Feedback Amplifier using BJT

(Voltage Series, Voltage Shunt, Current Series, Current Shunt)

Model : SD-153

SINCOM SD-153 Feedback Amplifier using BJT is a Four -In-One remarkable simply designed trainer for the purpose to study the concept, operation, Frequency response and determine the Bandwidth, Voltage gain and other parameters of a Voltage Series, Voltage Shunt, Current Series and Current Shunt negative feedback Amplifier in a simple experimental way.

Features

- Four Separate modules of Voltage Series, Voltage Shunt, Current Series and Current Shunt negative feedback circuits.
- Voltage Series Negative feedback amplifier uses BJT NPN BC548 in CC mode with voltage divider base bias and emitter feedback resistor
- Voltage Shunt Negative feedback amplifier uses BJT NPN BC548 in CE mode with collector to base bias and emitter resistive capacitive feedback network.
- Current Series Negative feedback amplifier uses BJT NPN BC548 in CE mode with voltage divider base bias and emitter resistor capacitor feedback elements
- Current Shunt negative feedback uses two stage RC Coupled CE Amplifier using NPN Transistor BC548 in voltage divider bias mode, with the feedback from the second stage emitter to the first stage base input through RC network.
- Silicon NPN BJT of TO-92 package on board
- Resistive Emitter Load for Voltage series circuit
- Resistive Collector Load for Voltage Shunt and Current Shunt circuit
- Resistive Collector and Output Load for Current series circuit
- Input and Output Coupling Capacitors
- Switch to select/deselect the RC feedback elements in the circuit
- In-Built Fixed regulated DC Power Supply
- User friendly Design
- Very Easy for Operation
- Multi color Circuit Diagram is printed on the front panel of the white board
- Enclosed in an attractive, light weight, High Quality, Poly Coated Imported Pine Wooden cabinet
- Facility to connect external Function Generator and Oscilloscope
- 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 : 230V ±10%, 50Hz
- DC Power Supply : IC Regulated Fixed +12V/500mA
- Amplifier Types : Voltage Series, Voltage Shunt, Current Series and Current Shunt Negative F/B Amplifier

- Transistor Type and Package : Bi-Polar Silicon-NPN, TO-92 Package
- Transistor Used : Two BC548
- BJT Junction Voltage : 0.7V
- Max. Collector Emitter Voltage : 12 VDC
- Emitter Base Voltage V_{BE} : 5V
- Transistor Configuration : CC mode for Voltage Series and CE mode for Voltage Shunt & Current Series and Two stage RC coupled CE mode for Current Shunt
- Biasing Method : Voltage Divider Bias for Voltage Series and collector to base bias for Voltage Shunt
- Base Resistors : One for Voltage Series and Two for Voltage Shunt, Two for Current Series and four for Current shunt
- Emitter Load : 10KΩ Fixed Resistive Load for Voltage Series
- Collector Load : 10KΩ Fixed Resistive Load for Voltage Shunt , Current Series & Current Shunt
- Emitter Resistors : One No. with capacitor for each type
- Input Output Coupling Capacitors : Two No. Electrolytic type
- Input Signal Type : Sine wave
- Max. Input Frequency Range : 60Hz-500KHz approx.
- Output Frequency Response : 60Hz-100KHz approx.
- Weight : 3.0 kg (approx)
- Dimensions (mm) : L 270 x W 390 x H 130
- Interconnections : 2mm Banana sockets
- Operating Temperature : 0-50^{0}C, 80% RH

Learning Scope

- **To study Voltage Series Negative Feedback Amplifier.**
  To observe and Note the change in O/P voltage w.r.t. change in I/P frequency. To Plot the Frequency response curve and to Determine Voltage Gain and Bandwidth.
- **To study Voltage Shunt Negative Feedback Amplifier.**
  To observe and Note the change in O/P voltage w.r.t. change in I/P frequency. To Plot the Frequency response curve and to Determine Voltage Gain and Bandwidth.
- **To study Current Series Negative Feedback Amplifier.**
  To observe and Note the change in O/P voltage w.r.t. change in I/P frequency. To Plot the Frequency response curve and to Determine Voltage Gain and Bandwidth.
- **To study Current Shunt Negative Feedback Amplifier.**
  To observe and Note the change in O/P voltage w.r.t. change in I/P frequency. To Plot the Frequency response curve and to Determine Voltage Gain and Bandwidth.

Other Instruments Required : Oscilloscope, Function Generator 1MHz.

Accessories Included : Set of Patch Cord and Details Instruction Manual

Subject to Change