



An ISO 9001:2015 Co.

# Voltage Shunt and Current Shunt Negative Feedback Amplifier using BJT

## Model : SD-133

**SINCOM SD-133 Voltage Shunt and Current Shunt Negative Feedback Amplifier using BJT** is a Two-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 Shunt and Current Shunt negative feedback Amplifier in a simple experimental way.

## Features

- ❖ Two Separate modules of Voltage Shunt and Current Shunt negative feedback circuits
- ❖ Voltage Shunt Negative feedback amplifier uses BJT NPN BC548 in CE mode with collector to base bias and emitter resistive capacitive feedback network.
- ❖ 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 Collector Load
- ❖ Output with and without Feedback for Current Shunt circuit
- ❖ Switch to select/deselect the RC feedback elements for Current Shunt circuit
- ❖ Input and Output Coupling Capacitors
- ❖ 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 $\pm$ 10%, 50Hz
▪ DC Power Supply	: IC Regulated Fixed +12V/500mA
▪ Amplifier Types	: Voltage Shunt 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	: CE mode for Voltage Shunt and Two stage RC coupled CE mode for Current Shunt



An ISO 9001:2015 Co.

- Biasing Method : Voltage Divider Bias for Voltage shunt and Collector to Base bias for Current Shunt
- Base Resistors : One for Voltage shunt and four for Current shunt
- Emitter Resistors : One No. with capacitor for each type
- Emitter Resistors : One No. for each stage
- Feedback Elements : One RC series Network with a Feedback select Switch for Current shunt
- Input Output Coupling Capacitors : Two No. Electrolytic type
- Collector Load : 10K $\Omega$  Fixed Resistive Load for both types
- 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 245 x W 320 x H 115
- Interconnections : 2mm Banana sockets
- Operating Temperature : 0-50<sup>0</sup>C, 80% RH

### Learning Scope

- **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 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