Fabrication Processes

- Wafer Processing & Preparation
- Oxidation
- Epitaxy
- Diffusion
- Ion Implantation
- Lithography
- Etching
- Metallization

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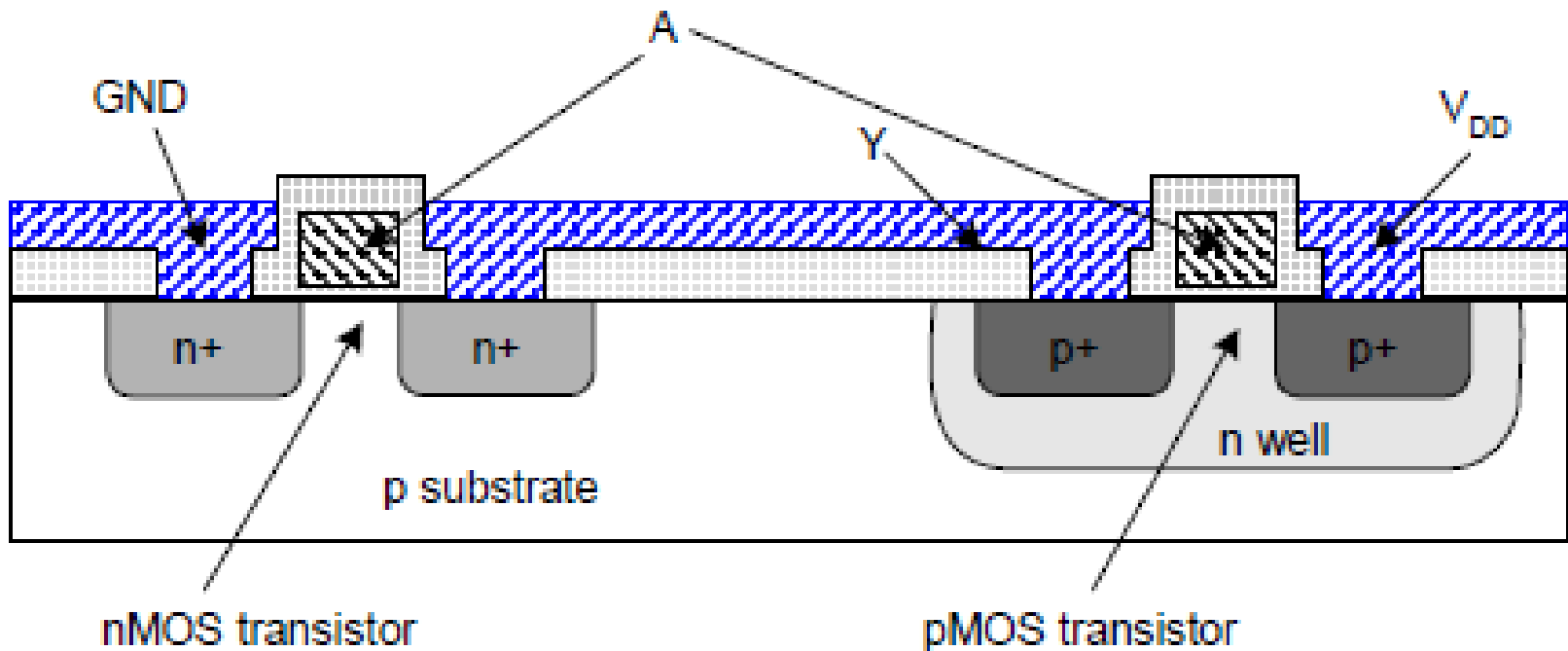- CMOS Process Flow for N-well, P-well & Twin Tub

Fabrication Steps :

- Refining of Si
- Crystal growth and wafer preparation
- Epitaxy
- Deposition
- Oxidation
- Diffusion
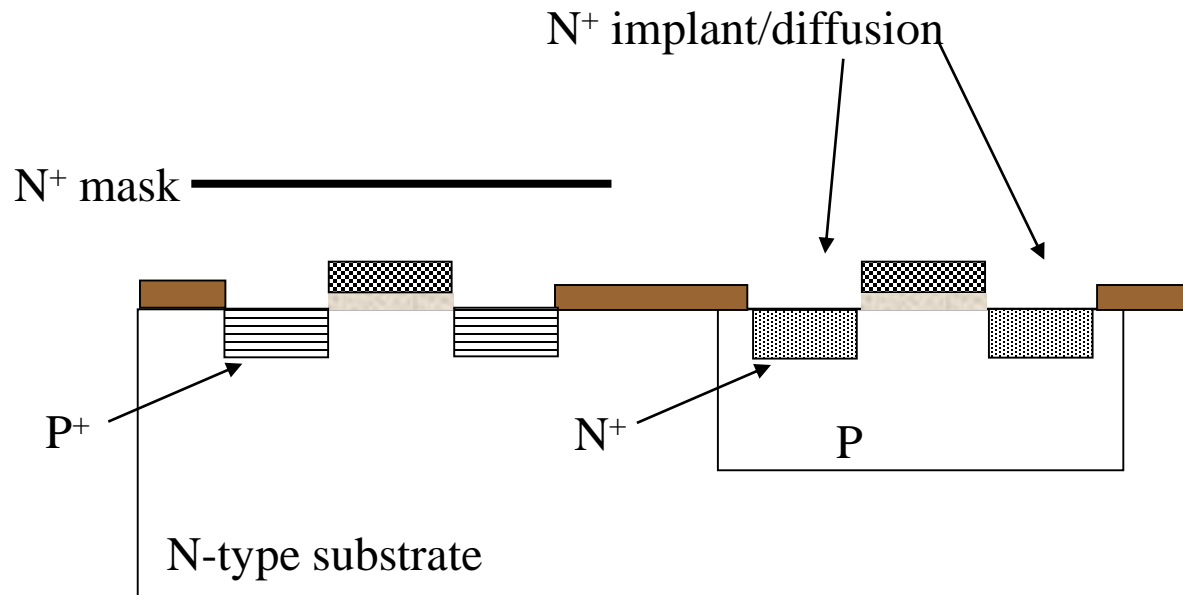- Ion Implantation
- Lithography
- Etching
- Metallization

CMOS Inverter Fabrication :

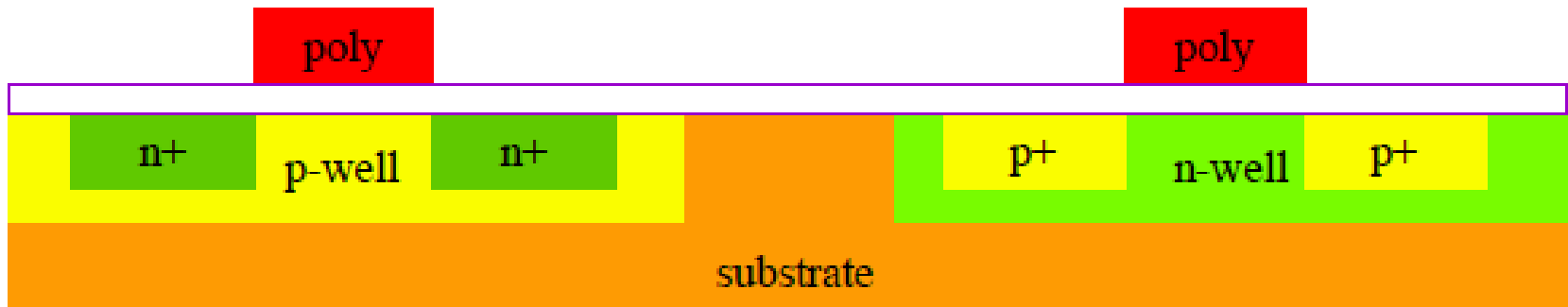- N-well process
- P-well process
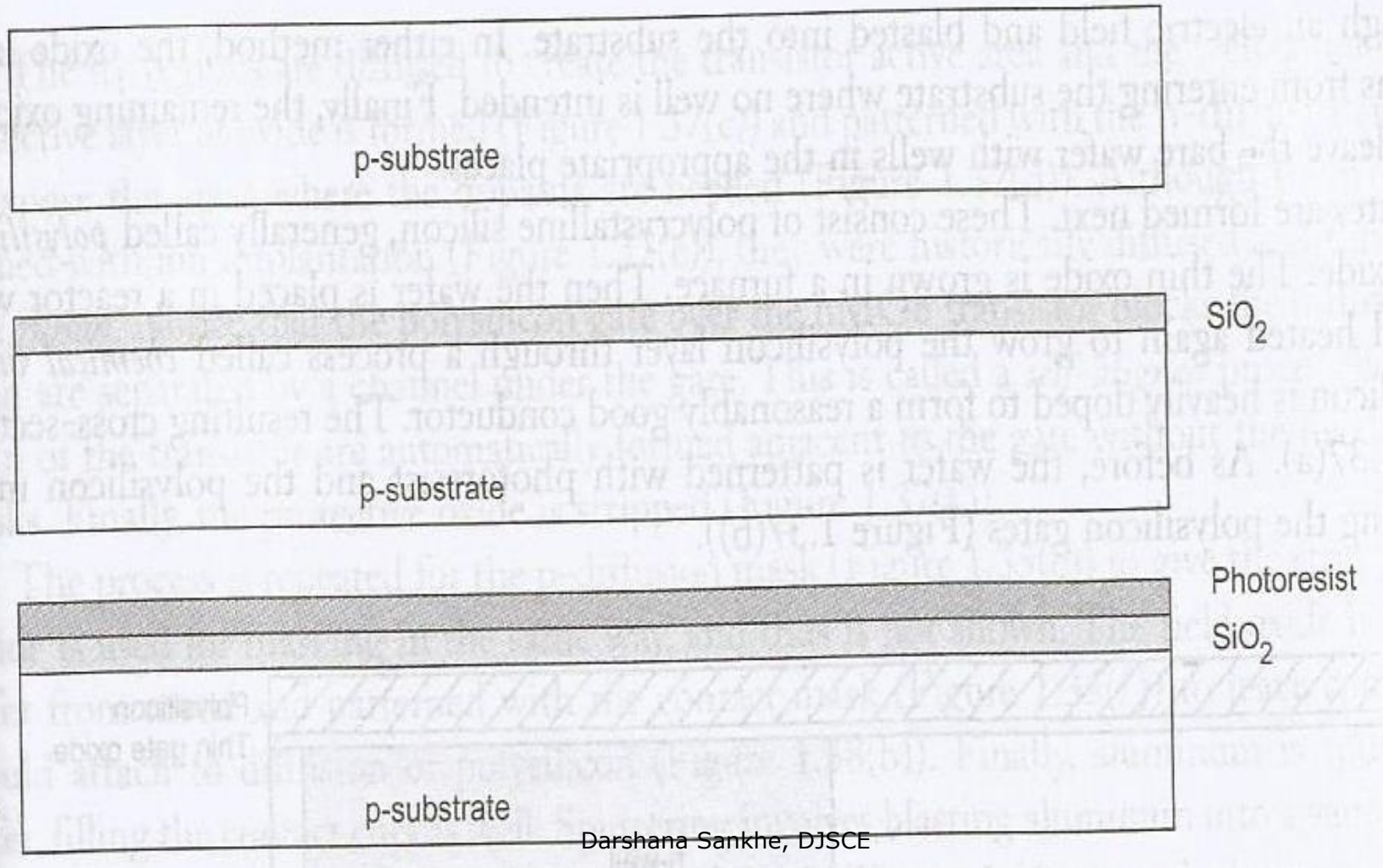- Twin tub process

CMOS Inverter using N-well Process:
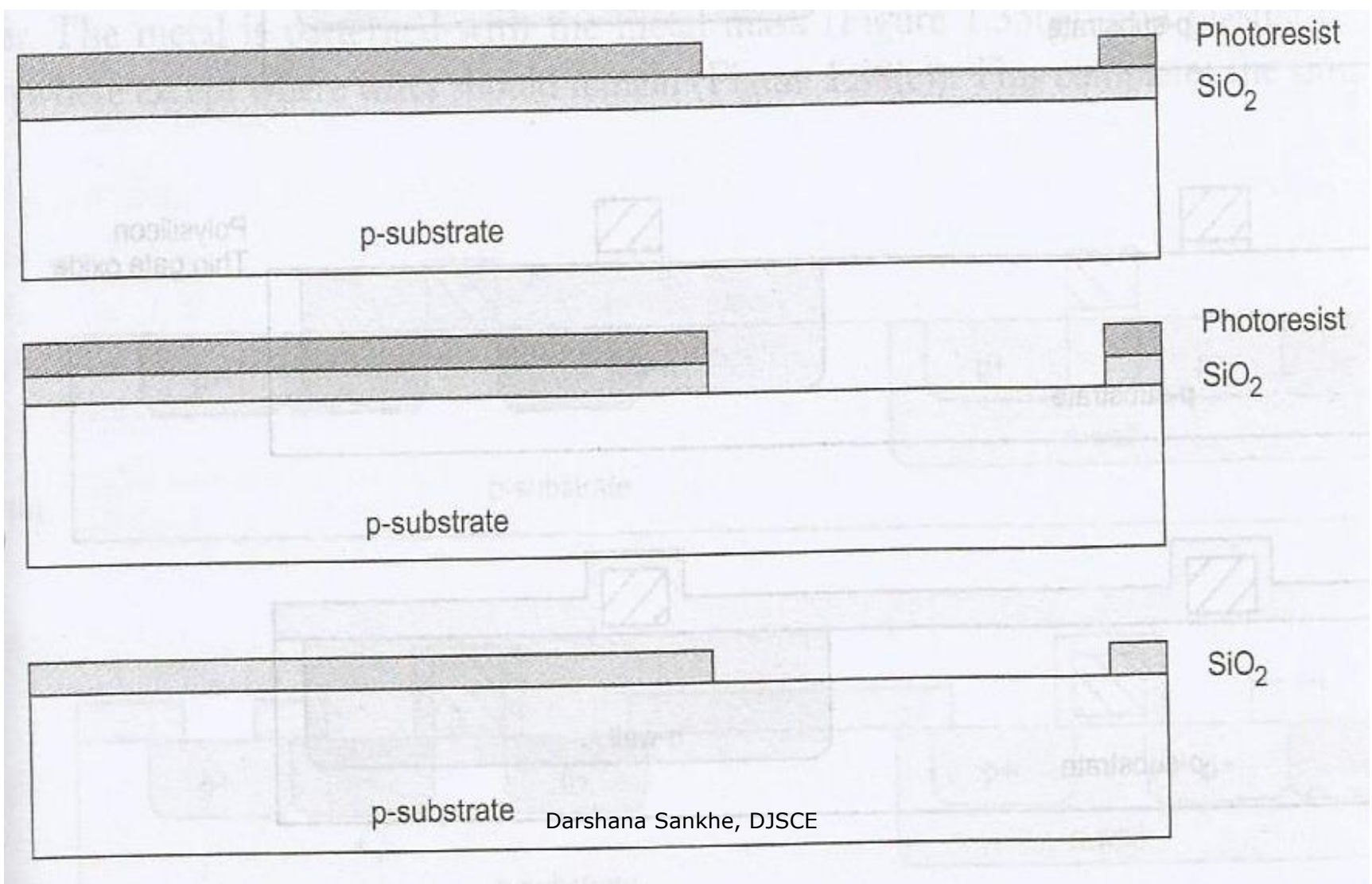
CMOS Inverter using P-well Process:

N$^+$ implant/diffusion

N$^+$ mask

P$^+$

N$^+$

P

N-type substrate

CMOS Inverter using Twin-Tub Process:

CMOS Inverter using N-well Process:

p-substrate

SiO$_2$

p-substrate

Photoresist

SiO$_2$

p-substrate

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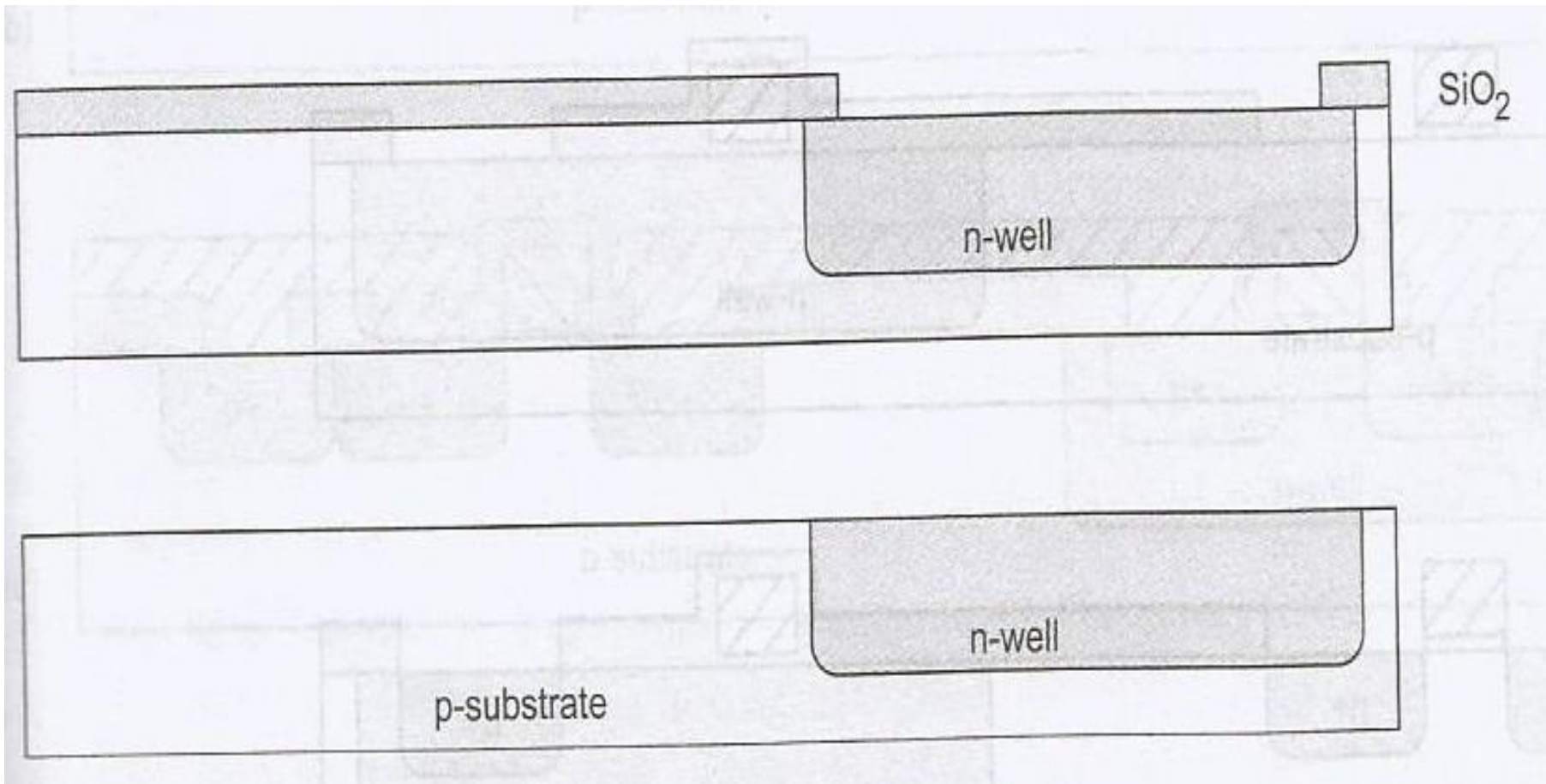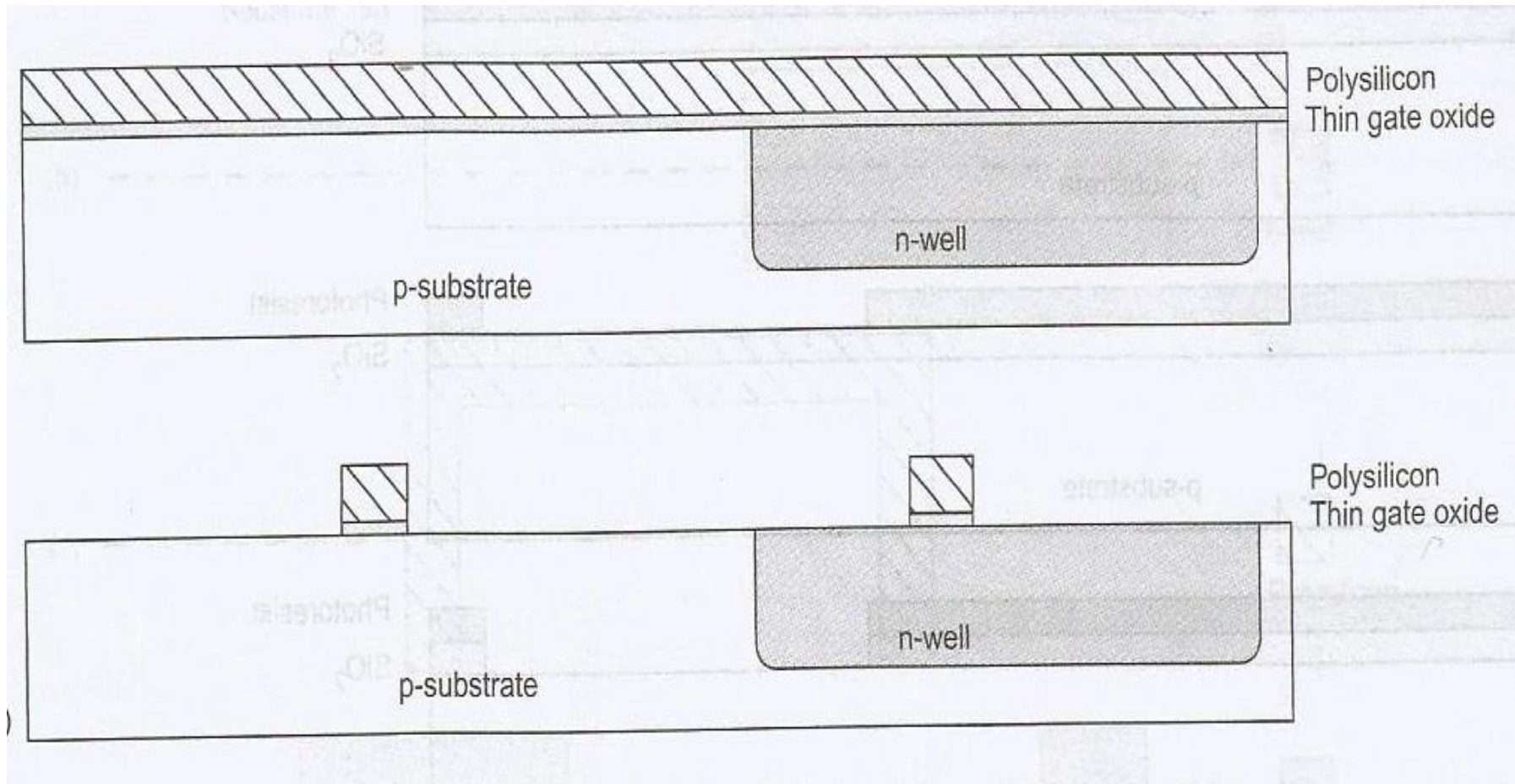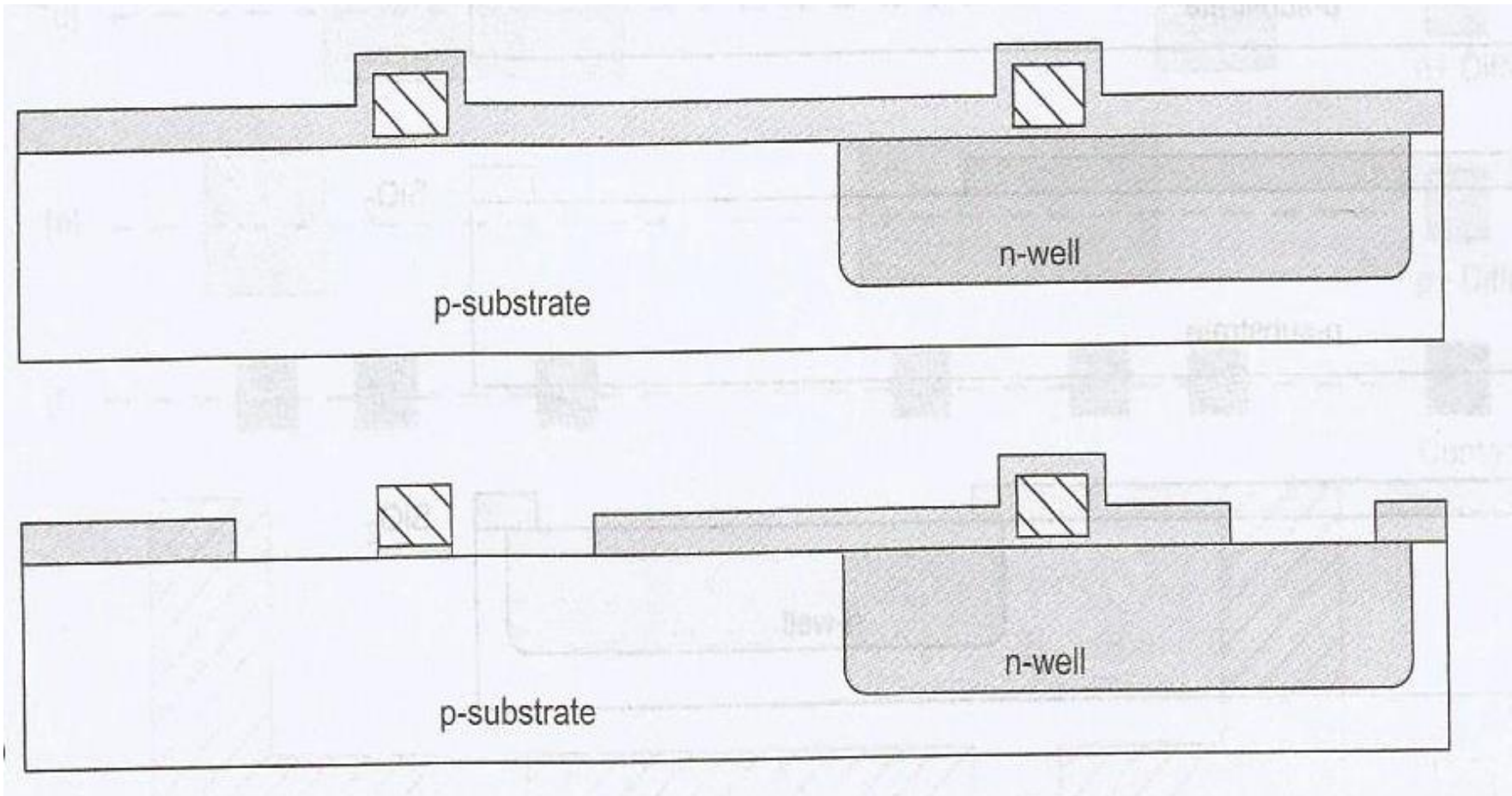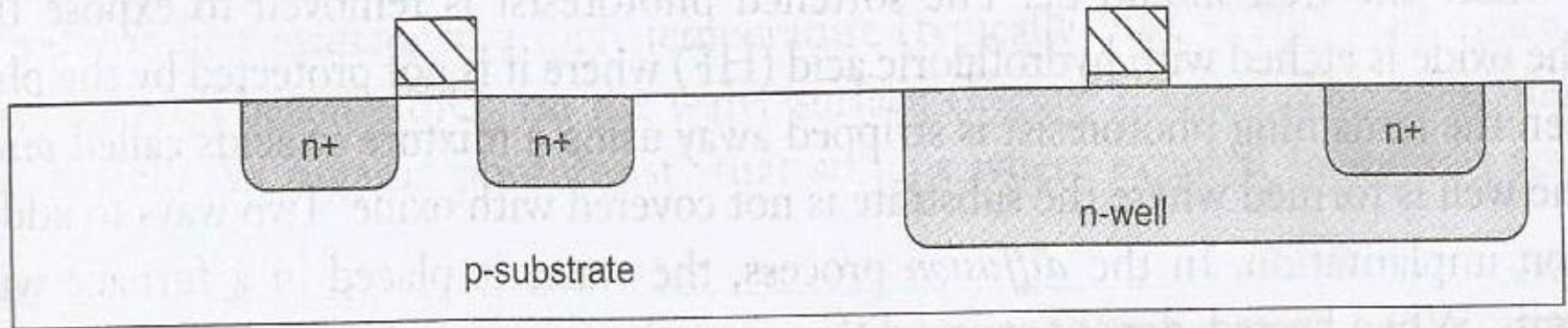# CMOS Inverter using N-well Process:
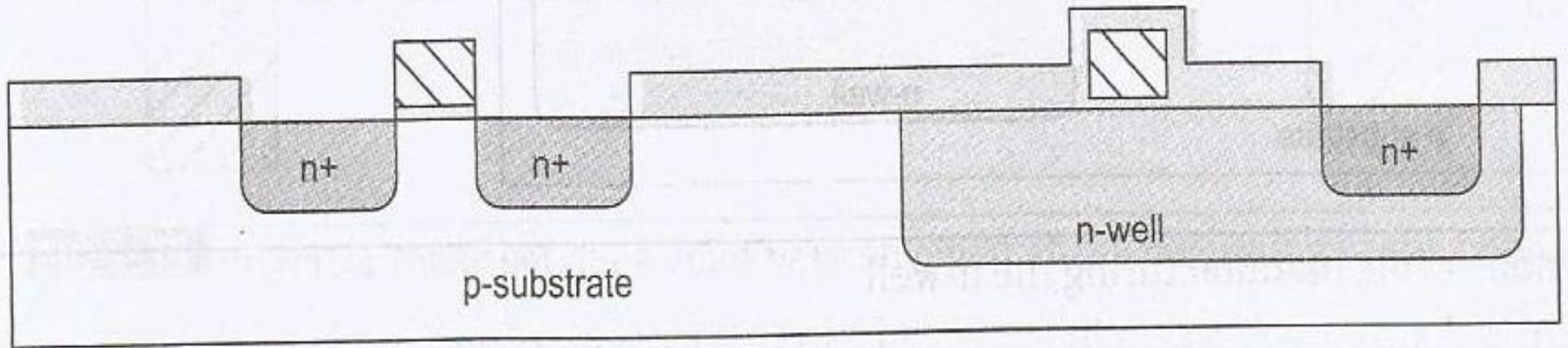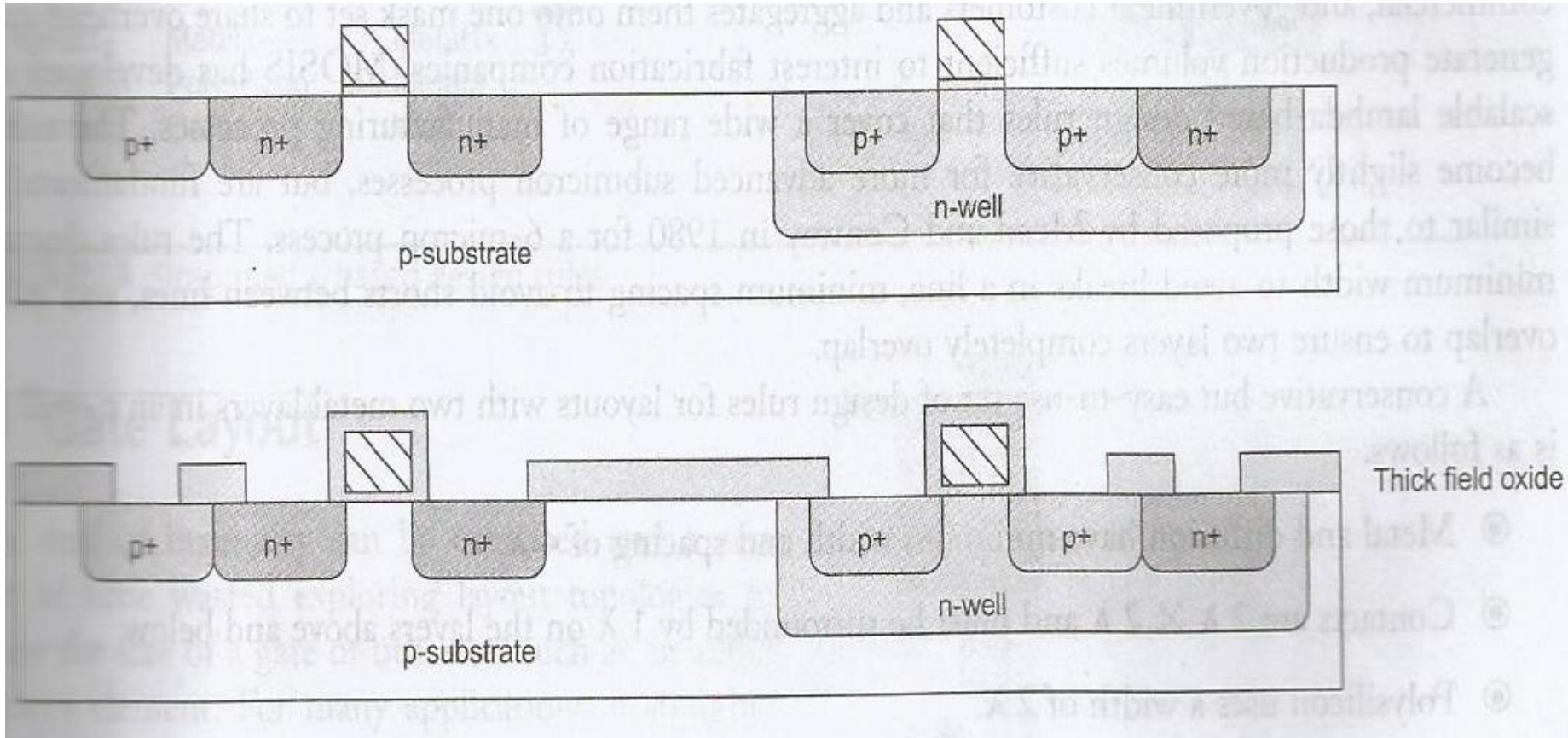

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CMOS Inverter using N-well Process:

CMOS Inverter using N-well Process:

CMOS Inverter using N-well Process:

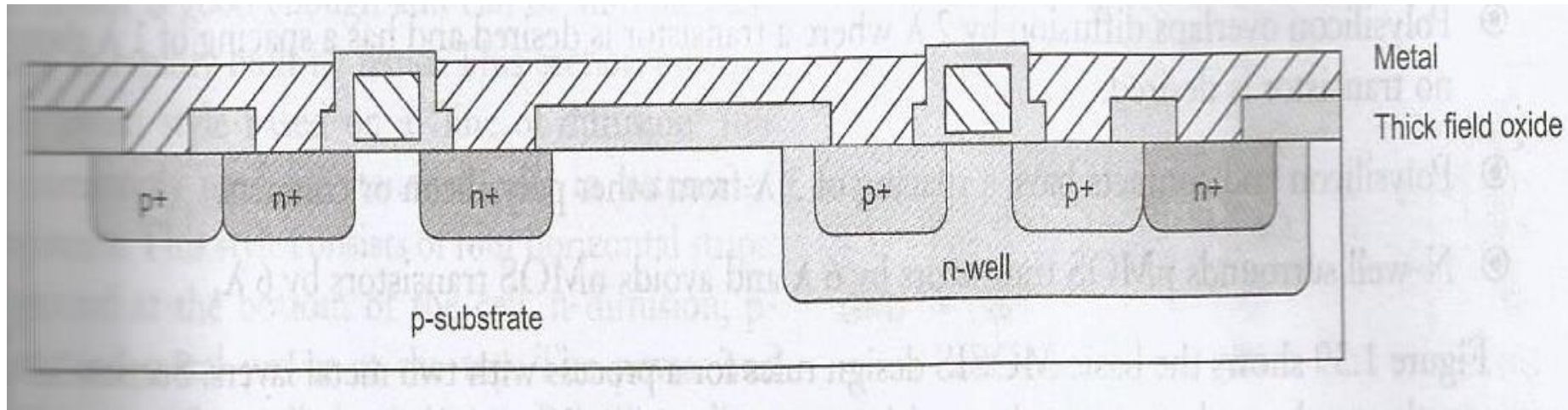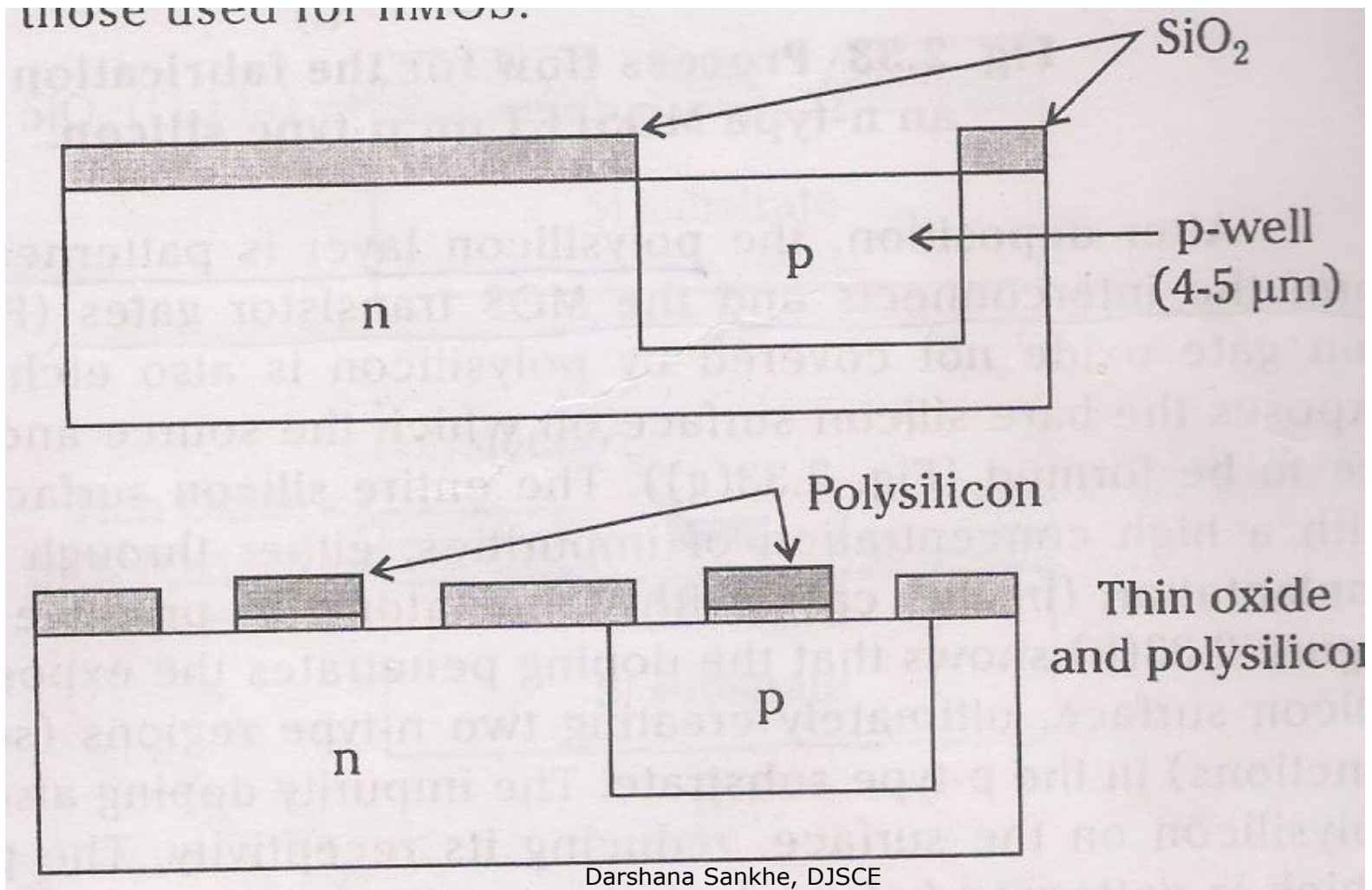Darshana Sankhe, DJSCE

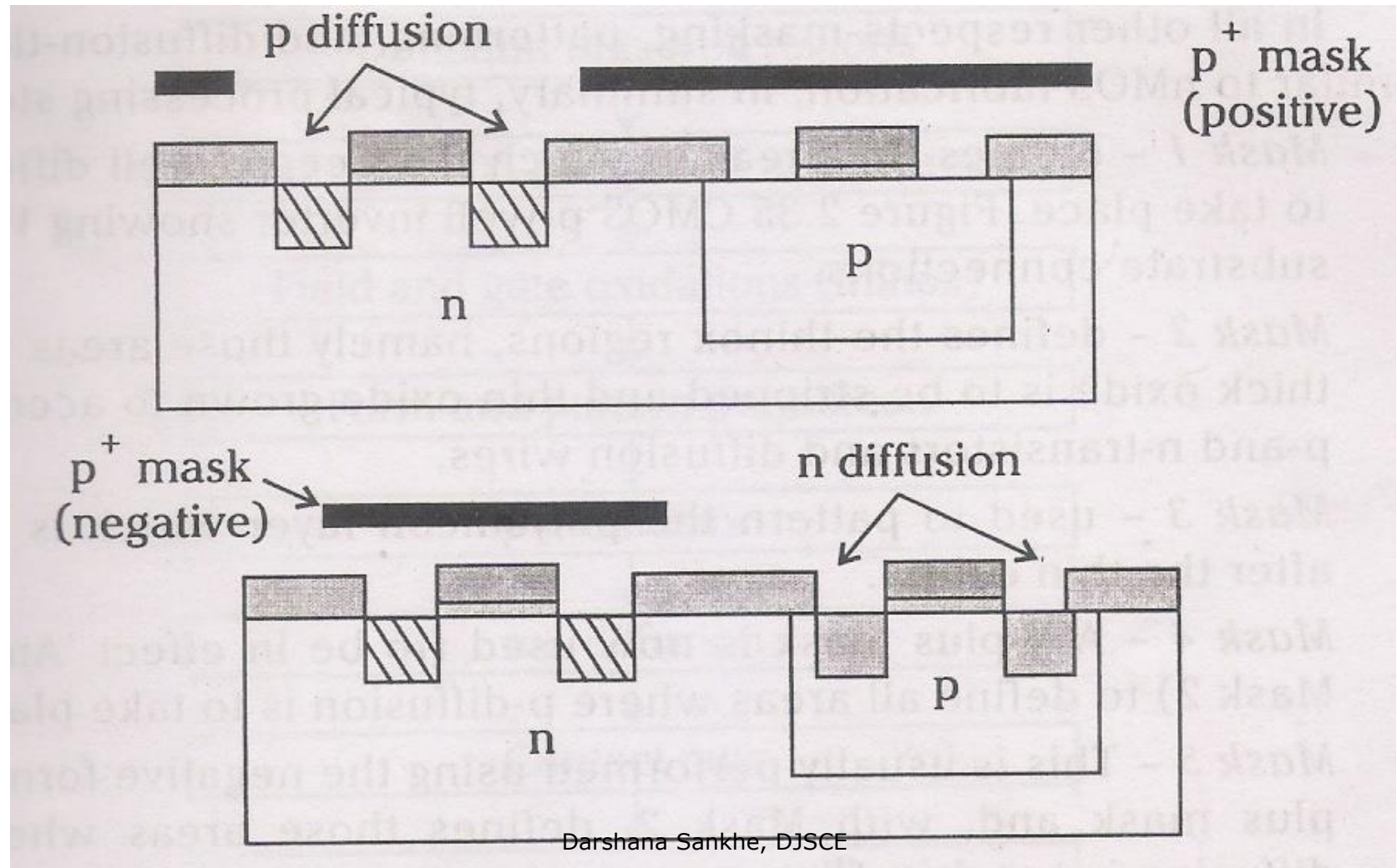# CMOS Inverter using N-well Process:

CMOS Inverter using N-well Process:

CMOS Inverter using N-well Process:

CMOS Inverter using P-well Process:

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CMOS Inverter using P-well Process:

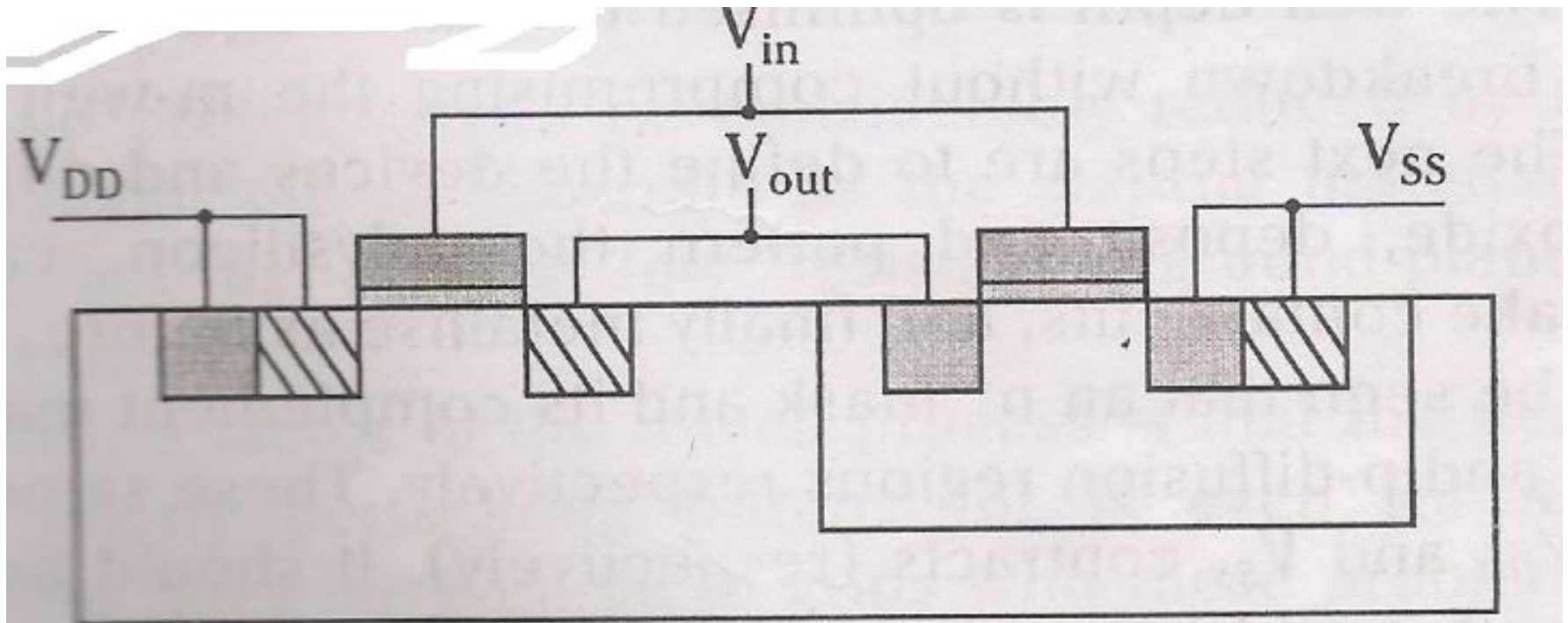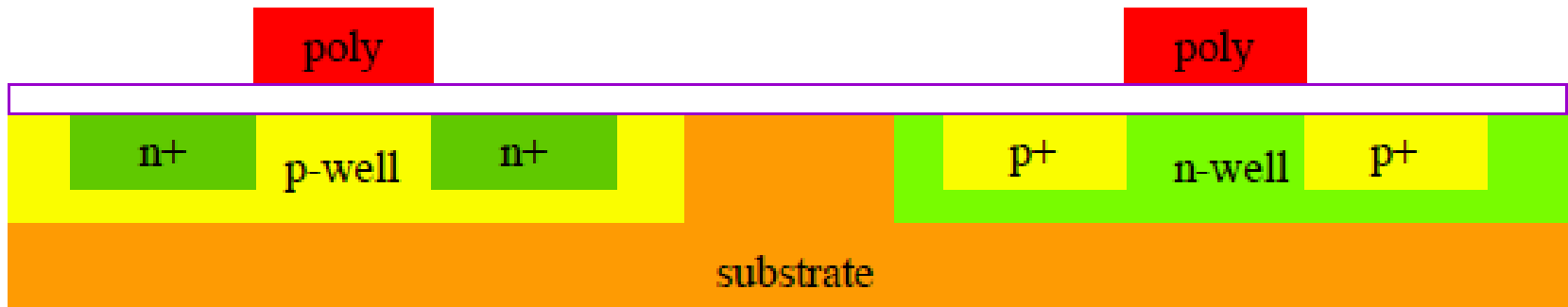Darshana Sankhe, DJSCE

CMOS P-well INVERTER:

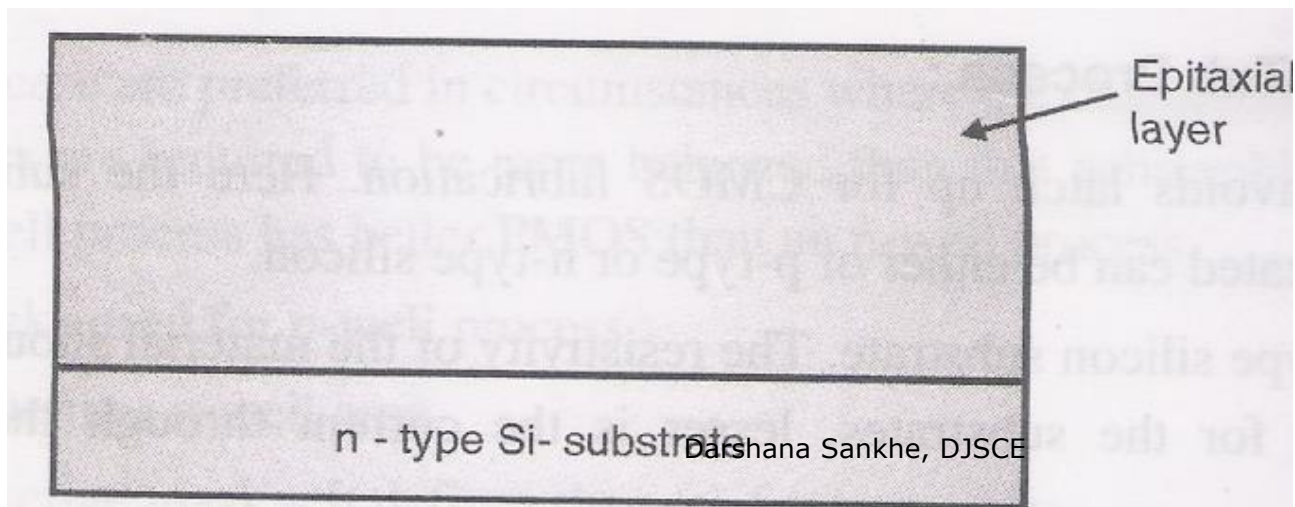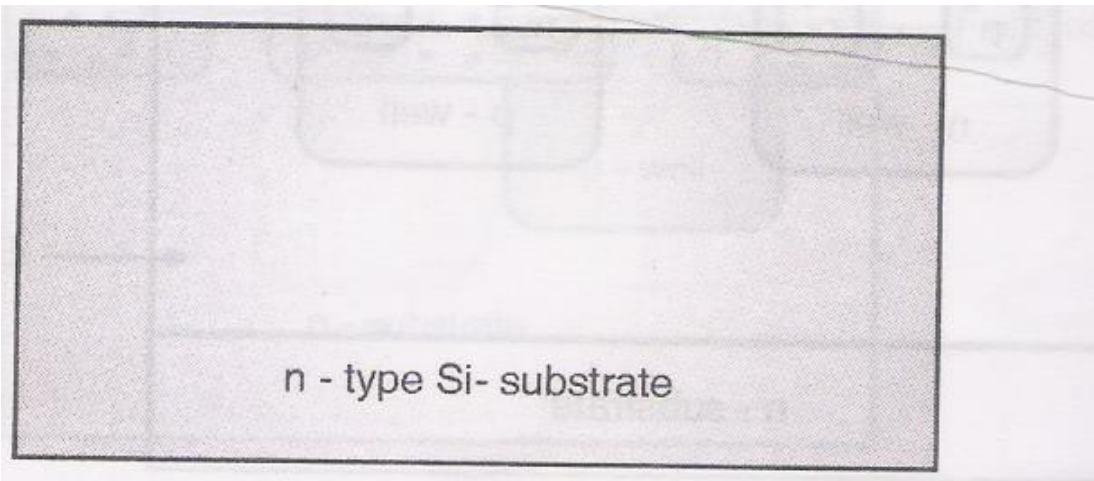Fig. 2.35 CMOS p-well inverter showing V_{DD} and V_{SS} substrate connections.

CMOS Fabrication Mask :

1. Define window in oxide region/ well mask

2. Pattern poly mask

3,4. Diffusion mask(n-diffusion & p-diffusion)

5. Contact cut mask

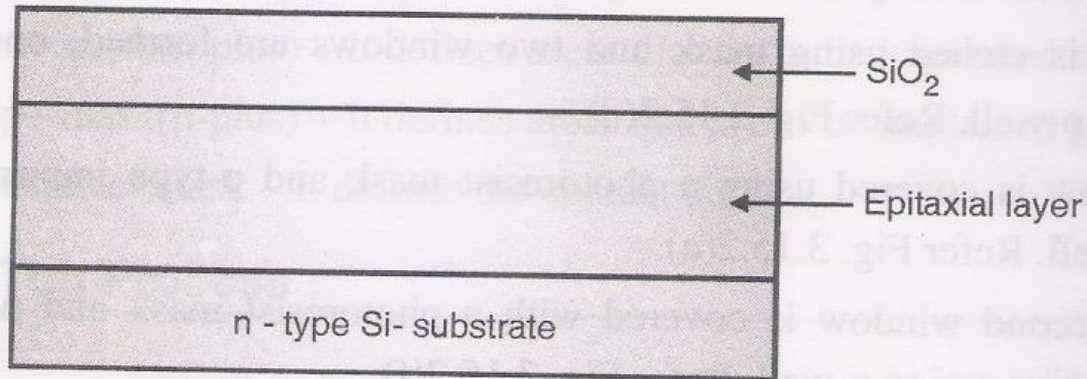6. Metal layer pattern

7. Over glass layer mask for bonding pads

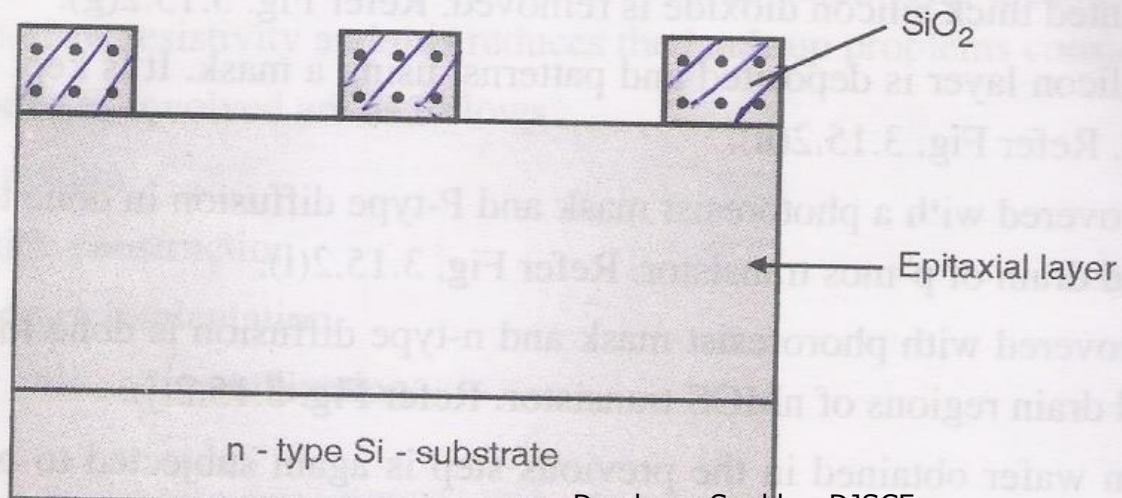# CMOS Inverter using Twin-Tub Process:

CMOS Inverter using Twin-Tub Process:

n - type Si- substrate

Epitaxial layer

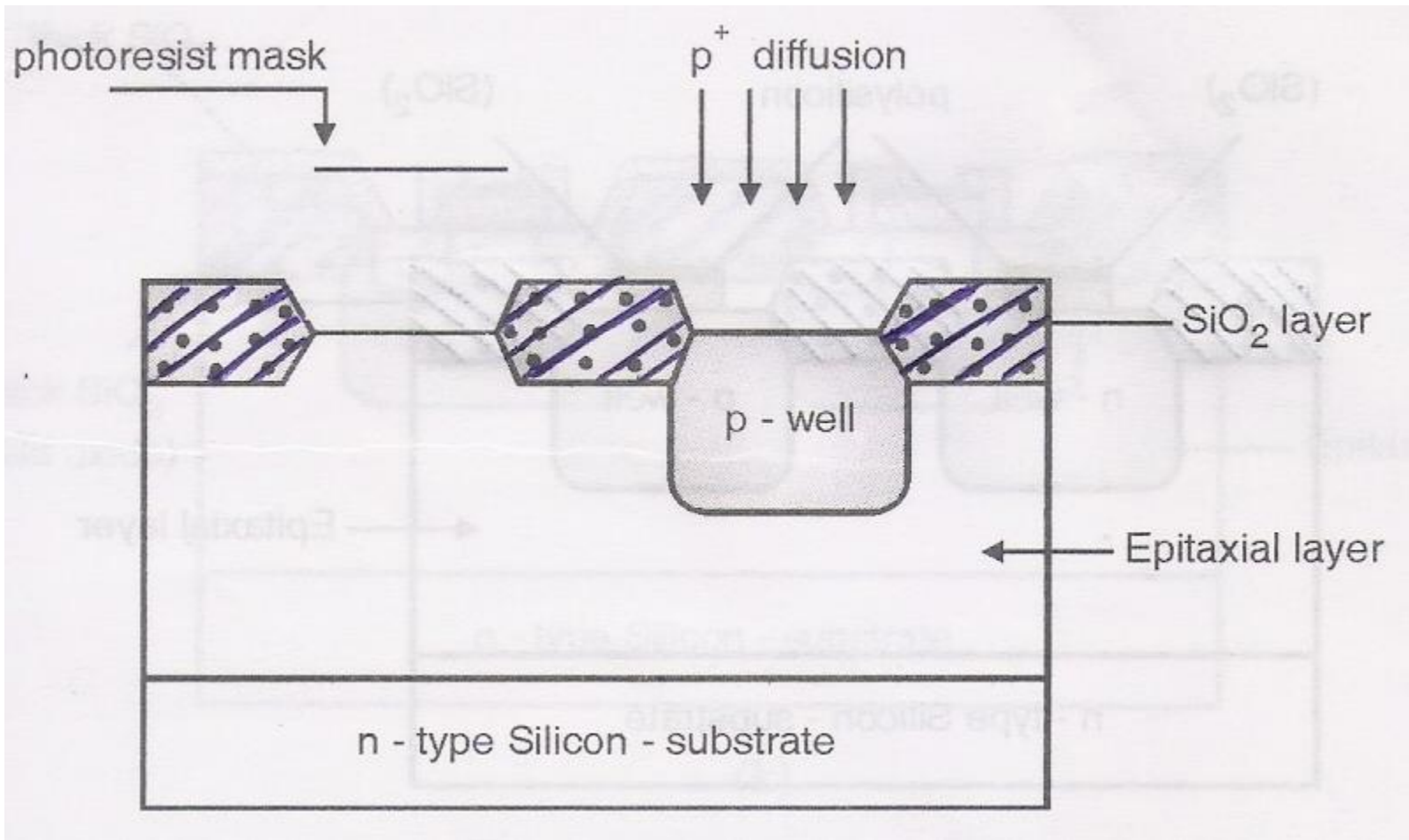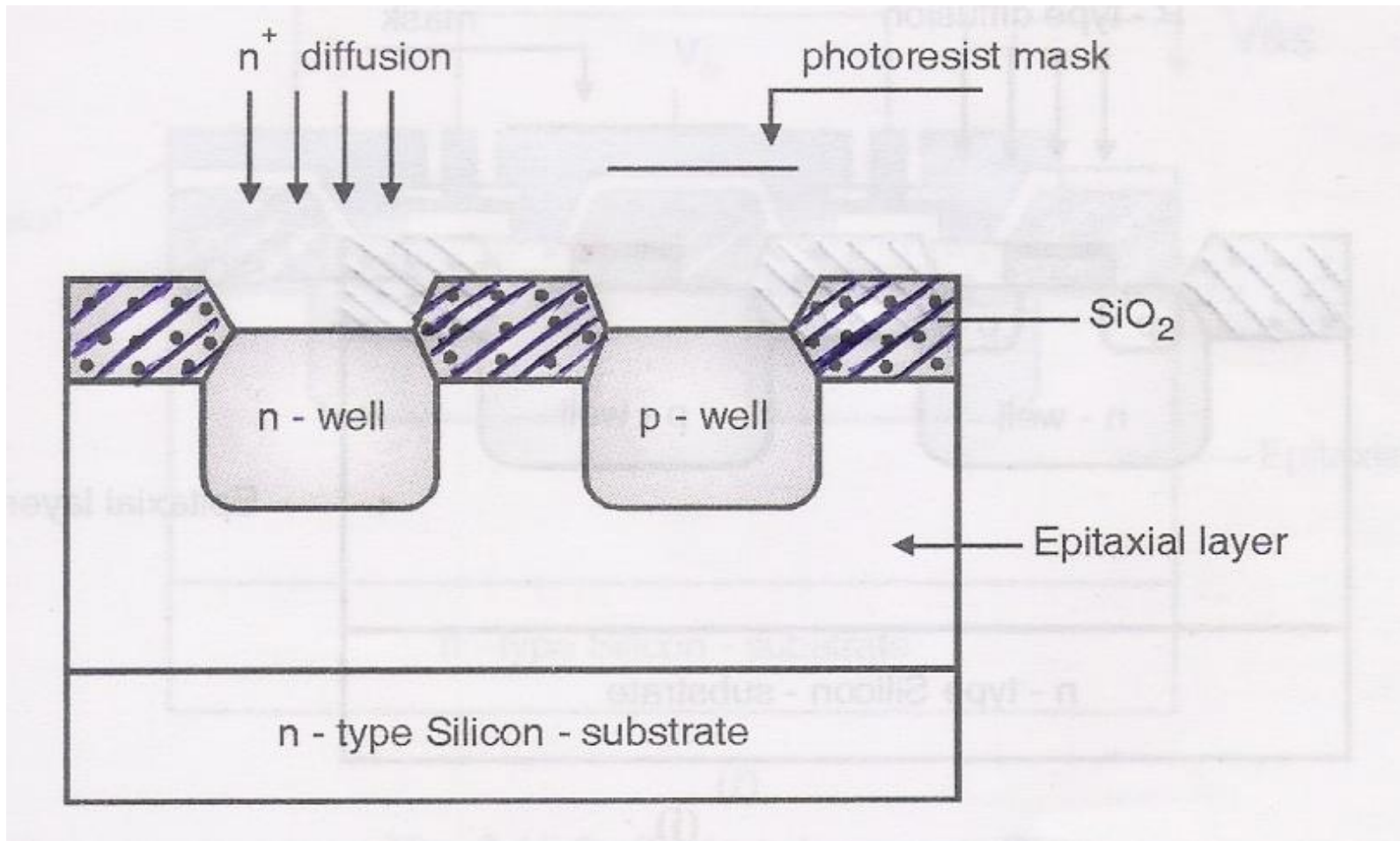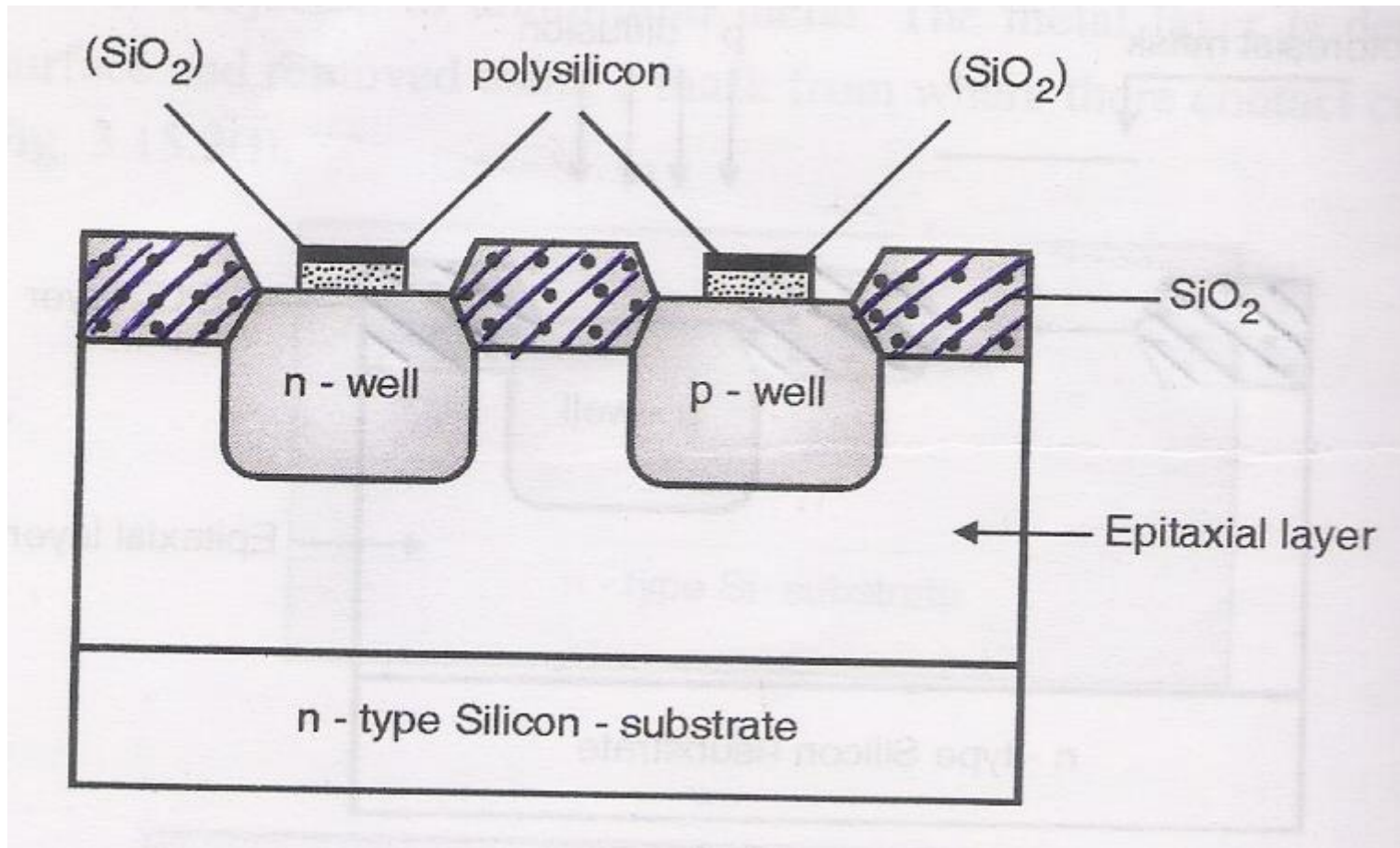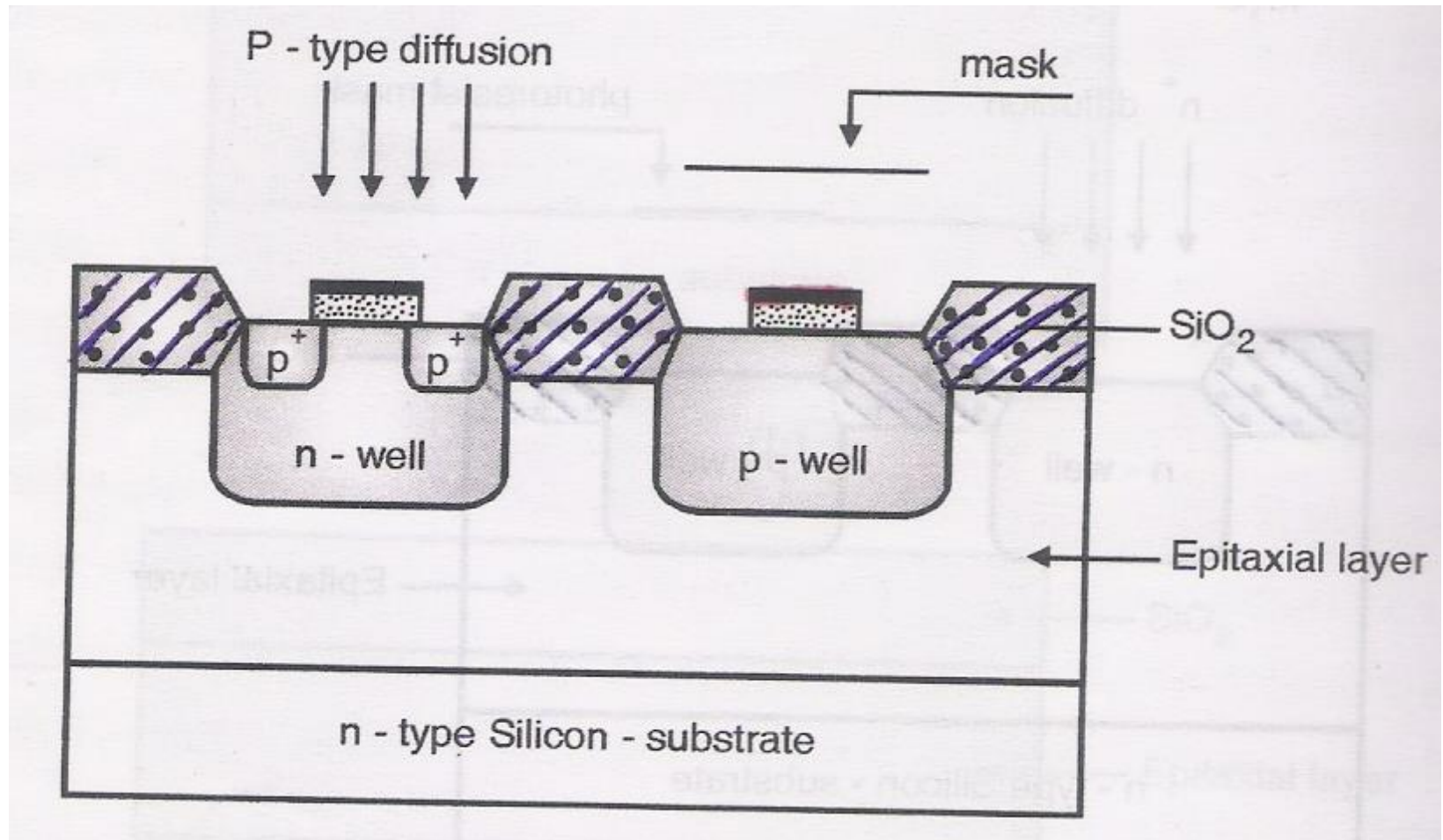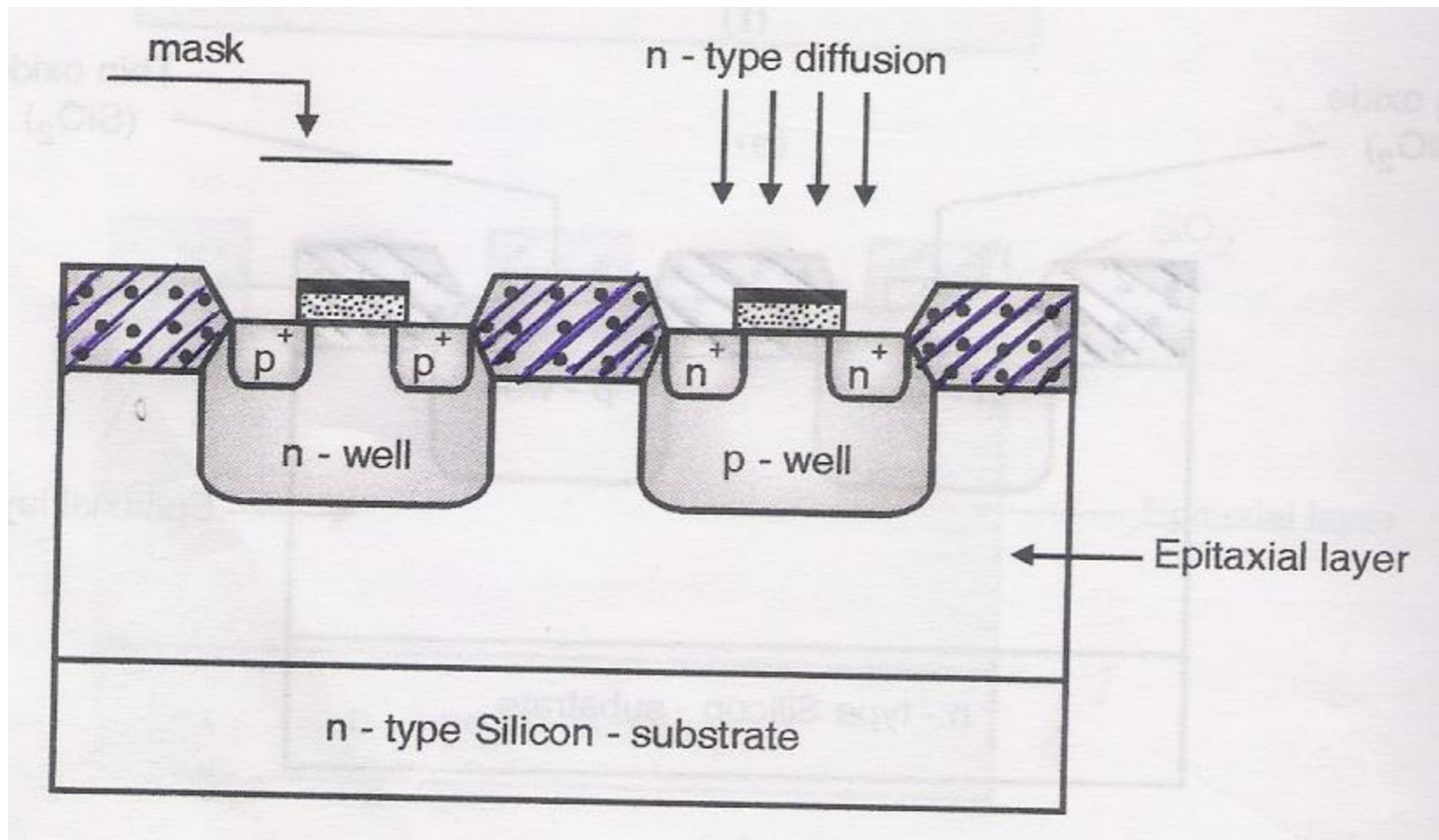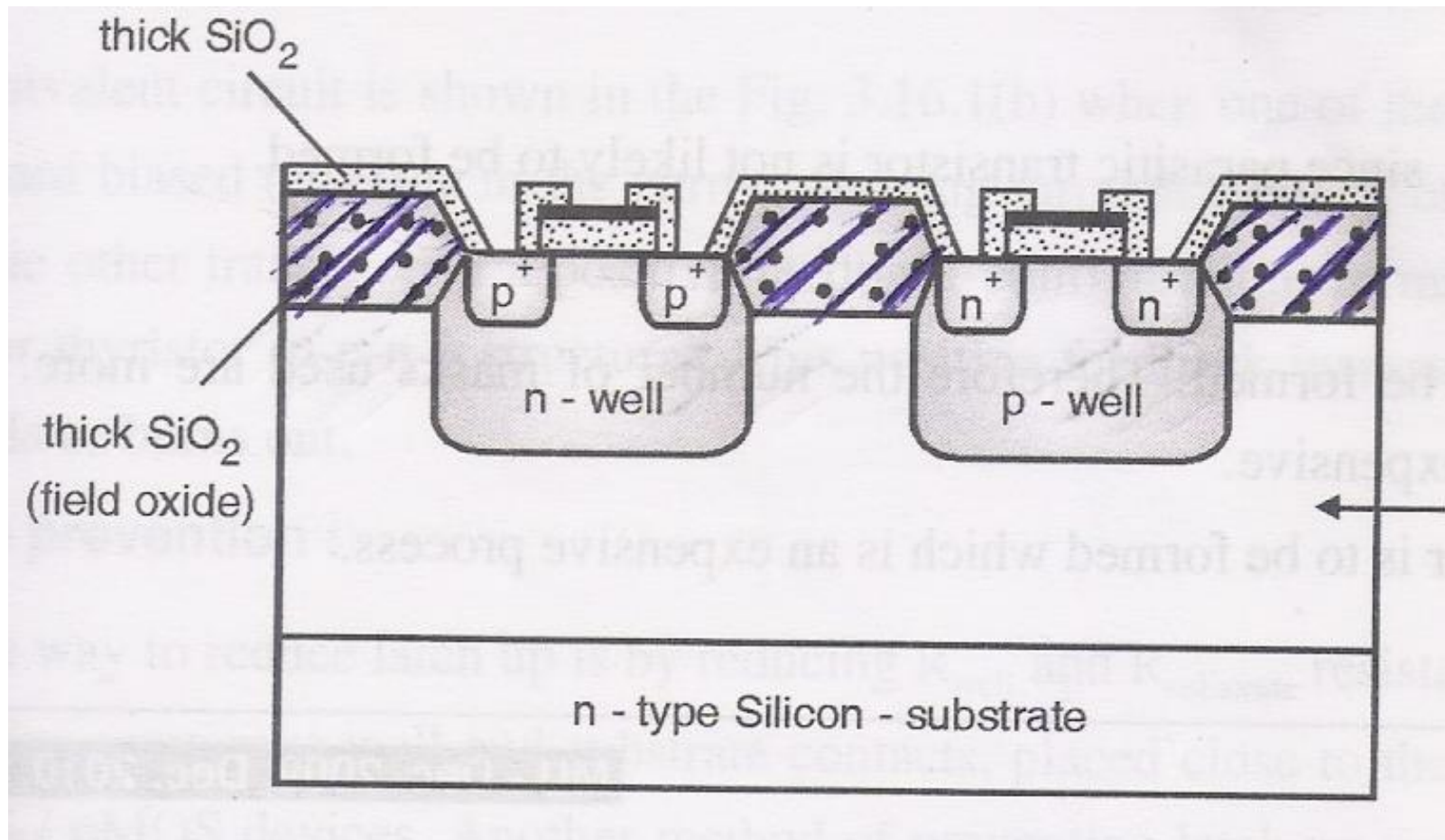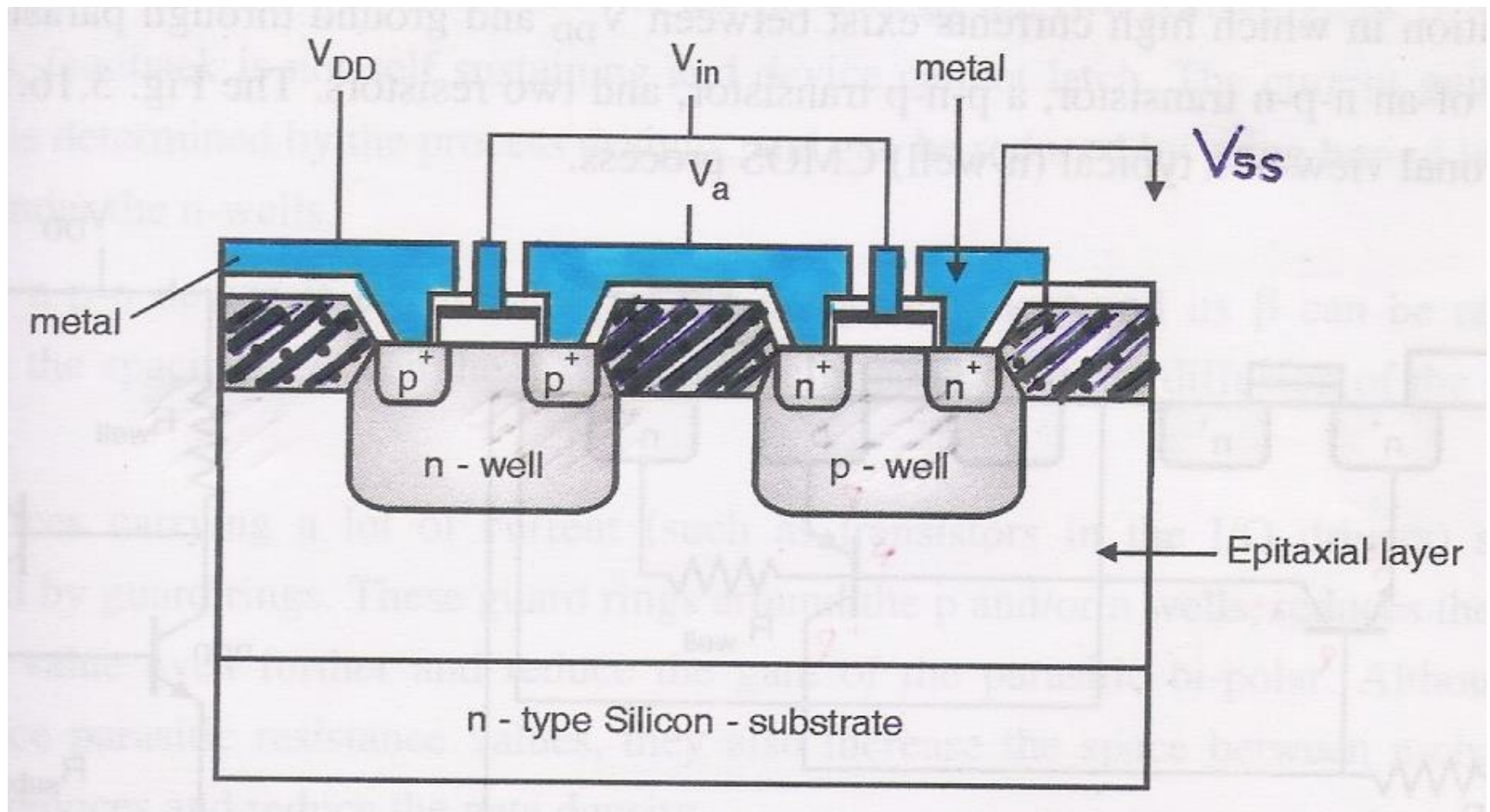n - type Si- substrate

CMOS Inverter using Twin-Tub Process:

CMOS Inverter using Twin-Tub Process:

CMOS Inverter using Twin-Tub Process:

CMOS Inverter using Twin-Tub Process:

CMOS Inverter using Twin-Tub Process:

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CMOS Inverter using Twin-Tub Process:

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CMOS Inverter using Twin-Tub Process:

CMOS Inverter using Twin-Tub Process:

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Thank You

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