

Synopsys PowerX

Intelligent Analysis and Visualization for powerFETs and PMICs

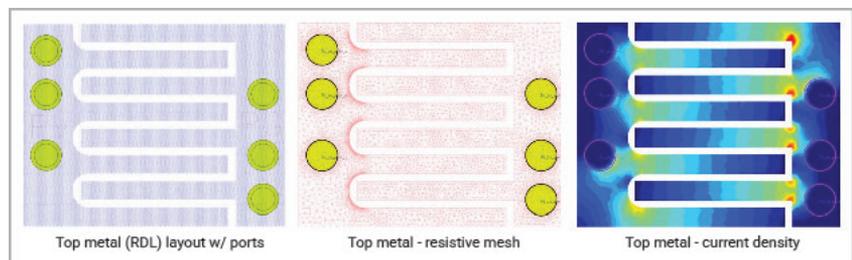
Overview

Synopsys PowerX™ is a semiconductor power analysis tool that calculates the effect of source and drain interconnect resistance on the total RDSon value. It visualizes current density and voltage distribution within devices, helping design engineers identify actual electromigration (EM) violations through its integrated EM analysis capability.

Objective

Enables IC design and layout engineers to very quickly:

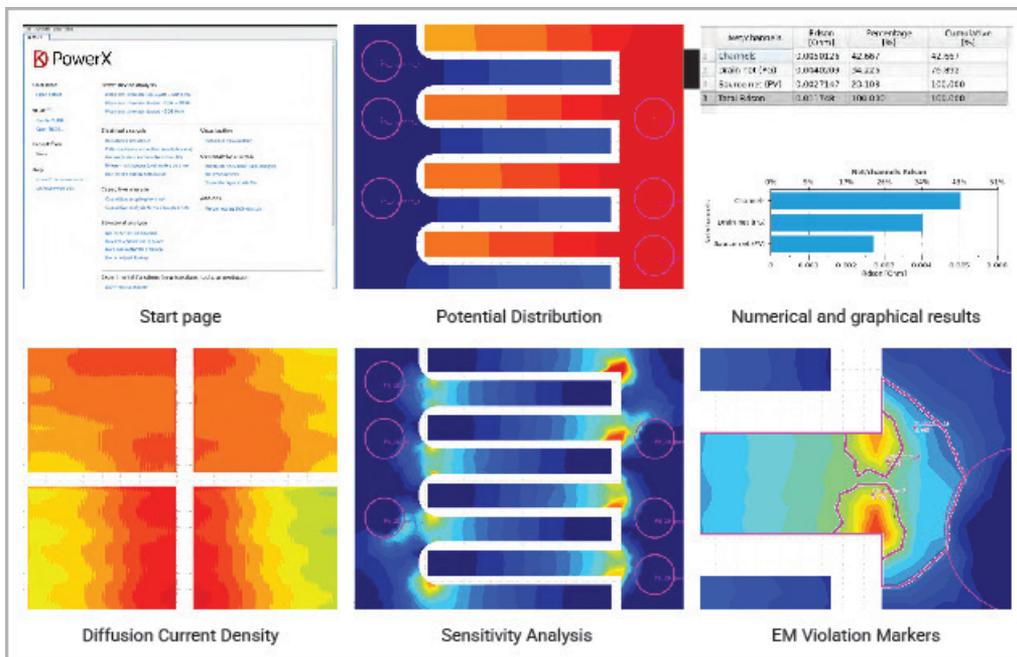
- Understand and quantify the impact of source and drain interconnect resistance on total RDSon
- Visualize current density and potential distribution
- Identify areas of weakness with built-in EM analysis
- Iterate on metallization strategies quickly



Synopsys PowerX Features

- Highly accurate and physical 2D resistive mesh
- Simulation of DC current flow in source net, drain net, and multiple device channels (fingers), to calculate RDSon value, and all related characteristics
- Ensure robust design with simple electromigration (EM) setup, analysis, and debug
- Multiple flows enable engineers to choose what works best for their use case:
 - Simulate using a subset of metal layers
 - Enhance existing DSPF file with 2D mesh
 - Simulate full device
- DSPF flow enables usage in advanced nodes with complicated resistance extraction for lower metals
- Design review automated report generation

- Adding additional layers on top such as PCB or packaging takes seconds
- Sensitivity-driven design and what-if analyses:
 - Identifies the areas that are contributing to the interconnect resistance
 - Makes layout optimization easy and efficient
- Simulate a portion of a layout without having to make dedicated views
- Process agnostic. Eliminates:
 - Tech files
 - Rule files
 - Complicated device recognition
- No changes to existing design tool flow -complements all existing tools and flows
- No CAD support or maintenance needed
- Three modes of operation: GUI, batch, and shell
- Compatible with Python programming environment



Synopsys PowerX Benefits

- Easiest setup in the industry
- Superior speed, accuracy, and visualization
- Minimalistic GUI setup means no editing text files
- Running multiple simulations concurrently