Microwind's Most Used Functions

by Łukasz Starzak, March 2008, enhanced

simple contacts =
a top layer square
+ a via (contact) square
+ a bottom layer square

show palette

move (every object entirely contained in the rectangle drawn) or resize object (if layer boundary is clicked or contained in the rectangle drawn)

create vias between layers (where clicked)

note: technology must be properly set prior to using these

complex contact (involving more than 2 layers)

design rules check

copy (every object entirely contained in the rectangle drawn)

cross-section (along the line drawn)

1. VDD (according to technology)
2. high VDD (we won't use it)
3. VSS (0 V)
4. clock (rectangular waveform)
5. single pulse waveform
6. sine waveform
7. visible node (voltage waveform will be "measured" and shown in the simulation window)
plus: arbitrary rectangular waveform may be defined; place any of the above waveforms and change its type to Piece-Wise

measure a distance

delete object(s) (topmost one if clicked, all within area if rectangle drawn);
to delete a layer from between: right-click the topmost object + Delete one layer box

draw new rectangle object in the active layer

simulate

protect layer from any changes

Flip & Rotate

highlight all objects electrically connected (with topmost layer where clicked)

layer activation (also shows the top-to-bottom layer sequence)

Insert Layout
Select Foundry

Palette

Options

Metal 6
Metal 5
Metal 4
Metal 3
Metal 2
Metal 1
Polysilicon 2
Contact
Polysilicon
P+ Diffusion
N+ Diffusion
N Well

Welcome to Microwind 2.6k - Sept 30, 2003 — No Error — CMOS 0.12µm - 6 Metal (1.20V,2.50V)

Analog simulation of C:\spice\mikroelektronika_microwind\projekty_wzorcowe_wer2\nand2.MSK

Display
☑ delay
☐ Bus value
between...
A
and...
NAND

Evaluate
☐ min/max/av
☐ Frequency
NAND
FFT

check to have frequency measured for this waveform and displayed in yellow

Time scale
1 ns

Step(ps)
0.030

measured power consumption (true power for detected frequency so should be independent of observation time for sufficiently long observation)

simulation time step (thus, accuracy)

More

Reset

Print

Close

clocks & pulses & sines & visible nodes (VDDs, VSSes, and signals shorted with another one are omitted)

measured delay

P=7.138µW

time waveforms

quasi-static transfer characteristic

2.0 2.1 2.2 2.3 2.4 2.5 2.6 2.7 2.8 2.9 Time(ns)

Voltage vs. time / Voltages and currents / Voltage vs. voltage / Frequency vs. time / Eye diagram