



# **SNS COLLEGE OF TECHNOLOGY**

**(An Autonomous Institution)**



**COIMBATORE-35**

**Accredited by NBA-AICTE and Accredited by NAAC – UGC with A+ Grade  
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai**

**DEPARTMENT OF BIOMEDICAL ENGINEERING**

**COURSE NAME: 19EIB201/ ELECTRONIC DEVICES**

**II YEAR / III SEMESTER**

**Unit 1 – Transistors**

**Topic 2: Opto Isolators**



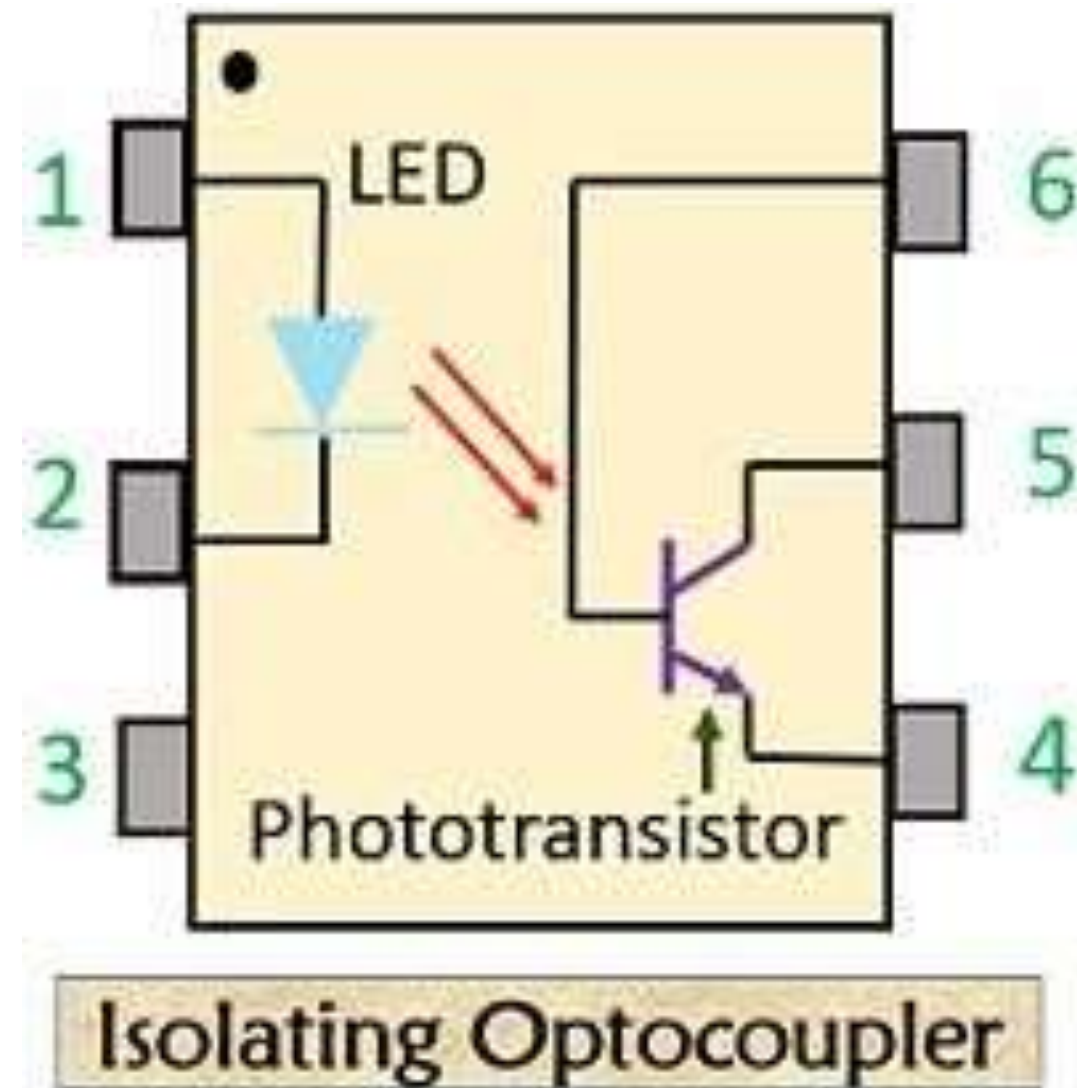


# Optocouplers

- An optocoupler or optoelectronic coupler is an electronic component that basically acts as an interface between the two separate circuits with different voltage levels.
- Optocouplers are common component by which electrical isolation can be supplied between the input and output source.
- It is a 6 pin device and can have any number of photodetectors.
- In high voltage applications where the voltage difference between the two circuits differs by several thousand volts, such isolation is favourable.
- Isolated circuits are the circuits which do not have a common conductor in between them and proper isolation is maintained.



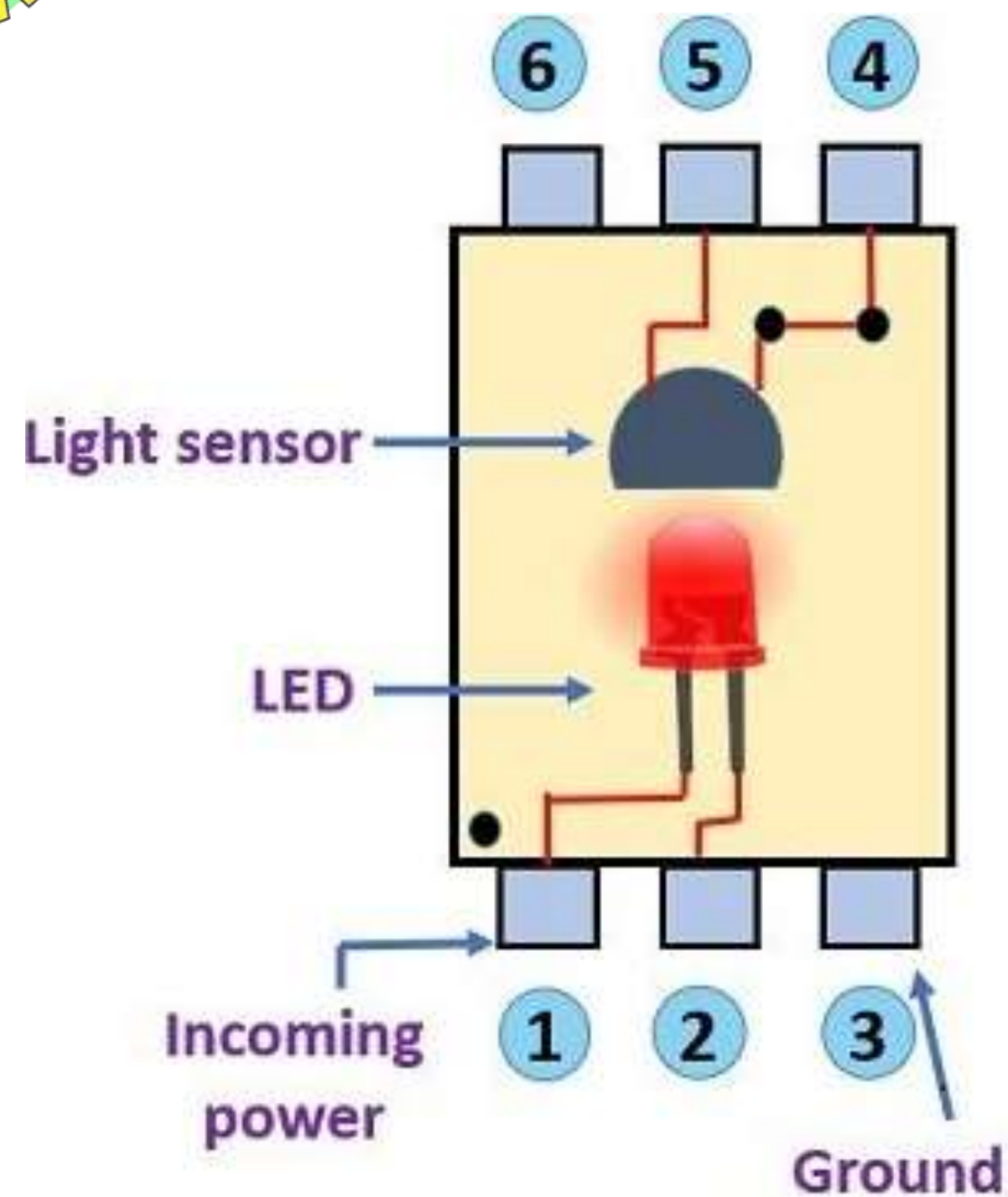
# Construction of Optocoupler



- An optocoupler mainly consists of an infrared LED and a photosensitive device that detects the emitted infrared beam.
- The semiconductor photosensitive device can be a photodiode, phototransistor, a Darlington pair etc.
- The LED is kept on the input side and the light-sensitive material is placed on the output side. A resistance is connected at the beginning of the circuit which is used to limit the current.



# Pin Diagram of Optocoupler

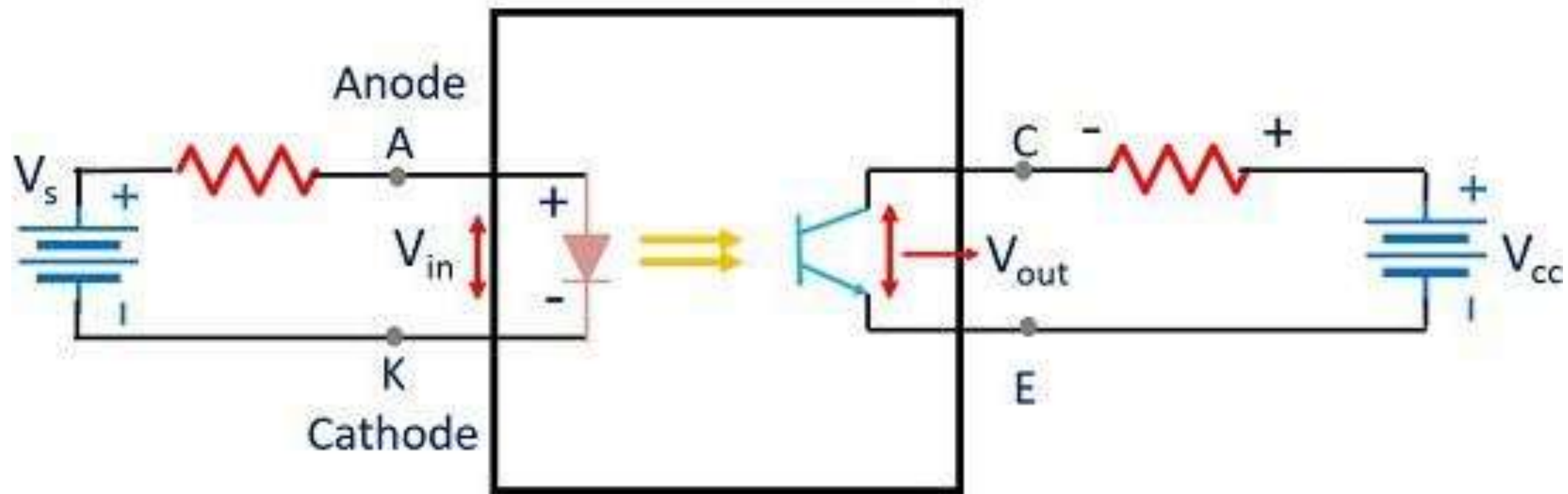


Pin Diagram of an Optocoupler

- Pin 1: Anode
- Pin 2: Cathode
- Pin 3: Ground
- Pin 4: Emitter
- Pin 5: Collector
- Pin 6: Base



# Working Of an Optocoupler



LED Driving a Phototransistor



# Advantages & Disadvantages



Advantages	Disadvantages
Optocouplers allow easy interfacing with logic circuits.	The operational speed of Optocouplers is low.
Electrical isolation provides circuit protection.	In case of a very high power signal, the possibility of signal coupling may arise.
It allows wideband signal transmission.	
It is small in size and lightweight device	



# Applications

- 1.It is used in high power inverters.
- 2.It is used in high power choppers.
- 3.In AC to DC converters optocouplers are widely used.



# SUMMARY





# ASSESSMENT

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Dear student,

Quiz is posted in your Google class room

Allotted time for quiz is 5 min

No of Questions is 10





KEEP  
LEARNING..  
**Thank u**

SEE YOU IN NEXT CLASS