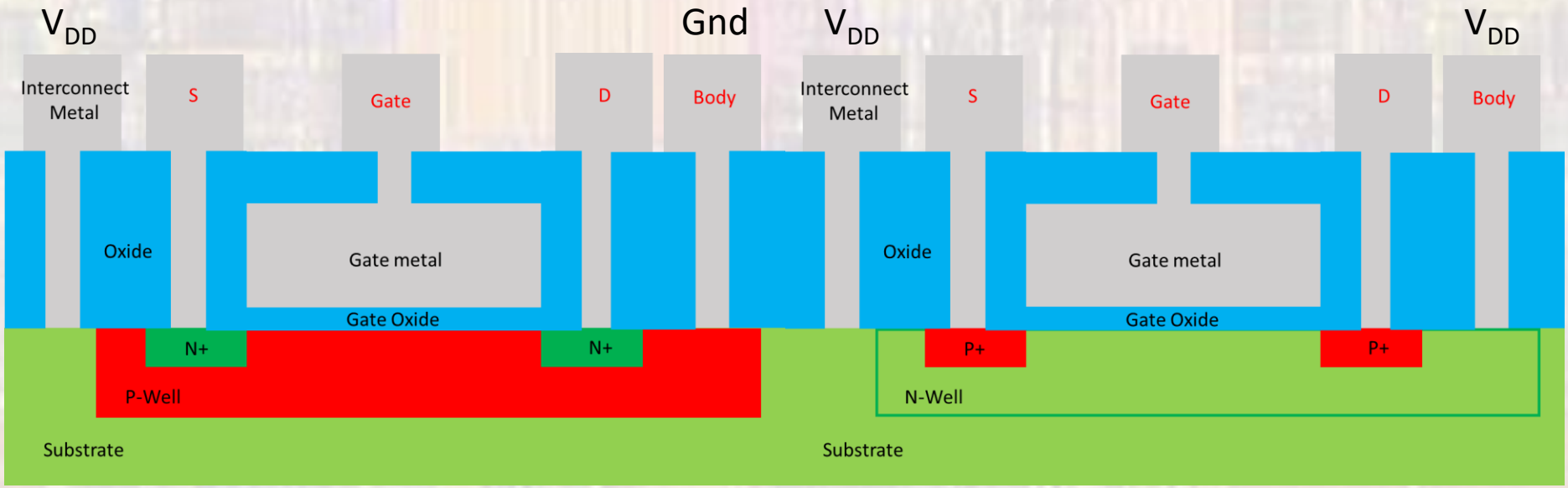
Planer CMOS Processing

Last updated 1/18/23

Planer CMOS Processing

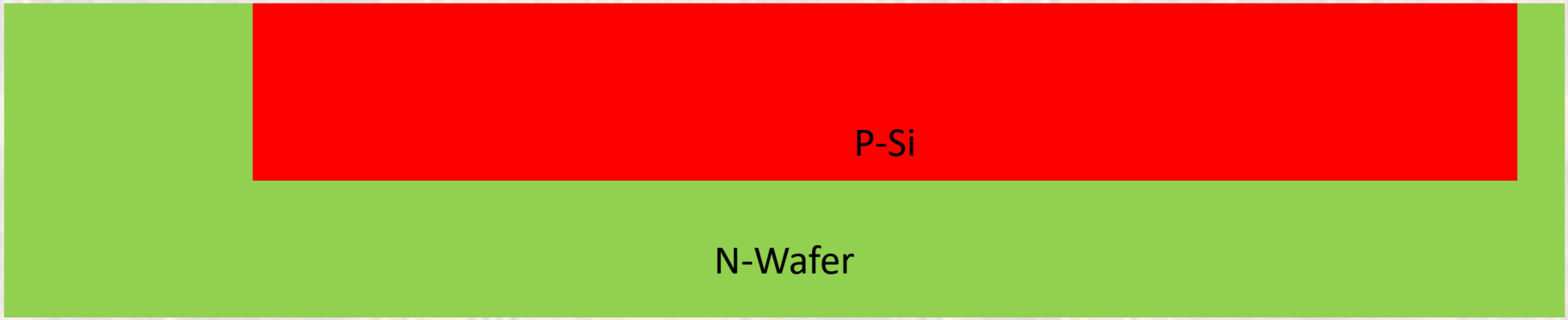
- Digital Planer CMOS Structure
  - Dominant until about 2015
  - Still used for older technologies
  - Still used for analog technologies



Planer CMOS Processing

- Implant a P-well into an N-Wafer

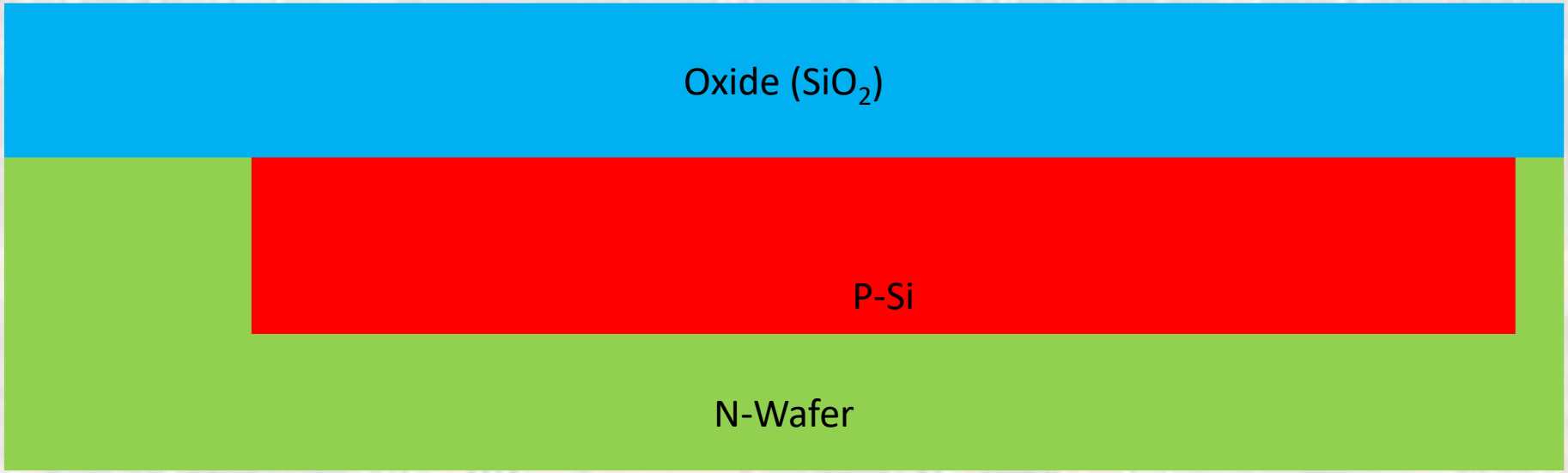
N-Channel



Planer CMOS Processing

- Deposit thick oxide

N-Channel



Planer CMOS Processing

- Etch oxide for the “Active area”
  - Source + drain + gate

N-Channel

Planer CMOS Processing

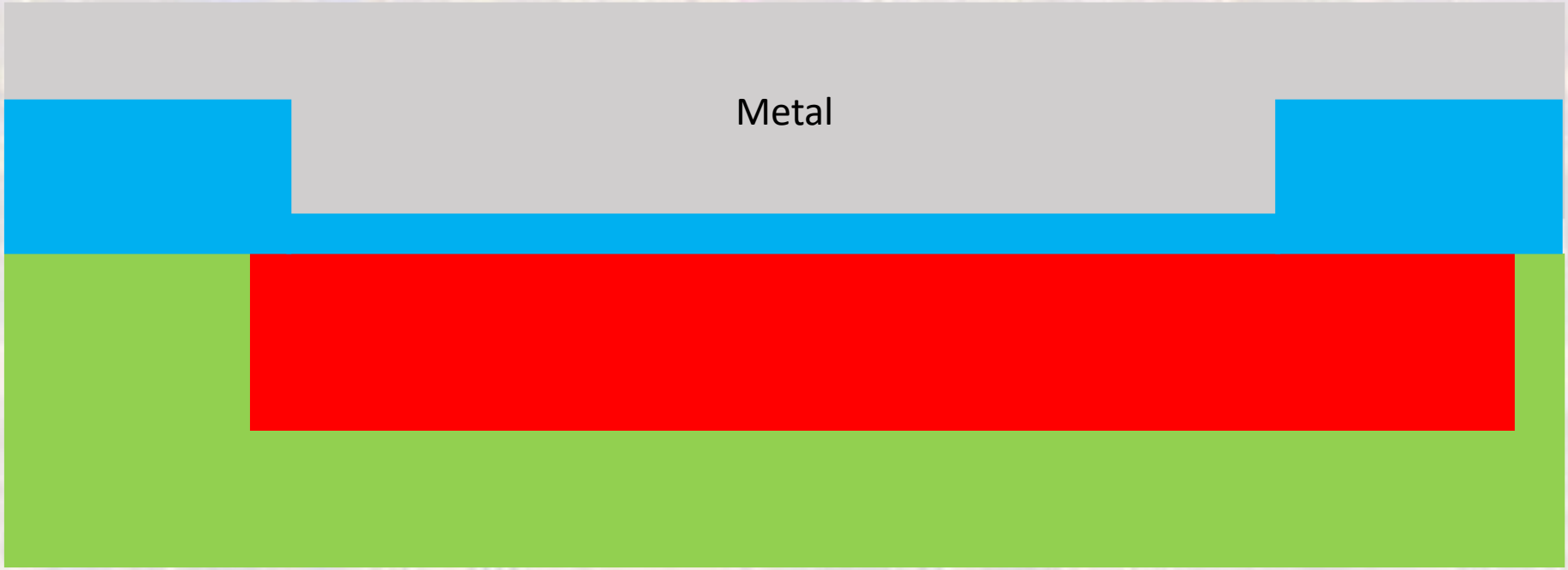
- Grow the thin gate oxide

N-Channel

Planer CMOS Processing

- Deposit gate metal
  - Aluminum or Poly-Silicon

N-Channel



Planer CMOS Processing

- Pattern and etch the gate metal

N-Channel

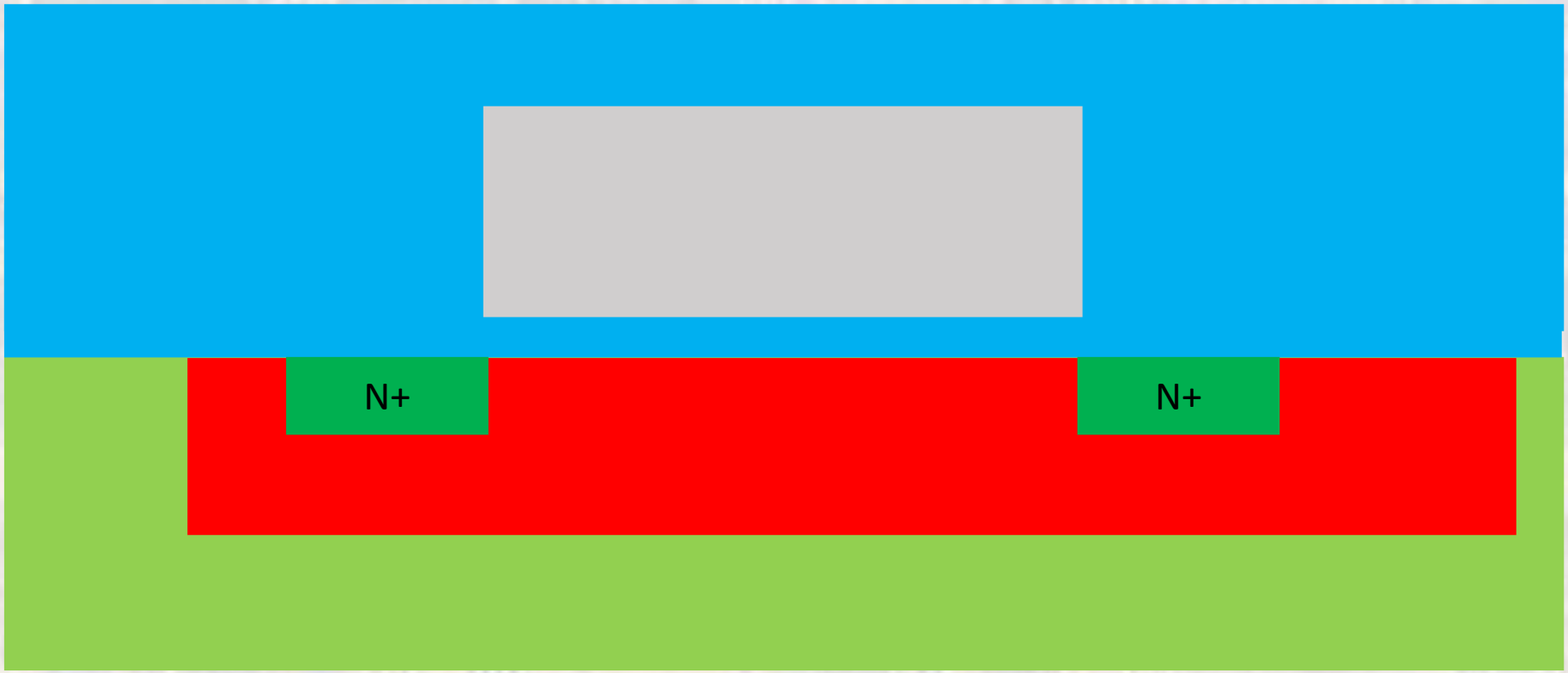
Planer CMOS Processing

- Implant Phosphorus (N+)
  - N+ regions form where only thin oxide is present

N-Channel

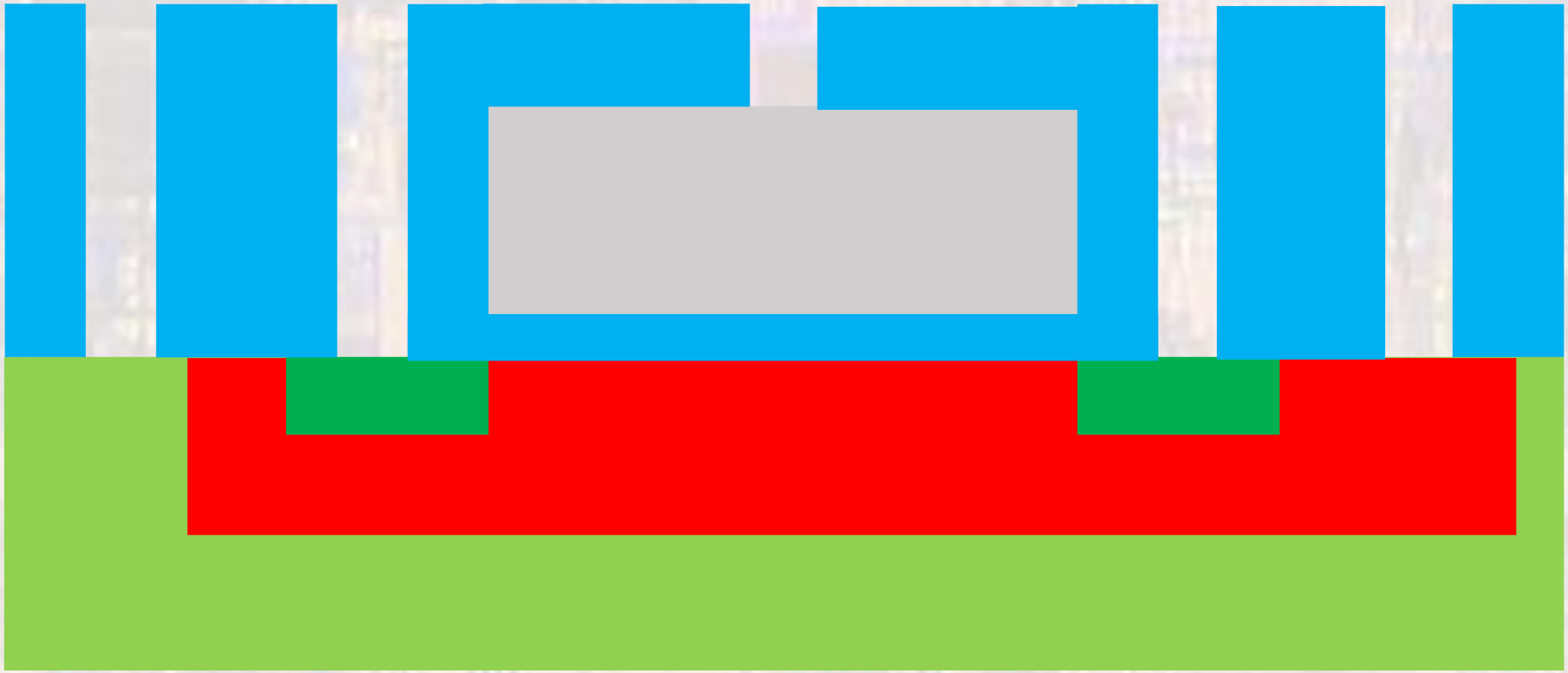
Planer CMOS Processing

- Deposit more oxide



Planer CMOS Processing

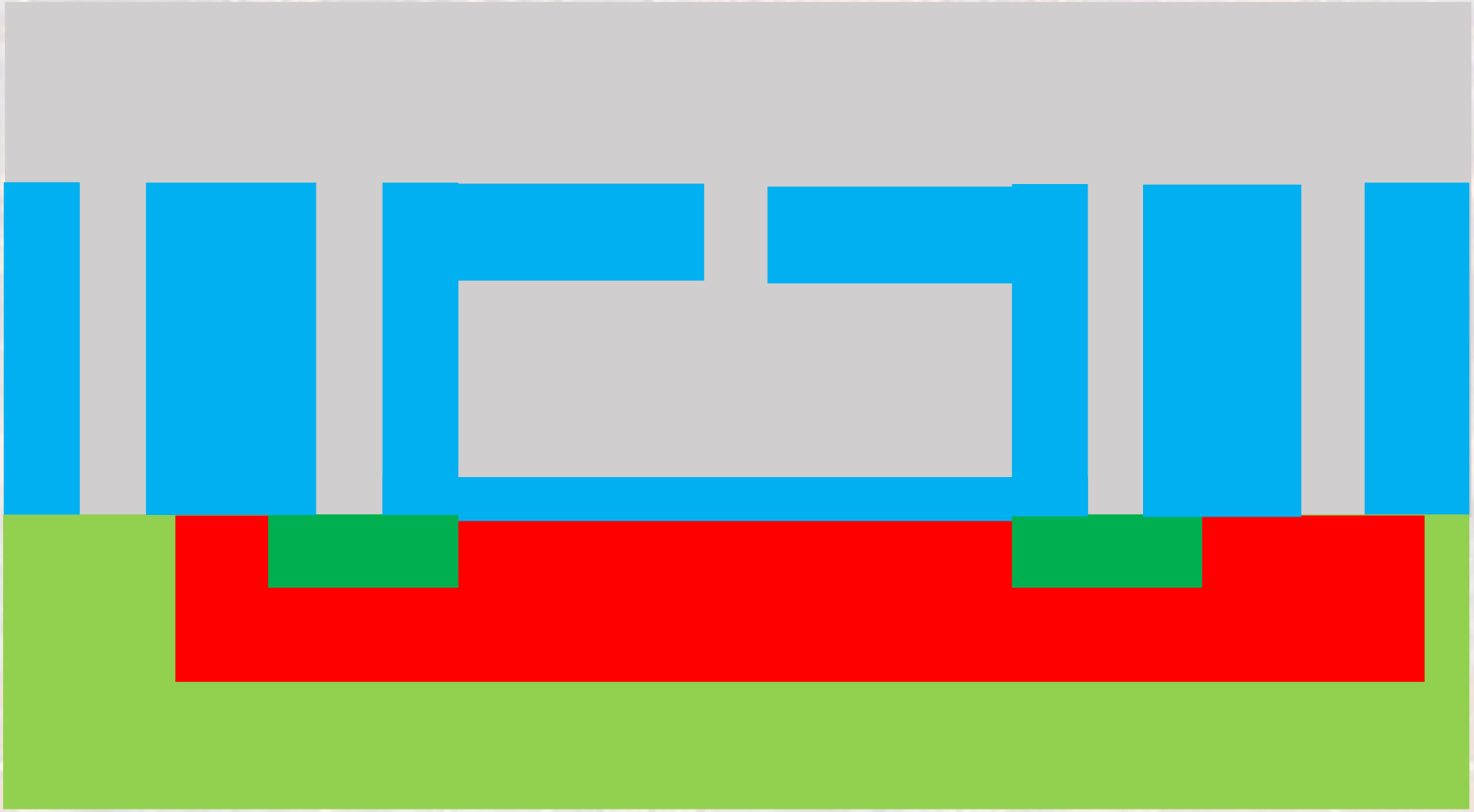
- Pattern and etch for contacts



Planer CMOS Processing

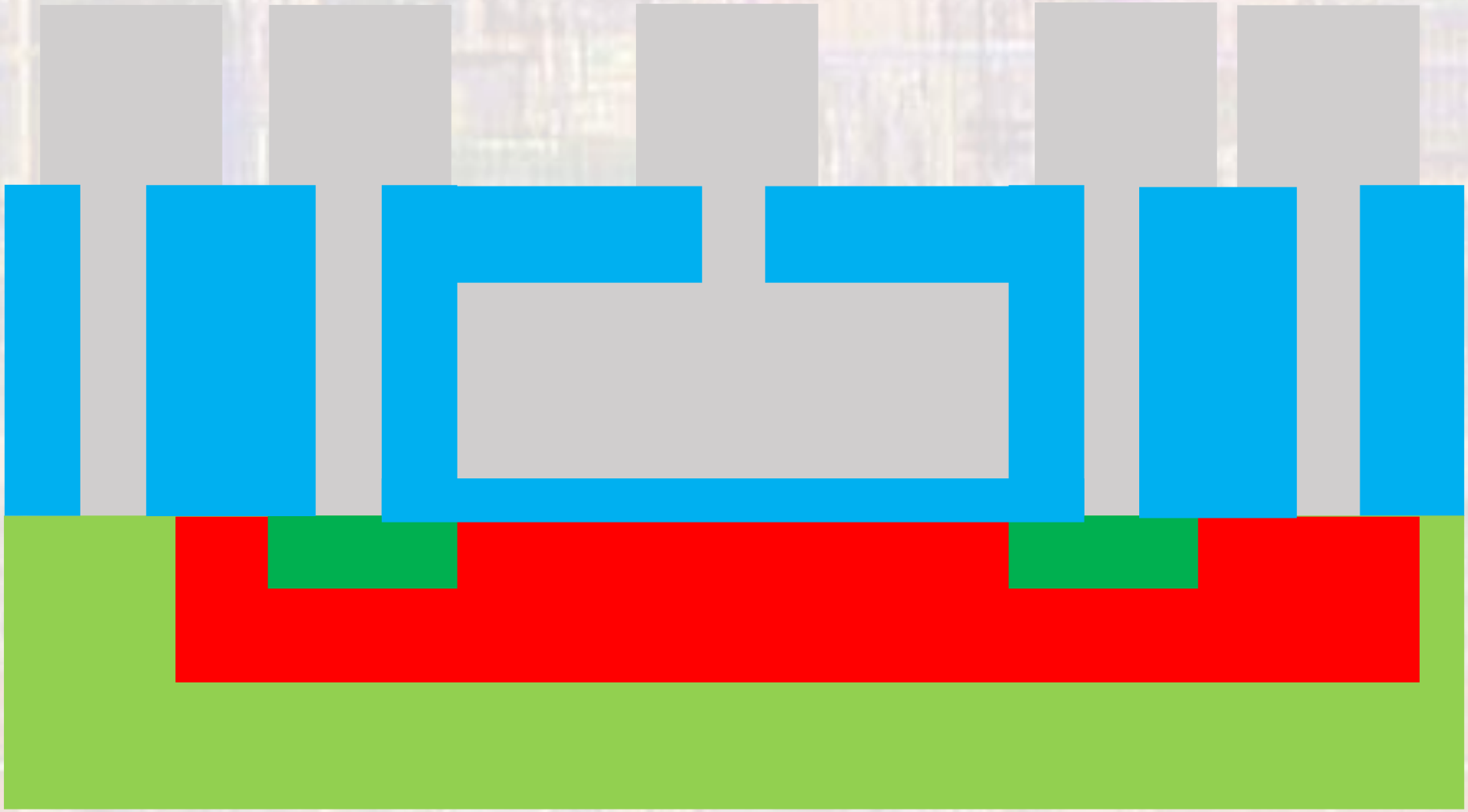
- Deposit interconnect metal

N-Channel



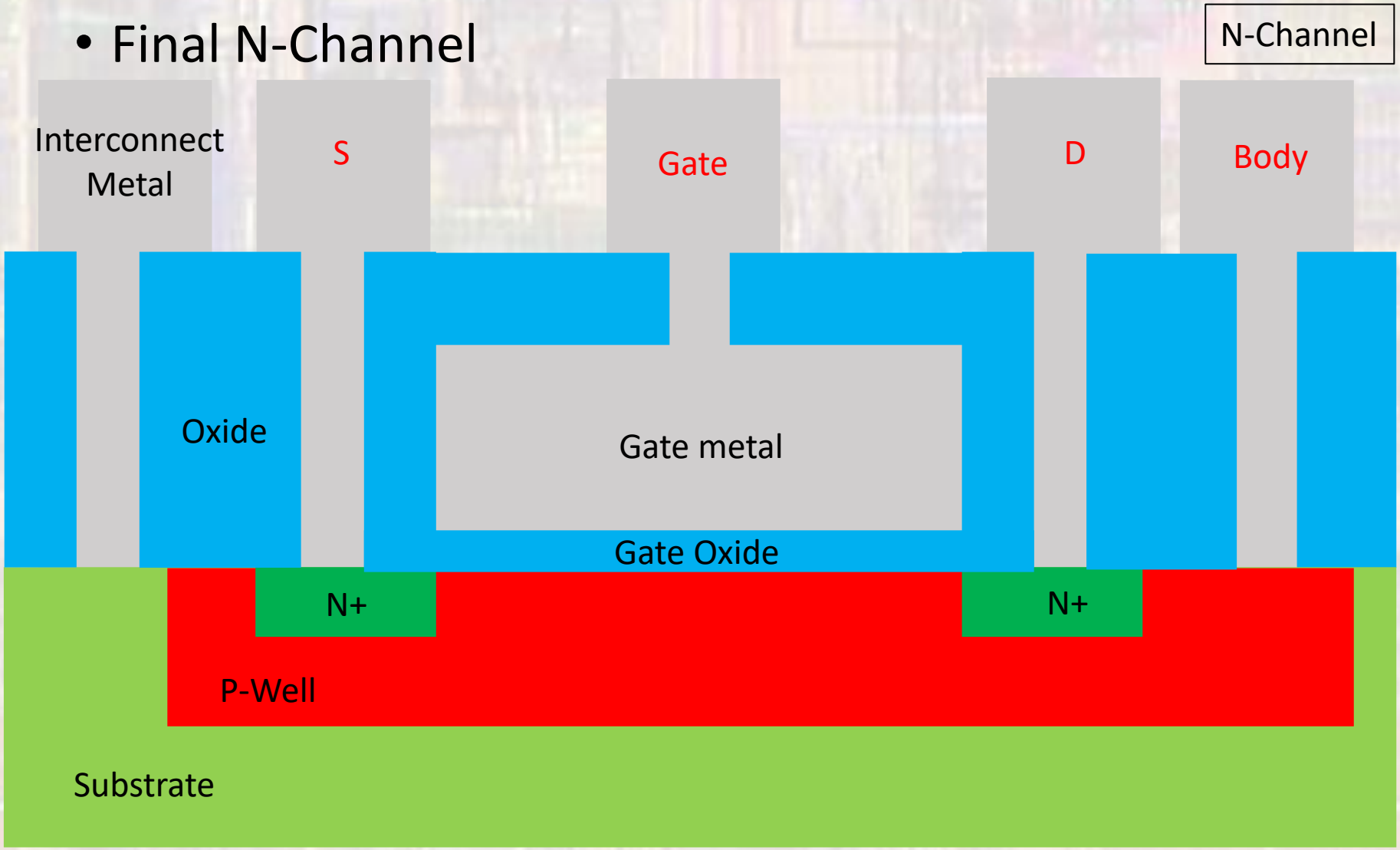
Planer CMOS Processing

- Etch interconnect metal



Planer CMOS Processing

- Final N-Channel



Planer CMOS Processing

- Final P-Channel