NGSPICE- Usage

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Table: Element Nomenclature

Element Type	First letter	Element Type	First letter
Resistor	r	Voltage(independent)	v
Capacitor	c	Current(independent)	i
Inductor	l	V (dependent on Vx)	e
Diode	d	I (dependent on Ix)	f
BJT	q	I (dependent on Vx)	g
JFET	j	V (dependent on Ix)	h
MOSFET	m	Sub circuit (ex. Op-Amp)	x

⟩ For Nodes we can assign any numerical or alphabetical name but for reference node either 0 or 'gnd'.

Rules for Node sequence

Element Type	Node Sequence
R,L,C,D,V,I	positive-node negative-node
V (dependent on Vx)	p-node(V) n-node(V) p-node(Vx) n-node(Vx)
I (dependent on Vx)	p-node(I) n-node(I) p-node(Vx) n-node(Vx)
V (dependent on Ix)	p-node(V) n-node(V) Vx
I (dependent on Ix)	p-node(I) n-node(I) Vx
BJT	collector base emitter
JFET or MOSFET	drain gate source
Sub-circuit	according to defined in model file

Different sources

› sin(offset amplitude FREQ delay damping-factor)

› v node-p node-n dc 0 ac 1 (for ac analysis)

› pulse(initial-value pulsed-value TD TR TF PW period)

› pwl (t1 value@t1 t2 value@t2 t3 value@t3 ..)

› exp(initial pulsed rise-delay rise-time fall-delay fall-time)