

I-V Characteristics of Solar Cell (I)



General Aim

To study the I-V characteristics of a solar cell (or PV cell) in dark and under illumination conditions.

Method

Simple circuit to study I-V with a lamp.

Learning Objectives (ILOs)

- Describe the construction and operation of the PV cell.
- Enumerates the different factors that may affect the operation of the PV cell.
- Analyze the equivalent circuit of the PV cell and its parameters.

Theoretical Background/Context

Solar cells are generally made from semiconducting materials, which are sensitive to structural and environmental factors, e.g, the light intensity, which depends on the power delivered by the solar cell.

Principle of Work

The solar cell is connected in a series circuit consisting of variable resistance, dc battery, ammeter and voltmeter that is connected in parallel to the cell. By continuously varying the value of the load resistance, we can obtain the I-V characteristics at different bias voltage and light intensity.