What is Photcoupler and how it's Works, full explain

مستر نوب Last update : few days ago 3 Minutes to read

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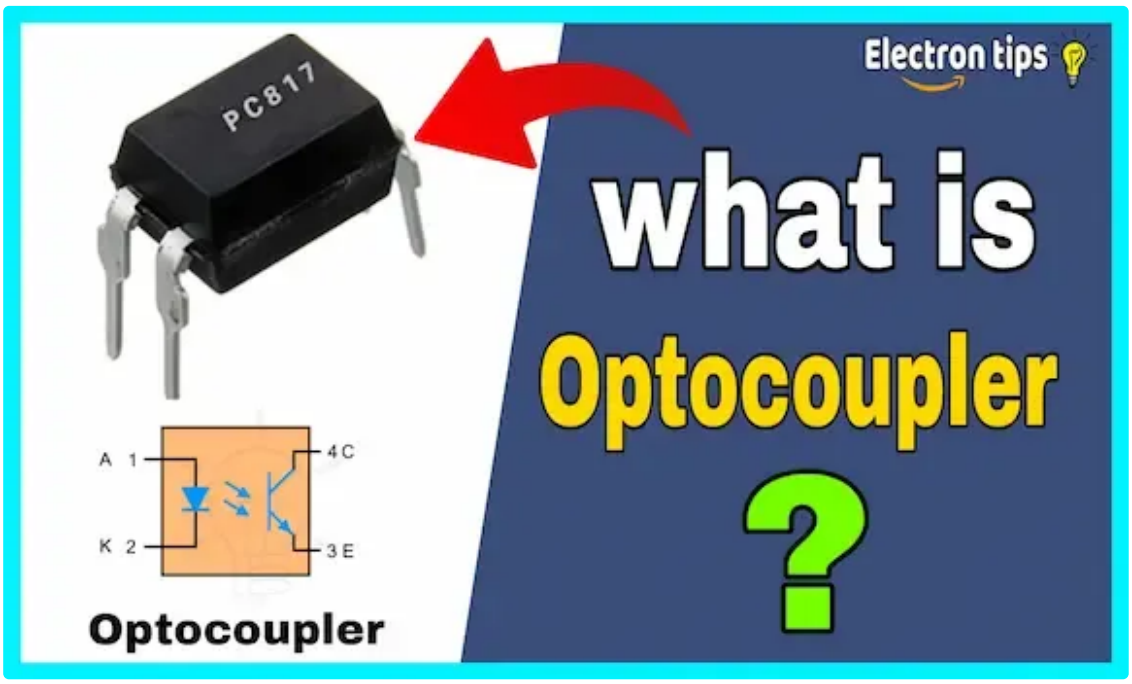


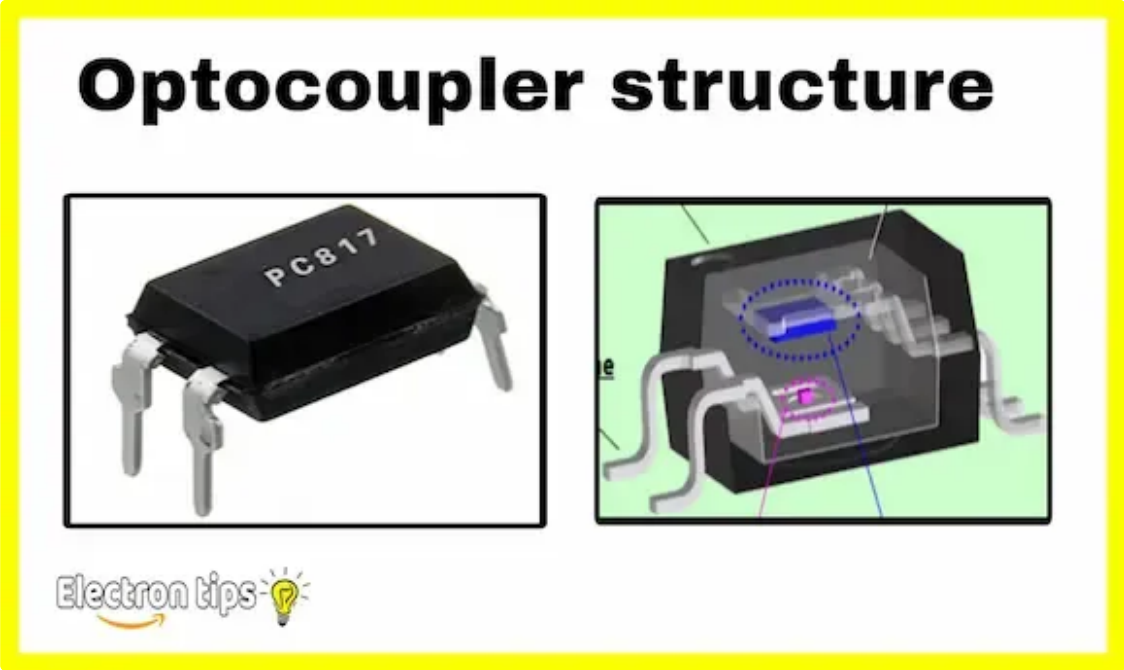
Photocobler explain

What is Photcoupler and how it's Works, full explain

Welcome to the course explaining electronic elements from for beginners on our website Electron Tips , the topic of this post will be about the optocoupler element , the Optocoupler is used to separate and connect electronic circuits and is also called photocobler, so what is the photocoupler ? How we use photocobler in electronic circuit ? What is Photcoupler structure ? All these questions we will try to answer in this tutorial.

Optocoupler Definition:

A photocoupler is a small electronic component that is very similar to an integrated circuit 555 ICs in terms of shape only. The photocoupler element has four terminals and may contain six terminals.



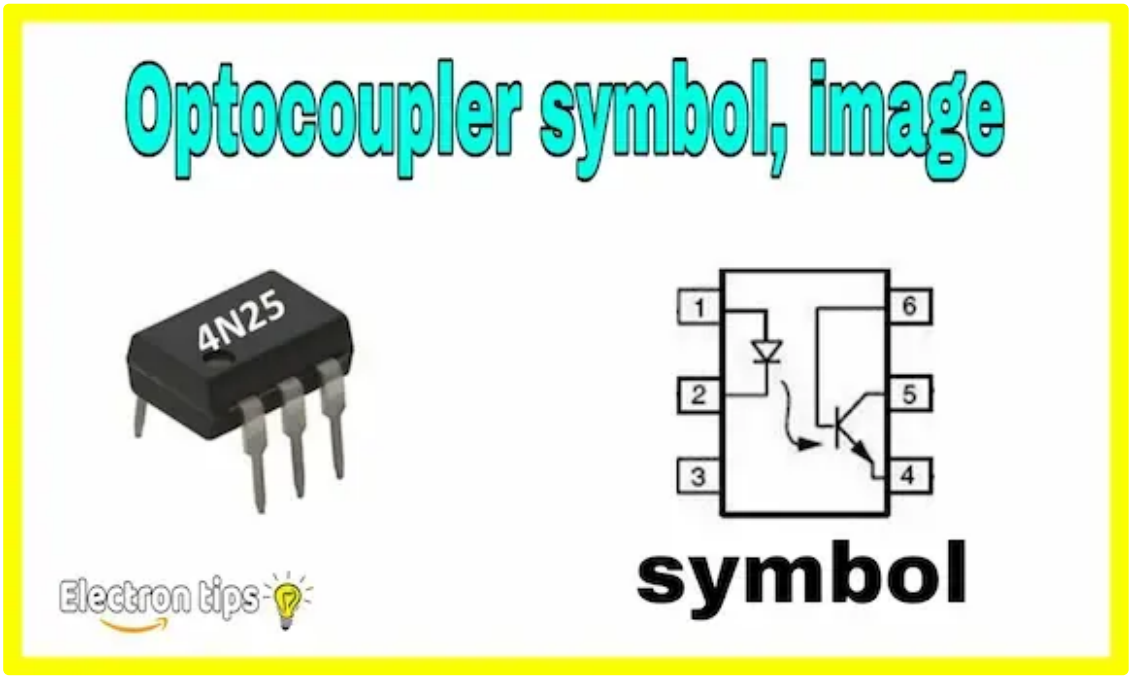
Optocoupler structure

The technology for making the photocoupler is very simple, as it contains an LED lamp inside it in addition to a light sensor called " Photodiode or transistor " allows the connection or disconnection of electrical current from electronic circuits and is widely used with the Arduino piece, It can also be used separately in various electronic circuits.

One of the advantages of the optocoupler piece is that it consumes very little electrical energy compared to other electronic elements such as the thyristor, the triac and the relay, in addition to the control period or the period of connection and disconnection is very short and is estimated at fractions of a second, this is what makes the optocoupler element very suitable, for electronic control circuits.

Optocoupler Symbol :

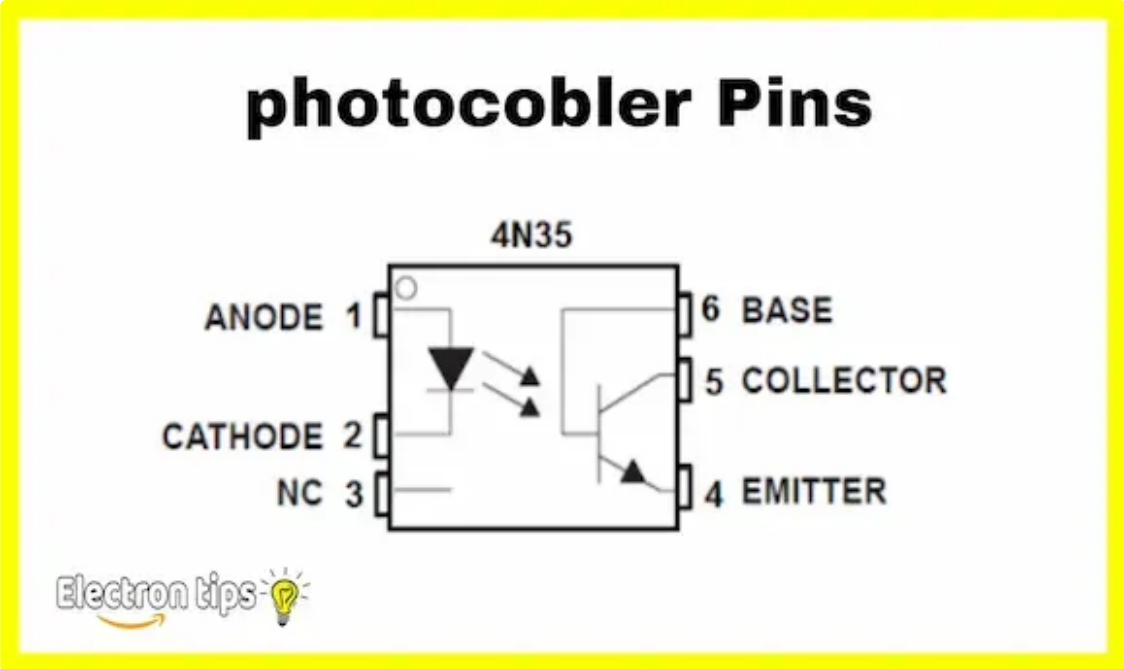
This is the symbol of Optocoupler:



Optocoupler symbol

Optocoupler working principle:

As we said, the photocoupler contains an LED lamp and another semiconductor electronic component, a "transistor or Photodiode" When the photocoupler element is connected to an external electronic circuit, the LED emits a light beam, which in turn induces a small electrical current at the base of the internal transistor, thus passing a current, There is an electrical connection at the collector and emitter ends of the internal transistor, This picture shows the terminals of the optocoupler.



Optocoupler pins

Terminal 1: Anode.

Terminal 2: Cathode.

Terminal 3: Collector.

Terminal 4: Emitter.

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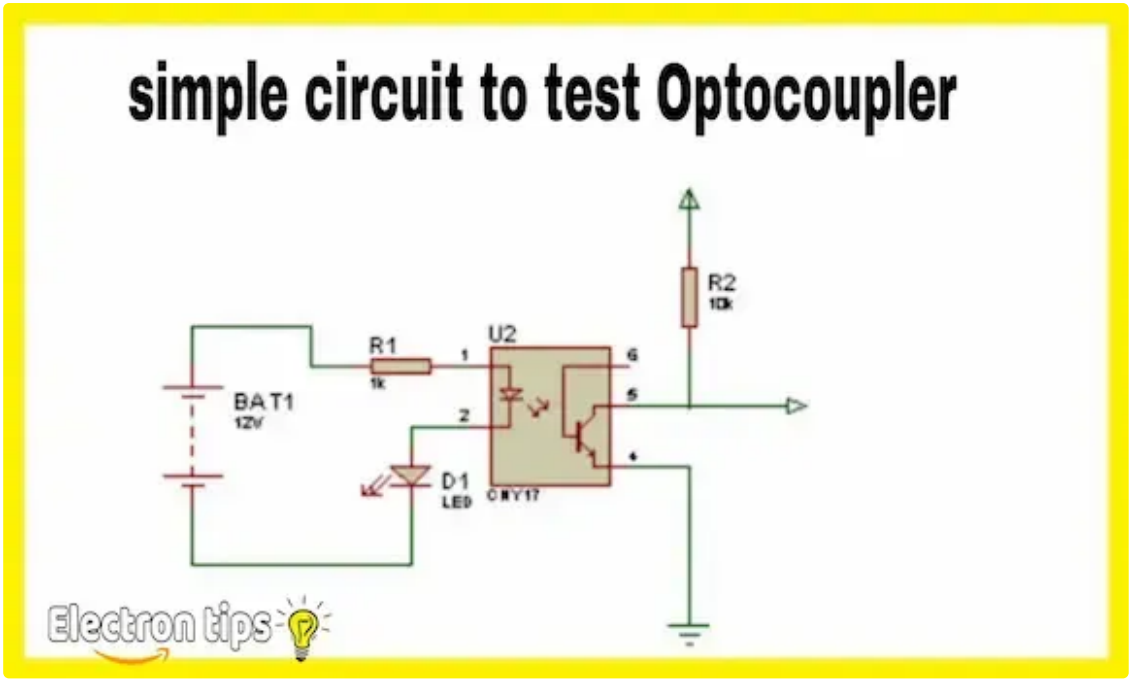
How to test Optocoupler:

This simple electronic circuit allows us to check whether the optocoupler is working well or not.



How to test Optocoupler

photocobler applications :

Optocoupler is used for electrical isolation between circuits. It prevents noise interference and excessive currents from the front circuit to the back circuit, and vice versa. This device is used in multiple applications, such as protecting electronic devices, controlling devices remotely, and achieving electrical isolation in industrial measurement and control systems.

Conclusion :

In conclusion, this was a detailed topic about the photocoupler element, which allows us to control electronic circuits, there are many other applications for this electronic compound, and soon we will work on them. I hope the explanation is clear to you.