

Spice deck for device variation

*** MODEL Descriptions ***

*** NETLIST Description ***

Nominal transistors

M1 out in vdd vdd pmos W=0.375u L=0.25u

M2 out in 0 0 nmos W=0.375u L=0.25u

load out 0 10f

.control

let nmoswidth = 0.375u

alter M2 W = nmoswidth

let pmoswidth = 1.875u

alter M1 W = pmoswidth

let widthVariation = 0

dowhile widthVariation < 5

echo "nmos width is \$&nmoswidth"

echo "pmos width is \$&pmoswidth"

dc Vin 0 2.5 0.01

let nmoswidth = nmoswidth + 0.375u

let pmoswidth = pmoswidth - 0.375u

alter @M2[W] = nmoswidth

alter @M1[W] = pmoswidth

let widthVariation = widthVariation + 1

end

plot dc1.out vs in dc2.out vs in dc3.out vs in dc4.out vs in dc5.out vs in xlabel "input voltage [V]" ylabel "output voltage [V]" title "Inverter dc characteristics as a function of NMOS-PMOS width"

* quit

.endc

Vdd vdd 0 2.5

Vin in 0 2.5

*** SIMULATION Commands ***

***.op

***.dc Vin 0 2.5 0.05

***.include tsmc_025um_model.mod ***

.LIB "tsmc_025um_model.mod" CMOS_MODELS

.end