



An ISO 9001:2015 Co.

BJT and JFET Biasing Methods

Model : SC-110

SINCOM SC-110 BJT and JFET Biasing Methods is a remarkable **All-In-One** simply designed trainer useful to study NPN BJT Base biasing & N-Channel JFET Gate biasing methods and determine the various operational parameters with a wide range of components bank in a simple experimental way. The BJT base biasing methods includes Fixed Bias and Self Base/Voltage Divide Bias method with & without Emitter Resistor, Collector to Base Biasing methods. The N-Channel JFET Gate biasing methods includes JFET Gate Bias, Self Bias, Voltage Divider Bias, Source biasing methods.

Features

- ❖ User friendly Design
- ❖ Separate Modules of BJT Base and JFET Gate Bias circuits
- ❖ All-In-One BJT base and JFET gate bias modules
- ❖ Easy selection of Various biasing methods
- ❖ Silicon NPN BJT TO-92 and JFET TO-72 Low Power Transistor packages
- ❖ Combinational Resistor Bank at BJT Base and JFET Gate
- ❖ BJT Resistor Bank at Collector to Base and Emitter
- ❖ BJT Resistive Collector Load
- ❖ JFET Resistor Bank at Drain and Source
- ❖ In-Built Dual Fixed regulated DC Power Supply
- ❖ Easy to select the different biasing resistors
- ❖ Facility to plot DC Load Line
- ❖ Very Easy for Operation
- ❖ Multi color Circuit Diagram is screen printed on the front of the white color acrylic board
- ❖ Enclosed in an attractive, light weight, High Quality, Poly Coated Australian Pine Wooden cabinet
- ❖ Facility to connect external Digital/Analog Voltmeter and Ammeter or Digital Meters
- ❖ Interconnections by 2mm high quality banana sockets and pins
- ❖ Maximum Test points to explore all the corners of experiment
- ❖ 1 Year Warranty

Technical Specifications

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| ▪ AC Mains Power Supply | : 230V \pm 10%, 50Hz |
| ▪ DC Power Supply | : IC Regulated Dual Fixed \pm 12V/500mA |
| ▪ BJT Biasing Method | : Fixed Bias and Self Bias with & without Emitter Feedback, Collector to Base Bias |
| ▪ JFET Biasing Method | : Gate Bias, Self Bias, Voltage Divider Bias & Source Bias |
| ▪ For BJT Biasing | |
| • Transistor Type and Package | : BJT-Silicon-NPN, TO-92 Package |
| • Transistor Used | : One SL/CL100 |
| • Transistor β | : @170-180 |
| • Transistor Configuration | : CE mode |



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- BJT Junction Voltage : 0.7V
- Max. Collector Emitter Voltage : 12 VDC
- Combinational Base Resistor Bank : Four- MFR 100KΩ, 180KΩ, 10KΩ and 100KΩ, ±5%
- Collector to Base Resistor Bank : Two Fixed-MFR 10KΩ & 22KΩ, ±5% and One Variable 1MΩ Potentiometer
- Emitter Resistor Bank : Two- MFR 180Ω and 0Ω, ±5%
- Resistive Collector Load : 470Ω for Fixed & Self bias, 2.2KΩ Collector to Base Bias
- **For JFET Biasing**
 - Transistor Types and Package : JFET-N Channel, TO-72 Package
 - JFET Used : BFW10
 - Pin Count : 4 Gate, Drain Source and Substrate
 - Transistor Configuration : CS mode
 - Max. Drain Source Voltage : 12 VDC
 - Combinational Gate Resistor Bank : Six Gate Resistors includes Four Fixed and Two Variable
 - Fixed Gate Resistor Bank : Four Fixed-MFR 10KΩ(2 No.) & 100KΩ (2No.), ±5%
 - Variable Gate Resistor Bank : Two Variable 100KΩ Potentiometers
 - Drain Load Resistor Bank : One Fixed-MFR 1KΩ, ±5% & Variable 100KΩ Potentiometer
 - Source Resistor Bank : Fixed-MFR 100Ω, 1KΩ and 0Ω, ±5%.
Variable 100KΩ Potentiometers
- Weight : 3.0 kg (approx)
- Dimensions (mm) : L 270 x W 390 x H 130
- Interconnections : 2mm Banana sockets
- Operating Temperature : 0-50°C, 80% RH

Learning Scope

- To study the need of Biasing circuits.
- To study BJT Fixed Bias circuit with & without Emitter feedback Resistor.
- To study BJT Collector to Base Biasing circuit.
- To study BJT Self Bias/Voltage Divider biasing circuit. To observe & Note the change in Collector Current & Voltage w.r.t. change in biasing resistors.
- To Determine the various currents & voltages, $I_B, I_C, V_B, V_C, V_{CE}, V_E$ and Stability factor
- To Plot DC load line & observe change w.r.t. change in base resistor & emitter feedback resistor bank
- To study the JFET Gate Bias, Self Bias, Voltage Divider Bias and Source Bias circuits.
- To Observe & Note the change in Drain Current w.r.t. change in Biasing Resistors.

Other Instruments Required

SINCOM Digital Multi VI meter (DMVI) : Model DMVI-03 Range V_1 -20V, I_1 -20mA, V_2 -20V, I_2 -200mA DC

Accessories Included : Set of Patch Cord and Details Instruction Manual