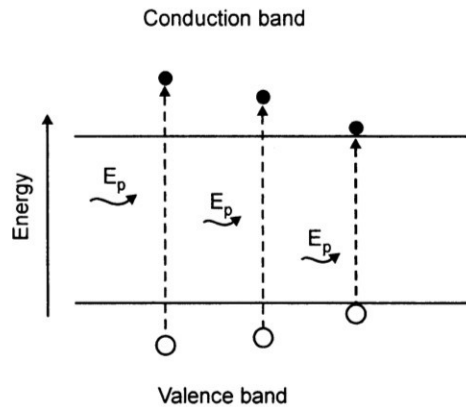


# Unit-4

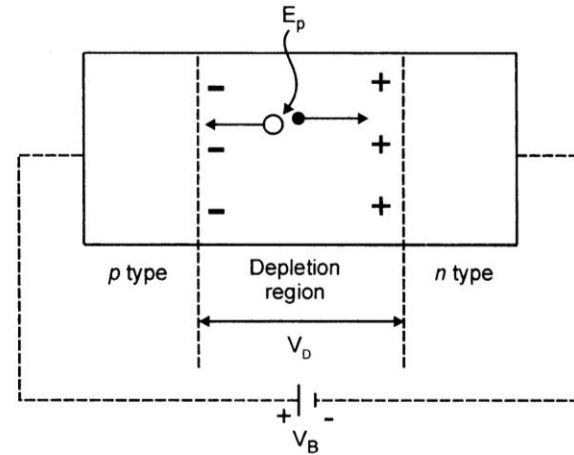
## Lecture -2

PIN Photodiode, Structure, Working

# PIN photodiodes

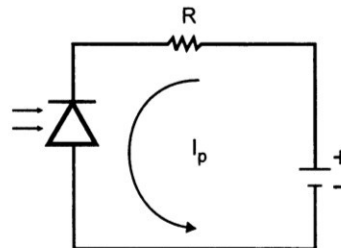


Energy-band diagram



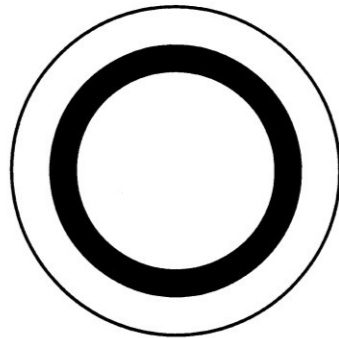
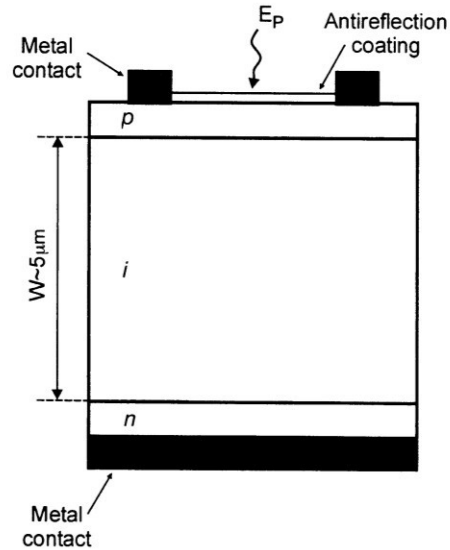
p-n junction

● -Electrons  
○ -Holes

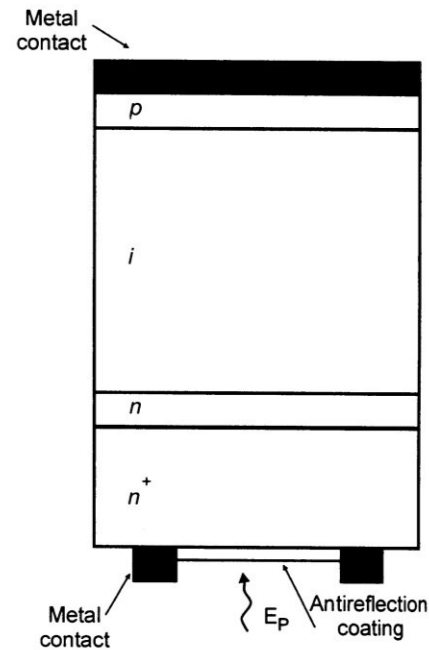


Electrical Circuit

# Basic PIN Photodiode Structure

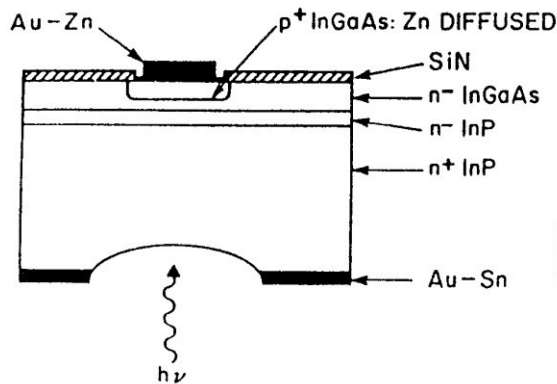


Front Illuminated Photodiode

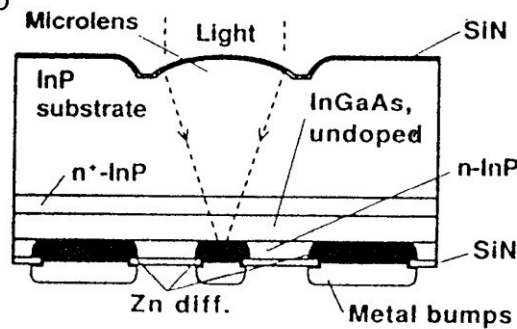


Rear Illuminated Photodiode

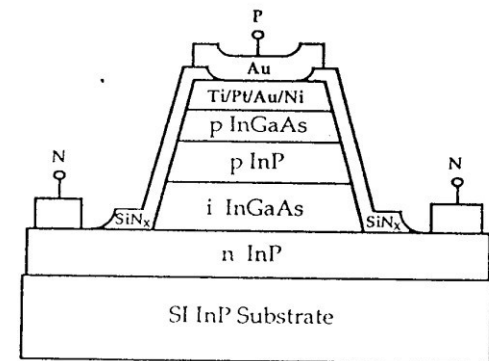
# PIN Diode Structures



Diffused Type  
(Makiuchi et al. 1990)



Diffused Type  
(Dupis et al 1986)



Etched Mesa Structure  
(Wey et al. 1991)

Diffused structures tend to have lower dark current than mesa etched structures although they are more difficult to integrate with electronic devices because an additional high temperature processing step is required.