

Answer on Question #47133 – Physics – Other

state the use of resistors, insulators and semiconductors in an electric circuit

Solution:

A *resistor* is a passive two-terminal electrical component that implements electrical resistance as a circuit element. Resistors act to reduce current flow, and, at the same time, act to lower voltage levels within circuits.

Thus, The resistor is the most common electronic component and is used to limit and/or **control the voltage and current** in an electronic circuit. Resistors are carefully manufactured to provide a predetermined value of electrical resistance which may range from 0.1 ohms to 100,000,000 ohms, depending on the application.

An *electrical insulator* is a material whose internal electric charges do not flow freely, and therefore make it very hard to conduct an electric current under the influence of an electric field in a circuit.

Thus, an isolator used to **isolate a section of a circuit** from any energised conductors, by presenting a visible break in the circuit.

A *semiconductor* is a material which has electrical conductivity **between that of a conductor** such as copper **and that of an insulator** such as glass. Semiconductors are the foundation of modern electronics, including transistors, solar cells, light-emitting diodes.

Thus, a semiconductor is a device can act as **either a conductor or resistor / insulator** depending upon certain conditions.