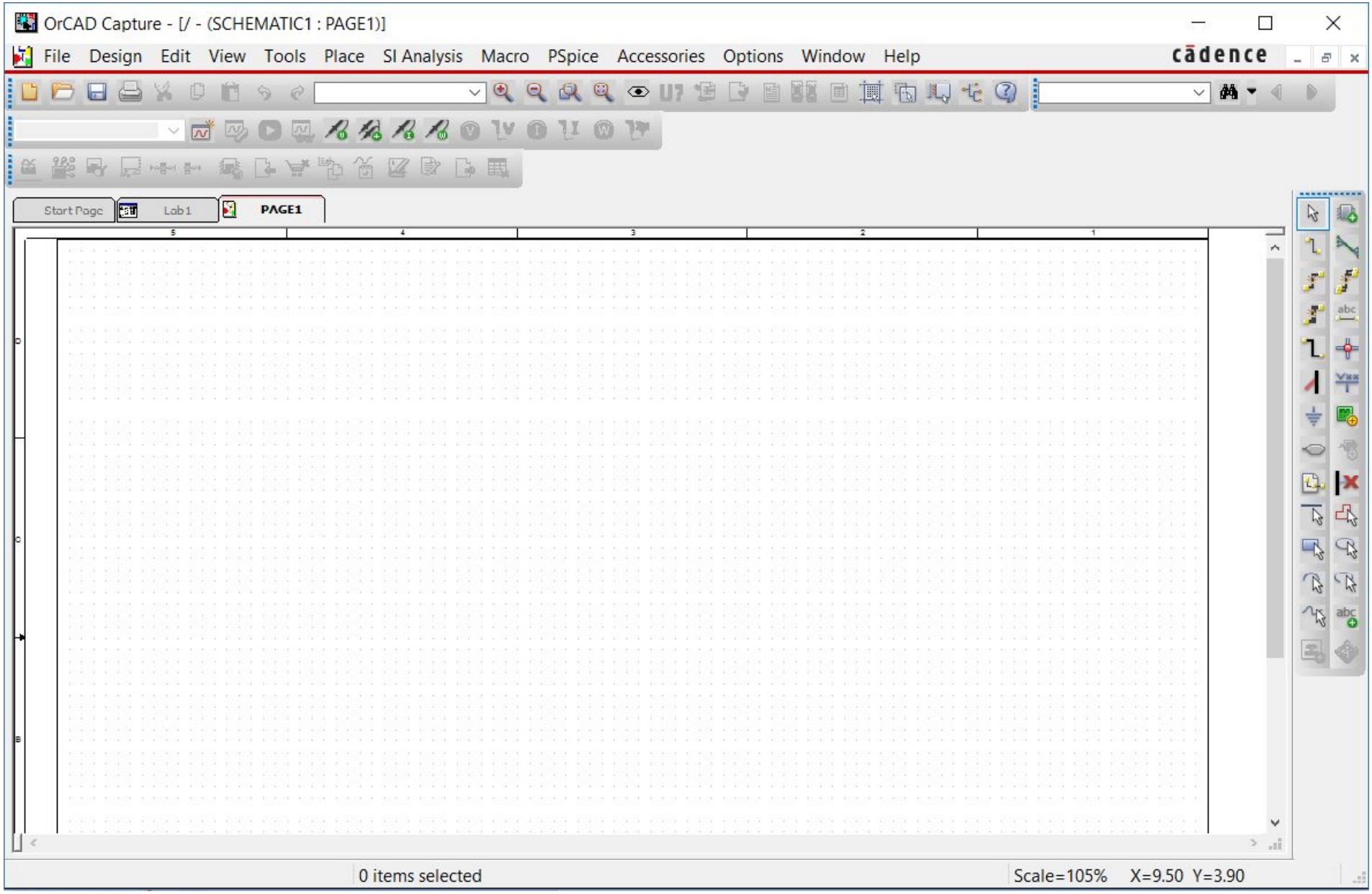
Лабораторная работа №1

Знакомство с OrCad Capture

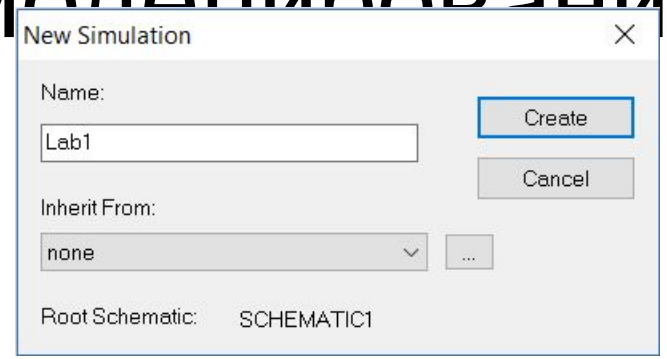

New Project
Name
Lab1
OK
Cancel
Help
Create a New Project Using
Analog or Mixed A/D
PC Board Wizard
Programmable Logic Wizard
Schematic
Tip for New Users
Create a new Analog or Mixed A/D project. The new project may be blank or copied from an existing template.
Location
C:\LABS\Lab1
Browse...

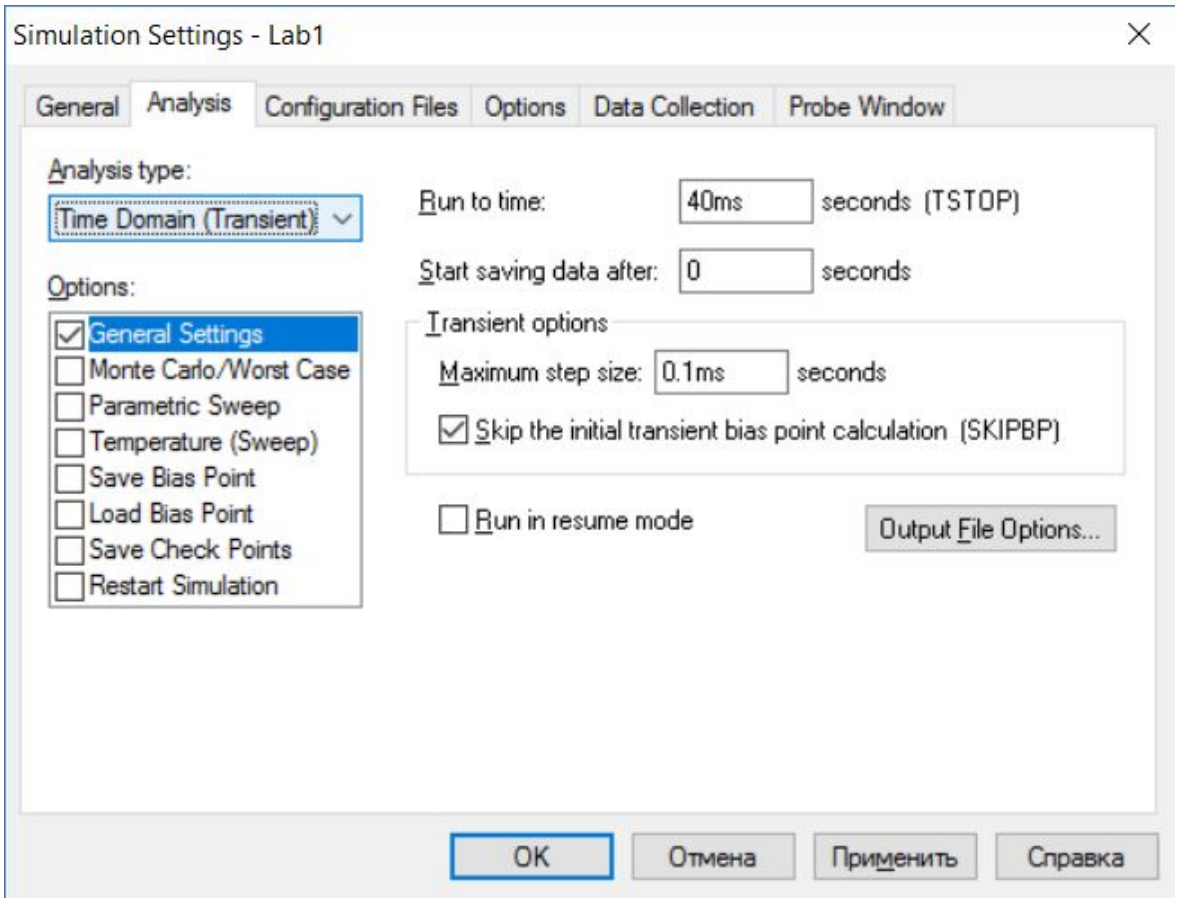

Create PSpice Project
Create based upon an existing project
AnalogGNDSymbol.opj
Create a blank project
OK
Browse...
Cancel
Help

Рабочее окно Capture

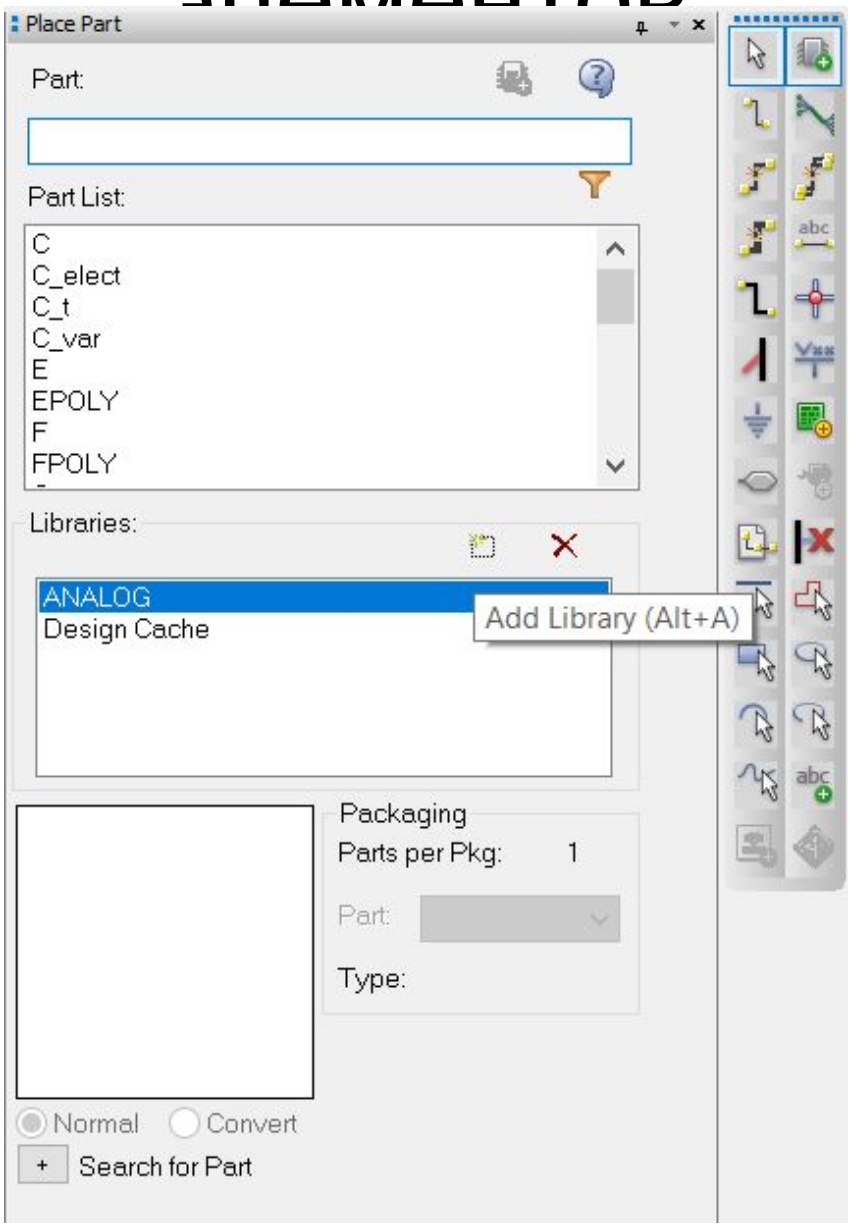


Создание режима моделирования

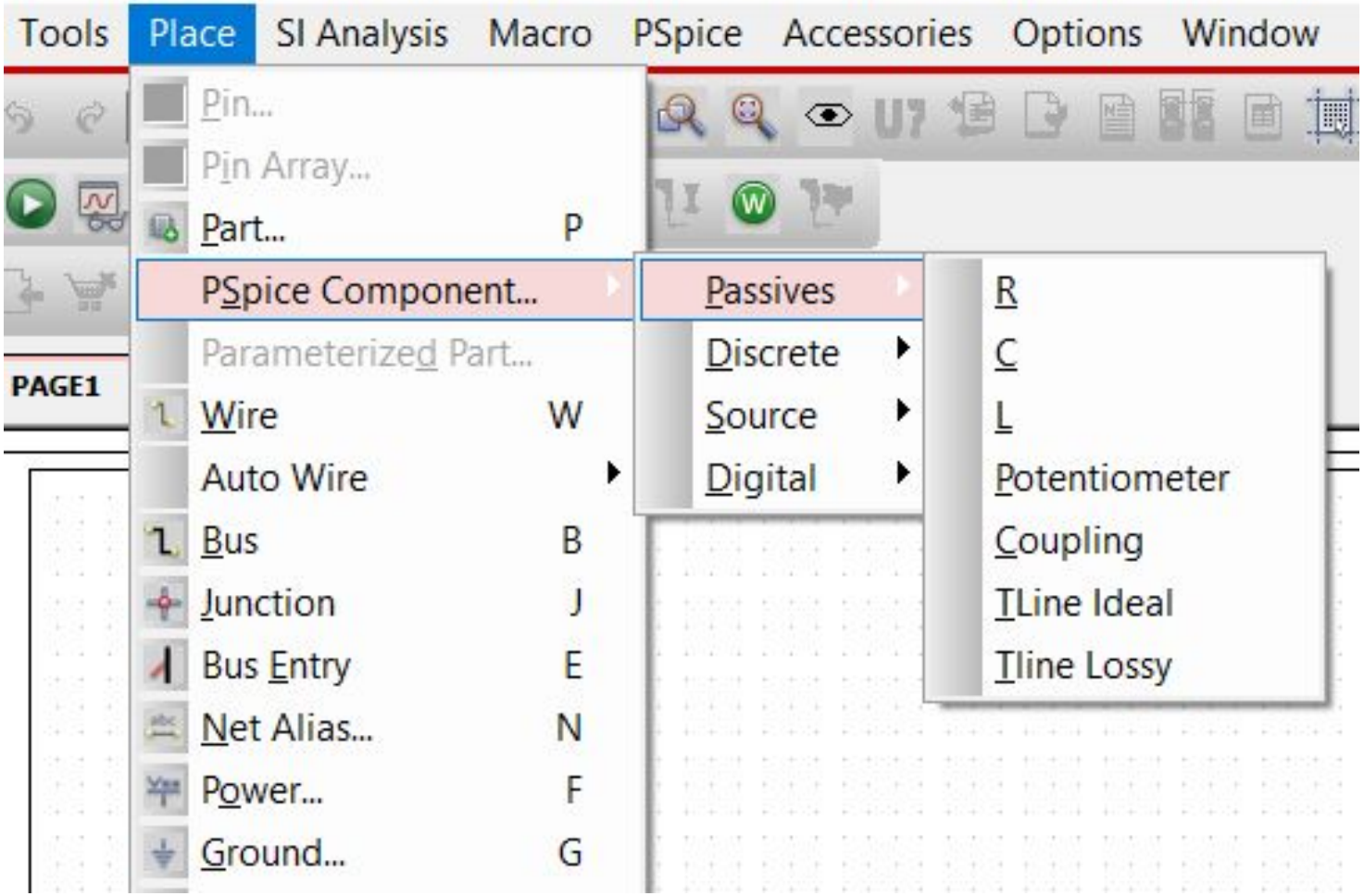




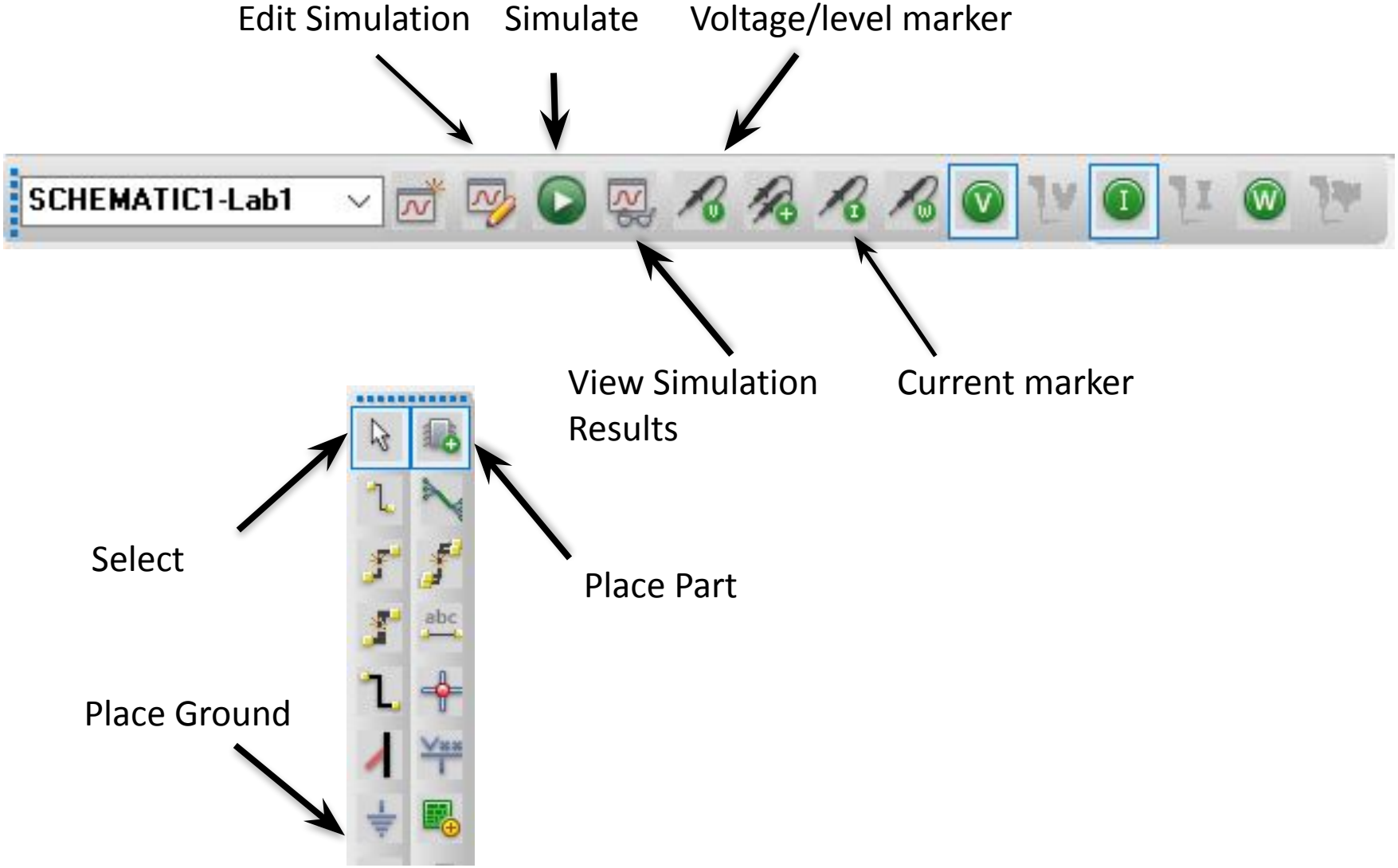
Добавление библиотек элементов



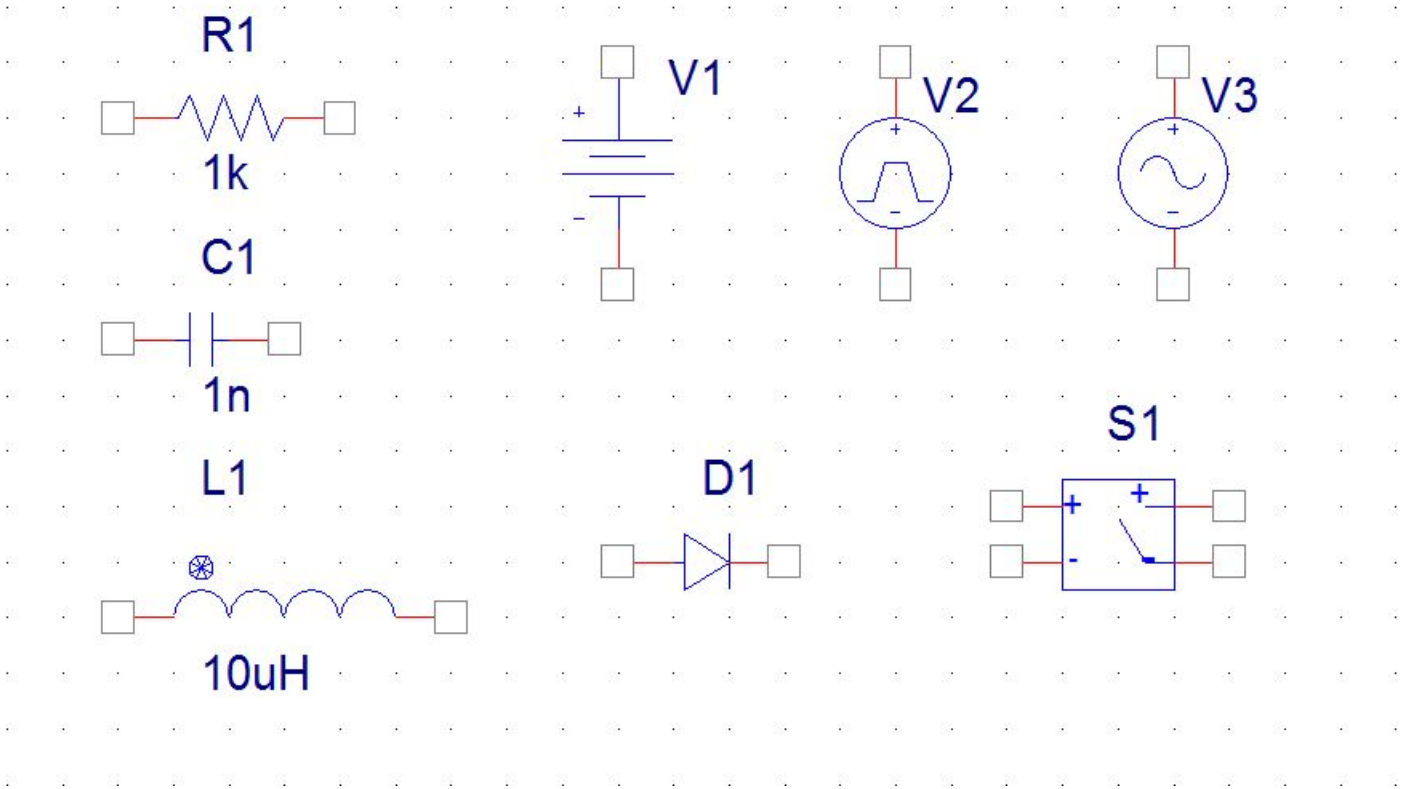
Основные панели Schematics



Основные панели Schematics

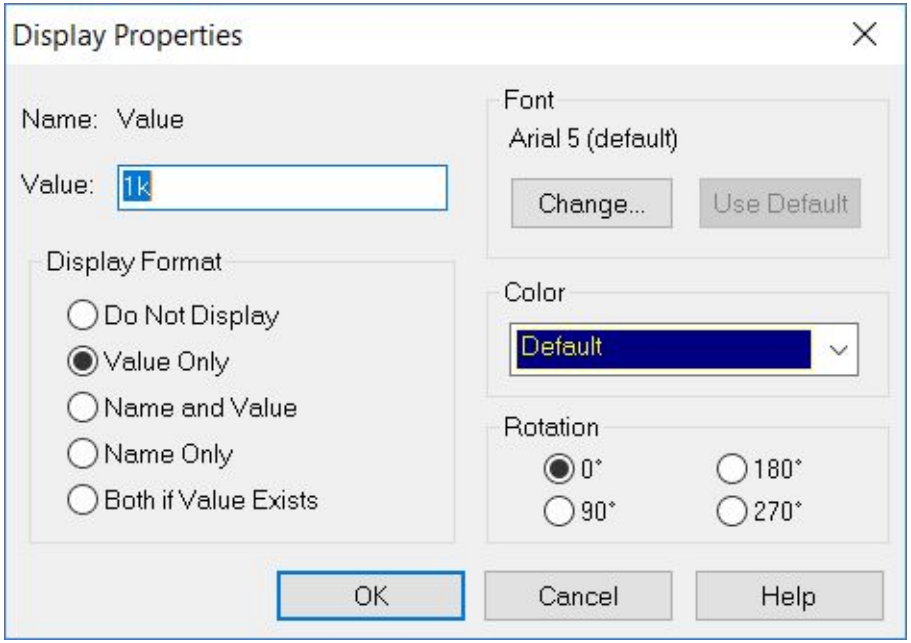


Основные электротехнические элементы

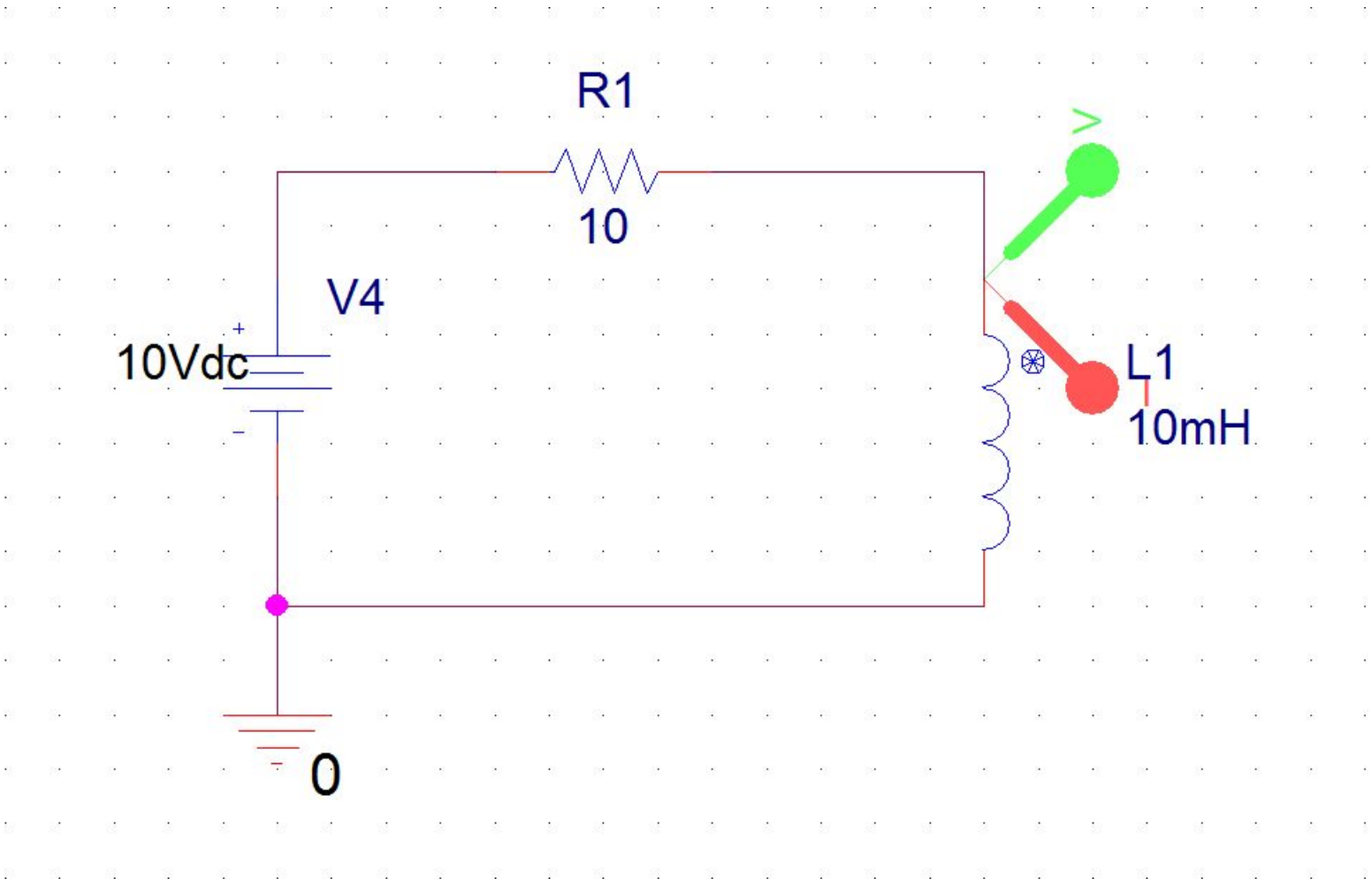


Изменение параметров элементов

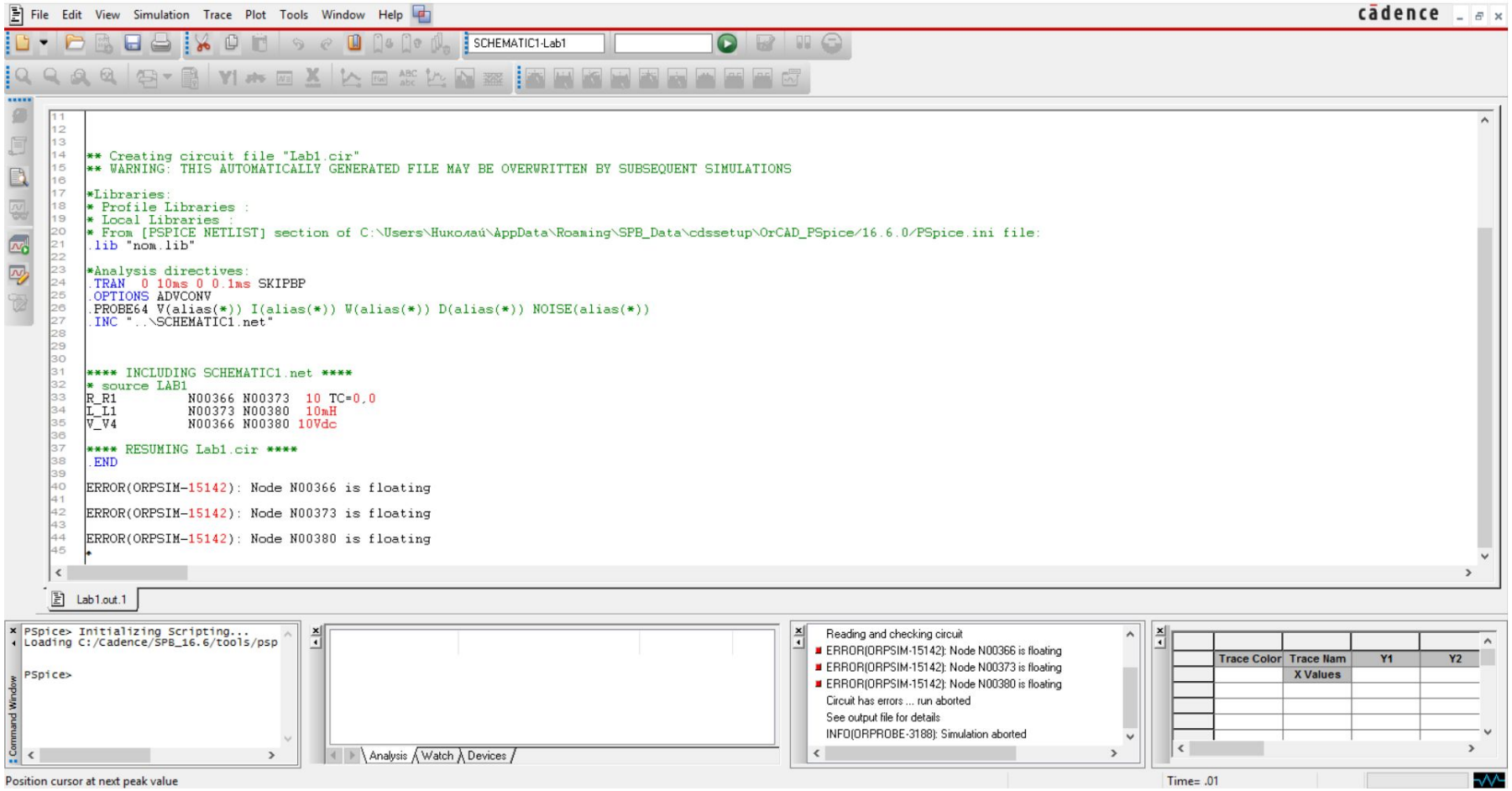
	A
	⊞ SCHEMATIC1 : PAGE1
Color	Default
Designator	
DIST	FLAT
Graphic	R.Normal
ID	
Implementation	
Implementation Path	
Implementation Type	<none>
Location X-Coordinate	270
Location Y-Coordinate	220
MAX_TEMP	RTMAX
Name	INS39
Part Reference	R1
PCB Footprint	AX/RC05
POWER	RMAX
Power Pins Visible	
Primitive	DEFAULT
PSpiceTemplate	R^@REFDES %1 %2 ?TOL
Reference	R1
SLOPE	RSMAX
Source Library	C:\CADENCE\SPB_16. ...
Source Package	R
Source Part	R.Normal
TC1	0
TC2	0
TOLERANCE	
Value	1k
VOLTAGE	RVMAX



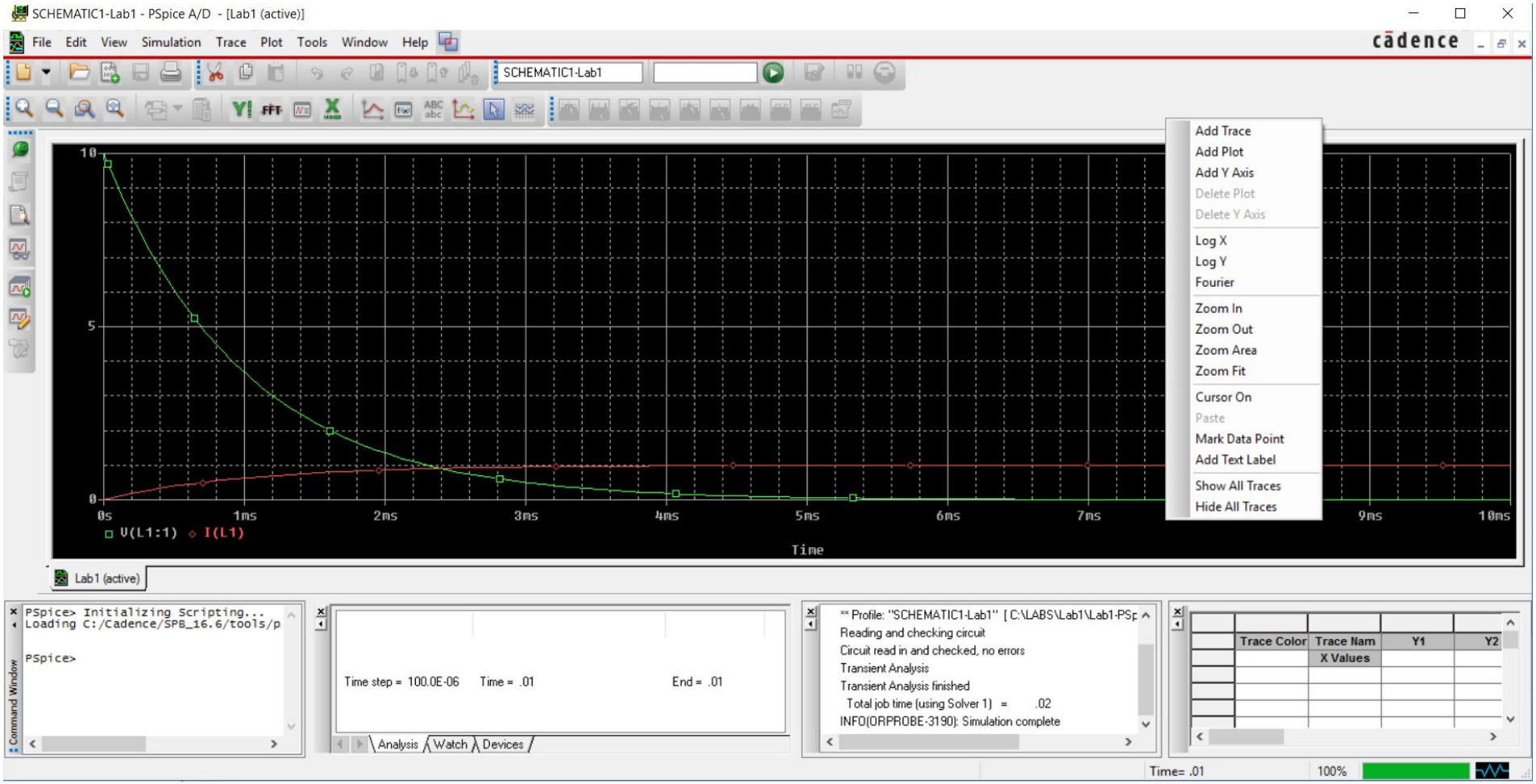
Создание электрической схемы



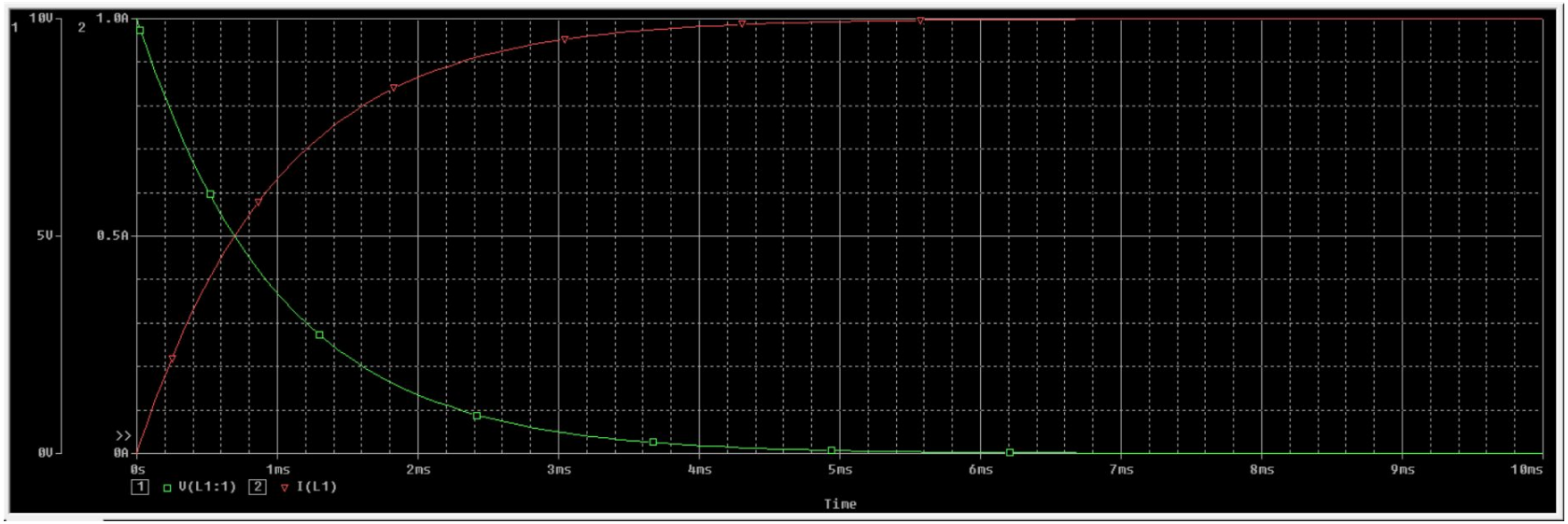
Окно ошибки

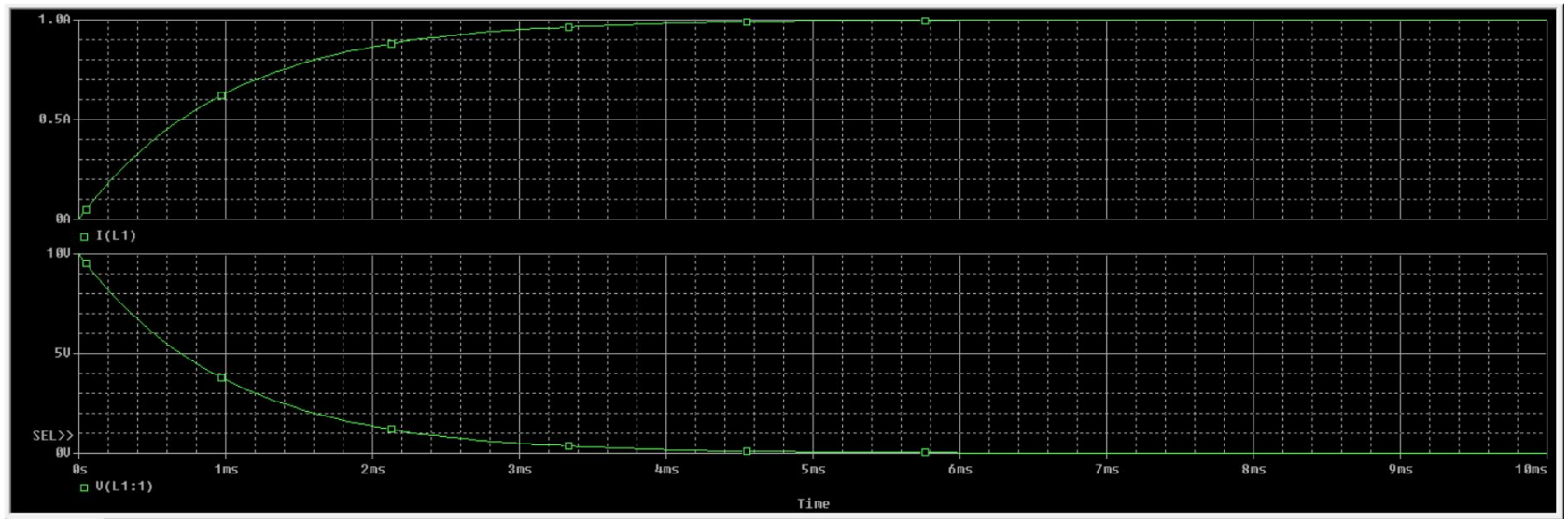

File Edit View Simulation Trace Plot Tools Window Help
cadence
SCHEMATIC1-Lab1
** Creating circuit file "Lab1.cir"
** WARNING: THIS AUTOMATICALLY GENERATED FILE MAY BE OVERWRITTEN BY SUBSEQUENT SIMULATIONS
*Libraries:
* Profile Libraries :
* Local Libraries :
* From [PSPICE NETLIST] section of C:\Users\Николай\AppData\Roaming\SPB_Data\cdssetup\OrCAD_PSpice/16.6.0/PSpice.ini file:
.lib "nom.lib"
*Analysis directives:
.TRAN 0 10ms 0 0.1ms SKIPBP
.OPTIONS ADVCONV
.PROBE64 V(alias(*)) I(alias(*)) W(alias(*)) D(alias(*)) NOISE(alias(*))
.INC "..\SCHEMATIC1.net"
**** INCLUDING SCHEMATIC1.net ****
* source LAB1
R_R1 N00366 N00373 10 TC=0,0
L_L1 N00373 N00380 10mH
V_V4 N00366 N00380 10Vdc
**** RESUMING Lab1.cir ****
.END
ERROR(ORPSIM-15142): Node N00366 is floating
ERROR(ORPSIM-15142): Node N00373 is floating
ERROR(ORPSIM-15142): Node N00380 is floating
Lab1.out.1
PSpice> Initializing Scripting...
Loading C:/Cadence/SPB_16.6/tools/psp
PSpice>
Command Window
Analysis Watch Devices
Reading and checking circuit
ERROR(ORPSIM-15142): Node N00366 is floating
ERROR(ORPSIM-15142): Node N00373 is floating
ERROR(ORPSIM-15142): Node N00380 is floating
Circuit has errors ... run aborted
See output file for details
INFO(ORPROBE-3188): Simulation aborted
Trace Color
Trace Nam
Y1
Y2
X Values
Position cursor at next peak value
Time= .01

Результаты моделирования

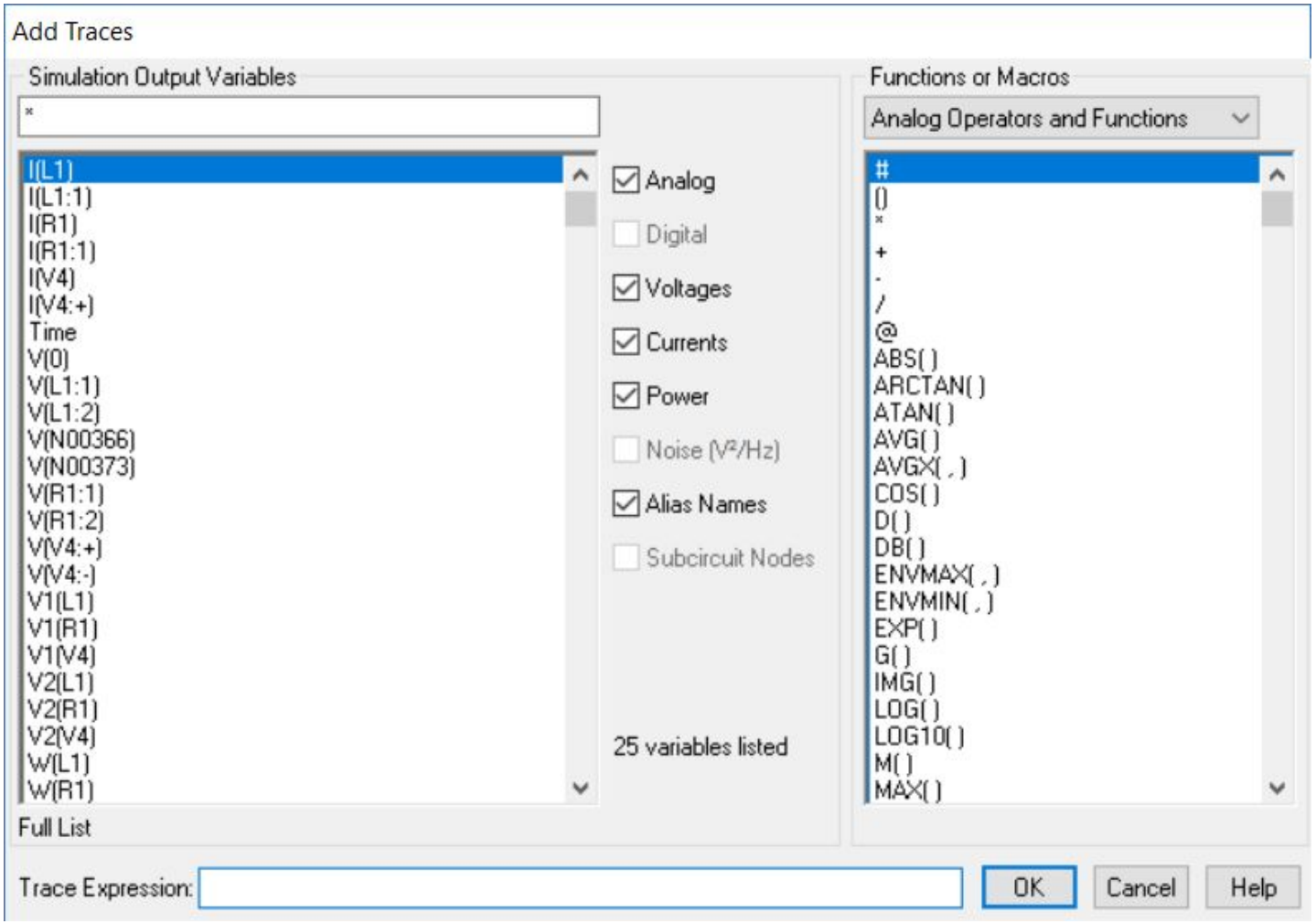


Результаты моделирования

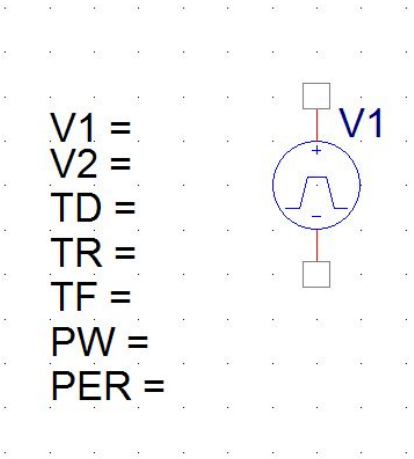




Результаты моделирования



Источник импульсного напряжения



	A
	SCHEMATIC1 : PAGE1
AC	
Color	Default
DC	
Designator	
Graphic	VPULSE.Normal
ID	
Implementation	
Implementation Path	
Implementation Type	PSpice Model
Location X-Coordinate	390
Location Y-Coordinate	200
Name	INS568
Part Reference	V1
PCB Footprint	
PER	
Power Pins Visible	
Primitive	DEFAULT
PSpiceOnly	TRUE
PSpiceTemplate	V^@REFDES %+ %- ?DC D
PW	
Reference	V1
Source Library	C:\CADENCE\SPB_16.
Source Package	VPULSE
Source Part	VPULSE.Normal
TD	
TF	
TR	
V1	
V2	
Value	VPULSE

Перио
д

Длительность импульса

Время задержки

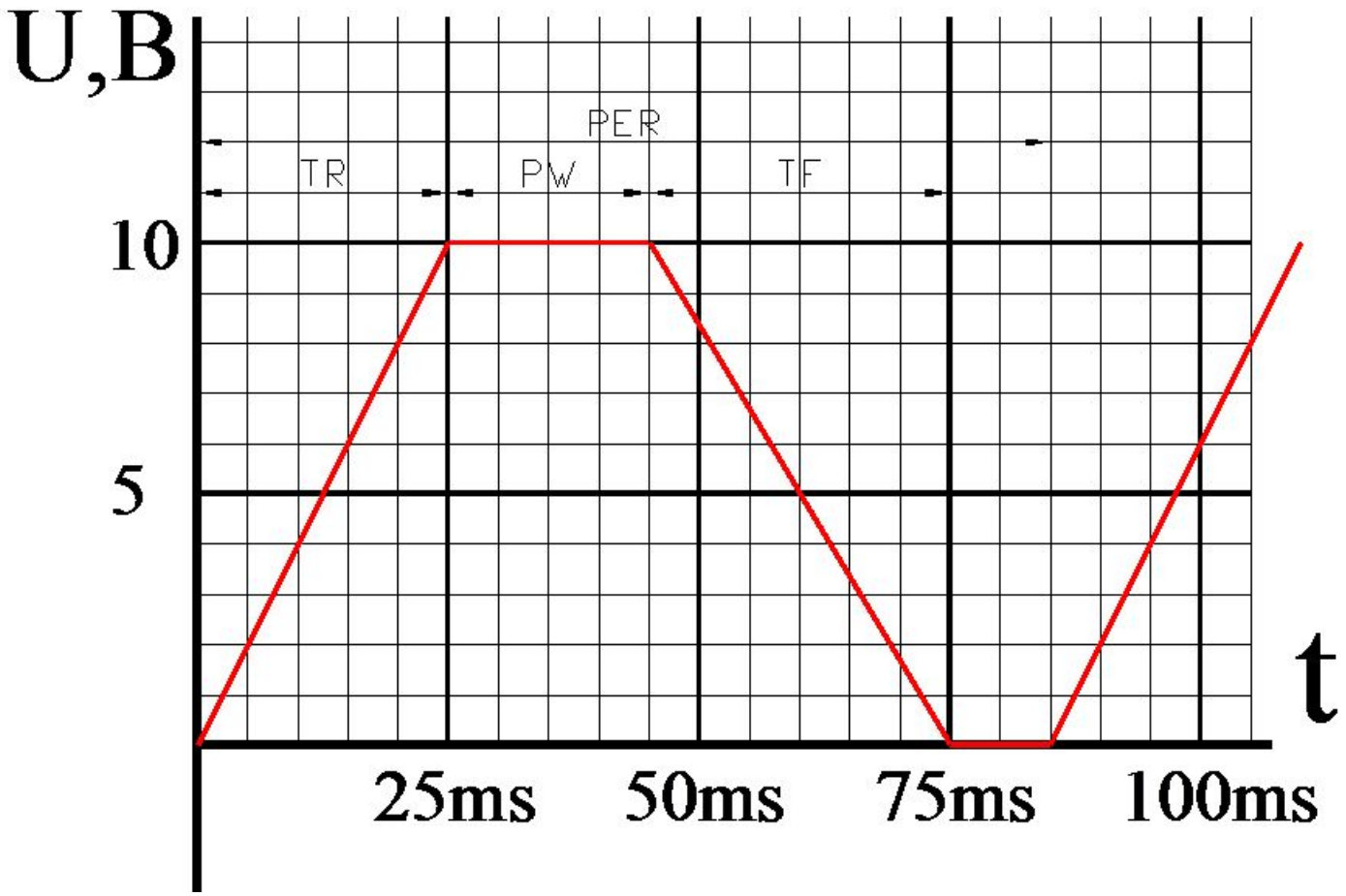
Время спада импульса

Второй уровень напряжения

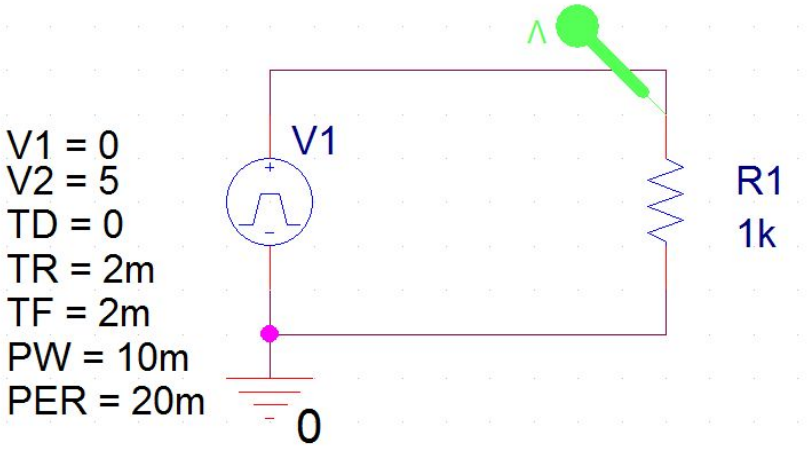
Время нарастания импульса

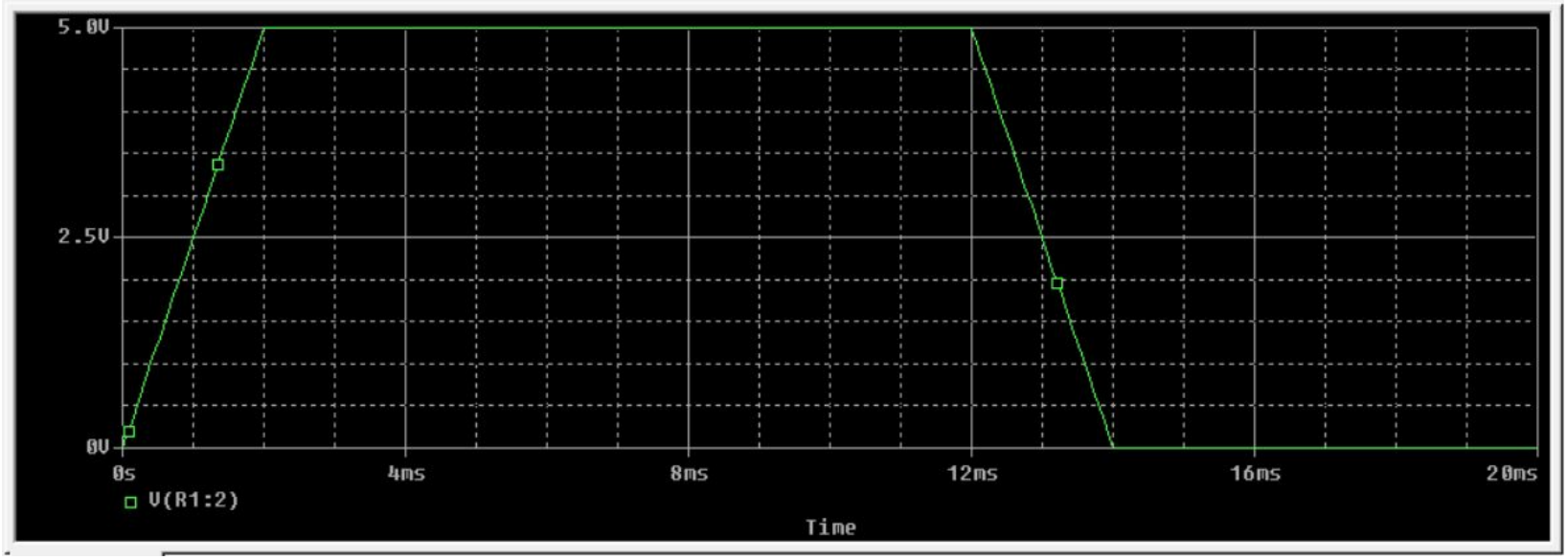
Первый уровень напряжения

Источник импульсного напряжения

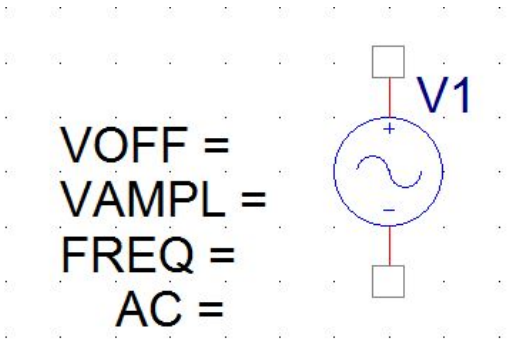


Источник импульсного





Источник синусоидального напряжения



	A
	SCHEMATIC1 : PAGE1
AC	
Color	Default
DC	
Designator	
DF	0
FREQ	
Graphic	VSIN.Normal
ID	
Implementation	
Implementation Path	
Implementation Type	PSpice Model
Location X-Coordinate	410
Location Y-Coordinate	200
Name	INS786
Part Reference	V1
PCB Footprint	
PHASE	0
Power Pins Visible	
Primitive	DEFAULT
PSpiceOnly	TRUE
PSpiceTemplate	V^@REFDES %+ %- ?DC|D
Reference	V1
Source Library	C:\CADENCE\SPB_16.
Source Package	VSIN
Source Part	VSIN.Normal
TD	0
Value	VSIN
VAMPL	
VOFF	

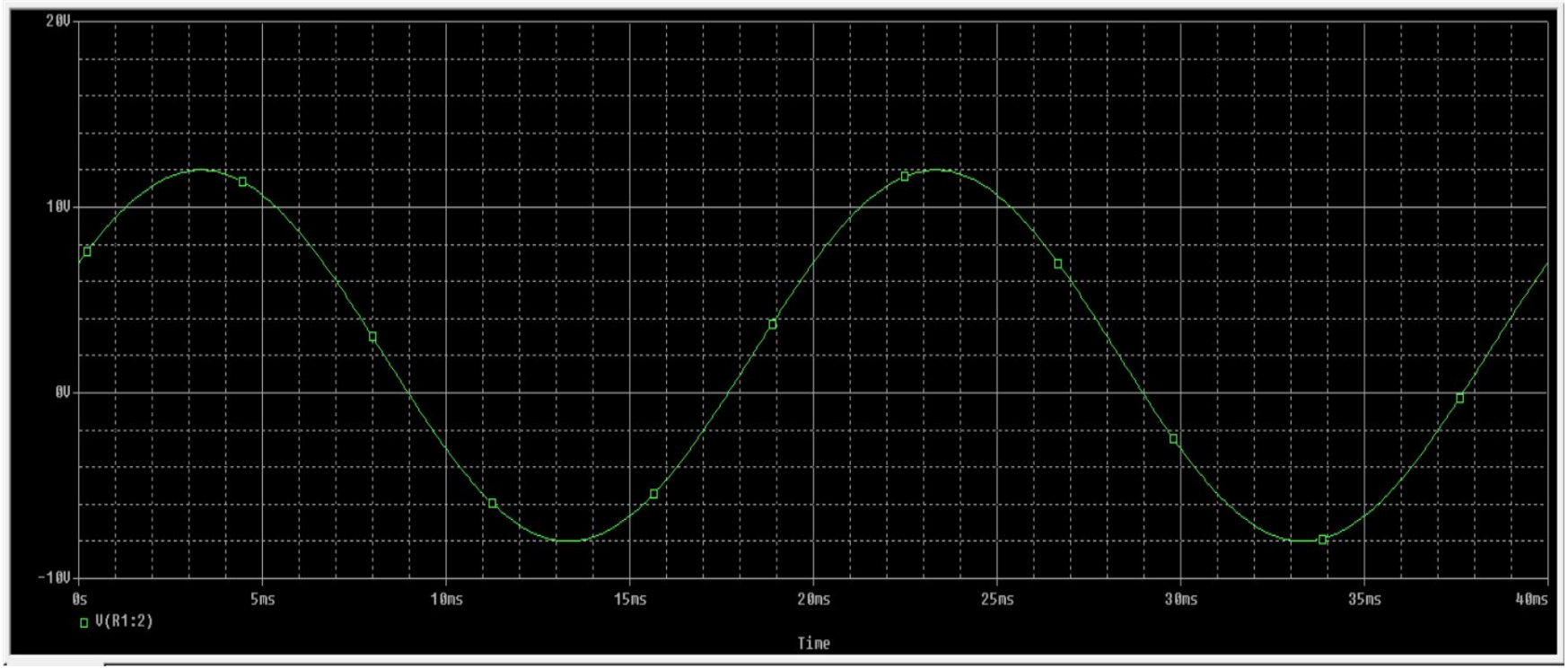
Частота

Фазовый сдвиг

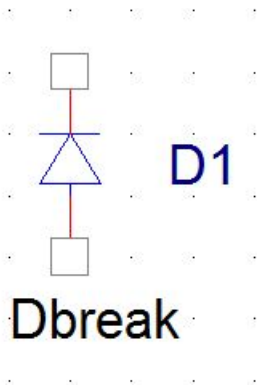
Амплитудное значение

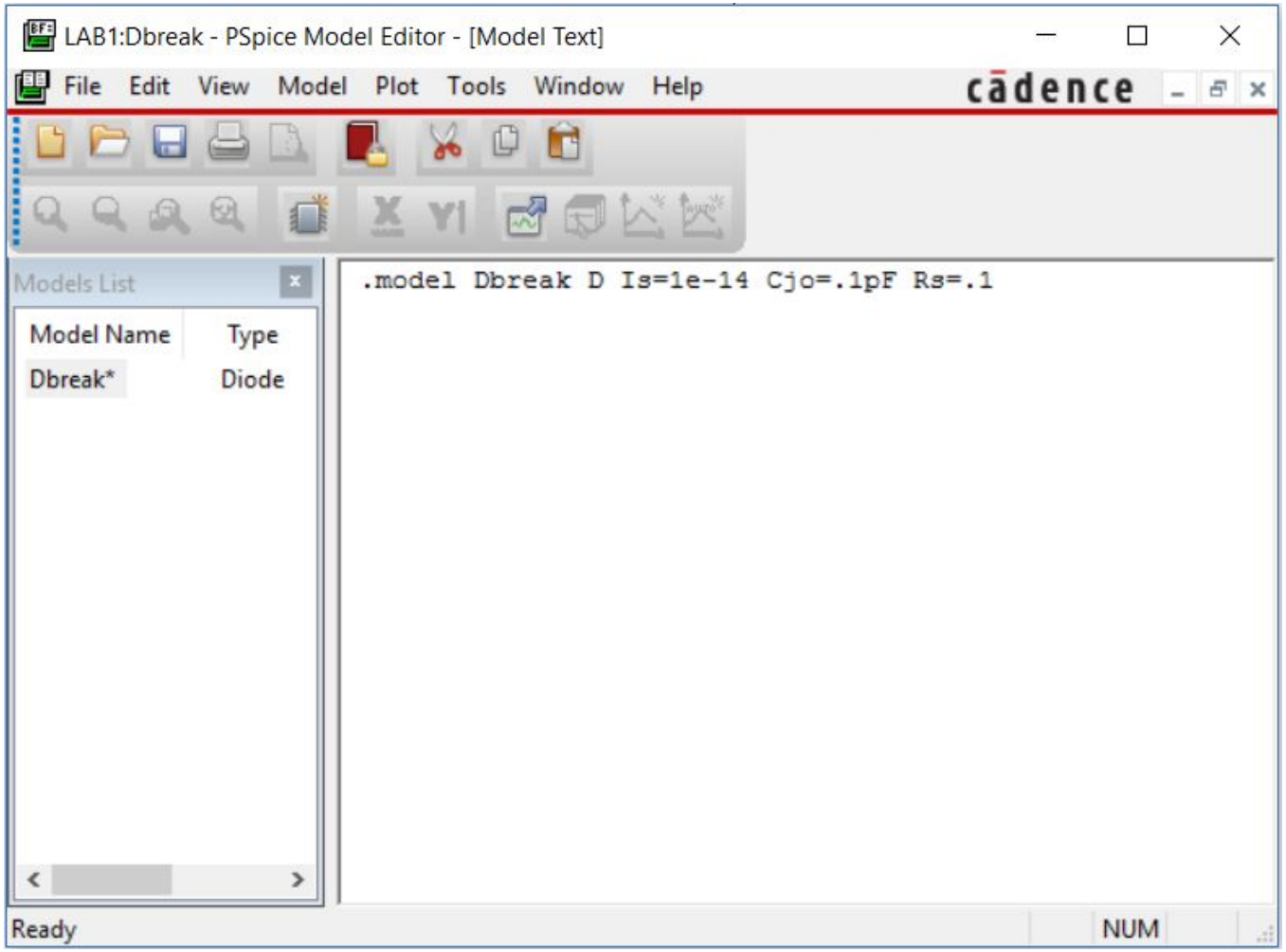
Постоянная составляющая

Источник синусоидального напряжения

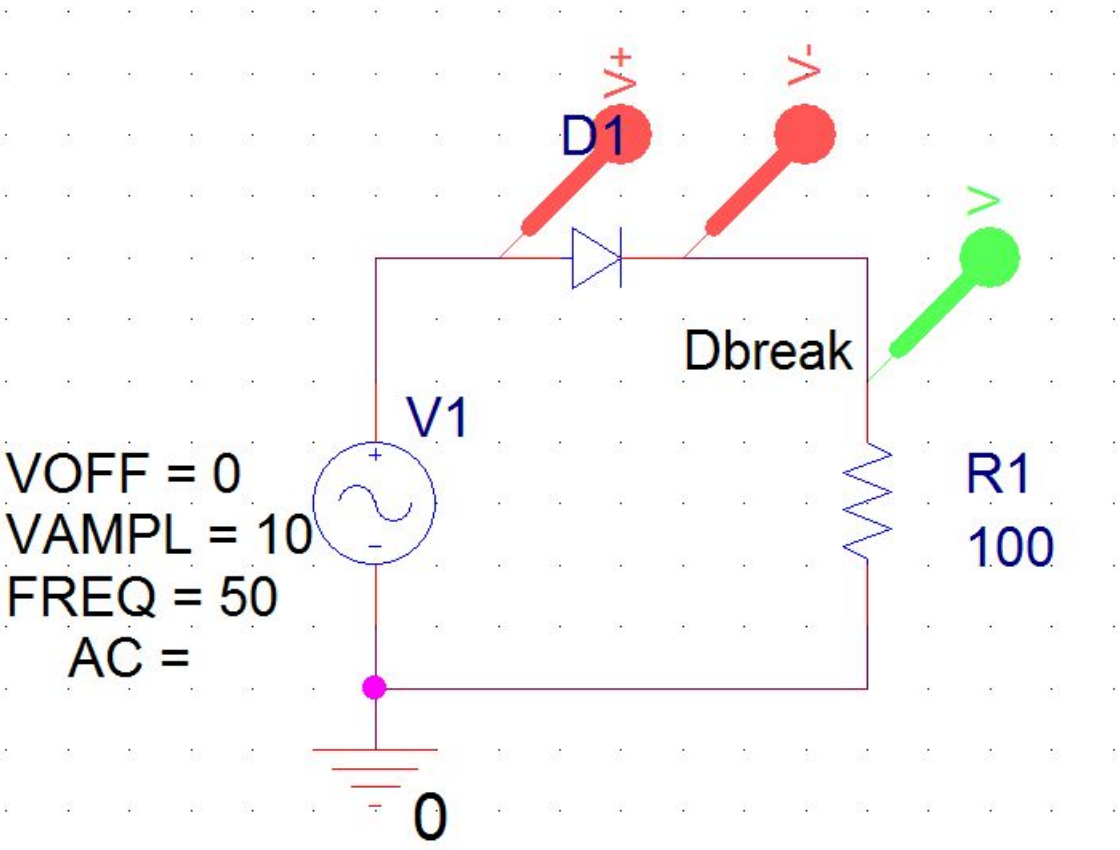


Идеализированный диод

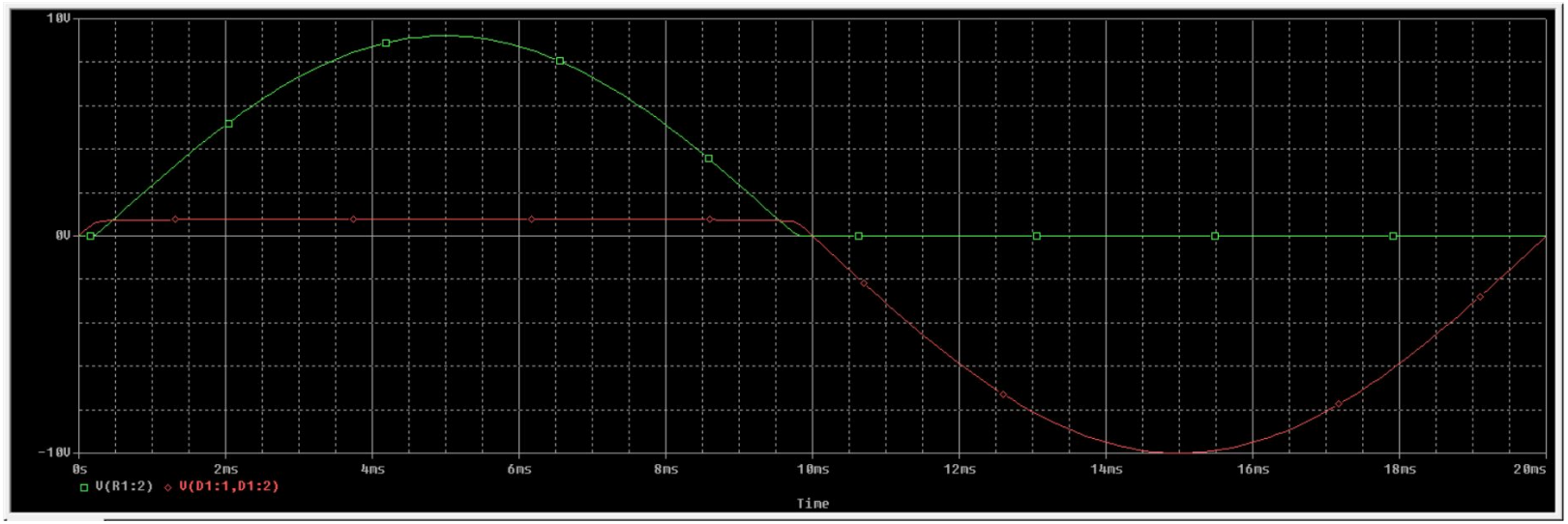


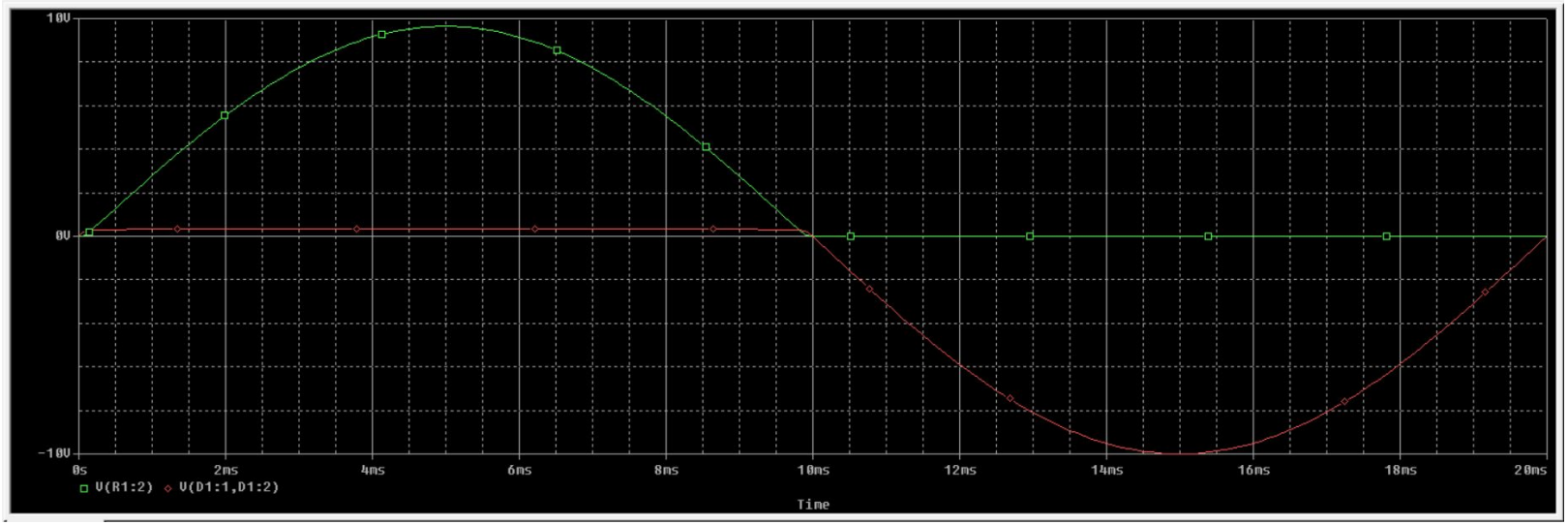


Идеализированный диод

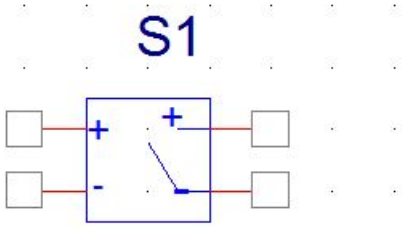


Идеализированный диод





Идеализированный ключ



S
VOFF = 0.0V
VON = 1.0V

	A
	SCHEMATIC1 : PAGE1
Color	Default
Designator	
Graphic	S.Normal
ID	
Implementation	
Implementation Path	
Implementation Type	<none>
Location X-Coordinate	420
Location Y-Coordinate	470
Name	INS1279
Part Reference	S1
PCB Footprint	
Power Pins Visible	
Primitive	DEFAULT
PSpiceOnly	TRUE
PSpiceTemplate	S^@REFDES %3 %4 %1 %
Reference	S1
ROFF	1e6
RON	1.0
Source Library	C:\CADENCE\SPB_16.
Source Package	S
Source Part	S.Normal
Value	S
VOFF	0.0V
VON	1.0V

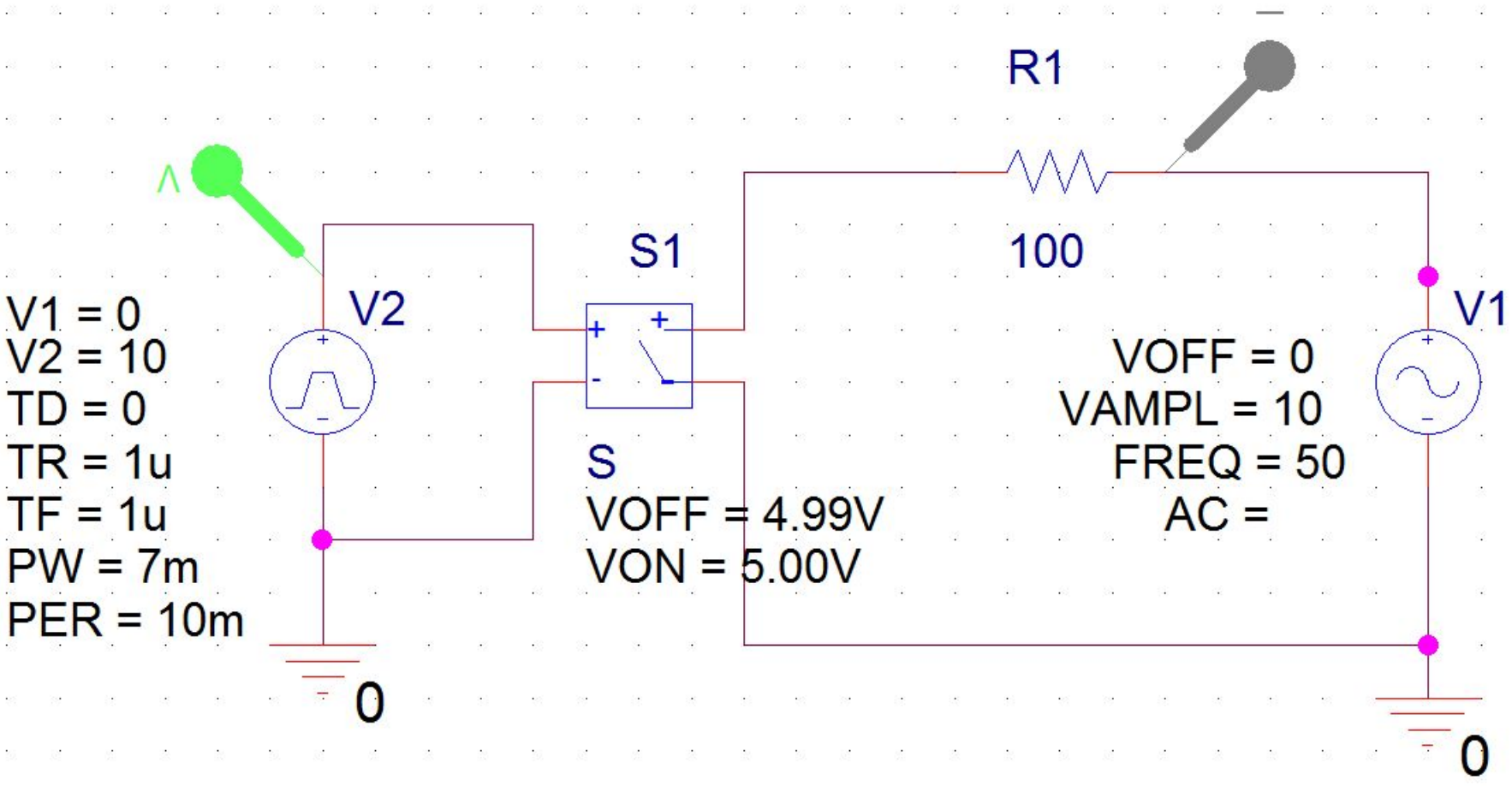
Сопротивление в выключенном состоянии

Сопротивление во включенном состоянии

Напряжение выключения

Напряжение включения

Идеализированный ключ



Идеализированный ключ