MOSFET and IGBT Characteristics

Model : SA-121

SINCOM SA-121 MOSFET & IGBT Characteristics is useful to study V-I characteristics of MOSFET and N-Channel IGBT. The power MOSFET and IGBT are mainly used in switching circuits and power electronics applications. The trainer is simply designed to plot its characteristics and determine the various operational 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

- TO-2220AB IGBT and MOSFET Transistor package
- Two separate modules of MOSFET and IGBT Characteristics
- N-Channel Enhancement type power MOSFET and N-Channel IGBT are provided
- MOSFET is low ON-State Resistance, Fast Switching and low thermal Resistance device
- Individual control of MOSFET Gate and Drain Input DC voltage
- IGBT used is having Low forward voltage drop, High switching speed , Low tail current, Latch-up free, Avalanche rated.
- Individual control of IGBT Gate and Collector Input DC voltages
- MOSFET Current controlling resistors in Gate and Drain
- IGBT Current controlling resistors in Gate and Collector
- 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
- 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

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Technical Specifications

- AC Mains Power Supply : 230V ±10%, 50Hz
- Transistor Package : TO-220
- **For MOSFET Characteristics**
  - DC Power Supply : Two Nos. Variable +12V/500mA
  - Gate-Source Voltage V_{GG} : IC Regulated variable 0V to +12V/500mA
  - Drain-Source Voltage V_{DD} : IC Regulated variable 0V to +12V/500mA
  - MOSFET Type : IRF540/840, N Channel Enhancement type
  - Gate Current Controlling Resistor : MFR 10KΩ, ±5%
  - Drain Current Controlling Resistor : MFR 10KΩ, ±5%
  - Max. Gate-Source Voltage V_{GS} : 20V DC
  - Max. Gate Threshold Voltage V_{GSth} : 4V DC
  - Drain Source Resistance (R_{DS}) : 0.85 Ohms
  - Operating Junction Temperature : -65 to +150^{0}c
- **For IGBT Characteristics**
  - DC Power Supply : Two Nos. Variable +12V/500mA
  - Gate-Emitter Voltage V_{GG} : IC Regulated variable 0V to +12V/500mA
  - Collector-Emitter Voltage V_1 : IC Regulated variable 0V to +12V/500mA
  - IGBT Type : N Channel IGBT
  - IGBT Used : BUP Series
  - Pin Count : 3 Gate, Collector and Emitter
  - Gate Current Controlling Resistor : MFR 10KΩ, ±5%
  - Collector Current Controlling Resistor : MFR 10KΩ, ±5%
  - Max. Collector-Emitter Voltage V_{CE} : 600V DC
  - Max. Collector Current Ic : 36A
  - Operating Junction Temperature : -55^0 to +150^{0}c
- 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 the Drain characteristics of N-channel Enhancement type MOSFET
- To Study the Transfer characteristics of N-channel Enhancement type MOSFET
- To Determine VGS Threshold Voltage of given MOSFET.
- To Study the V-I characteristics of N-channel IGBT.
- To Study the Transfer characteristics of N-channel IGBT.

Other Instruments Required

SINCOM Digital Multi VI meter (DMVI) : Model DMVI-06 Range V_1-20V, I_1-20mA,V_2-20V,I_2-20mA DC

Accessories Included : Set of Patch Cord and Details Instruction Manual

Subject to Change