



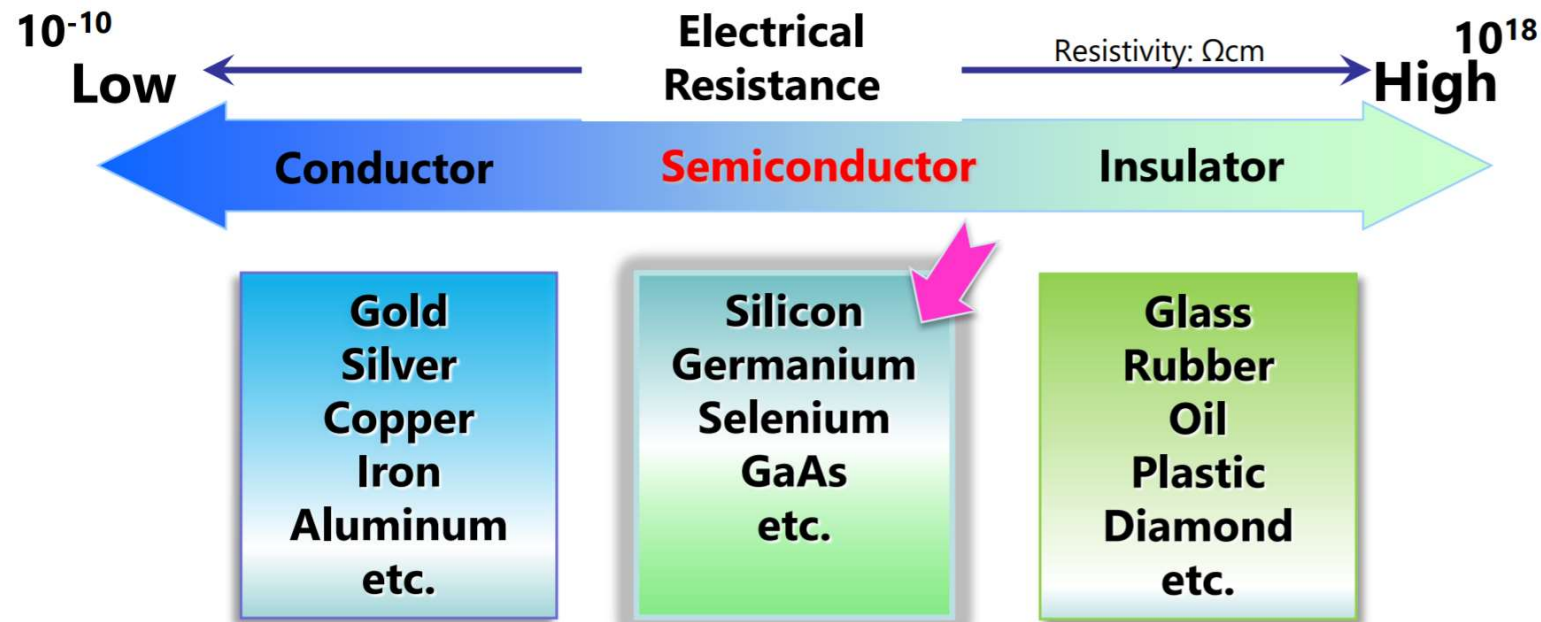
# Semiconductor Device

---

LECTURE 1

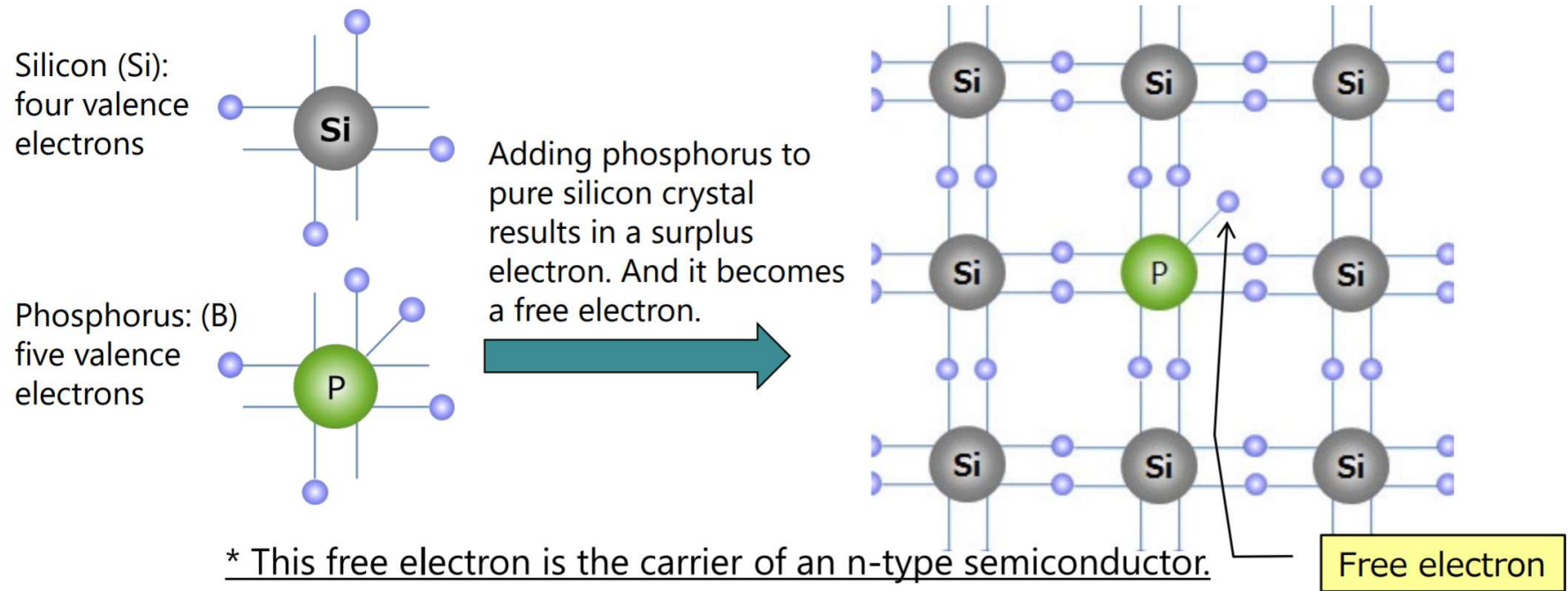
DR. SK WIJAYASEKARA

# What is a Semiconductor?



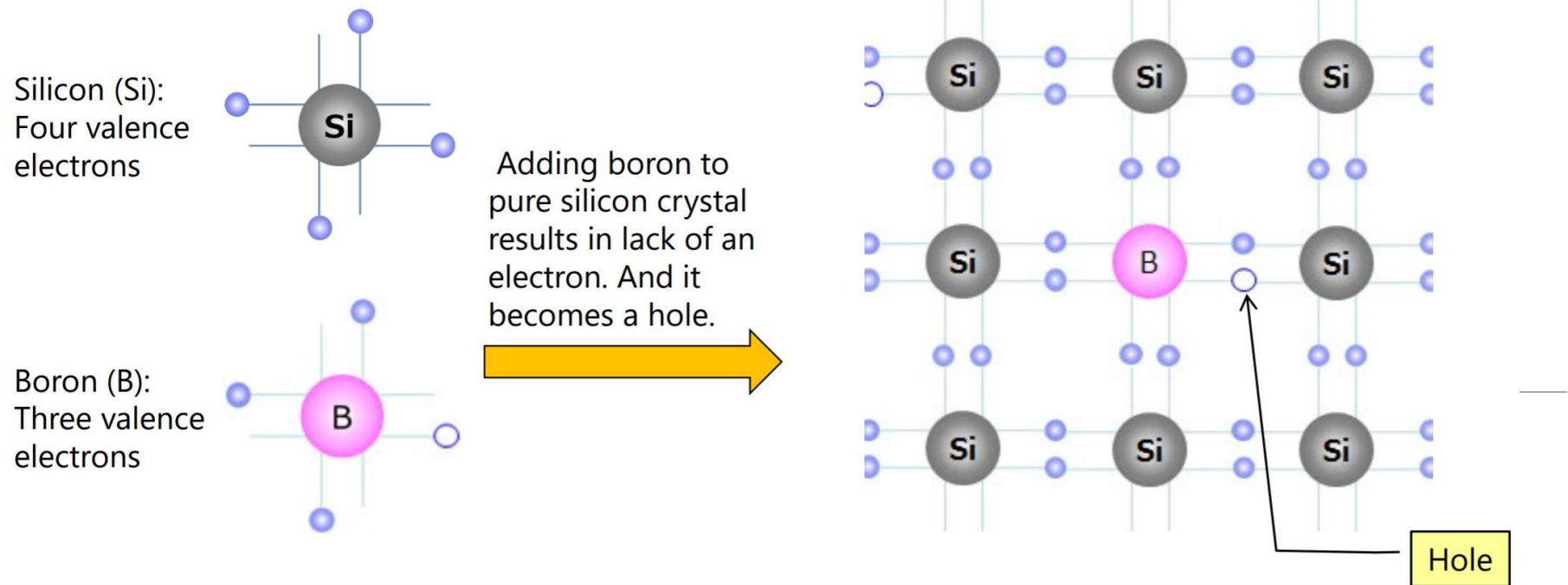
Source : Toshiba Electronic Devices & Storage Corporation

# n-type Semiconductor



Source : Toshiba Electronic Devices & Storage Corporation

# p-type Semiconductor



Source : Toshiba Electronic Devices & Storage Corporation

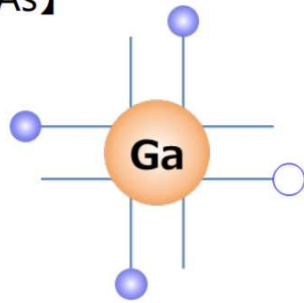
# What is a Compound Semiconductor?

Typical compound semiconductors

Group II-VI: ZnSe    Group III-V: GaAs, GaN, InP, InGaAlP, InGaN    Group IV-IV: SiC, SiGe

【Example of GaAs】

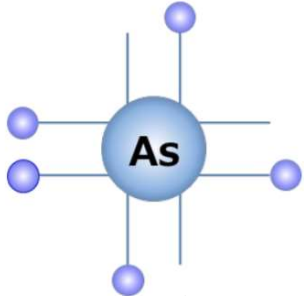
Gallium:  
three valence  
electrons



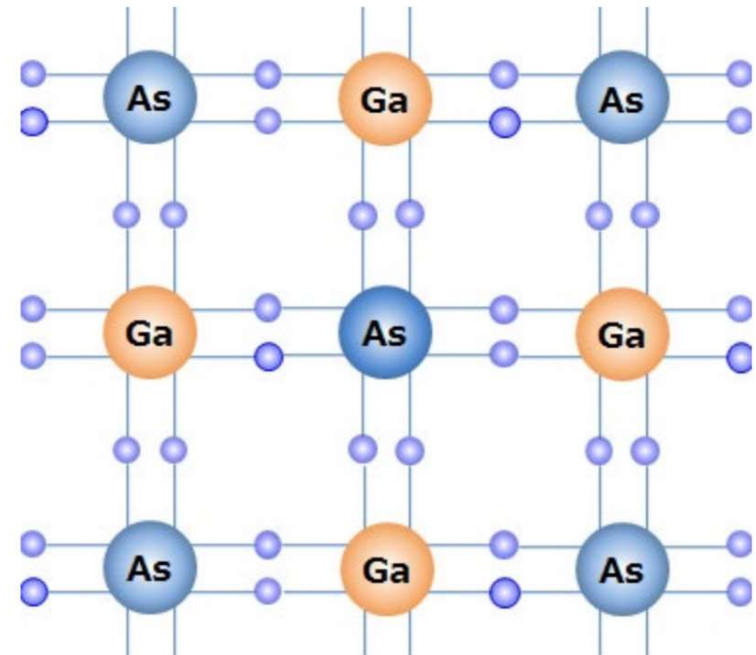
More gallium than arsenic  
makes  
p-type semiconductor.



Arsenic:  
five valence  
electrons

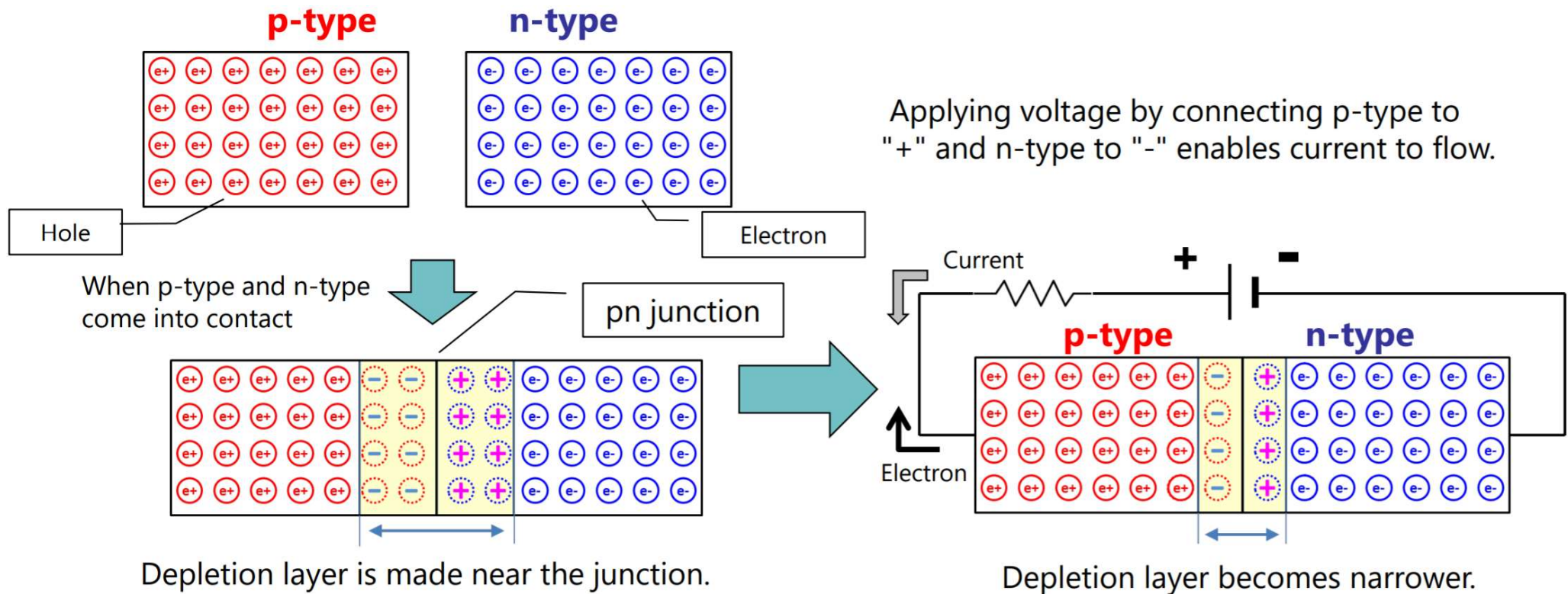


More arsenic than gallium  
makes  
n-type semiconductor.



Source : Toshiba Electronic Devices & Storage Corporation

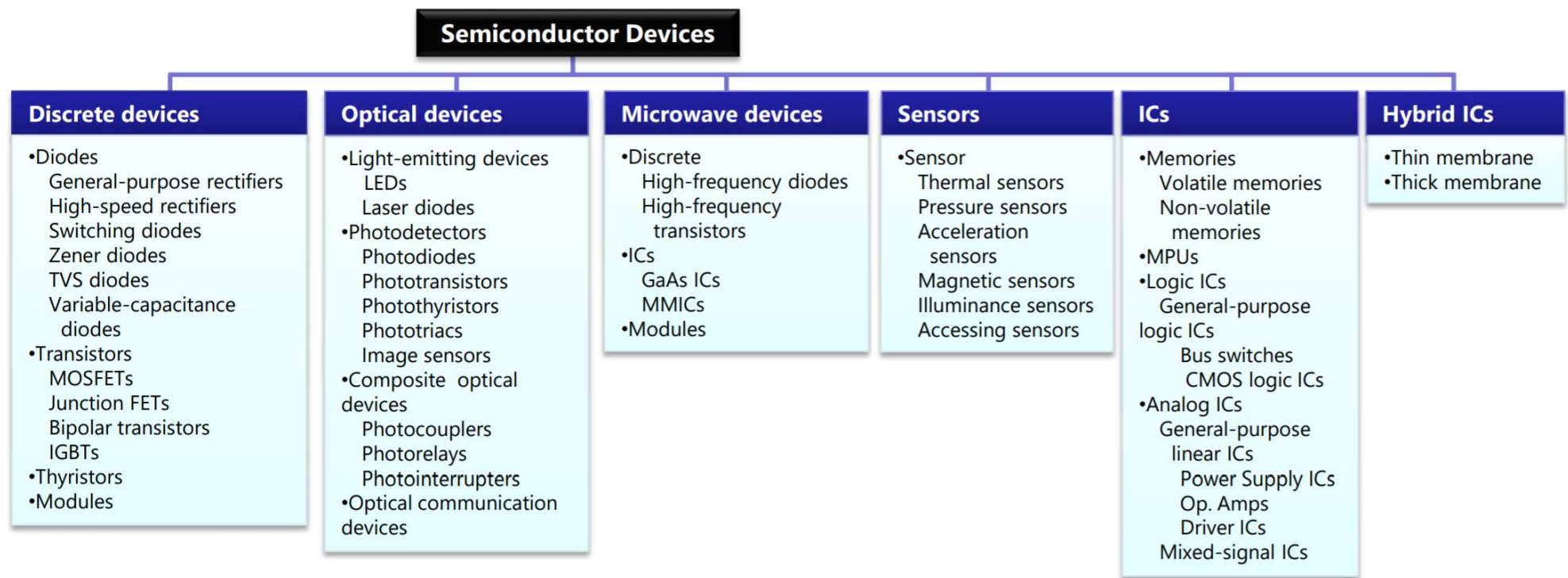
# What is a pn Junction?



Source : Toshiba Electronic Devices & Storage Corporation



# Types of Semiconductor Devices



---

Thank You

A solid orange horizontal bar spanning the width of the slide at the bottom.