

**DEPARTMENT OF
ELECTRONICS AND COMMUNICATION ENGINEERING
College of Engineering and Technology, SRM IST, Chennai**

MINI PROJECT REPORT

ODD Semester, 2022-23

Lab code & Name : 18ECC 211J – Solid State Semiconductor Devices

Year & Semester : II Year, III Sem

Project Title : Graphic Equalizer with Stereo Amplifier

Lab Supervisor : **Dr K.Suganthi**

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Reg. No	RA2111043010028
Mark split up	
Novelty in the project work (2 marks)	
Level of understanding of the design formula (4 marks)	
Contribution to the project (2 Marks)	
Report writing (2 Marks)	
Total (10 Marks)	

Date:

Signature of Lab Supervisor

GRAPHIC EQUALIZER WITH STEREO AMPLIFIER

OBJECTIVE

The Graphic Equalizer will separate the frequencies of the input audio signal and equalize the gain separately. This equalizer consists of 4 Bands (Bass, Mid, Treble, Volume). The output from the equalizer will be amplified by the Stereo amplifier and then fed to the 10W Speaker.

ABSTRACT

This Graphic Equalizer can be used in home audio systems, commercial audio systems, hobby music composers, events etc. Using this equalizer, we can control the bass, mid frequency, treble and volume of the input audio. This can be also used in large hall events to deliver a high quality audio with the respective amplifier. Once the audio is equalized and fed to the input of the amplifier, the Amplifier unit will boost the signal and deliver a powerful and clean audio output to a max of 10W Speaker.

INTRODUCTION

A beginner level project in audio circuits and systems, Communication systems.

HARDWARE REQUIREMENT/DESCRIPTION

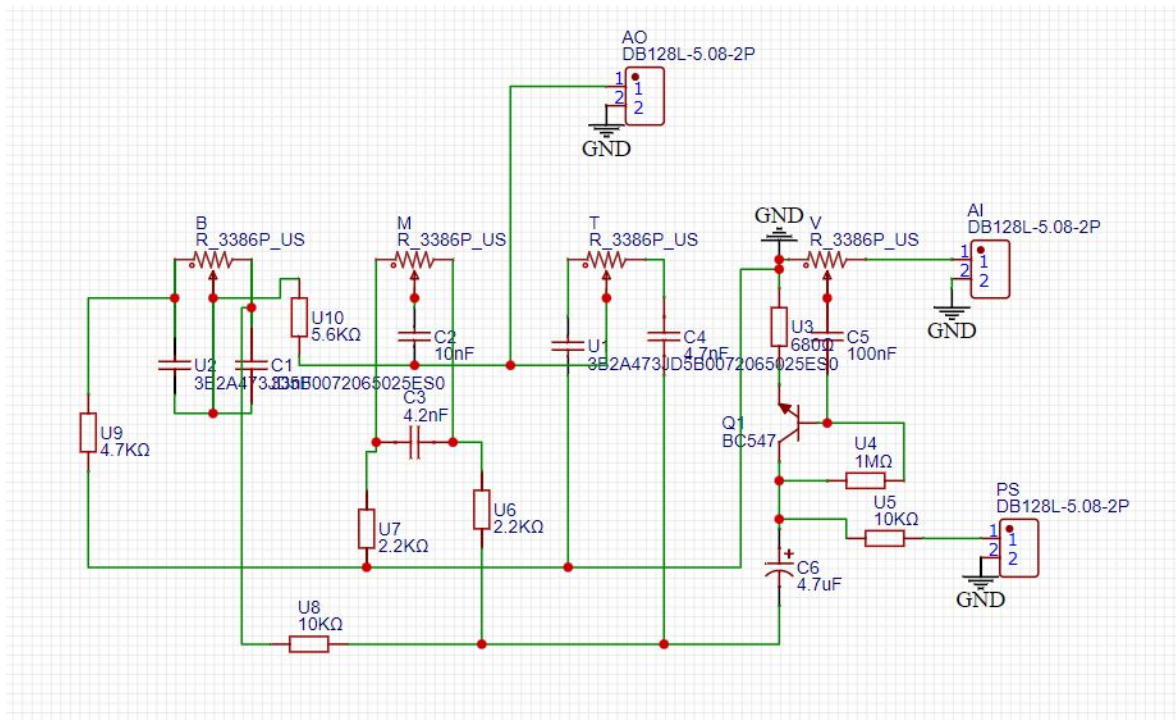
Trimmer Potentiometers, Electrolytic Capacitors, Ceramic Capacitors, Disc Capacitors, Through-hole resistors, TDA1517 IC, AUX 4-pin, 10W Speakers.

CIRCUIT/COMPONENT SPECIFICATIONS

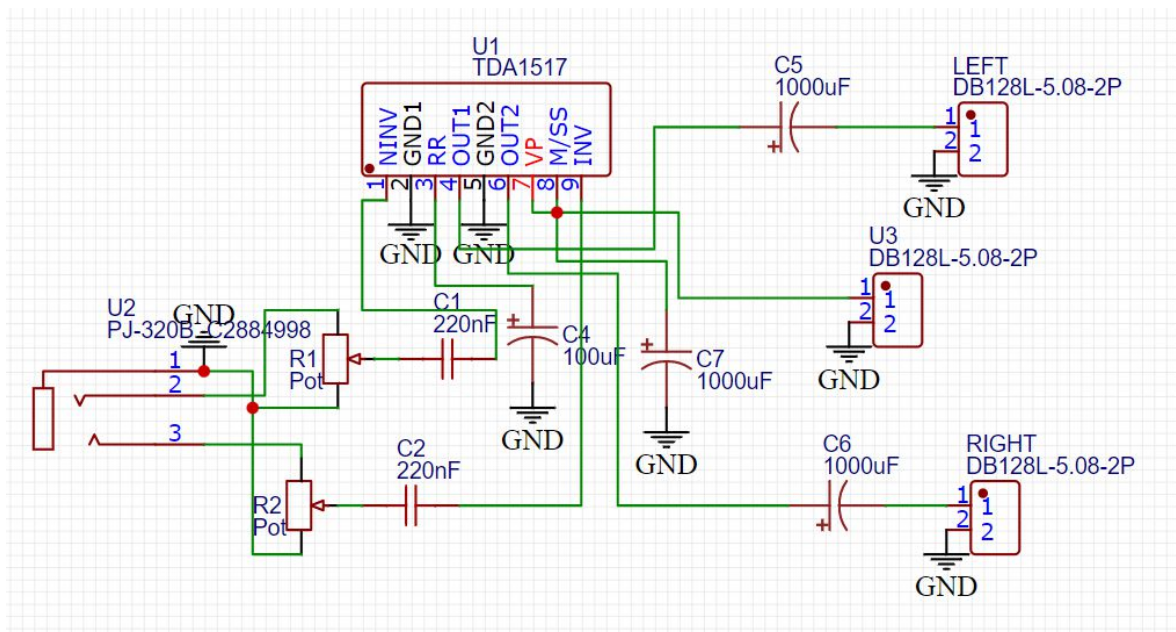
Supply voltage (V_{CC}) to Amplifier	5 to 20 V (Nominal - 10V)
Supply current ($V_{CC} = +5$ V)	100 to 200 mA
Output current (maximum)	500 mA
Power consumption (minimum operating)	1W@10V
Operating temperature	0 to 70 °C

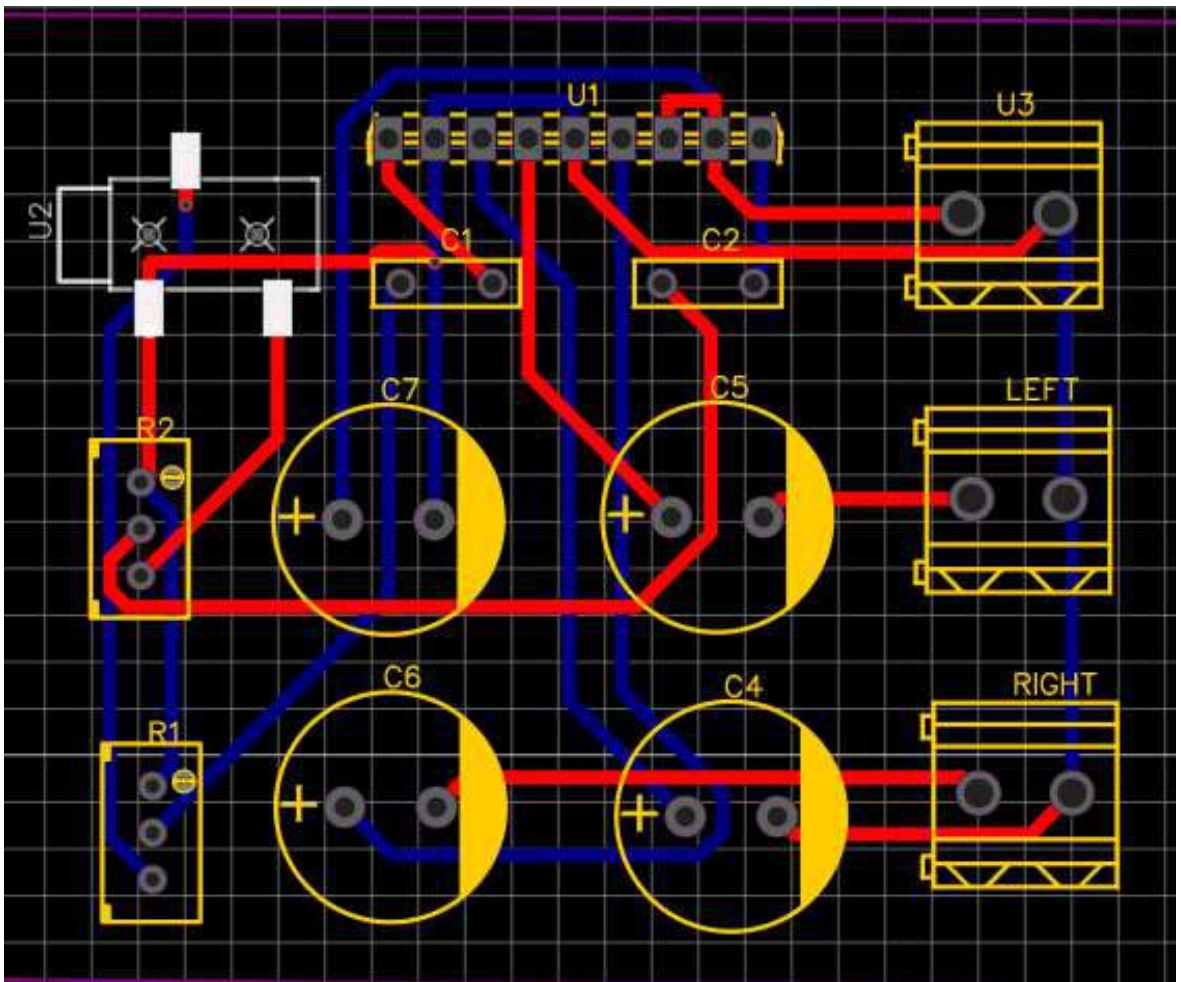
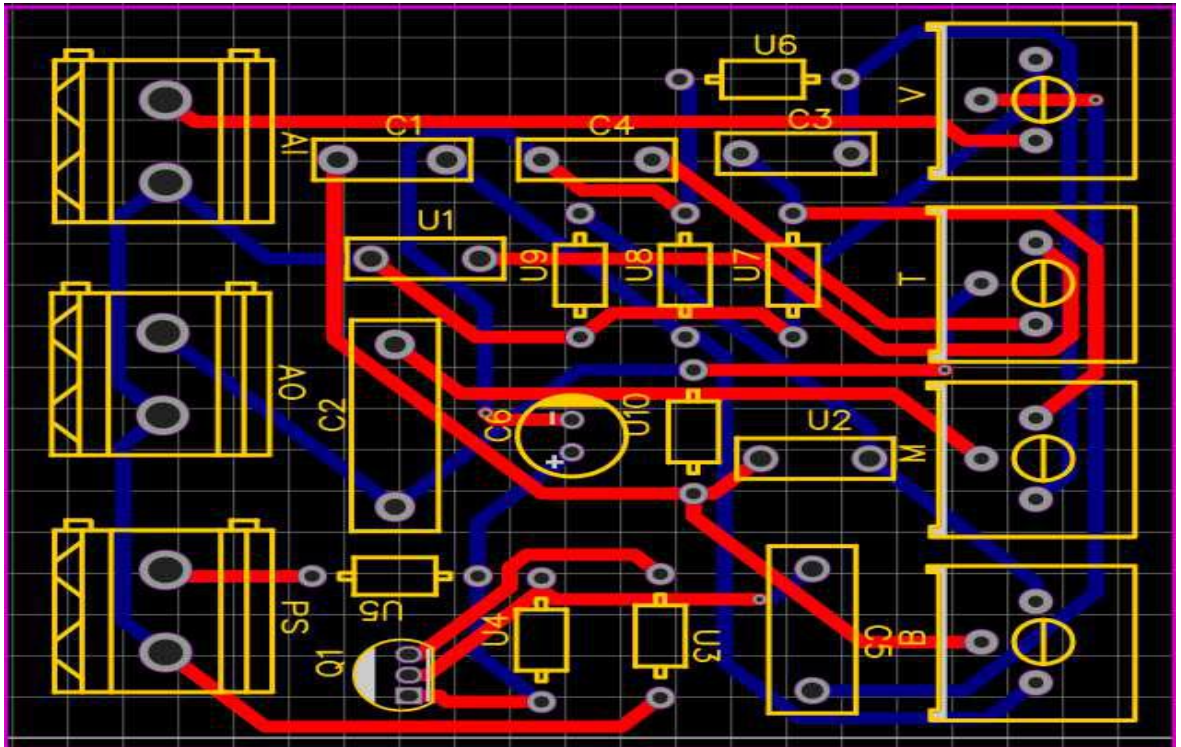
CIRCUIT DIAGRAM

Equalizer



Stereo Amplifier





DESIGN FORMULA

In the equalizer circuit, the cut-off frequencies can be calculated using the formula:

$$f = 1/(2*\pi*R*C)^{1/2}$$

DESIGN ISSUES

- Maximum supply voltage to the amplifier should not exceed 20V
- The speaker wattage should be minimum 6W.
- Use Heat sink for TDA1517 IC.

APPROACH / PROCEDURE / METHODOLOGY

- Bass : Low frequency (For large halls, home audio systems)
- Mid : Middle frequency (To balance the audio)
- Treble : High frequency (For small places)

According to the place where the audio will be played, we can equalize the audio and get an awesome music experience.

CONCLUSIONS

Thus, an audio system of a graphic equalizer and an amplifier is designed.

REFERENCES

https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.electronicsforu.com%2Felectronics-projects%2Fhardware-diy%2Fstereo-af-amplifier-using-tda1517&psig=AOvVaw3vn25V1Xt9MlzaBcRk2QC0&ust=1668826700938000&source=images&cd=vfe&ved=0CBAQjhqFwoTCJCP_YbetvsCFQAAAAAdAAAAABAE