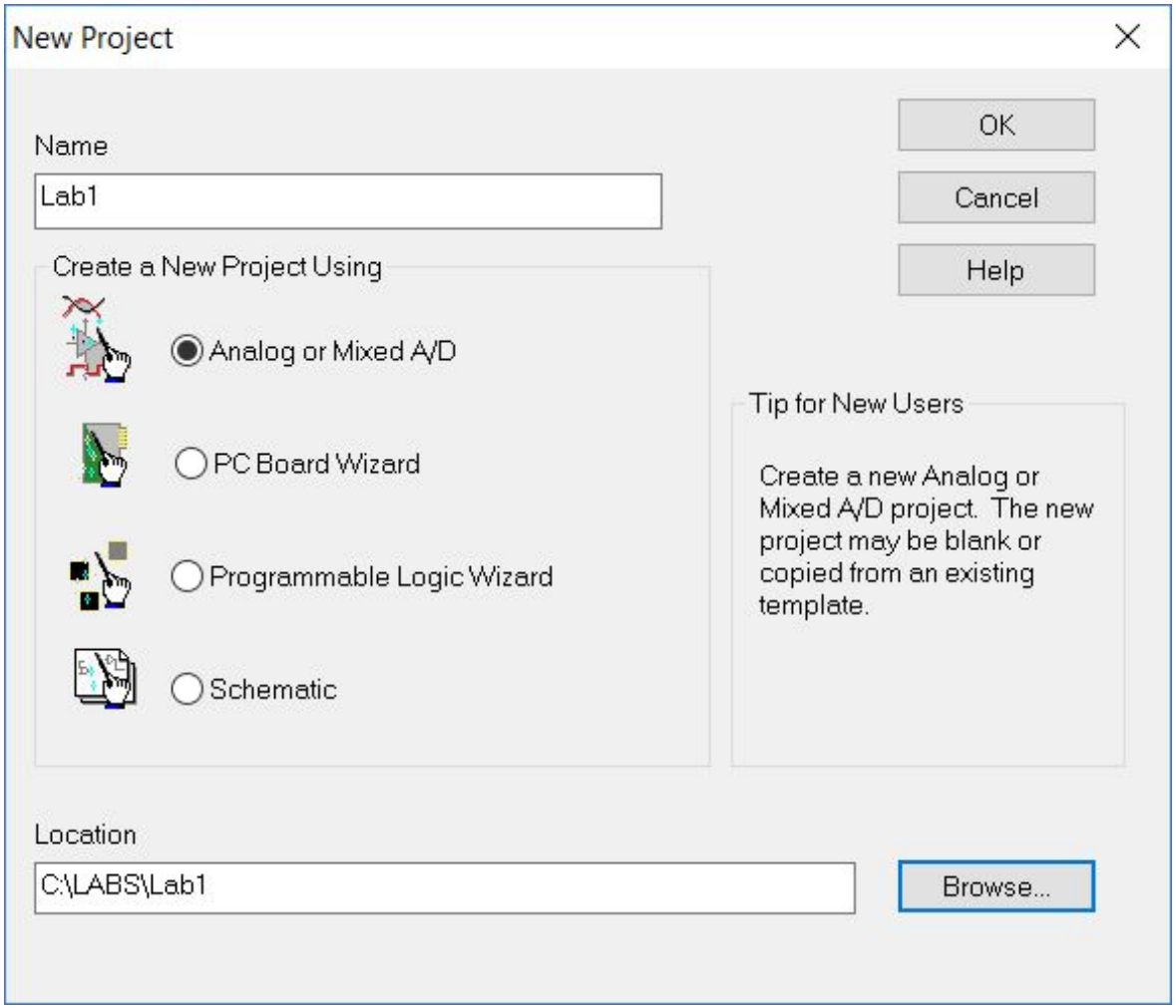
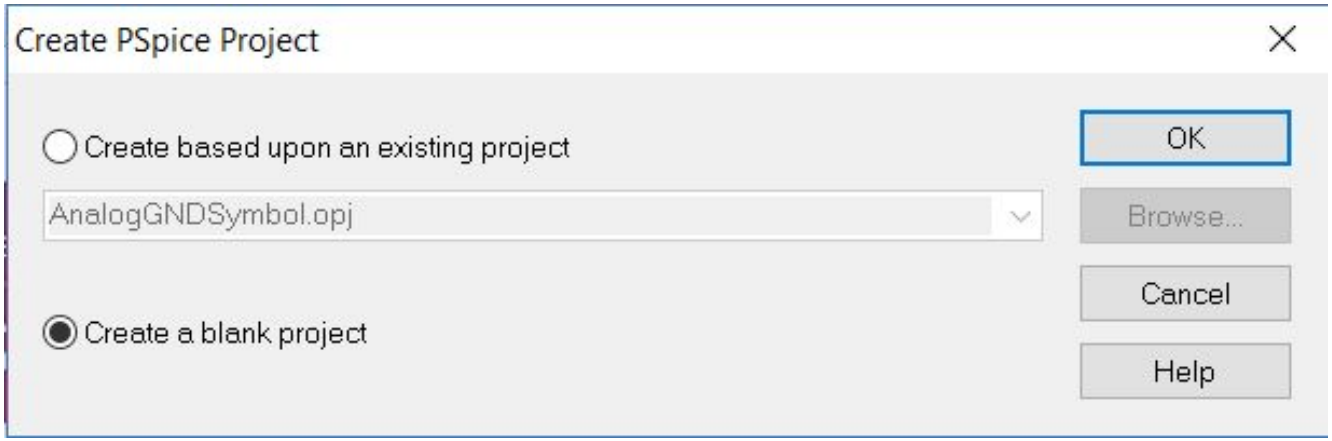
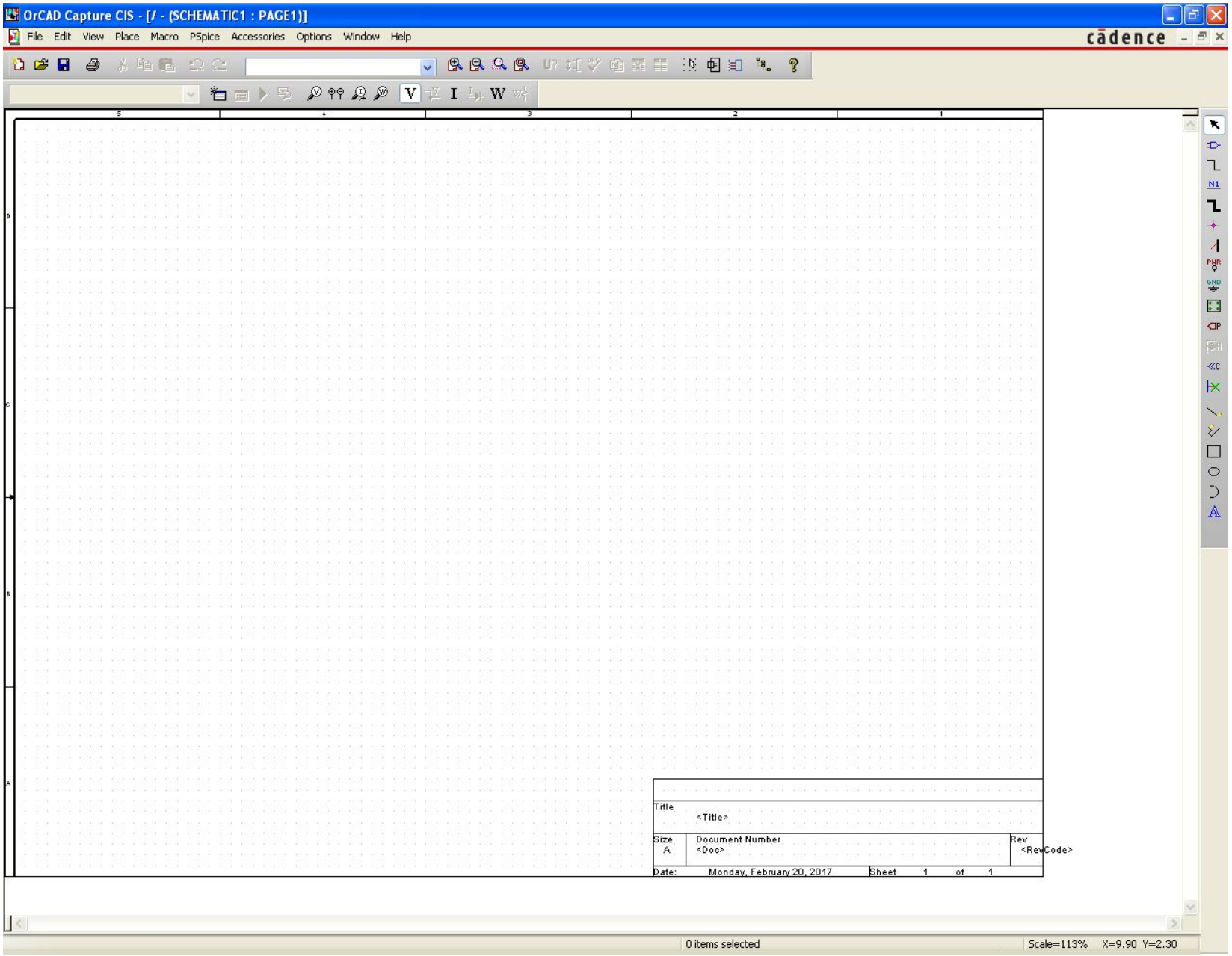
Лабораторная работа №1

Знакомство с OrCad Capture

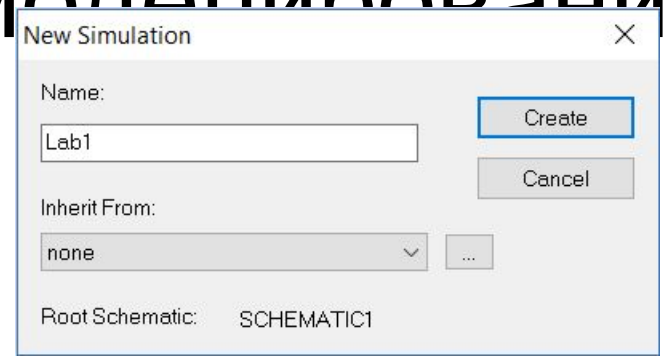

New Project
Name
Lab1
OK
Cancel
Help
Create a New Project Using
Analog or Mixed A/D
PC Board Wizard
Programmable Logic Wizard
Schematic
Tip for New Users
Create a new Analog or Mixed A/D project. The new project may be blank or copied from an existing template.
Location
C:\LABS\Lab1
Browse...

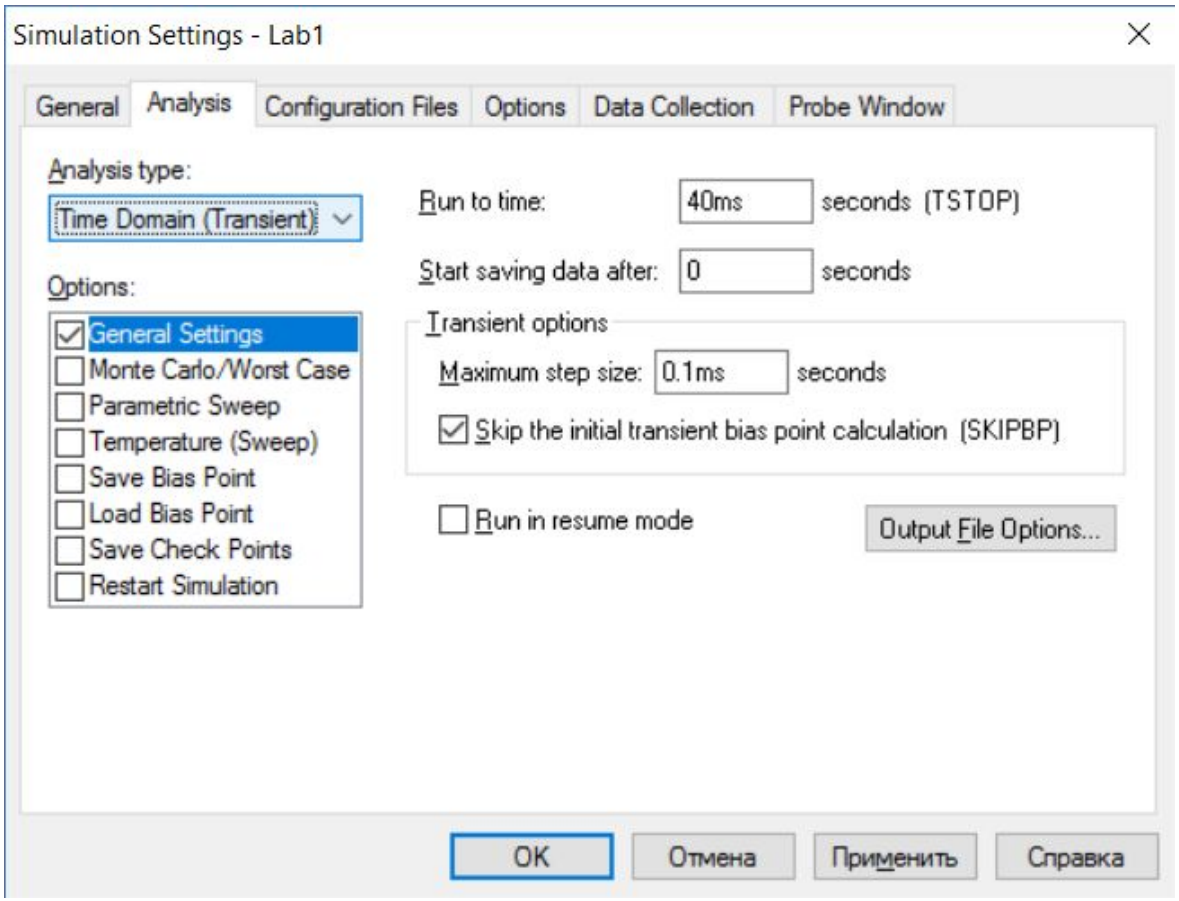

Create PSpice Project
Create based upon an existing project
AnalogGNDSymbol.opj
Create a blank project
OK
Browse...
Cancel
Help

Рабочее окно Capture

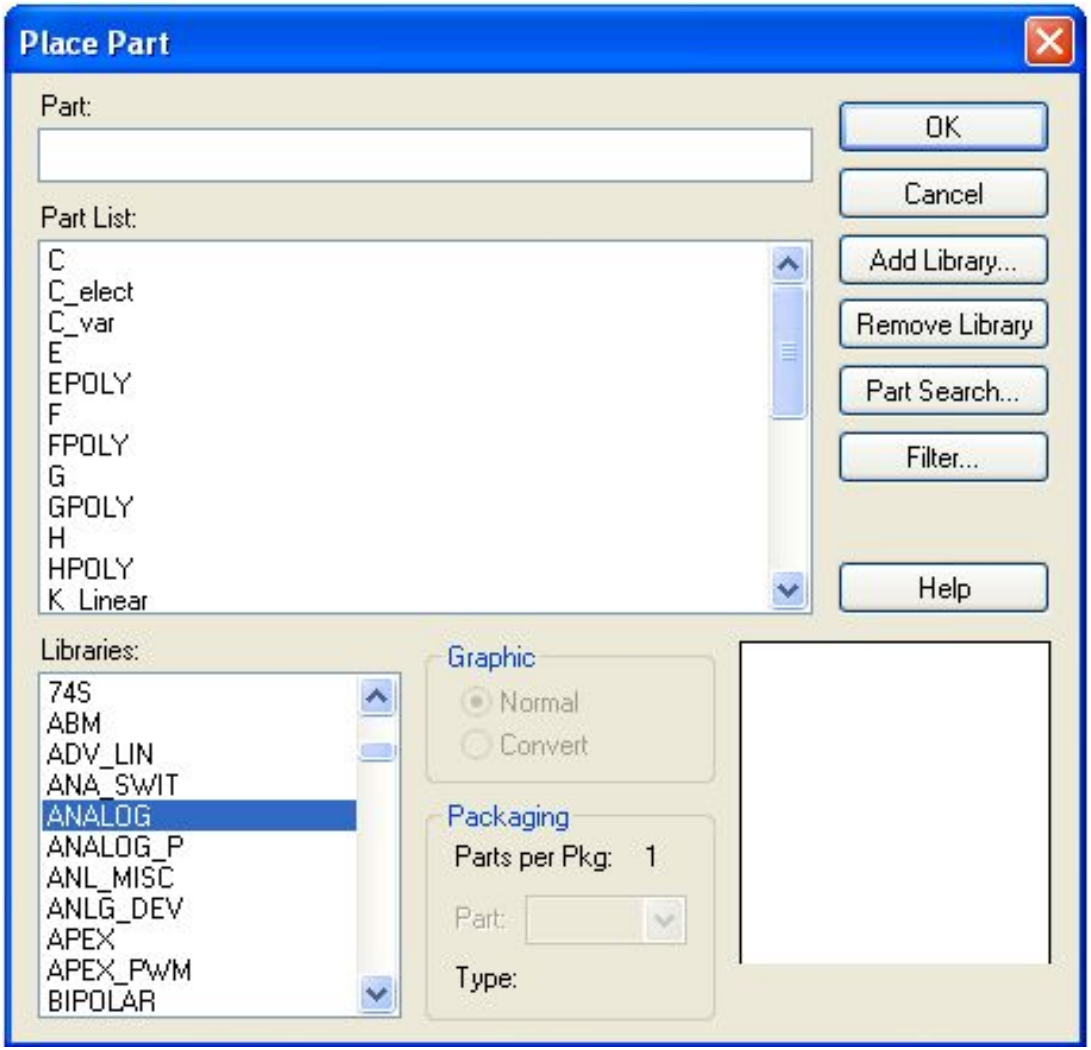


Создание режима моделирования

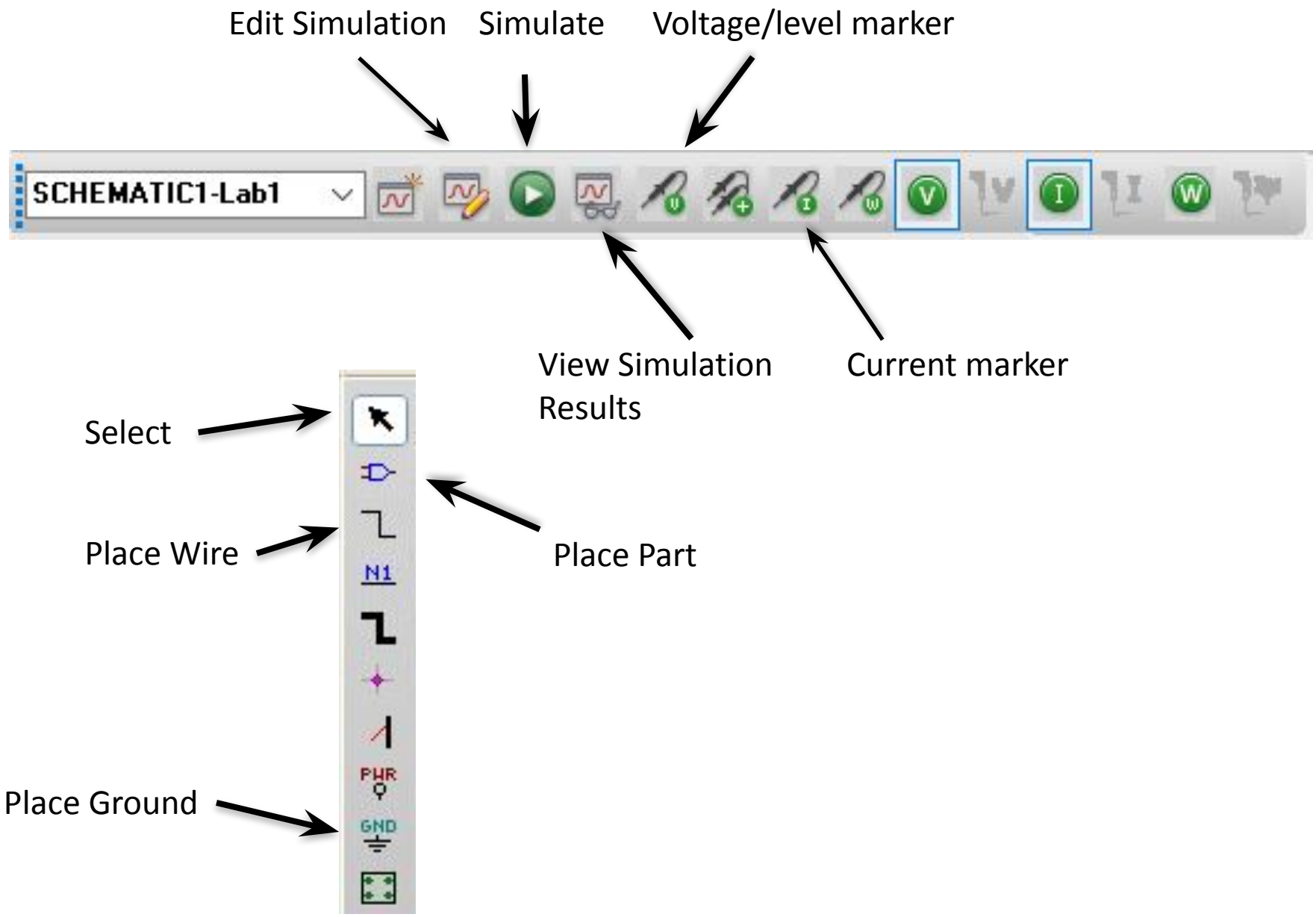




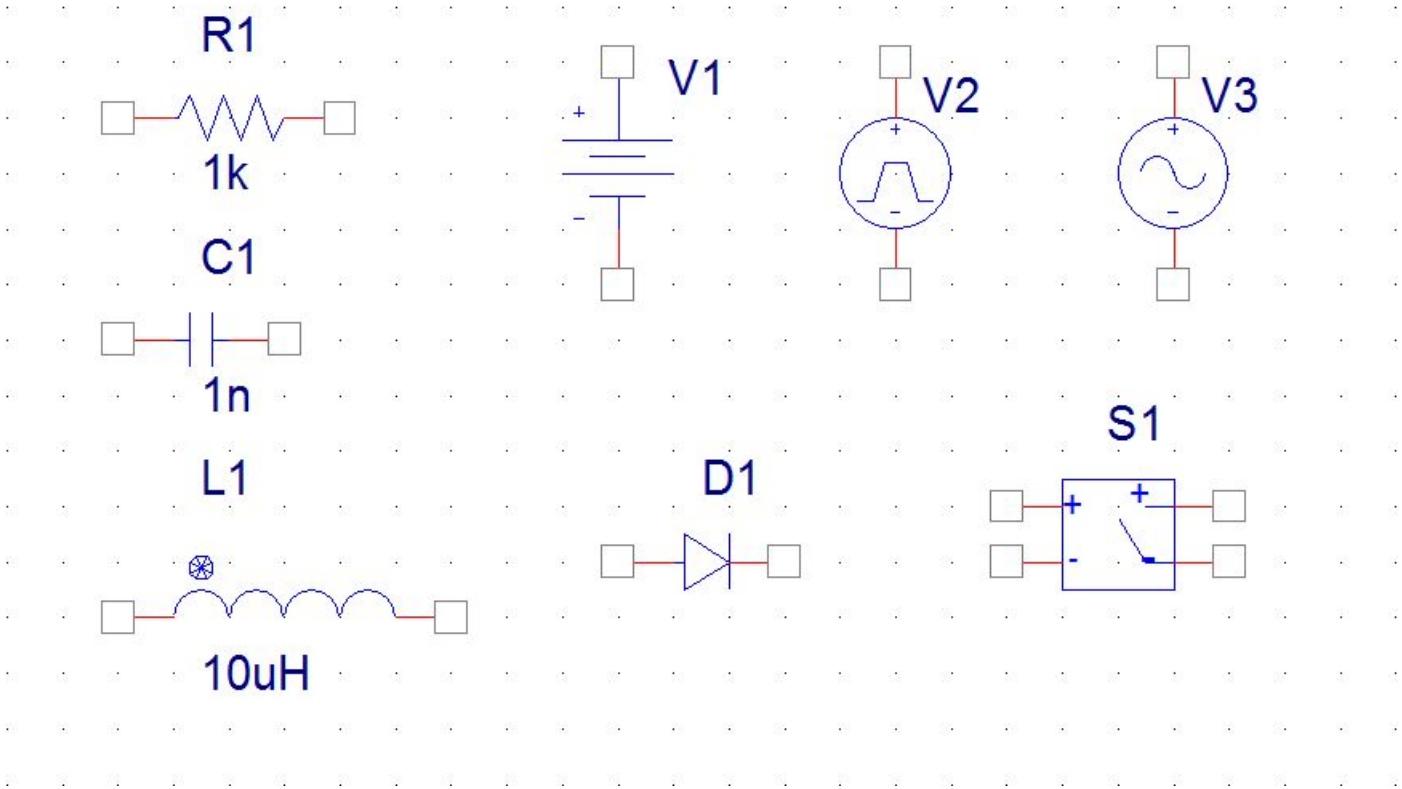
Добавление библиотек элементов



Основные панели Schematics

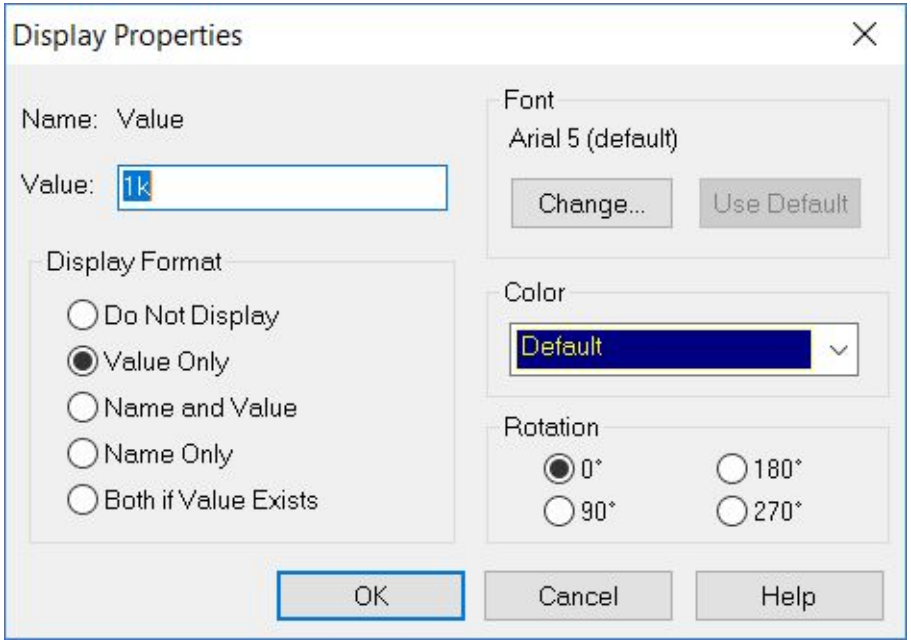


Основные электротехнические элементы

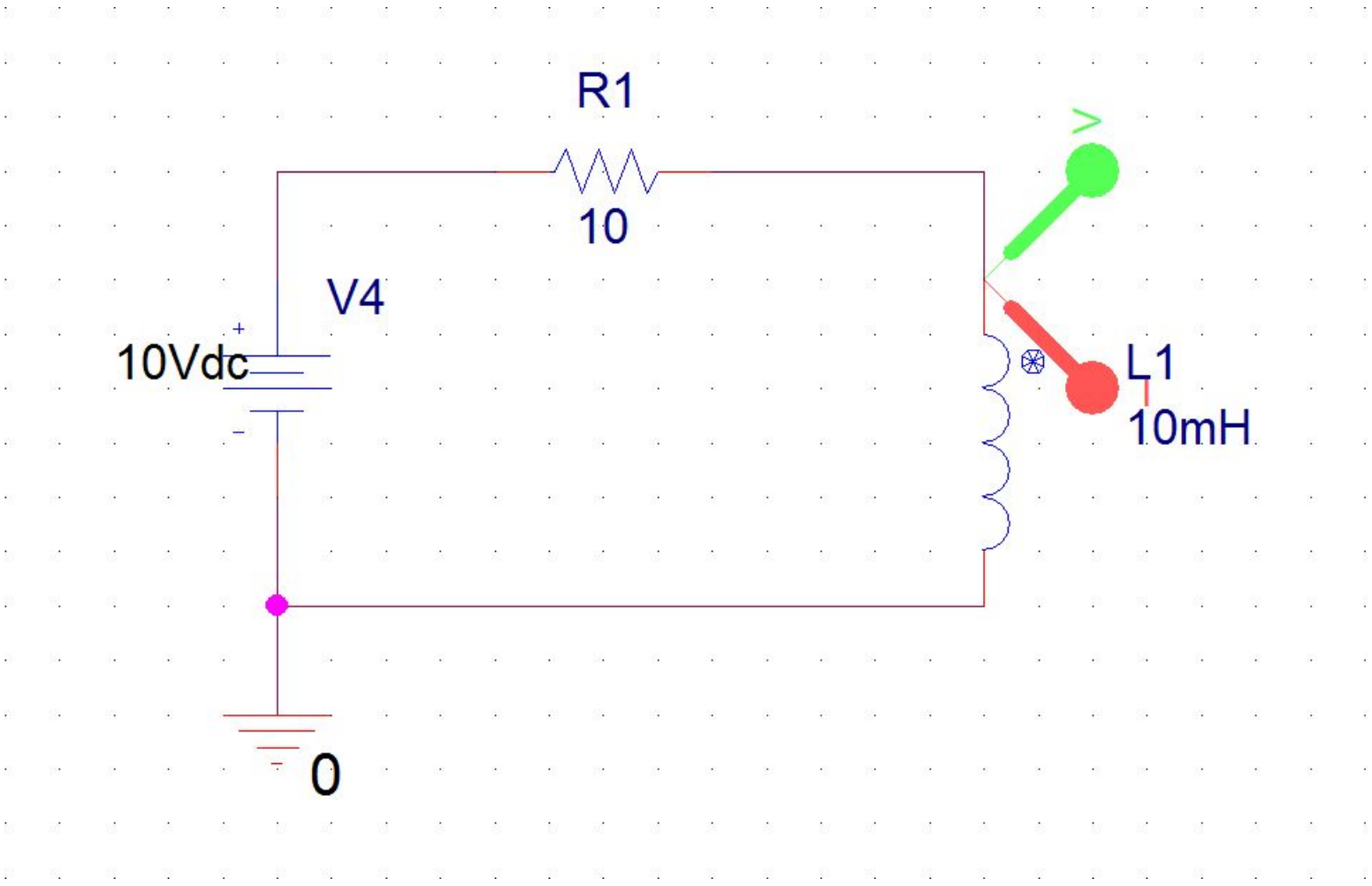


Изменение параметров элементов

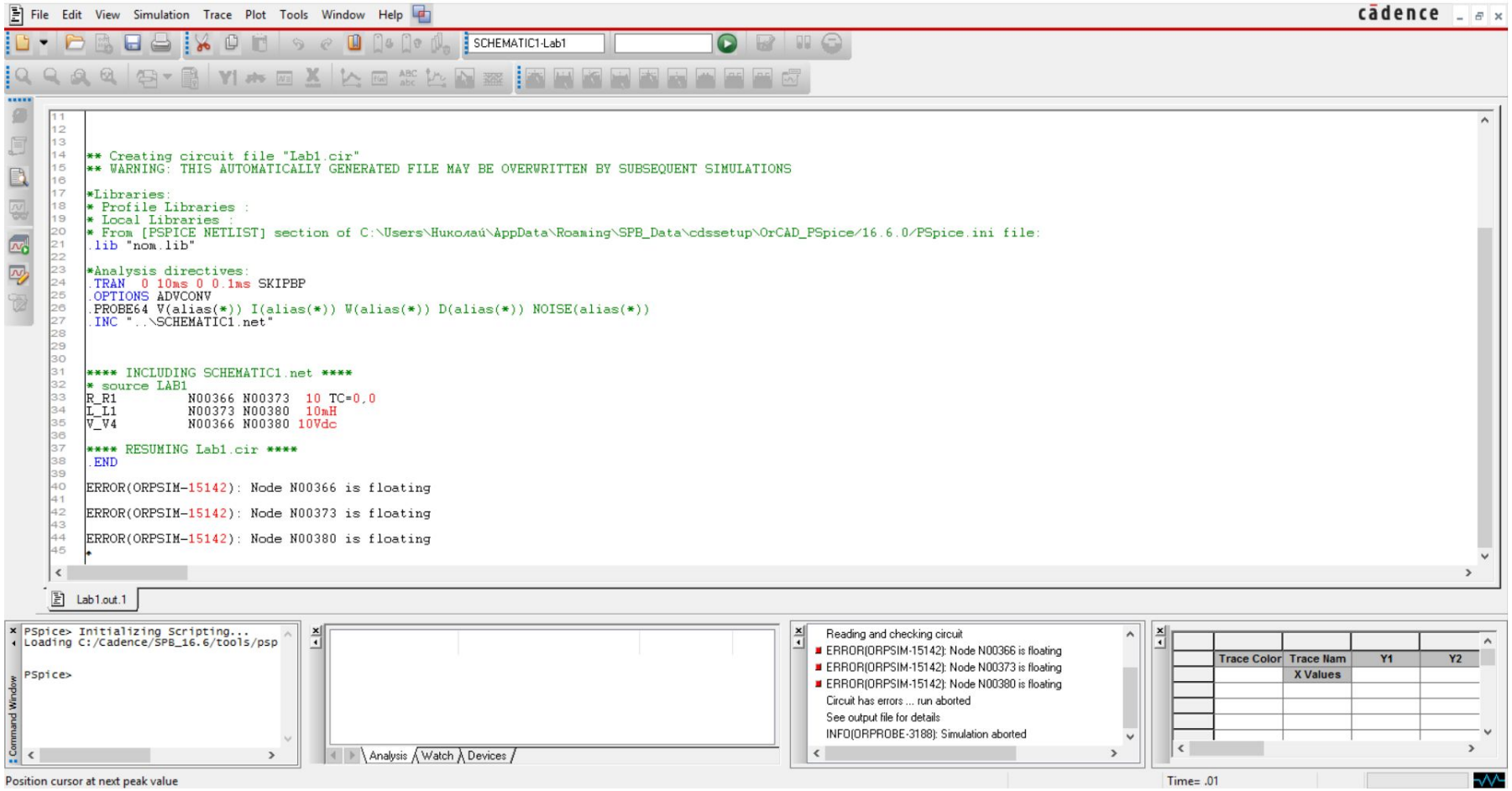
	A
	⊞ SCHEMATIC1 : PAGE1
Color	Default
Designator	
DIST	FLAT
Graphic	R.Normal
ID	
Implementation	
Implementation Path	
Implementation Type	<none>
Location X-Coordinate	270
Location Y-Coordinate	220
MAX_TEMP	RTMAX
Name	INS39
Part Reference	R1
PCB Footprint	AX/RC05
POWER	RMAX
Power Pins Visible	
Primitive	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



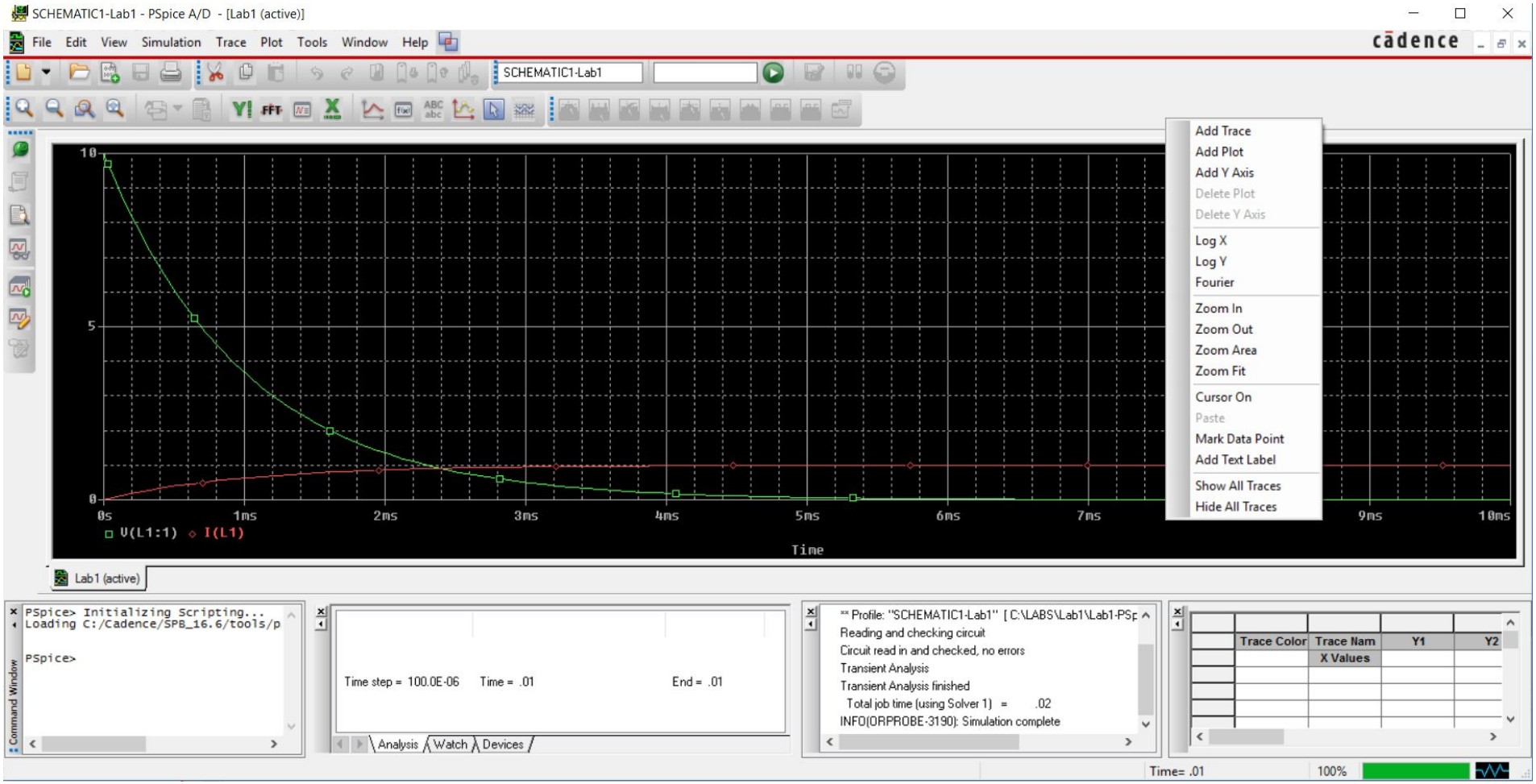
Создание электрической схемы



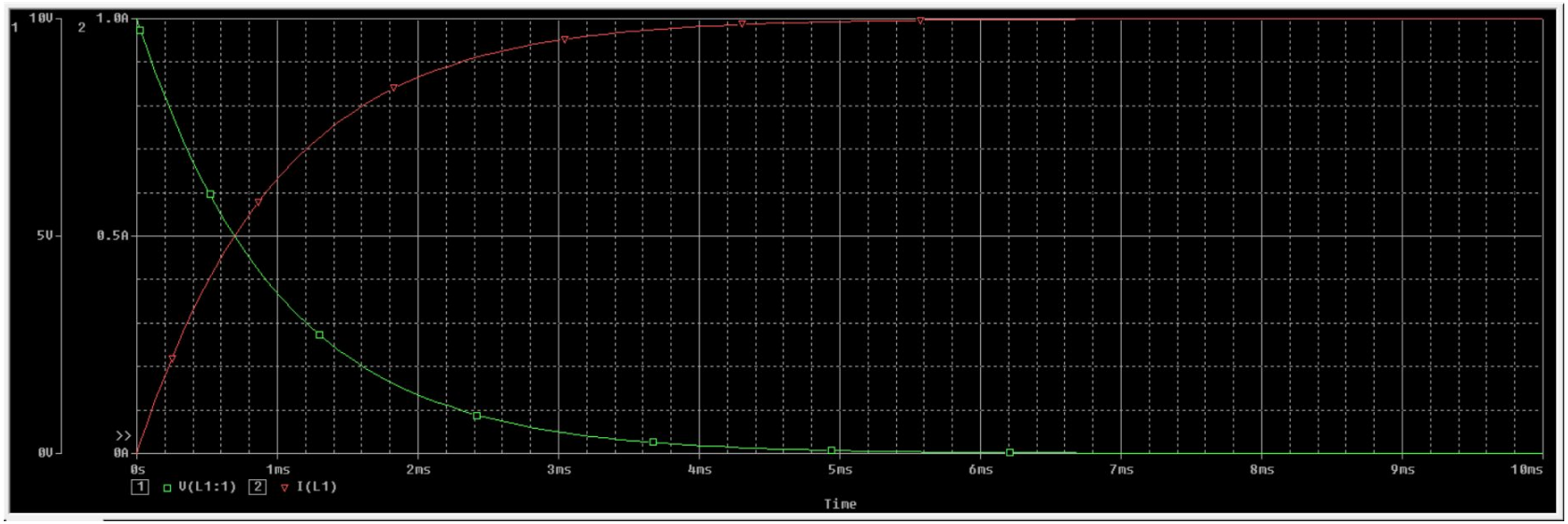
Окно ошибки

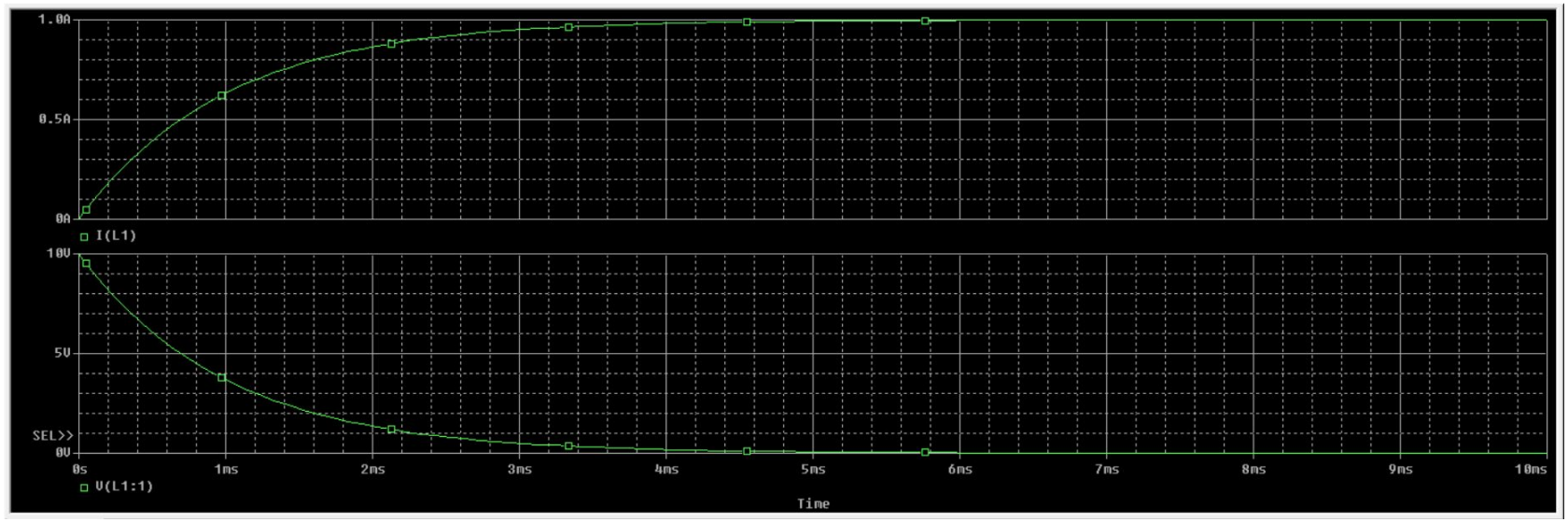

File Edit View Simulation Trace Plot Tools Window Help
cadence
SCHEMATIC1-Lab1
** Creating circuit file "Lab1.cir"
** WARNING: THIS AUTOMATICALLY GENERATED FILE MAY BE OVERWRITTEN BY SUBSEQUENT SIMULATIONS
*Libraries:
* Profile Libraries :
* Local Libraries :
* From [PSPICE NETLIST] section of C:\Users\Николай\AppData\Roaming\SPB_Data\cdssetup\OrCAD_PSpice/16.6.0/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

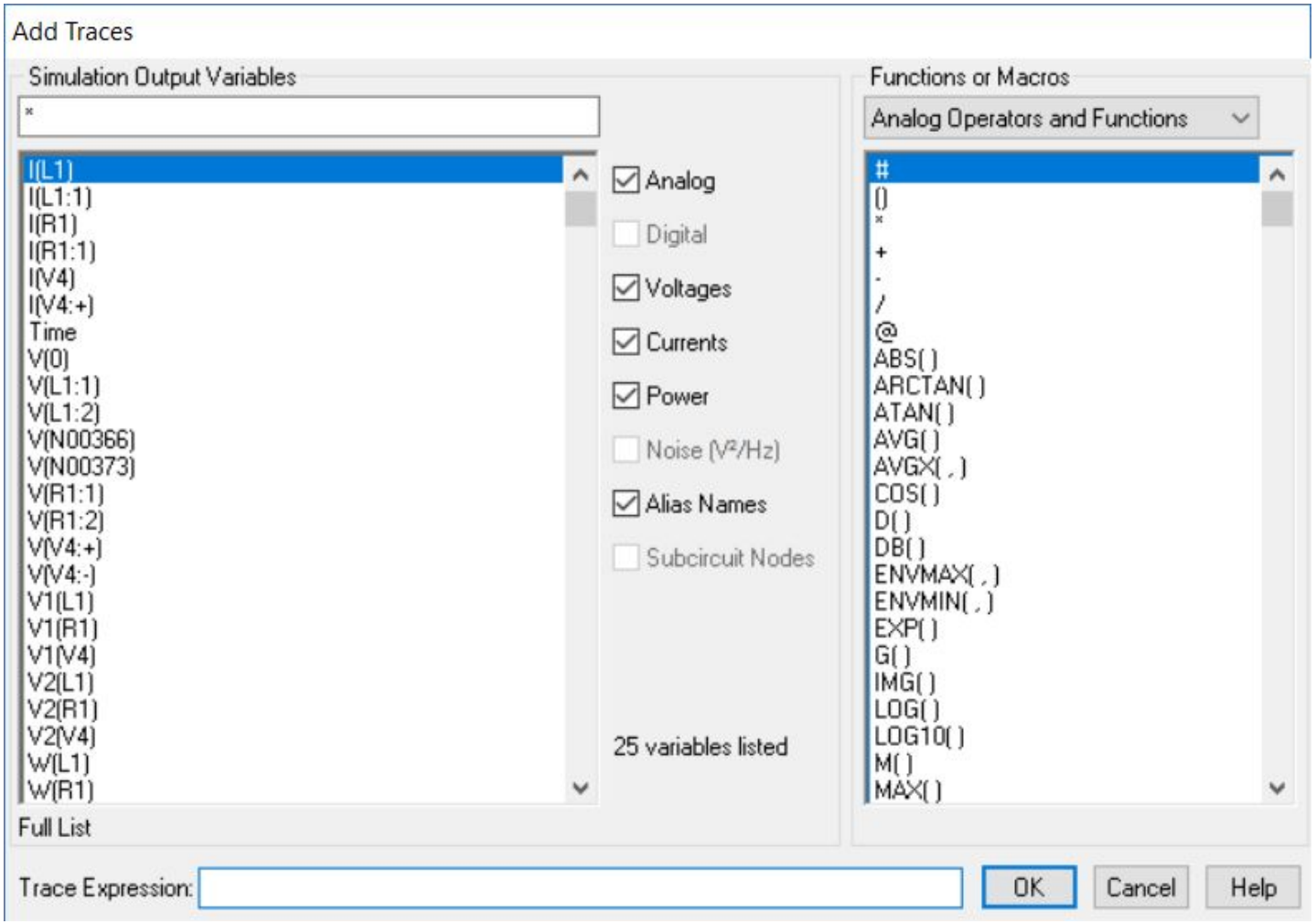


Результаты моделирования

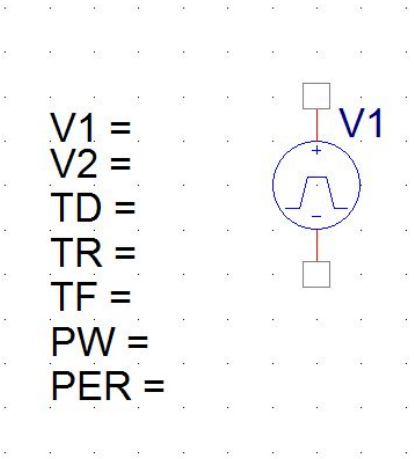




Результаты моделирования



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

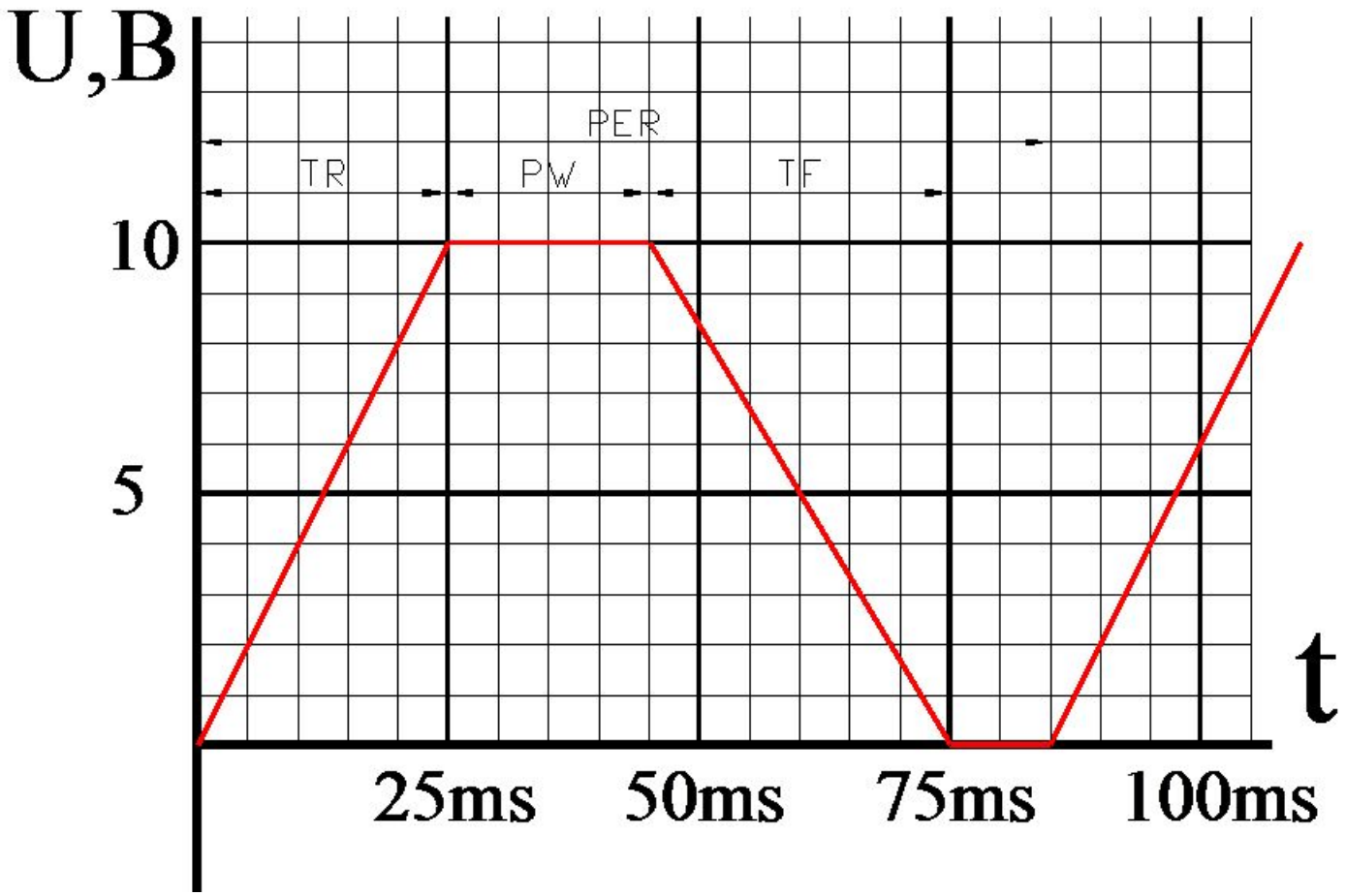
Время спада импульса

Второй уровень напряжения

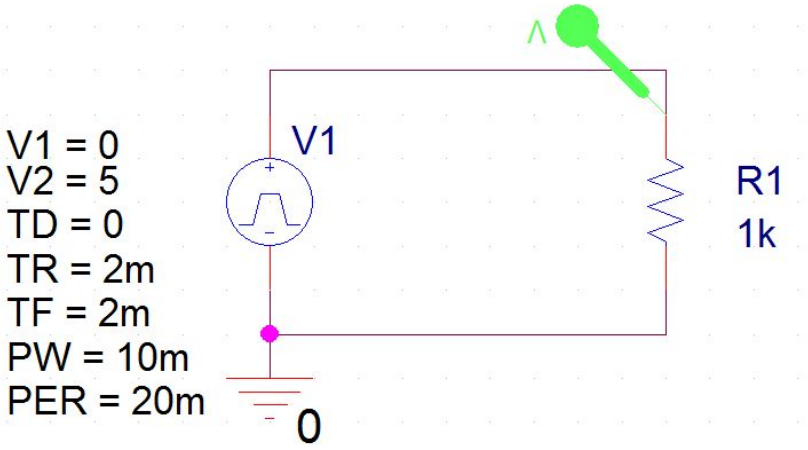
Время нарастания импульса

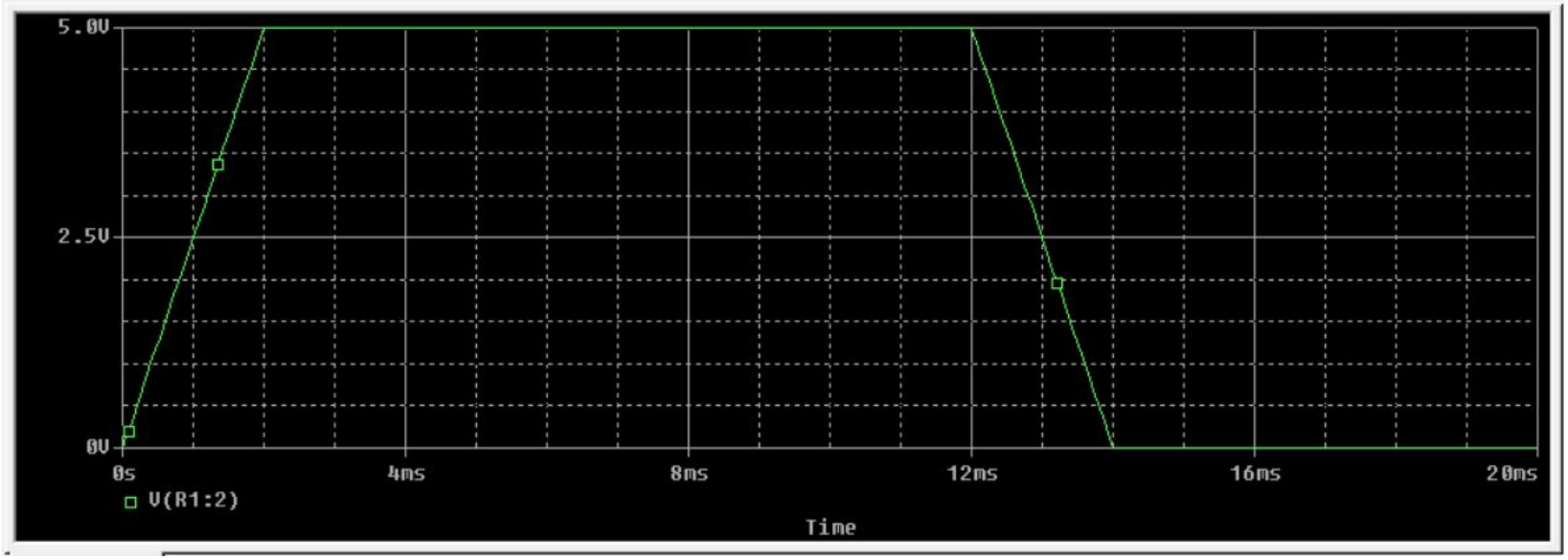
Первый уровень напряжения

Источник импульсного напряжения

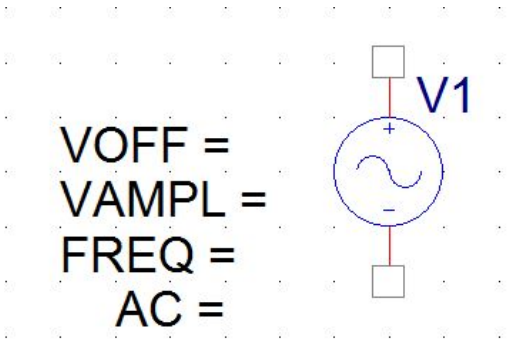


Источник импульсного





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	

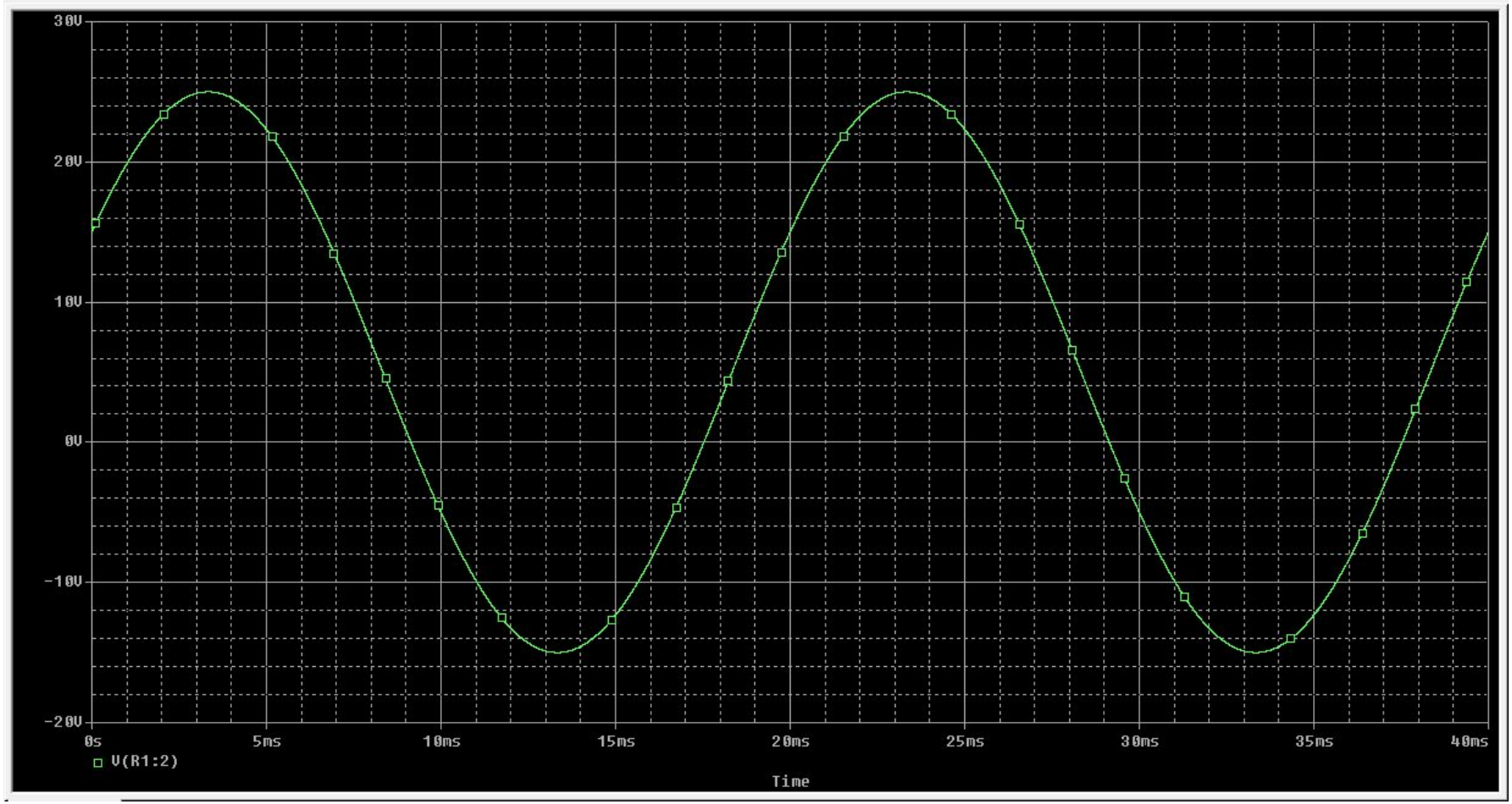
Частота

Фазовый сдвиг

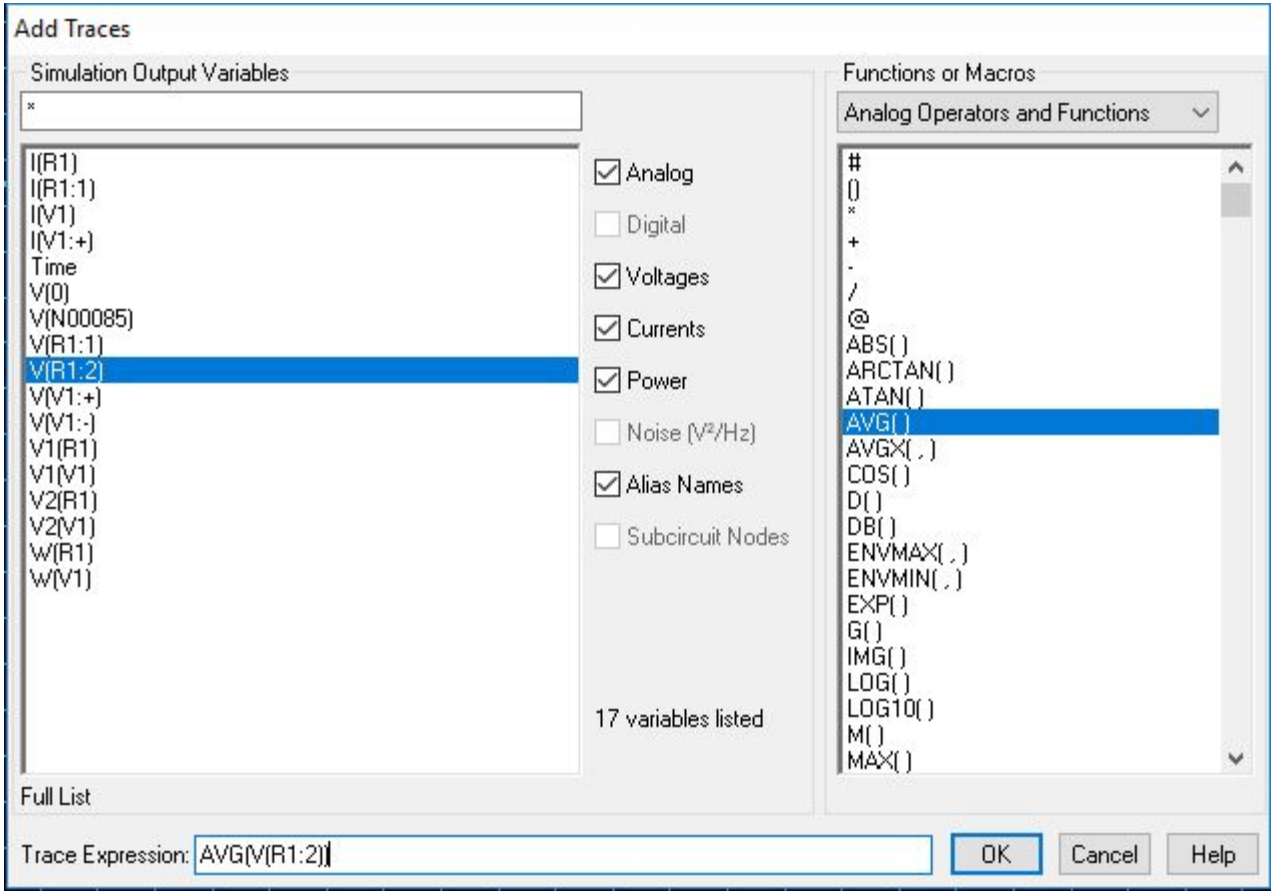
Амплитудное значение

Постоянная составляющая

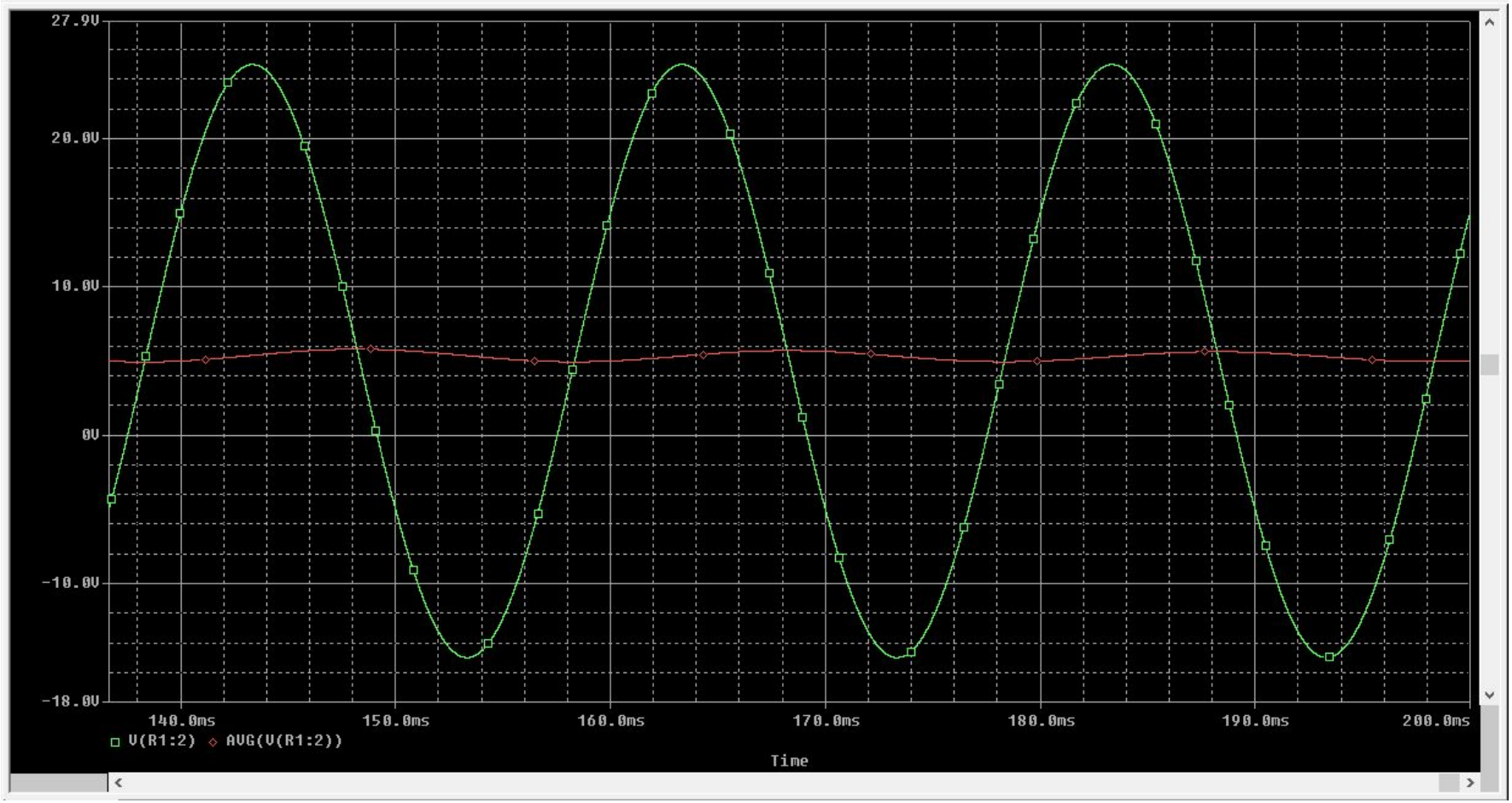
Источник синусоидального напряжения



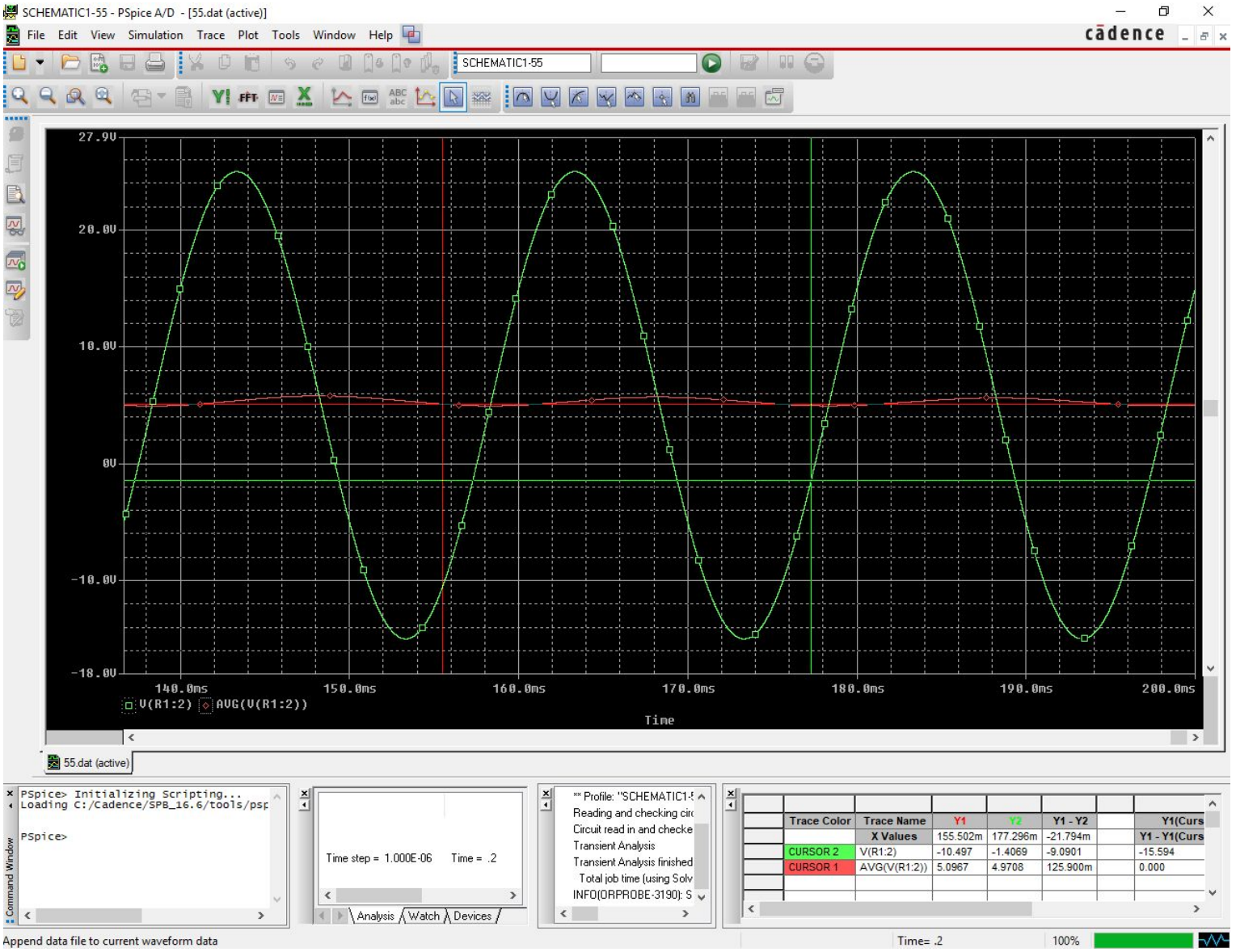
Среднее значение величины



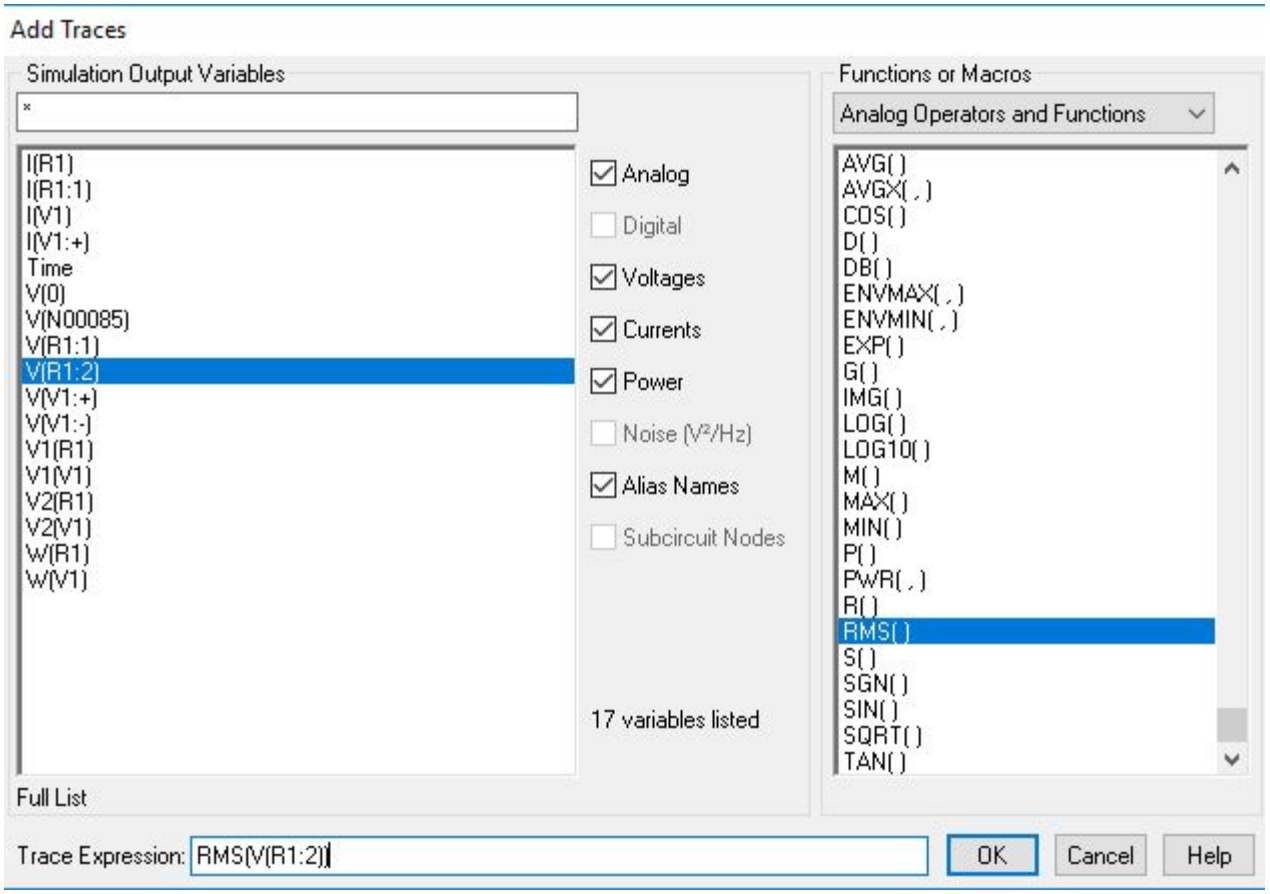
Среднее значение синусоидального напряжения



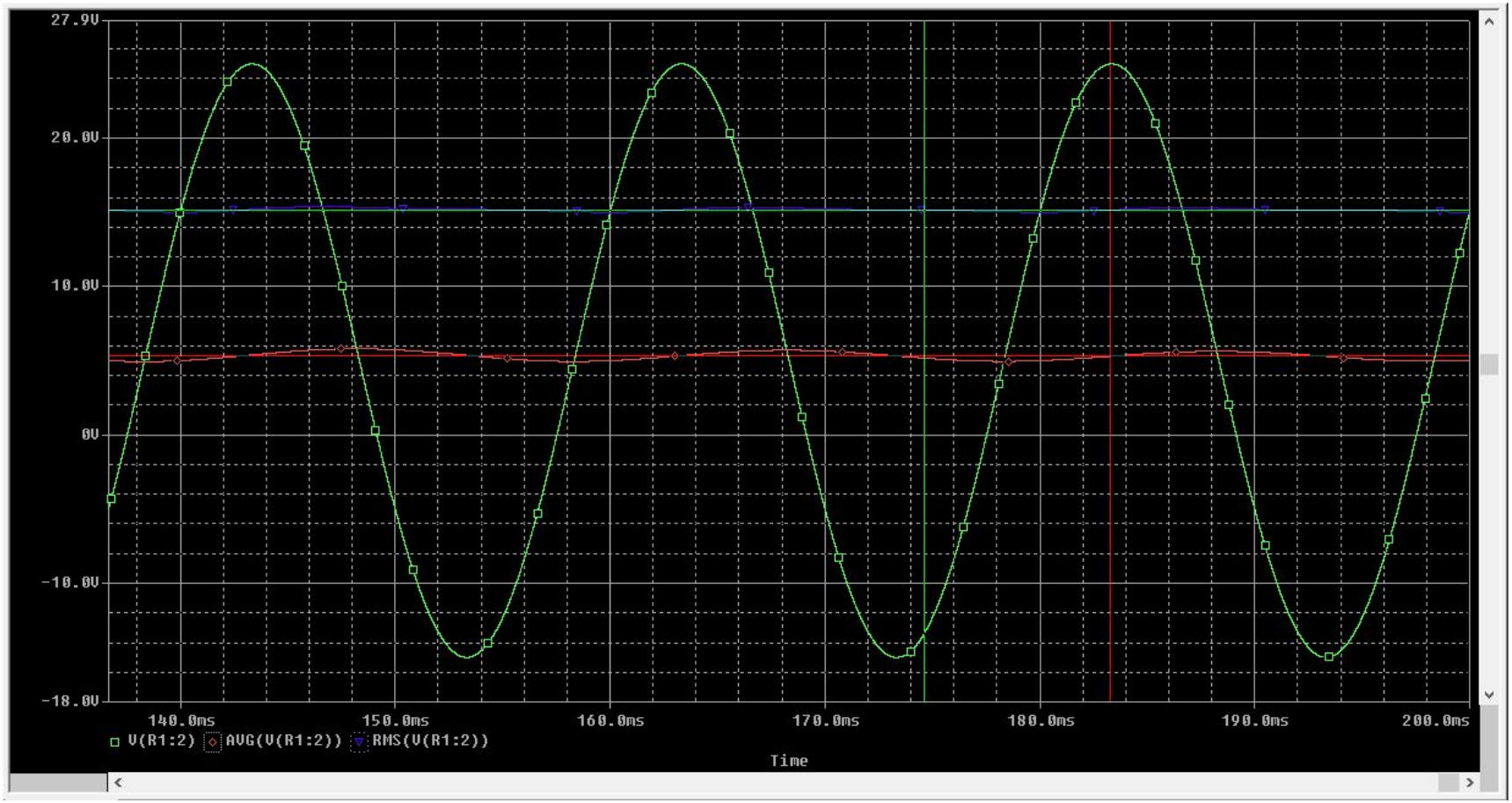
Использование курсоров



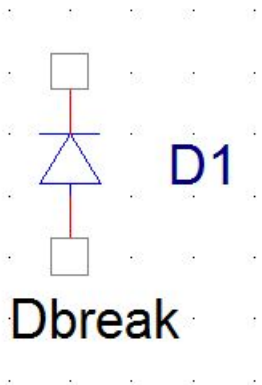
Среднее квадратичное значение величины

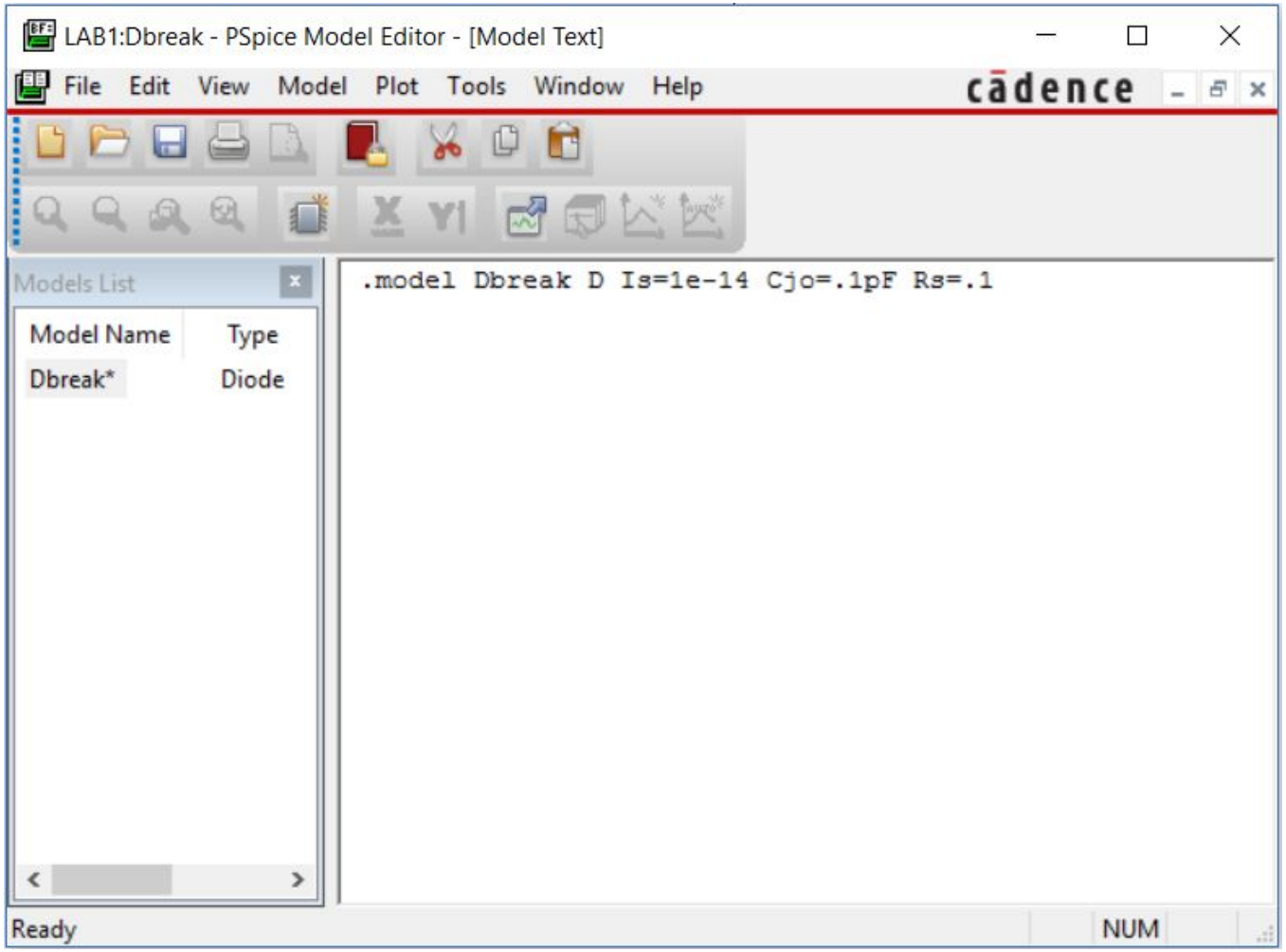


Среднее квадратичное (Действующее) значение напряжения

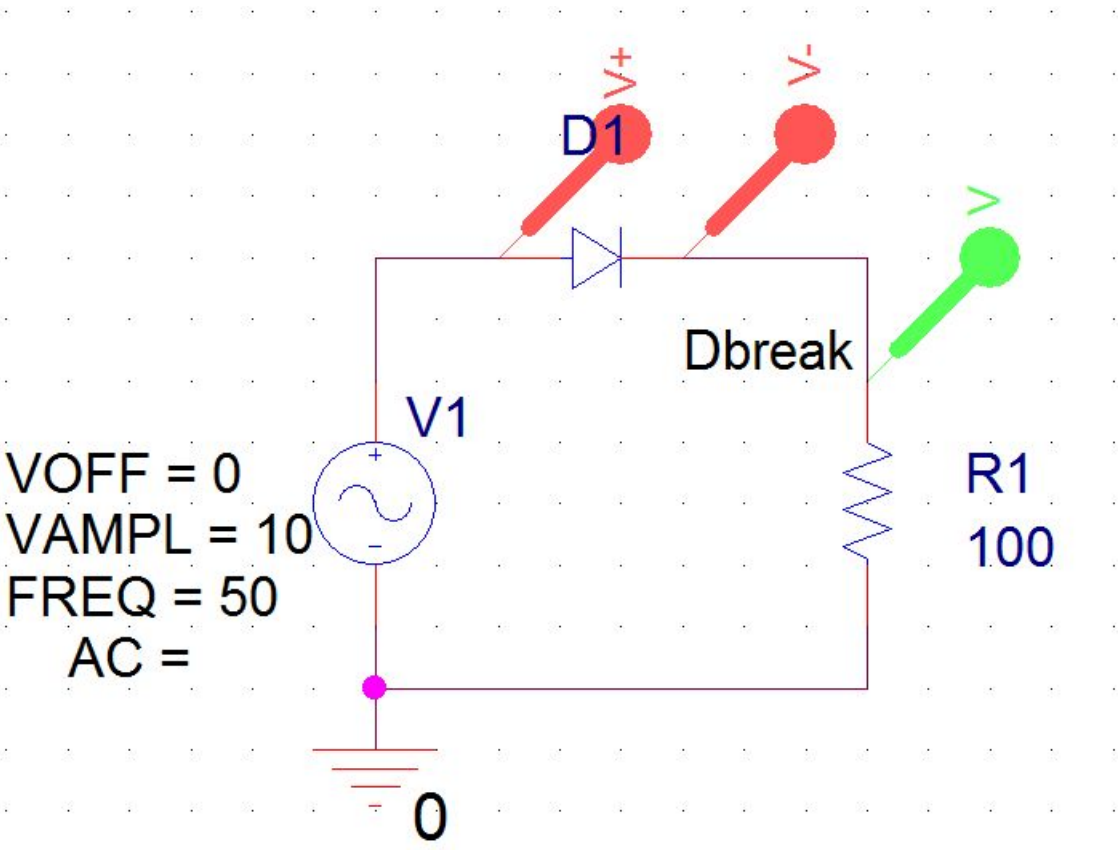


Идеализированный диод

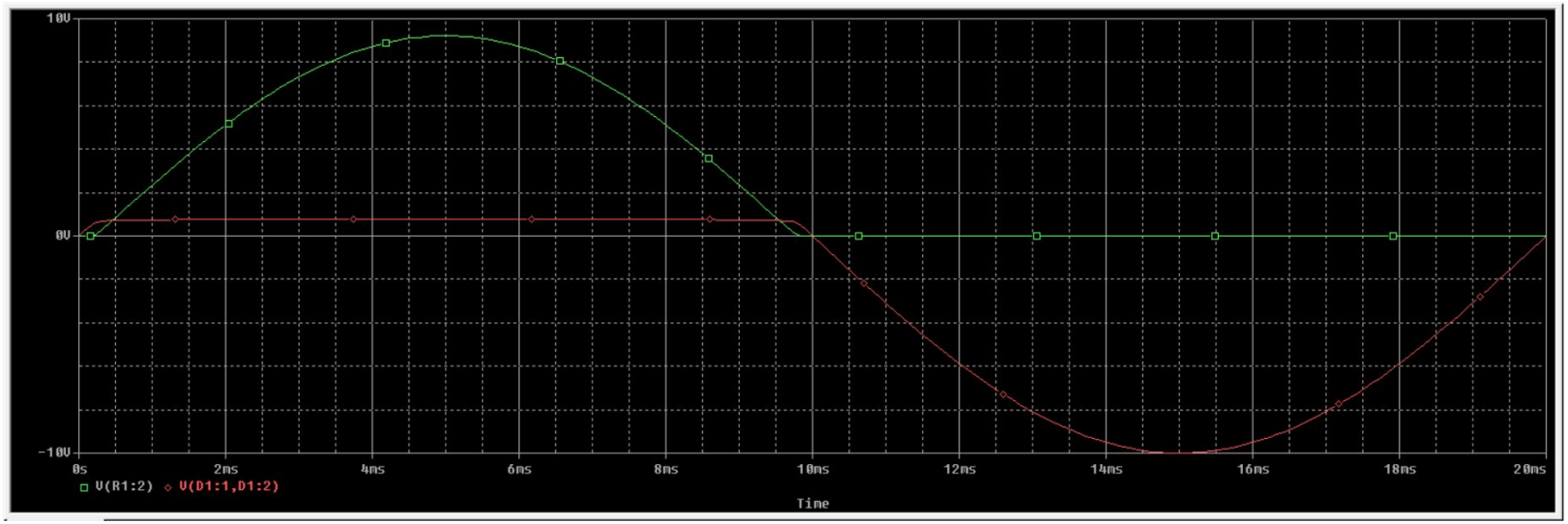


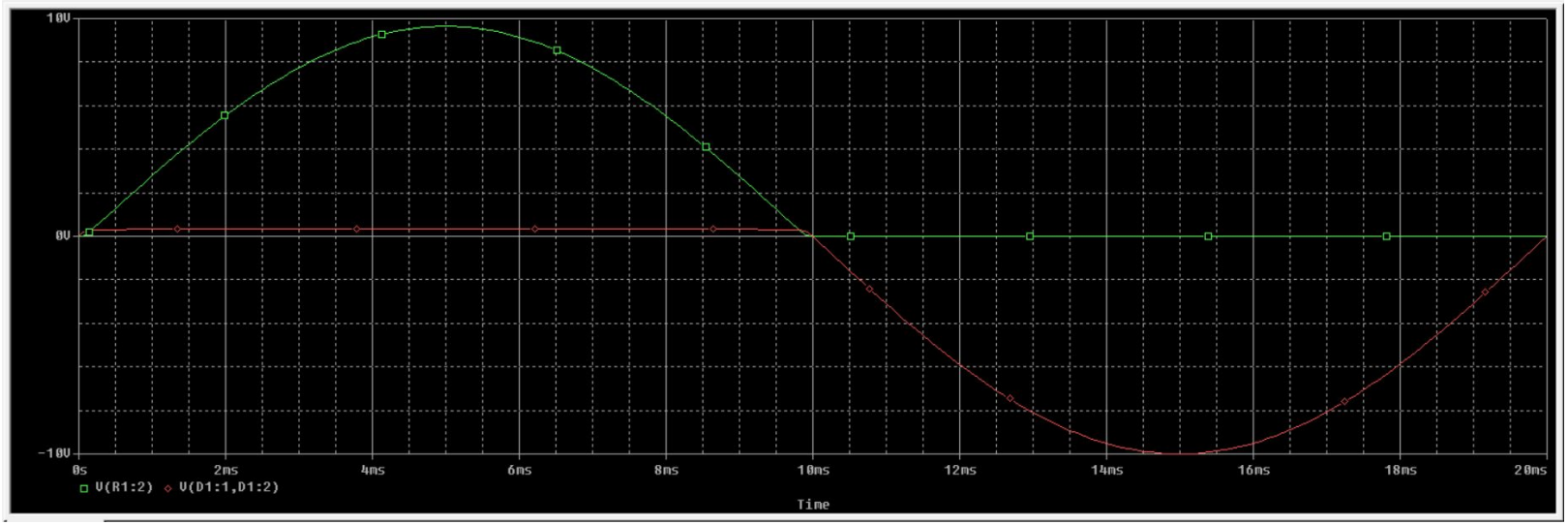


Идеализированный диод

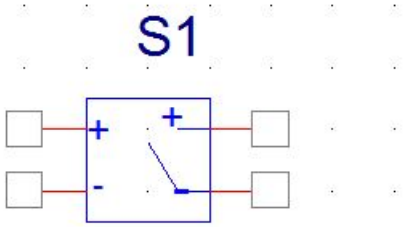


Идеализированный диод





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

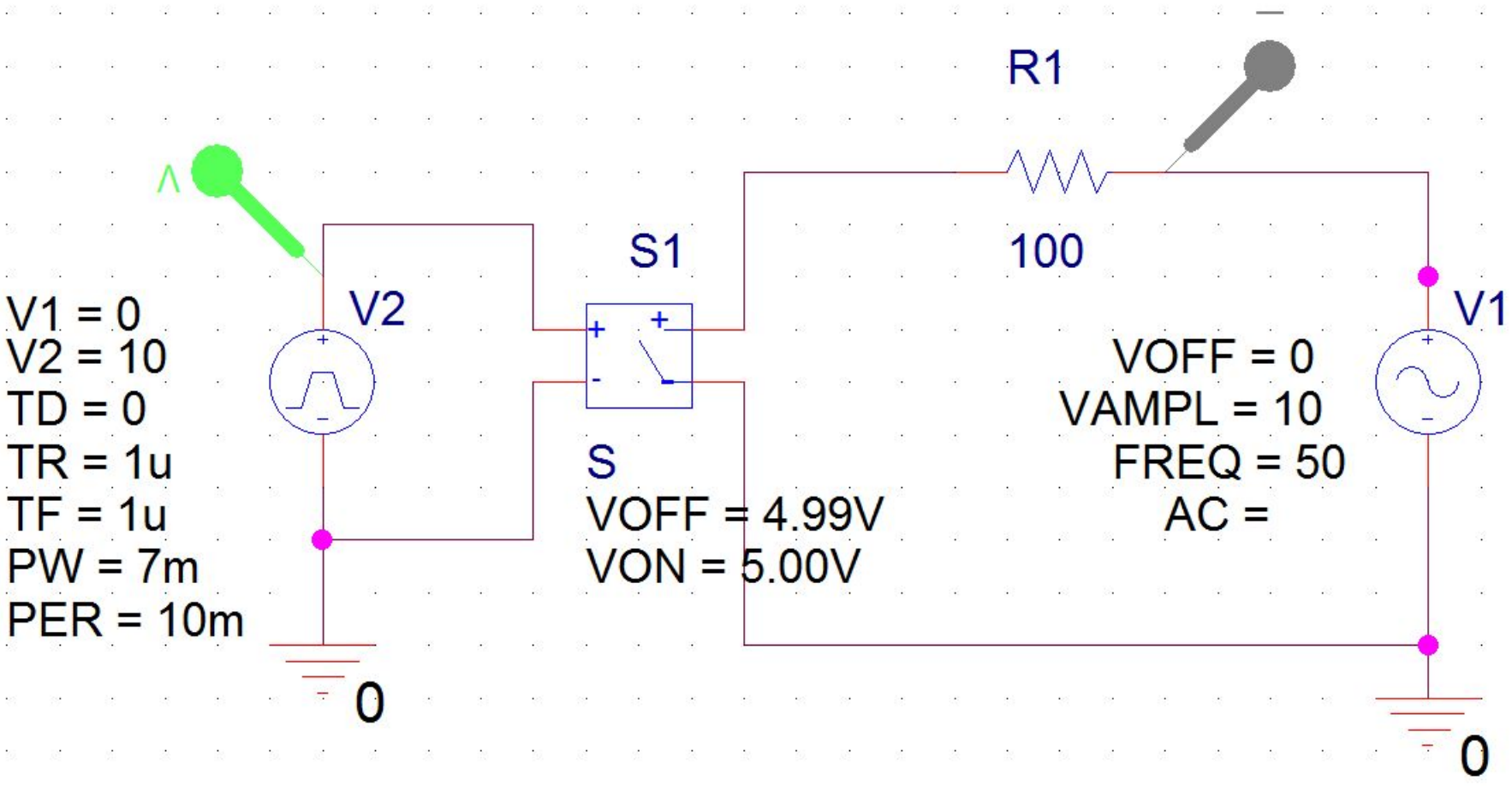
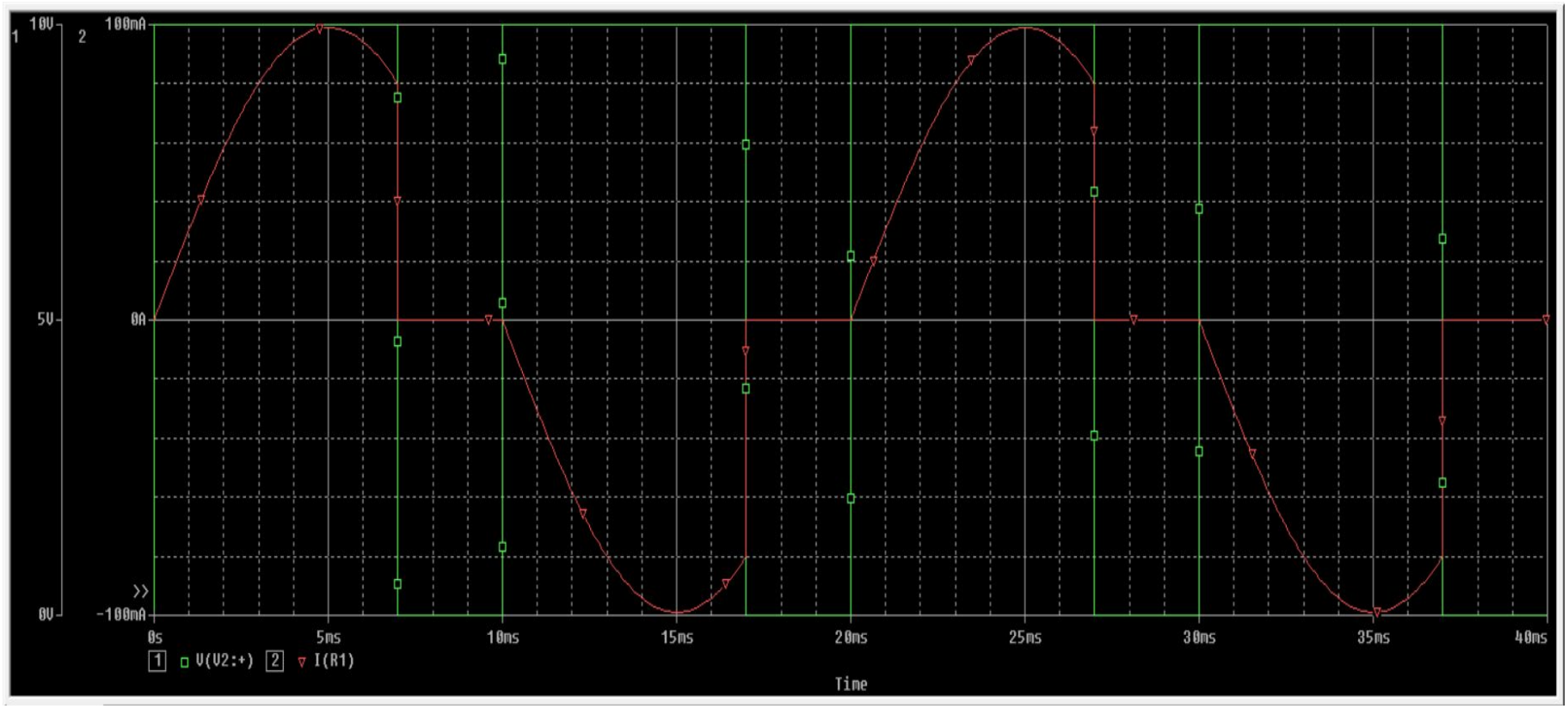
Сопротивление в выключенном состоянии

Сопротивление во включенном состоянии

Напряжение выключения

Напряжение включения

Идеализированный ключ



Идеализированный ключ