5Spice Tutorial

Building a circuit:

• To add a component to the design sheet, add the components from the panel on the right hand side of the 5Spice page.



• You can add many components by using the different options available.



Use this panel to select the connector wires



Select passive components

						÷							С
													പ്പ
													V II
													0
							•						· < ∣
													1
				1			1				-i		
					v								
					٠,	•			4				—
									1				
				H							H		
						L			ړ	ς.			
					3	₽.			q	2			4
											_		
	÷			Ē			ī			-	i	1	- L
÷				Ī	6	k	٦		d	r	1	ł	ŧ
ł				Ī	۶	8	1		þ	5	1		ŧ
		ļ	-		۶	þ			¢	5		-	ŧ
		2	io	[n	م	b			4	5			≑
		S	ig	n	۶ al	b I S		bu	ф re	с Се		vo	∳ oltage
-		S	ig	n	¢ al	y s		, bu	¢ re	5 ce		vo	≑ oltage
		S	ig	n	۶ al) Sc	bu	¢ ro	s e		vo	≑ ltage
		S	ig	n	al		- -	ju		of ce		vc	‡ oltage T
		S	ig	n	al	ل ا ا] Sc	ju t		5 ce		vc	≓ oltage T
		S	ig	n			- -	ju t		of ce		vc	‡ oltage T
		S	ig	n	کر al	ې د ۲		- -		5 :e }1		vc	≓ oltage T
		S	ig	n	al al) SC	t t		ל ce וויי		vc	≢ oltage T ₽
		S	ig	n		אי ויי לי		• •		ל ביפ וויי		vc	‡ oltage T ₽
		S	ig	n		א איי איי	- -	2 1		ל ביפ וויי		vc	÷ eltage T ⊅
		S	ig	[]		א י לי)u		כי ביפ ון בייגר		vc	÷ Dtage T D ↑
		S	ig	n		א יי לי	- -	2 1		לי ביפ ביפ ביפ		vc	itage T ₽
		S	ig			א א לי	- -	2 1		לי פו יינ		vc	≠ oltage T ⊅
		S	ig	n						ך ביי ייי ייי		vc	≠ Ditage T ⊅

Select signal

supply

generator/power

Test Point, voltage (relative to ground)

С

Ů

Select test point for plotting AC or transient analysis output

- For components like, diode, transistors, OPAMPs, we need to select the type of component to be used.
- After you place the component on the design sheet, right click on the component and select the edit parameter option.
- Search for the component you are looking by writing the component in the search.
- Then select the component and press ok.

Here is an example for adding OPAMP on the circuit which a slightly complicated process for adding a component to the circuit. A similar process can be followed to add transistors as well.



From the op-amp sub circuit, select the one with 5-9 pins, so you can control the 'Turn ON' voltage for the IC741

• Right click on the op-amp and click on edit parameters. Search for 'LM741'. By selecting on LM741, click on 'Add Connection Information'.



Pick the model for IC 741 and add the connection information as shown in the left figure. Once you save it to the library and close the window, it should show the IC as shown in the right picture.

Simulation:

- Once you have test points setup for input and output, you can use the Analyze menu and Select/Edit command to setup the type of analysis AC, DC or Transient Analysis.
- The following figures explain how to select your analysis and setup the graphs.

alysis Graph/Table misc Options Spice Defaults			Analysis Graph/Table misc Options Spice Defaults	
Consection of the section of the sec	Help Convergence for all analyses 2 doperating point dod shunts use old Converge (not recommended) analysis specific typh parder + looser tolerance SMPS circuits Precision (may fail) Initial Conditions	Temperature of circuit (C) From 25 Steps 1 + To Sweep Syzeep Component Value or parameter value ? Ref #1 From 70	Select Analysis AC - New AC - New Cobes - New Transient - New Delete N	Help Convargence for all analyses operating point add shunts Uses old Converge (not recommended) analysis specific Ty harder + looser tolerance Mr ciscuit (C) From 25 Steps 1 Sweep Sweep Component Value or parameter value From 25 Steps 1 Sweep Sweep Component Value or parameter value From 25 Steps 1 Sweep Sweep Component Value To To T
Ime To 1 From 0 To 1 dynamic time step opramic time step opramic time step max time step 0 coarse © fine	Integration Method — Trap (default) Gear Euler	Net #2 From To Steps 1 > log step Sweep #1 Sweep #2	Frequency From To to steps/decode Log	anual contaions Ref #2 From
se Source(s) parameters (double click to Edit) Vs1 Tran: Sqr wave 5 Freq 1000	Notes		Use Source(s) parameters (double click to	Notes Edit)

		Analysis Dialog - UnTitled
alysis Graph/Table misc Options Spice Defaults		Analysis Graph/Table misc Options Spice Defaults
elect Analysis DC bias - New	Help Convergence for all analyses Temperature of circuit (C) for all analyses From 25 Steps 1 Support	AutoScale Axis Vertical Horizontal Title Oraph Style Oraph Style Optional Eguation for plotting data (use Plot1 to Plot4 to select
AC - New Add Analysis Transient - New Save As Delete	Los old Converge (not recommended) analysis specific try harder + looser tolerance Ref #1	© conventional X-Y graph upgrade to Professional for X-Y Upgrade to Professional for X-Y Upgrade to Professional for more equations
	SMPS circuits From Precision (may fail) Initial Conditions Pef #2	Plot1 TP0v1 Plot2 TPdv2 Plot3 Plot4 ~ 1000 Axis Left Axis Right Axis Off
	From To Steps 1 💭 🗌 log step	Vertical Axis, Left Max 2 Major Div's 4 Min 2 Ticks/Div 4 Display Vertical Axis, Bight Vertical Axis, Bight Vertical Axis, Bight Use State
	Sweep #1 Sweep #2	Legend Legend Legend
		Horizontal Axis Min (optional) Max (optional) Major Div's 10 Control (December 2018) Major Div's
C Annual Pure	OK Cancel Help	C Apply and Bun Apply Changes OK Cancel Help