

TITLE: DESIGN AND ANALYSIS OF A BUTTERWORTH FILTER CIRCUIT USING eSIM

STUDENT NAME: Maanit Arora

MENTOR NAME: Prof. Neeta Pandey

COLLEGE NAME: Delhi Technological University

ABSTRACT:

This project presents the design and analysis of a Butterworth filter circuit utilizing eSim simulation software. The Butterworth filter is characterized by its maximally flat frequency response in the passband, making it a widely used choice in signal processing applications. The design focuses on a second-order low-pass Butterworth filter, where resistors and capacitors are selected to achieve a specified cutoff frequency. The circuit is analyzed to demonstrate how the selection of component values affects the filter's performance, including its attenuation characteristics and phase response. Simulation results indicate that the Butterworth filter successfully maintains signal integrity while effectively attenuating unwanted high-frequency components, validating its application in audio processing and communication systems.

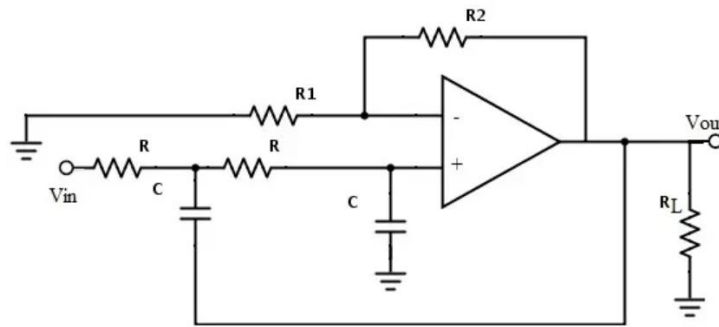


Fig 1: This circuit illustrates the Second order low pass Butterworth filter configuration, showcasing the arrangement of components for optimal frequency response.

JOURNAL/PUBLICATION DETAILS:

TITLE OF THE PAPER: A Study on Design and Implementation of Butterworth, Chebyshev and Elliptic Filter with MatLab

NAME OF THE JOURNAL/PUBLICATION: International Journal of Emerging Technologies in Engineering Research (IJETER)

AUTHOR(S): Manjit Sandhu, Department of ECE, GNDU Regional Campus, Sathiala (Amritsar) Punjab, India.

Sukhdeep Kaur, Department of Electronics and Communication Engineering, GNDU Regional Campus, Sathiala (Amritsar) Punjab, India.

Jaipreet Kaur, Department of Electronics and Communication Engineering, GNDU Regional Campus, Sathiala (Amritsar) Punjab, India.

VOLUME: Vol-4-issue-6-M-25

REFERENCE:

<https://www.ijeter.everscience.org/Manuscripts/Volume-4/Issue-6/Vol-4-issue-6-M-25.pdf>