Characteristics of All Diodes

(PN Junction, Zener, Schottky, Light Emitting Diode LED, Varactor Diode)

Model : SA-111

SINCOM SA-111 Characteristics of All Diodes is an **All-In-One Trainer** to study the V-I characteristics of Silicon, Germanium PN Junction Diodes, Zener Diode, Schottky Diode, Light Emitting Diode LED and Varactor Diodes. All these diodes have a specific application in the various electronic circuits. This combine trainer of all diodes is simply designed to plot PN Junction Diode, Zener diode, Schottky, LED, Varactor Diode 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

- PN Junction, Zener, Schottky, LED and Varactor Diodes are provided.
- Silicon & Germanium PN Junction diodes, two Zener Diodes, one Schottky Diode, one Red color LED and one Varactor Diodes 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.
- Schottky Diode used is having Low forward voltage drop and High Operating frequency
- Varactor Diode used is having Low power, Large variation in junction capacitance
- DO-41 Diodes package
- 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 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, One Schottky Diode, One LED and One Varactor Diode.
Diode Package	: DO-41 Tape and Reel type
Diodes 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^{0}c, 50µA at T_A= 100^{0}c
  - 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 Schottky Diode
  - Diodes Used : One Schottky Diode-Si type
  - Input Signal Frequency : Sine wave 2MHz max
  - Forward current : 1A
  - Junction Temperature : -65 to +125^{0}c
  - Forward Voltage Drop : 1.0 V @
  - Power dissipation : 1W maximum
- 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
- For Varactor Diode
  - Diodes Used : Varactor Diode (01 No.)
  - Capacitance Ratio : High
  - Maximum Reverse Voltage : 12V
  - Power dissipation : 1W maximum
- Weight : 3.0 kg (approx)
- Dimensions (mm) : L 245 x W 320 x H 115
- Interconnections : 2mm Banana sockets
- Operating Temperature : 0-50^{0}C, 80% RH

Learning Scope

- To Study and Plot 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 and plot the characteristics of Schottky Diode. To Study the rectification characteristics of Schottky Diode with respect to change in Input Signal frequency upto 2MHz.
- 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.
- To Study the V- I characteristics of Varactor Diode. To Observe & Note the change in Capacitance C with respect to change in applied reverse Voltage across Varactor Diode.

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. Oscilloscope, Function Generator, Capacitance Meter or Digital Multimeter.

Accessories Included

Set of Patch Cords and Details Instruction Manual

Subject to Change