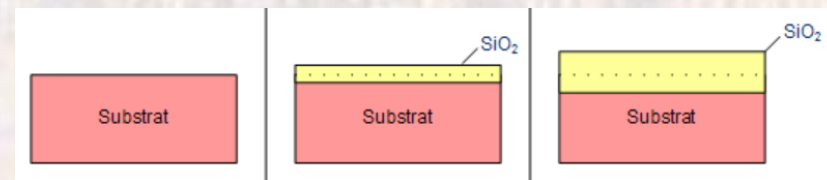


# Oxidation

Last updated 3/5/19

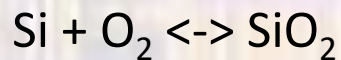
# Oxidation

- Oxidation
  - The conversion of Si to  $\text{SiO}_2$ 
    - $\text{SiO}_2$  used as an insulator in semiconductors
    - Some of the Si is consumed in the process
    - $\text{SiO}_2$  is less dense than Si
    - Performed at high temp (1000 °C)



Growth:  
54% above original surface  
46% below original surface

- Dry Oxidation



- Wet Oxidation



# Oxidation

- Oxidation
  - Si oxidizes at room temperature
    - A few atomic layers worth of  $\text{SiO}_2$  form naturally (skin)
    - Wafer processing requires regular etching of this thin layer whenever direct access to the Si is desired

