Semiconductor Diode, Zener Diode & LED Characteristics

Model : SA-110

SINCOM SA-110 Semiconductor Diode, Zener Diode and LED Characteristics is very useful to study the V-I characteristics of Silicon, Germanium PN Junction Diodes, Zener Diode and Light Emitting Diode (LED). The trainer is simply designed to plot PN Junction Diode, Zener diode, LED characteristics and determine its various parameters in a simple experimental way. The trainer is without meters and has the facility to connect the external analog or digital voltmeter and ammeter in the circuit.

Features

- DO-41 Silicon and Germanium Diodes package.
- Zener Diode used is Silicon Planer Power in DO-41 package
- Silicon & Germanium PN Junction diodes, two Zener Diodes and one Red color LED are provided
- PN Junction Diodes used are having Higher average forward current and Non-repetitive Peak forward surge current, Higher Peak repetitive Reverse voltage and Power dissipation.
- Zener Diodes used are having Low forward voltage drop and High operating Temperature range.
- LED used is having Red Color, 5mm Diameter and convex front.
- Current controlling resistor in series
- Facility to vary wide range of applied DC input voltage
- In-Built Variable regulated DC Power Supply
- Multi color Circuit Diagram is printed on the front of the white board
- Enclosed in an attractive, light weight, High Quality, Poly Coated Imported Pine Wooden cabinet
- Facility to connect the external Digital/ Analog Voltmeter and Ammeter
- Easy to select the different types of Diodes
- User friendly Designed
- Very Easy for Operation
- Interconnections by 2mm high quality banana sockets and pins
- Maximum Test points to explore all the corners of experiment
- 1 Year Warranty

Technical Specifications

- AC Mains Power Supply : 230 ±10%, 50Hz
- DC Power Supply : IC Regulated Variable 0V to +12V / 500mA
- Diodes Used : Two PN Junction Diodes, Two Zener Diodes and One LED
- Diode Package : DO-41 Tape and Reel type for PN Junction and Zener
- Pin Count : Two
- Current Controlling Resistor : MFR 1KΩ, ±5% in series
- For PN Junction Diodes
  - Diodes Used : Silicon and Germanium PN Junction
  - Reverse current : 5µA at T_A= 25^0c, 50µA at T_A= 100^0c
  - Peak forward surge current : 30A
  - Peak repetitive Reverse voltage : 1000V

- Power dissipation : 3W maximum.
- Total Capacitance : 15 PF at V_R=4.0 V and F=1.0MHZ

- For Zener Diodes
  - Zener Diodes Used : Two Nos.
  - Zener Voltage : 5.6V and 6.2V ±10%
  - Forward Voltage Drop : 1.2V at T_A= 25^{0}c
  - Surge current : 810 - 730mA at T_A= 25^{0}c,
  - Maximum Regulator current : 162mA at T_A= 50^{0}c
  - Reverse leakage current : 10µA at T_A= 25^{0}c
  - Power dissipation : 1W maximum
  - Junction Temperature : 200^{0}c
  - Maximum Dynamic Impedance : 700 Ω at T_A= 25^{0}c
- For Light Emitting Diode (LED)
  - Diodes Used : Light Emitting Diodes (LEDs)
  - Total LEDs Used : One
  - LEDS color : Red
  - LED Diameter : 5mm
  - Front : Convex
  - LED Current : 10mA
  - Operating Voltage : 2V
  - Viewing angle : 40^0
  - Maximum Forward Current : 25mA
- Weight : 2.0 kg (approx)
- Dimensions (mm) : L 220 x W 270 x H 110
- Interconnections : 2mm Banana sockets
- Operating Temperature : 0-50^{0}C, 80% RH

Learning Scope

- To Study the Forward & Reverse characteristics of Silicon and Germanium PN Junction Diodes.
- To Determine Forward static & dynamic resistance of diode at a given operating point.
- To Study and plot the Forward & Reverse characteristics of Zener Diodes.
- To Determine the Zener Voltage Vz from the reverse characteristics of Zener Diode.
- To Study Forward characteristics of Red, Yellow and Green colors Light Emitting Diodes (LED).
- To Observe & Note the Change in the Intensity & Voltage across LEDs w.r.t. applied forward Voltage.

Other Instruments Required

SINCOM Digital Multi VI meter (DMVI) : Model DMVI-01 Range V_1-2V, I_1-2mA,V_2-20V,I_2-20mA DC

Accessories Included

Set of Patch Cords and Details Instruction Manual.

Subject to Change