



An ISO 9001:2015 Co.

Class-AB & Complementary Symmetry Push Pull Amplifier

Model : SD-113

SINCOM SD-113 Class-AB and Comp. Symmetry Push Pull Amplifier is Two-In-One simply designed trainer for the purpose to study the concept, operation, Frequency response and determine the Bandwidth, Voltage gain and other parameters of a Class-AB and Complementary symmetry Push Pull Amplifier in a simple experimental way.

Features

- ❖ User friendly Design
- ❖ Separate modules of Class-AB and Complementary symmetry Push Pull Amplifier
- ❖ Class-AB Push Pull amplifier circuit uses two NPN Bi-Polar transistors connected in a Push-Pull mode with voltage divider base biasing, emitter feedback resistor, Input & Output Driver Transformers.
- ❖ Comp. symmetry Push Pull amplifier circuit uses NPN and PNP complementary BJTs connected in a Push-Pull mode with voltage divider base biasing and emitter resistive load.
- ❖ Silicon NPN and PNP BJT of TO-92 package on board
- ❖ Wide Bandwidth AF Amplifier
- ❖ Resistive Load and Loud Speaker as Inductive Load for Class-AB
- ❖ Resistive Load for Comp. symmetry Push Pull amplifier
- ❖ Audio Tone Output for Class-AB
- ❖ Input and Output Driver Transformers for Class-AB
- ❖ In-Built Fixed Dual regulated DC Power Supply
- ❖ 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,+6V,-6V/500mA
▪ Amplifier Type	: Class-AB and Comp. Symmetry Push Pull Amplifier
▪ Transistor Type and Package	: Bi-Polar Silicon-NPN, TO-92 Package
▪ Biasing Method	: Voltage Divider Bias
▪ BJT Junction Voltage	: 0.7V
▪ Emitter Base Voltage V_{BE}	: 5V
▪ Input Output Coupling Capacitors	: Two No. Electrolytic type
▪ Input Signal Type	: Sine wave
▪ Max. Input Frequency Range	: 60Hz-500KHz approx.
▪ Output Frequency Response	: 100Hz-20KHz approx.



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▪ **For Class-AB Amplifier**

- Transistor Used : Two BC548 in Push-Pull configuration
- Transistor Configuration : CE mode
- Input Output Coupling Transformer : 6V AF Driver Transformer secondary centre tap
- Max. Collector Emitter Voltage : 12 VDC
- Base Resistors : Two No.
- Emitter Resistors : One No.
- Resistive Output Load : 10K Ω Fixed Resistive Load
- Inductive Output Load : 4 Ω Loud Speaker Inductive Load

▪ **For Comp. Symmetry Push Pull Amplifier**

- Transistor Used : NPN CL100 and PNP CK100
- Transistor Configuration : Push-Pull configuration
- Biasing Method : Voltage Divider Bias
- Max. Collector Emitter Voltage : 6VDC
- Base Resistors : Four No. MFR 1K Ω (2No) and 100 Ω (2No), $\pm 5\%$
- Emitter Output Load : 10K Ω Fixed Resistive Load

- Weight : 3.0 kg (approx)
- Dimensions (mm) : L 245 x W 320 x H 115
- Interconnections : 2mm Banana sockets
- Operating Temperature : 0-50 $^{\circ}$ C, 80% RH

Learning Scope

- To Study Class-AB Push-Pull Power Amplifier circuit. To Observe & Note change in O/P w.r.t. change in I/P Frequency.
- To Plot frequency response & To Determine Bandwidth, Voltage Gain, Efficiency of class-AB Push-Pull Power amplifier.
- To study Complementary Symmetry Push-Pull Amplifier circuit. To Observe & Note change in O/P w.r.t. change in I/P Frequency & to study the effect of each transistor on O/P.
- To Plot frequency response & Determine Bandwidth, Voltage Gain, Efficiency & Distortion.

Other Instruments Required : Oscilloscope, Function Generator 1MHz.

Accessories Included : Set of Patch Cord and Details Instruction Manual