



This is an experiment to be performed on commercially available diodes viz. germanium or silicon diodes, and also on The base-emitter/collector-base junctions of a transistor. The results of the experiments not only give the device characteristics but also provide an insight into the properties of the materials used in the fabrication of the junction. In the set-up, all the necessary instrumentation is integrated as a result of which a minimum of external connections need to be made by the user.

### **SPECIFICATIONS :**

Experiment setup for Study of The Energy Band-Gap and Diffusion Potential Of P-N junctions

The experiment should be capable of performing following experiments:

- 1.Reversesaturationcurrent and material constant
- 2.Temperature coefficient of junction voltage
- 3.Energy band-gap
- 4.Junction capacitance

The apparatus should consist of:

- (i) P-N Junction set up with
  - (a) 3½ digit DPM for current/temperature measurements.
  - (B) 3½ digit DPM for bias voltage/junction voltage measurements.
  - (C)Two fixed frequency oscillators
- (ii) Fast temperature-controlled oven with 5mm holes for fast cooling. Complete with RTD sensor.
- (iii) Set of three different PN junction diodes

The unit should be supplied complete with a detailed instruction manual. Complete unit housed in metal cabinet of with effective electromagnetic shielding. Proper cables for connection with oscilloscope should be included with the setup.

The set should be complete in all respects and should have a well-documented and detailed instruction manual

Photographs are for reference only final product may vary from

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