

OPTO COUPLER IC, ADVANTAGES AND APPLICATION

Advantages of Optocoupler:

- Control circuits are well protected due to electrical isolation.
- Wideband signal transmission is possible.
- Due to unidirectional signal transfer, noise from the output side does not get coupled to the input side.
- Interfacing with logic circuits is easily possible.
- It is small size & light weight device.

Disadvantages:

- Slow speed.
- Possibility of signal coupling for high power signals.

Applications:

Optocouplers are used basically to isolate low power circuits from high power circuits.

- At the same time the control signals are coupled from the control circuits to the high power circuits.
- Some of such applications are,
 - (i) AC to DC converters used for DC motor speed control
 - (ii) High power choppers
 - (iii) High power inverters
- One of the most important applications of an optocoupler is to couple the base driving signals to a power transistor connected in a DC-DC chopper.
- Note that the input & output waveforms are 180° out of phase as the output is taken at the collector of the phototransistor.

Optocoupler IC:

The optocouplers are available in the IC form MCT2E is the standard optocoupler IC which is used popularly in many electronic application.

- This input is applied between pin 1 & pin 2. An infrared light emitting diode is connected between these pins.
- The infrared radiation from the LED gets focused on the internal phototransistor.
- The base of the phototransistor is generally left open. But sometimes a high value pull down resistance is connected from the Base to ground to improve the sensitivity.
- The block diagram shows the opto-electronic-integrated circuit (OEIC) and the major components of a fiber-optic communication facility.

