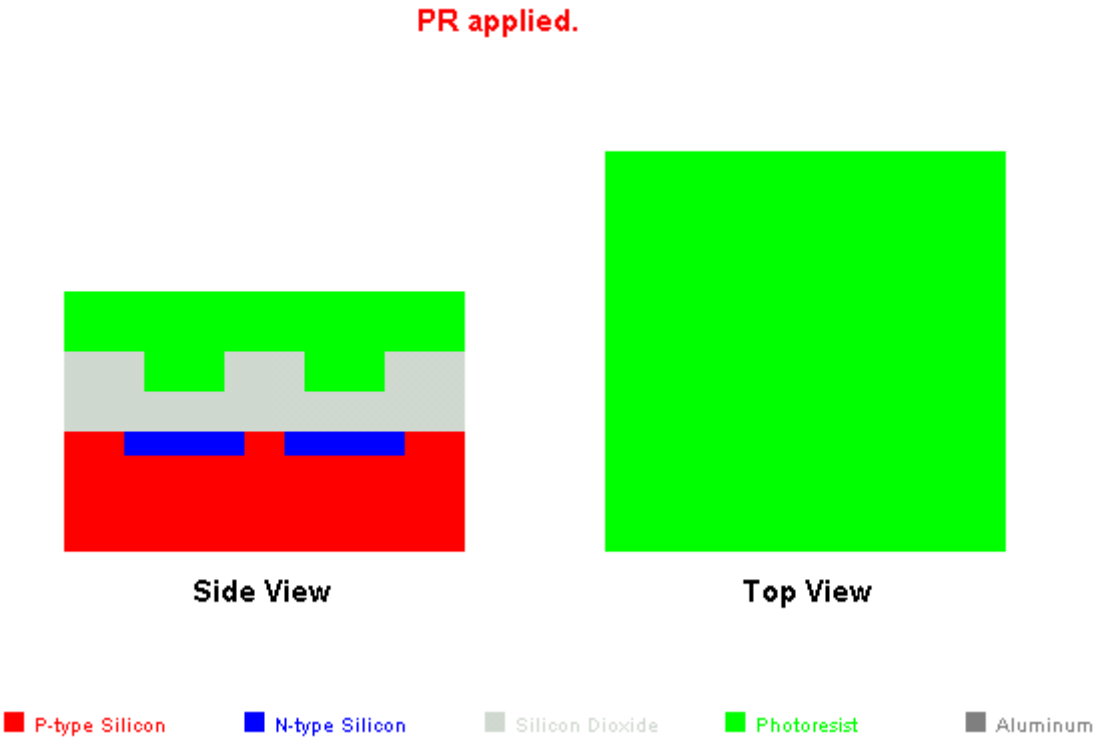
LECTURE-15

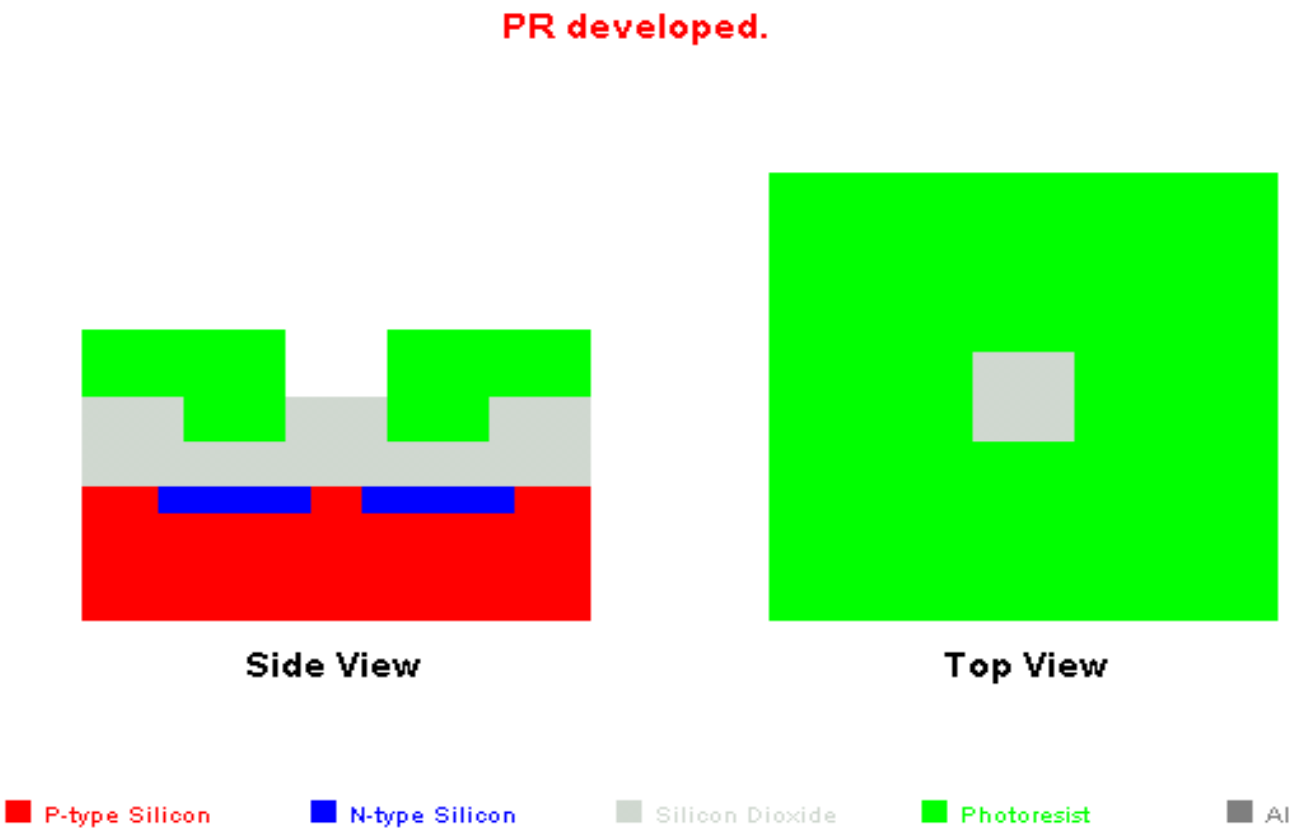
PR Applied

The second photolithography process is done to remove the oxide, defining a gate region. The same procedure (PR Drop ->Spinning ->Pre-Baking ->Mask Alignment->UV Exposure -> PR Developing -> Rinsing and Drying -> Post-Baking -> Oxide Etching) as in Lithography #1 is used.



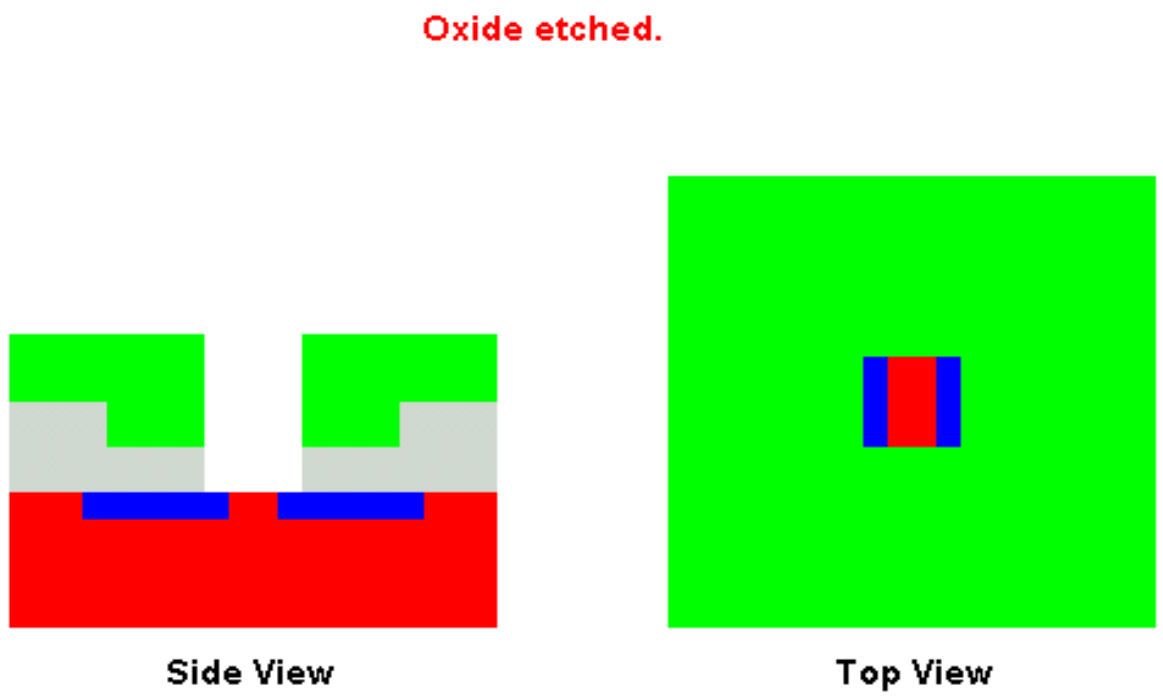
PR Developed

The second photolithography process is done to remove the oxide, defining a gate region. The same procedure (PR Drop ->Spinning ->Pre-Baking ->Mask Alignment->UV Exposure -> PR Developing -> Rinsing and Drying -> Post-Baking -> Oxide Etching) as in Lithography #1 is used.



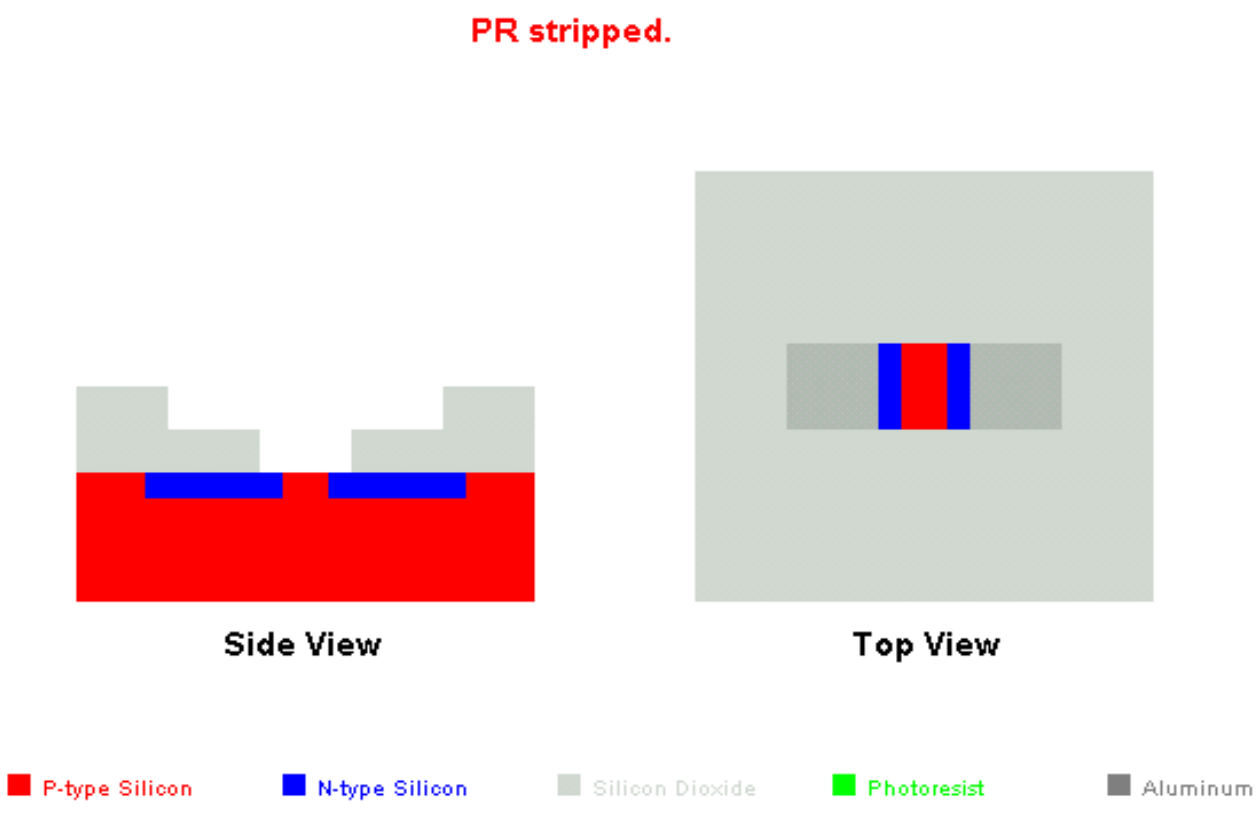
Oxide Etched

The second photolithography process is done to remove the oxide, defining a gate region. The same procedure (PR Drop ->Spinning ->Pre-Baking ->Mask Alignment->UV Exposure -> PR Developing -> Rinsing and Drying -> Post-Baking -> Oxide Etching) as in Lithography #1 is used.



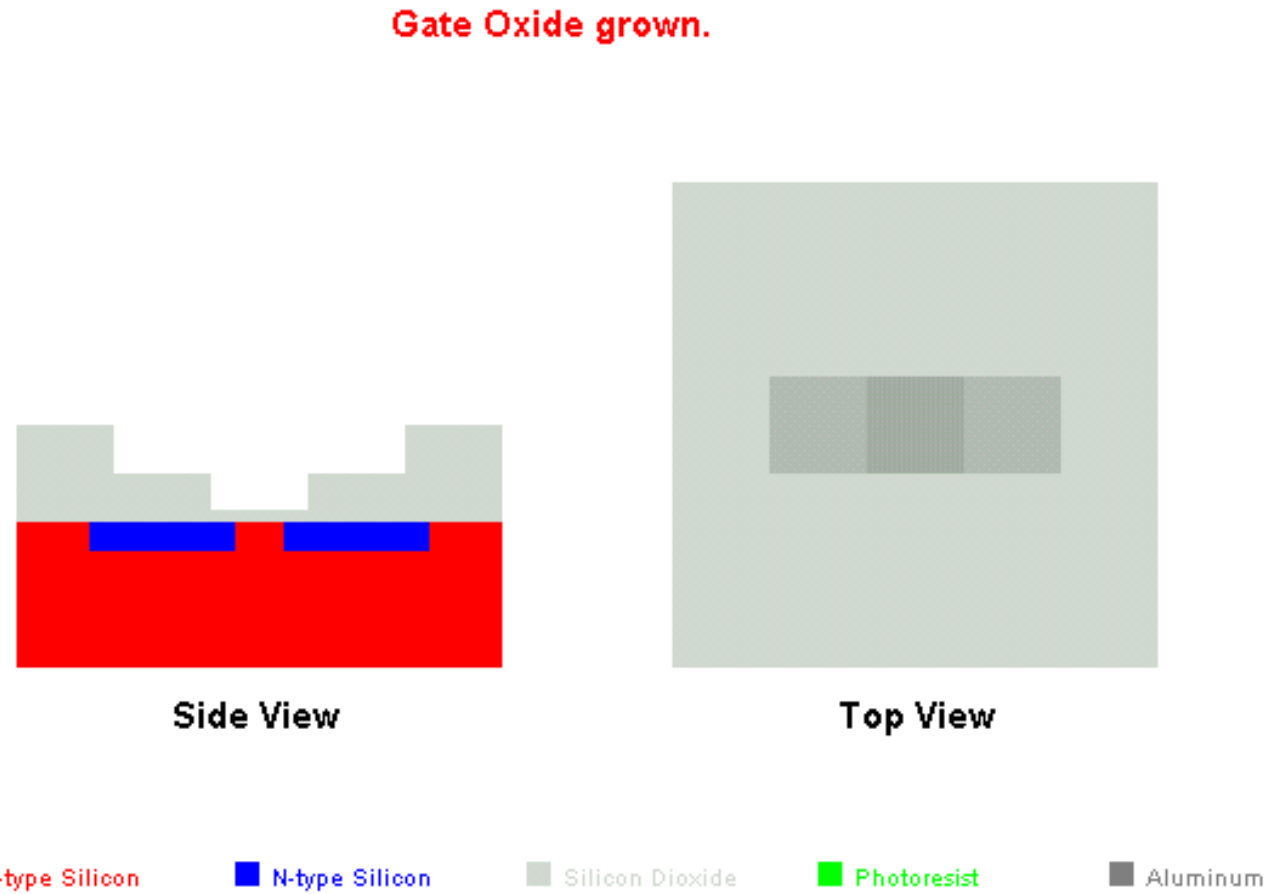
PR Stripped

The second photolithography process is done to remove the oxide, defining a gate region. The same procedure (PR Drop ->Spinning ->Pre-Baking ->Mask Alignment->UV Exposure -> PR Developing -> Rinsing and Drying -> Post-Baking -> Oxide Etching) as in Lithography #1 is used.



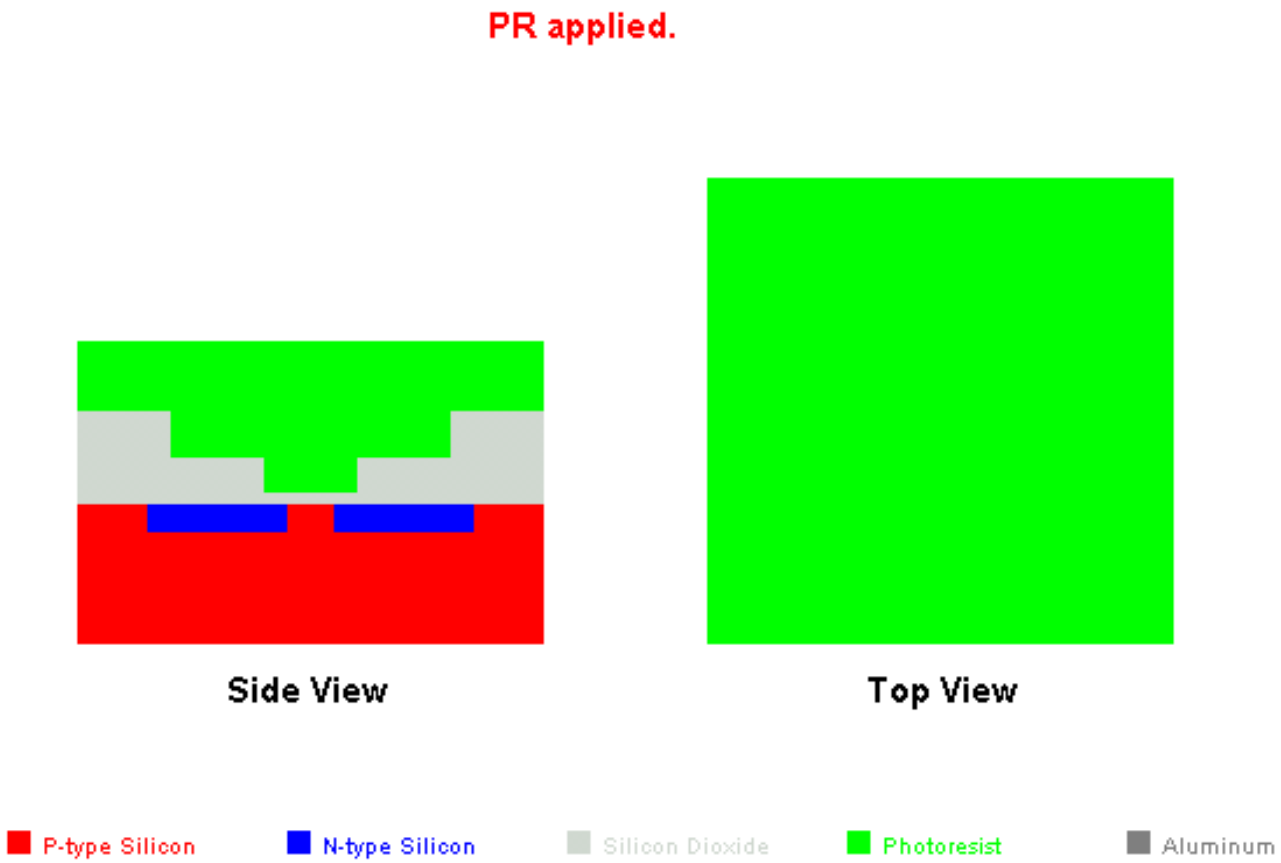
Gate Oxide Grown

After the second photolithography, a very thin gate oxide layer(a few hundred angstroms) is grown by thermal oxidation.



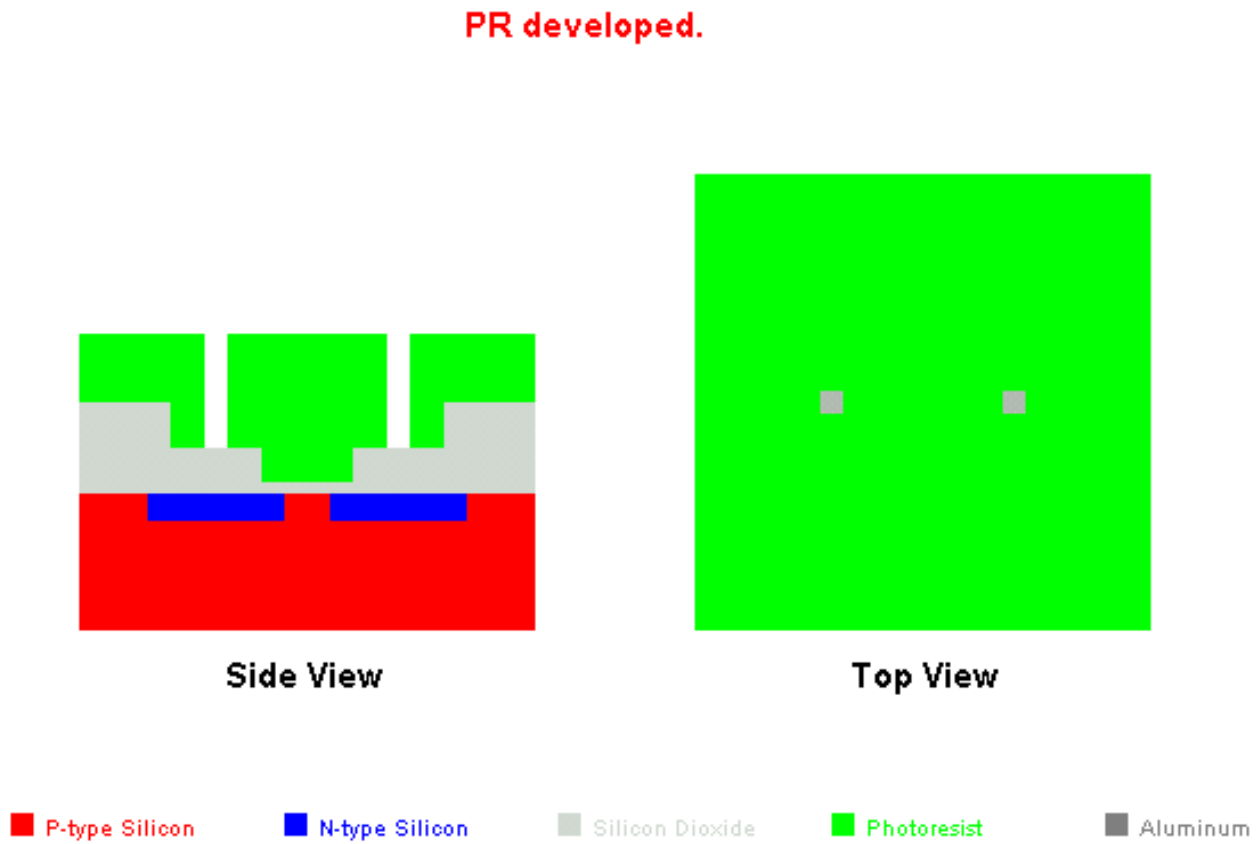
PR Applied

The third photolithography process is done to remove the oxide, defining contact holes. The same procedure(PR Drop -> Spinning -> Pre-Baking ->Mask Alignment ->UV Exposure -> PR Developing -> Rinsing and Drying -> Post-Baking -> Oxide etching) as in lithography #1 is used.



PR Developed

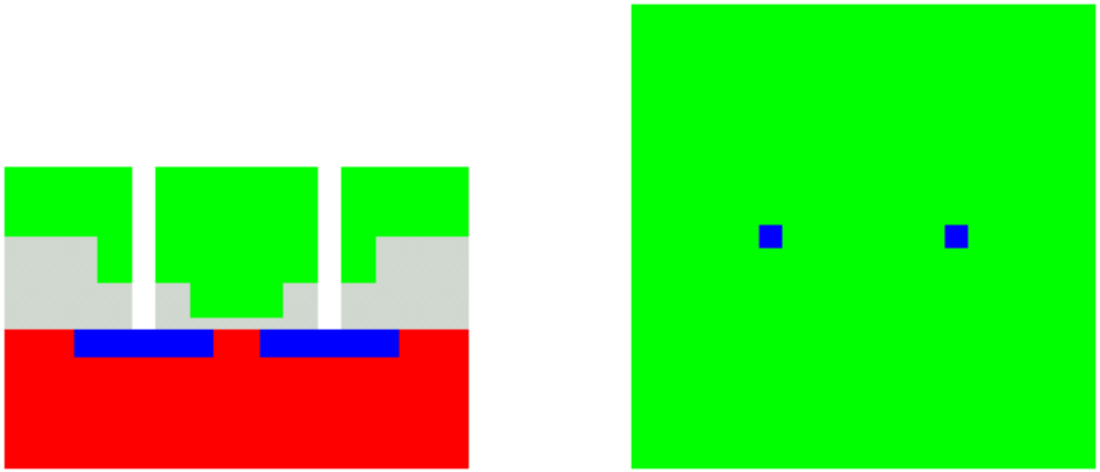
The third photolithography process is done to remove the oxide, defining contact holes. The same procedure(PR Drop -> Spinning -> Pre-Baking ->Mask Alignment ->UV Exposure -> PR Developing -> Rinsing and Drying -> Post-Baking -> Oxide etching) as in lithography #1 is used.



Oxide Etched

The third photolithography process is done to remove the oxide, defining contact holes. The same procedure(PR Drop -> Spinning -> Pre-Baking ->Mask Alignment ->UV Exposure -> PR Developing -> Rinsing and Drying -> Post-Baking -> Oxide etching) as in lithography #1 is used.

Oxide etched.



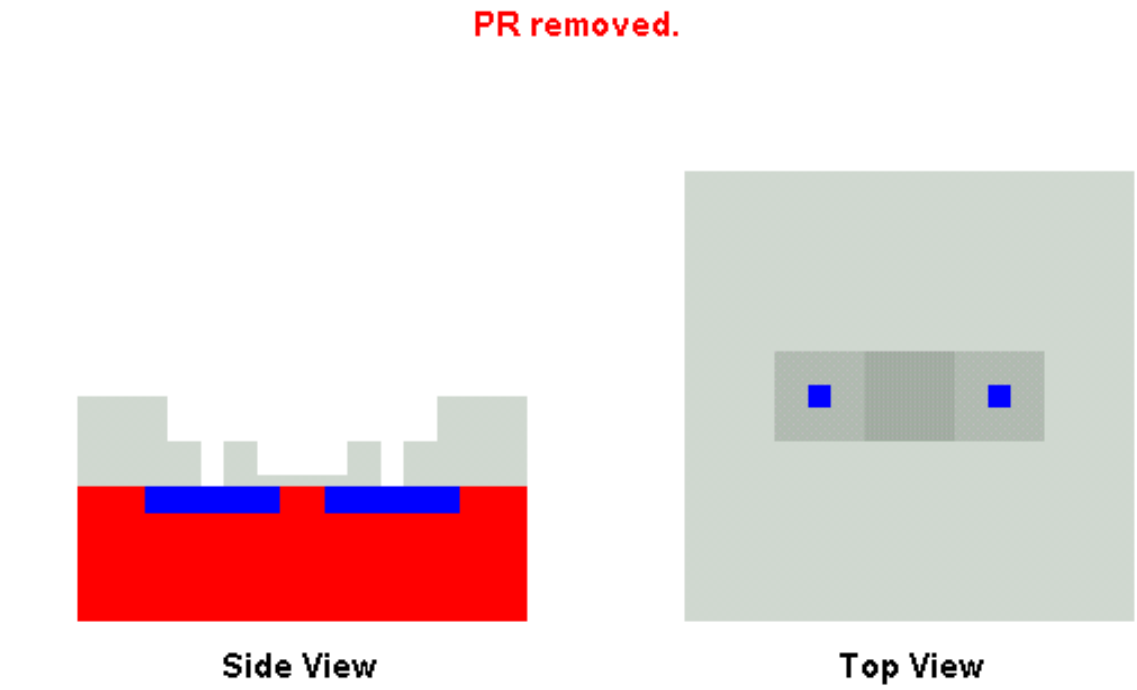
Side View

Top View

P-type Silicon N-type Silicon Silicon Dioxide Photoresist Aluminum

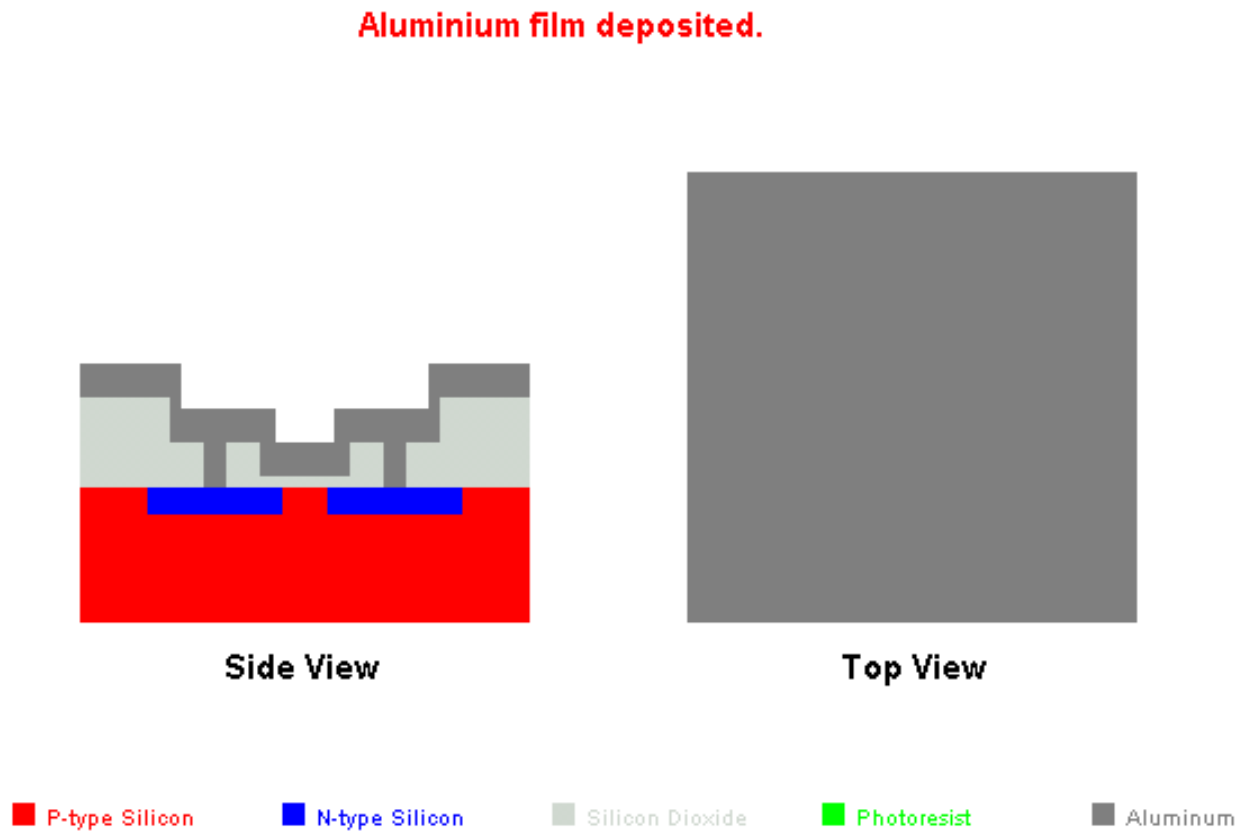
PR Removed

The third photolithography process is done to remove the oxide, defining contact holes. The same procedure(PR Drop -> Spinning -> Pre-Baking ->Mask Alignment ->UV Exposure -> PR Developing -> Rinsing and Drying -> Post-Baking -> Oxide etching) as in lithography #1 is used.



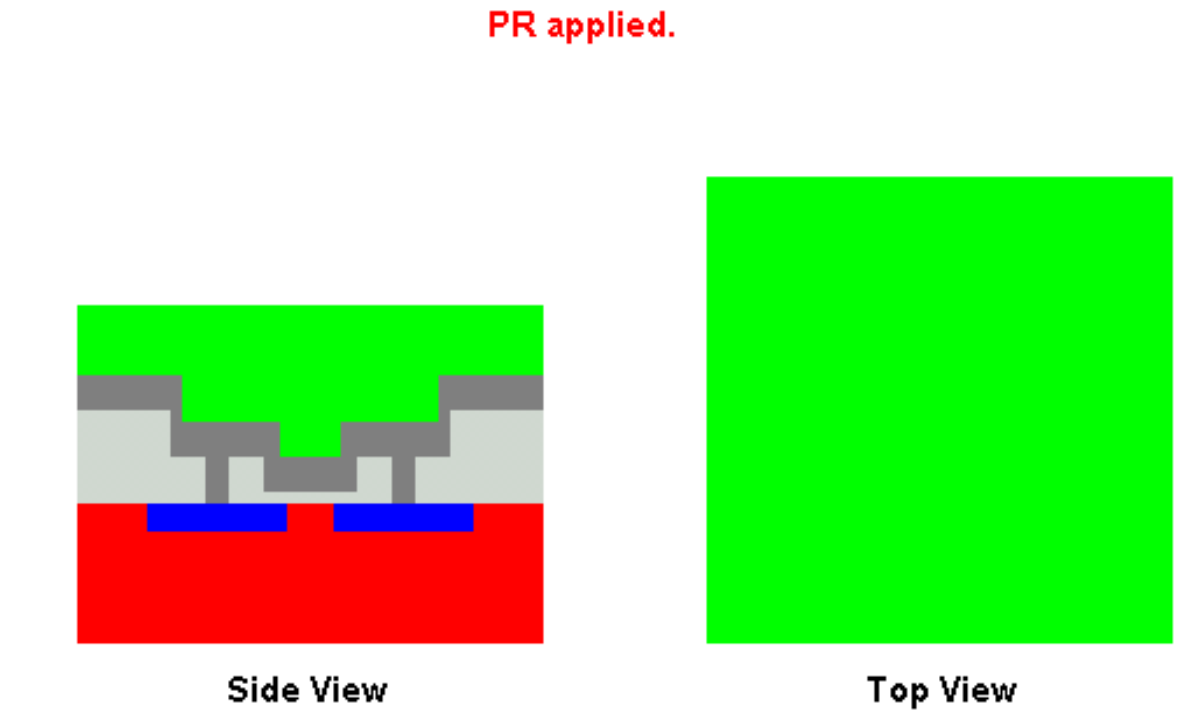
Aluminium Film Deposited

A metal such as Aluminum is then evaporated on the whole substrate surface(a few thousand angstrom thick) under high-vacuum condition.This method is attractive because it is simple and inexpensive and produces no ionizing radiation.The Al layer will form electrical contacts later.



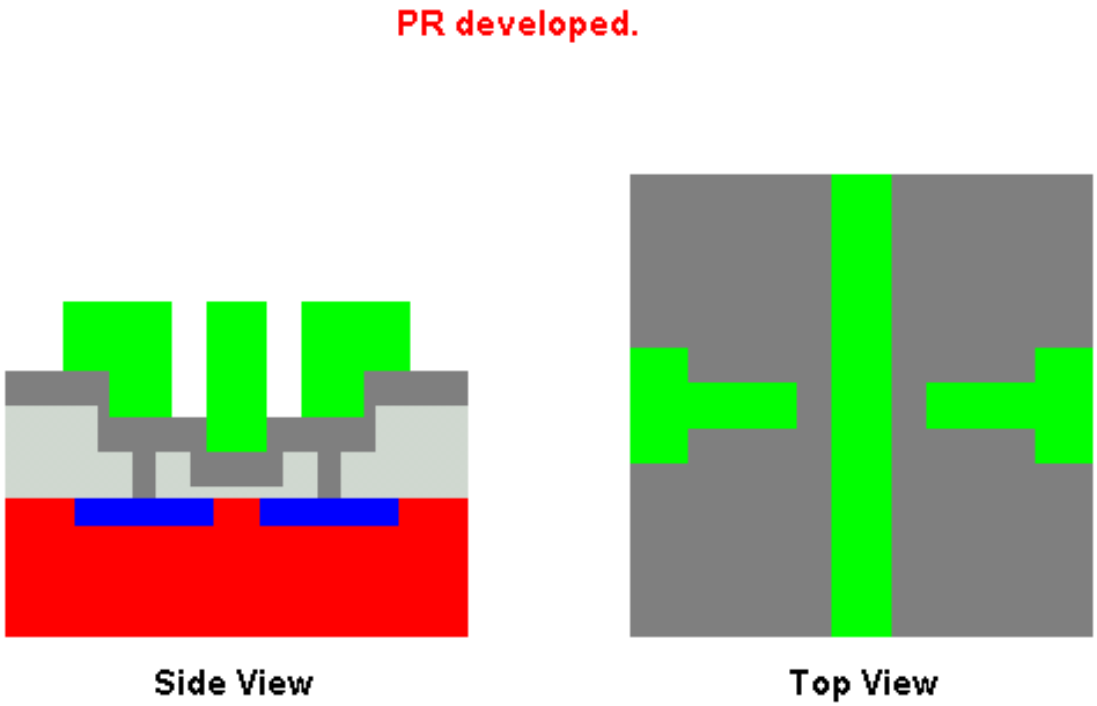
PR Applied

The final lithography process is done to remove the Al-layer, defining a contact pattern. The same procedure(PR Drop -> Spinning -> Pre-Baking ->Mask Alignment ->UV Exposure ->PR Developing->Rinsing and Drying->Post-Baking ->Aluminum Etching) as in lithography #1 is used.



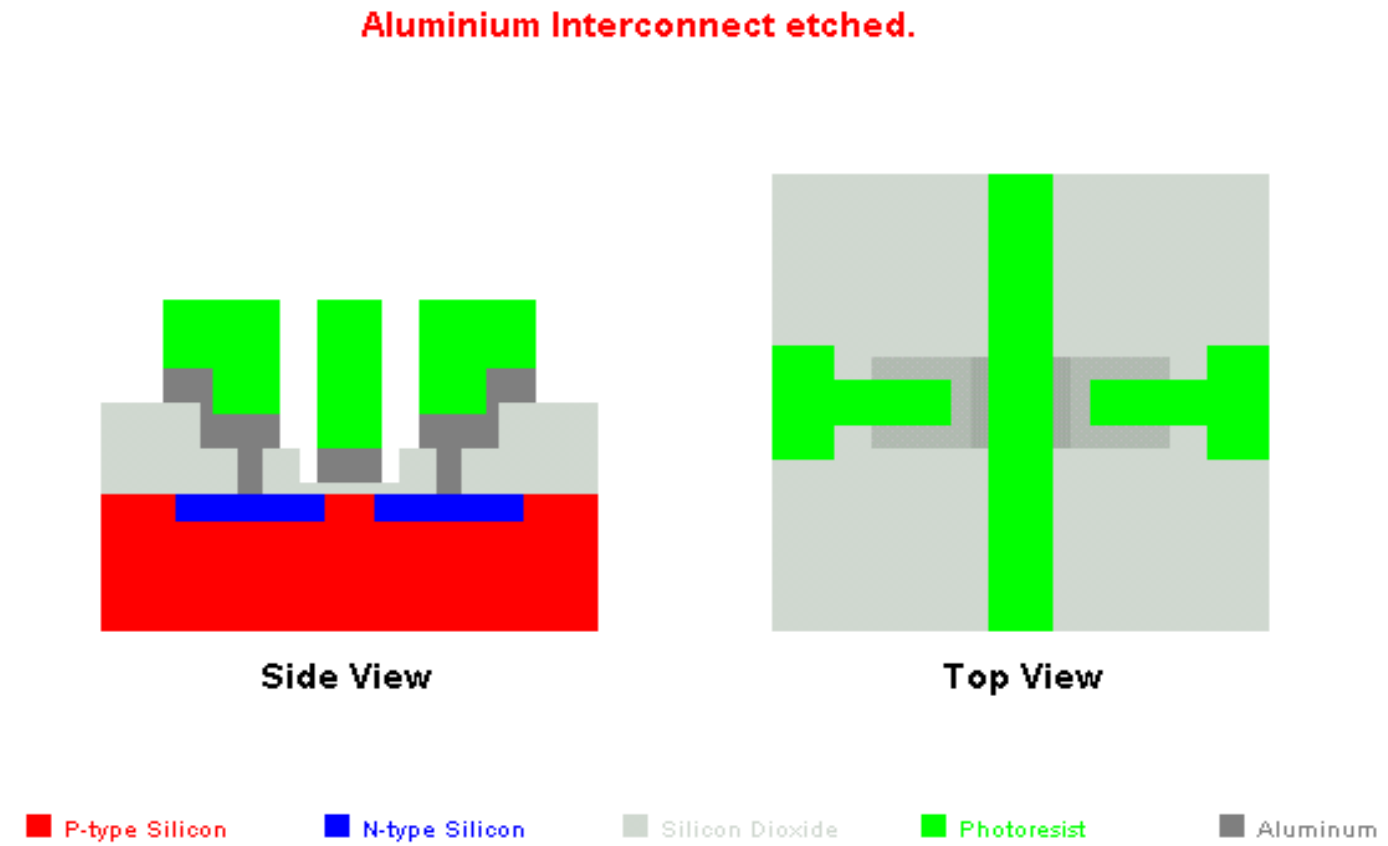
PR Developed

The final lithography process is done to remove the Al-layer, defining a contact pattern. The same procedure(PR Drop -> Spinning -> Pre-Baking ->Mask Alignment ->UV Exposure ->PR Developing->Rinsing and Drying->Post-Baking ->Aluminum Etching) as in lithography #1 is used.



Aluminum Interconnect Etched

The final lithography process is done to remove the Al-layer, defining a contact pattern. The same procedure(PR Drop -> Spinning -> Pre-Baking ->Mask Alignment ->UV Exposure ->PR Developing->Rinsing and Drying->Post-Baking ->Aluminum Etching) as in lithography #1 is used.



Completion of NMOS Fabrication

After the final PR stripping, all the NMOS fabrication steps are completed.