Linear Voltage Controlled Current Source (vccs)

Positive current exits the source node and enters the sink node.

This device can also model ideal digital gates, voltage controlled resistors and voltage controlled capacitors.

Type of vccs:

You can use vccs to model three types of devices.

When `type=vccs`, the device is a regular voltage controlled current source. This is also the default type.When `type=vcr`, the device is a voltage controlled resistor. When `type=vccap`, the device is a voltage controlled capacitor.

Input type of vccs:

You can use vccs to model ideal digital gates. Ideal digital gates have more than one inputs. The parameter `inputtype` is used to specify which input is going to control the vccs (or vcr, or vccap, specified by parameter type).

When `inputtype=single`, the device has only one input. This is also the default `inputtype`. When `inputtype=and/nand`, the smallest input controls the device. When `inputtype=or/nor`, the largest input controls the device. When `inputtype=npwl`, node ns should be connected to either src or sink. if v(src,sink)>0, then the controlling voltage would be v(ps,sink). Otherwise, the controlling voltage is v(ps,src). When `inputtype=ppwl`, node ns should be connected to either src or sink. if v(src,sink)>0, then the controlling voltage would be v(ps,src). Otherwise, the controlling voltage is v(ps,sink). If `inputtype` is `npwl` or `ppwl` but node ns is not connected to src or sink, then spectre change `inputtype` to `pwl`.

When you are using regular vccs, you can specify and/nand/or/nor in either type parameter of `inputtype` parameter.

Note: Spectre does not check if the gate behaves like an and or an nand, it just takes the smallest input as the controlling voltage. And so is the case for or/nor.

This device is supported within altergroups.

Sample Instance Statement

```
v1 (1 0 2 3) gm=-1 m=2
```