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**Lab VI**

**Study and design of active filters using LM741**

Objectives

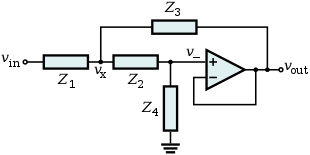
To study the following active filters using op-amp LM741

* Low Pass Filter
* High Pass Filter
* Band Pass Filter and find out

and

* Plot of voltage gain vs frequency (Bode Plot) for all three different filters
* Calculate 3dB frequency and compare it with simulation in a tabular format
* Also draw the schematic for each filter

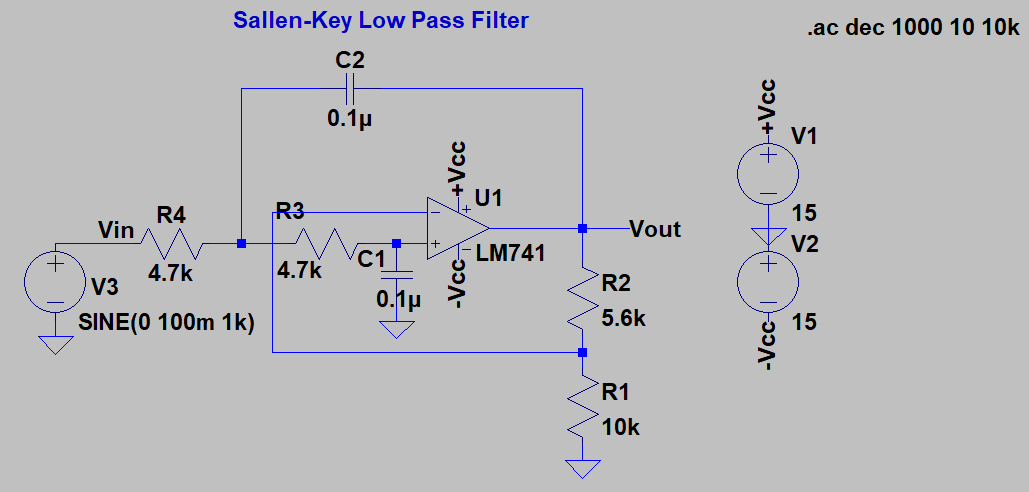
Sallen-Key Active Filters

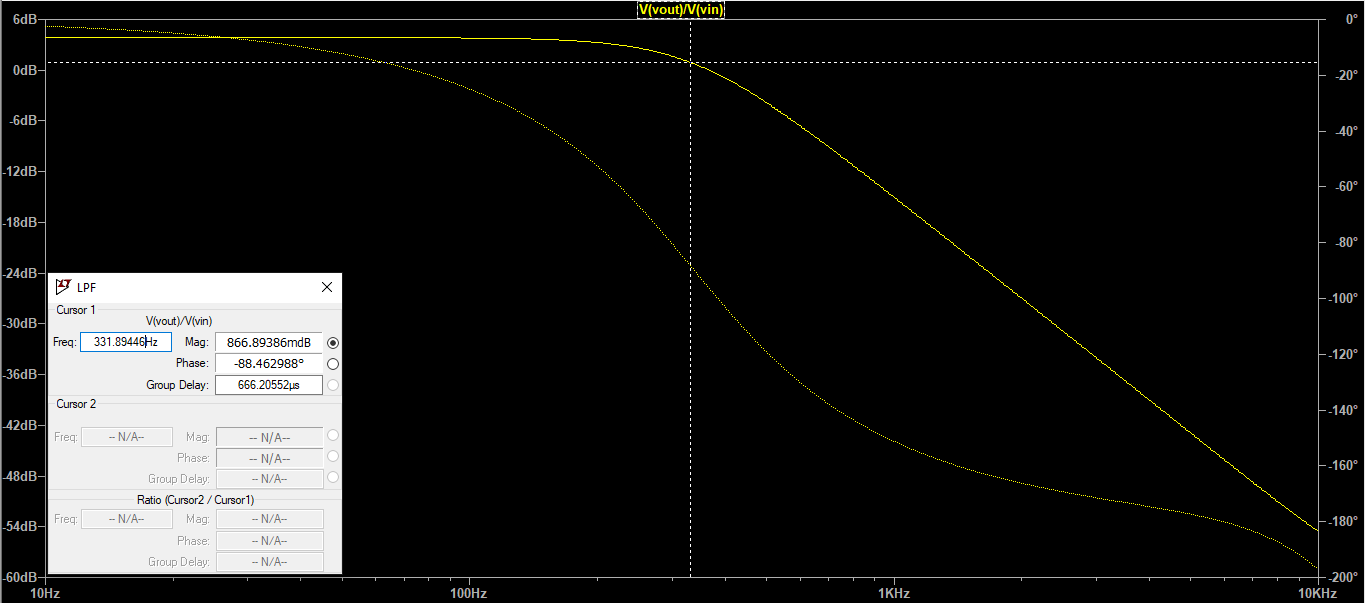


The Sallen-Key Topology

1. Low Pass Filter

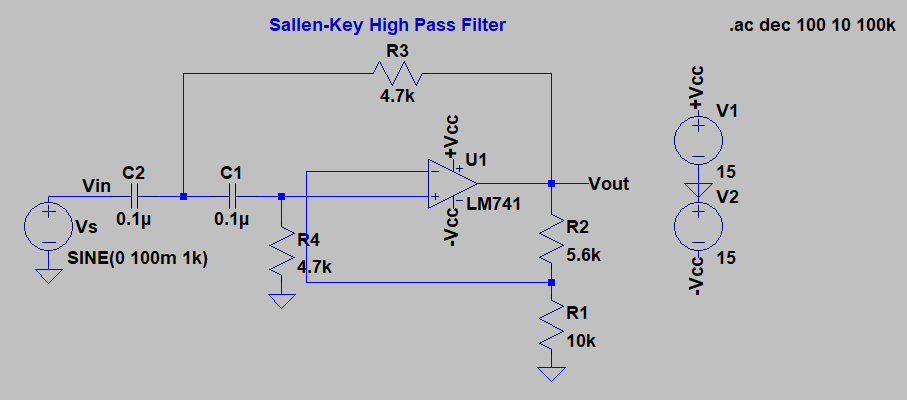
Schematic and Frequency Response Plot

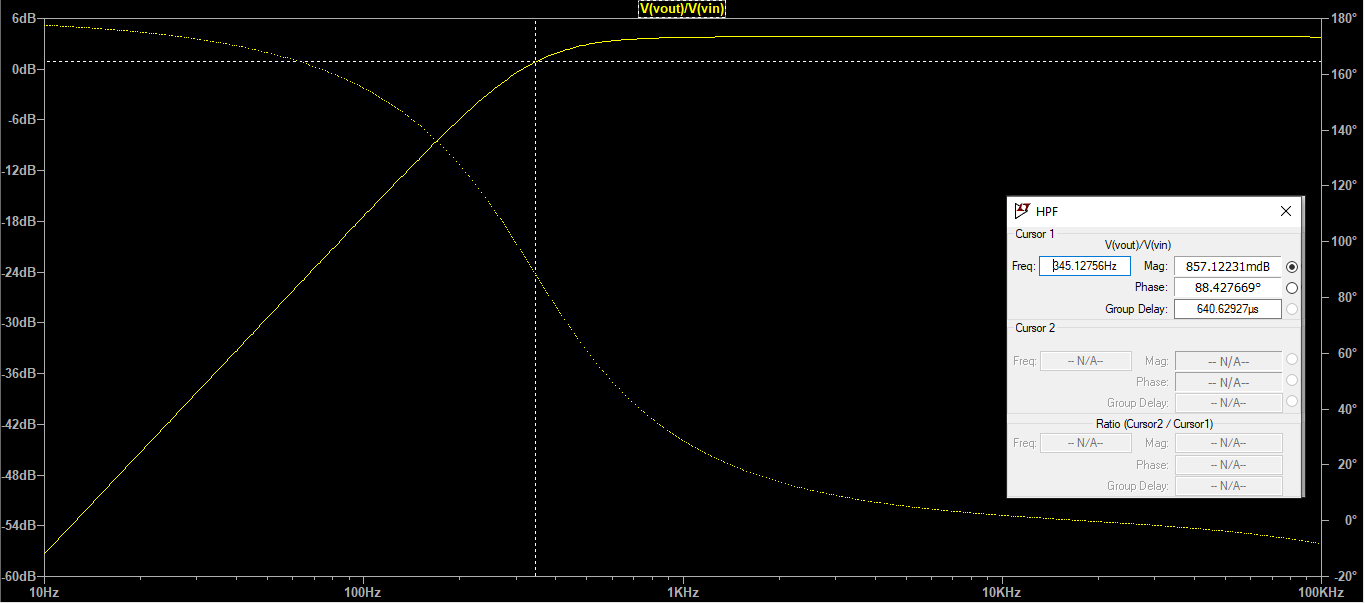




1. High Pass Filter

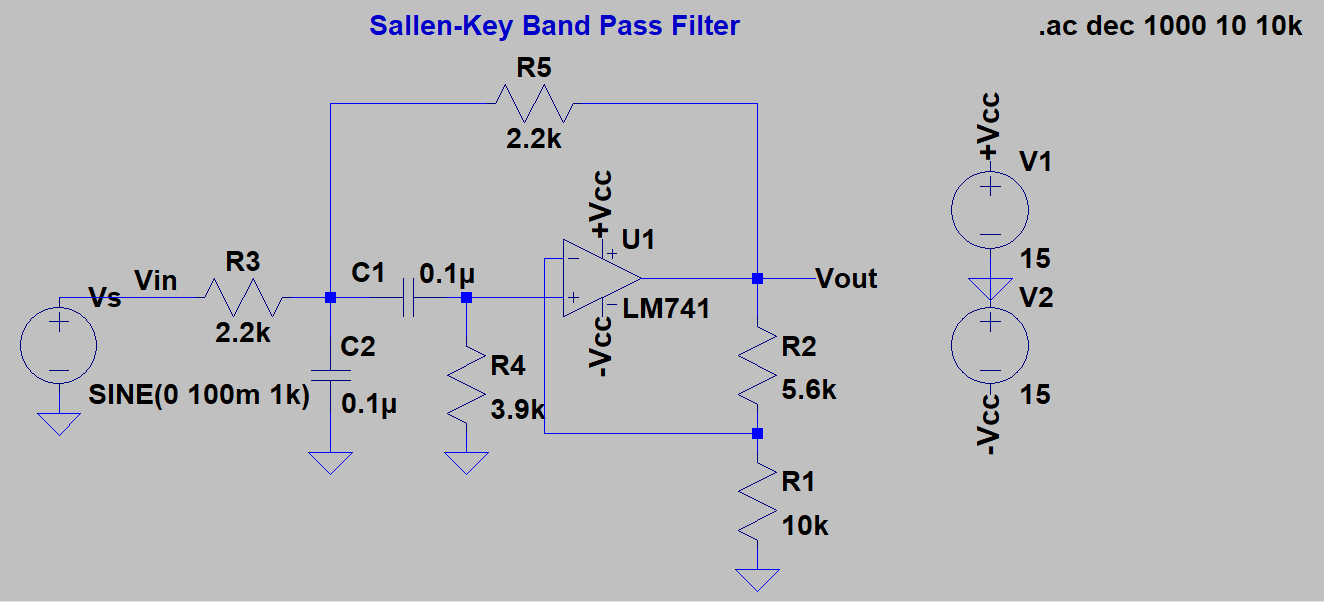
Schematic and Frequency Response Plot

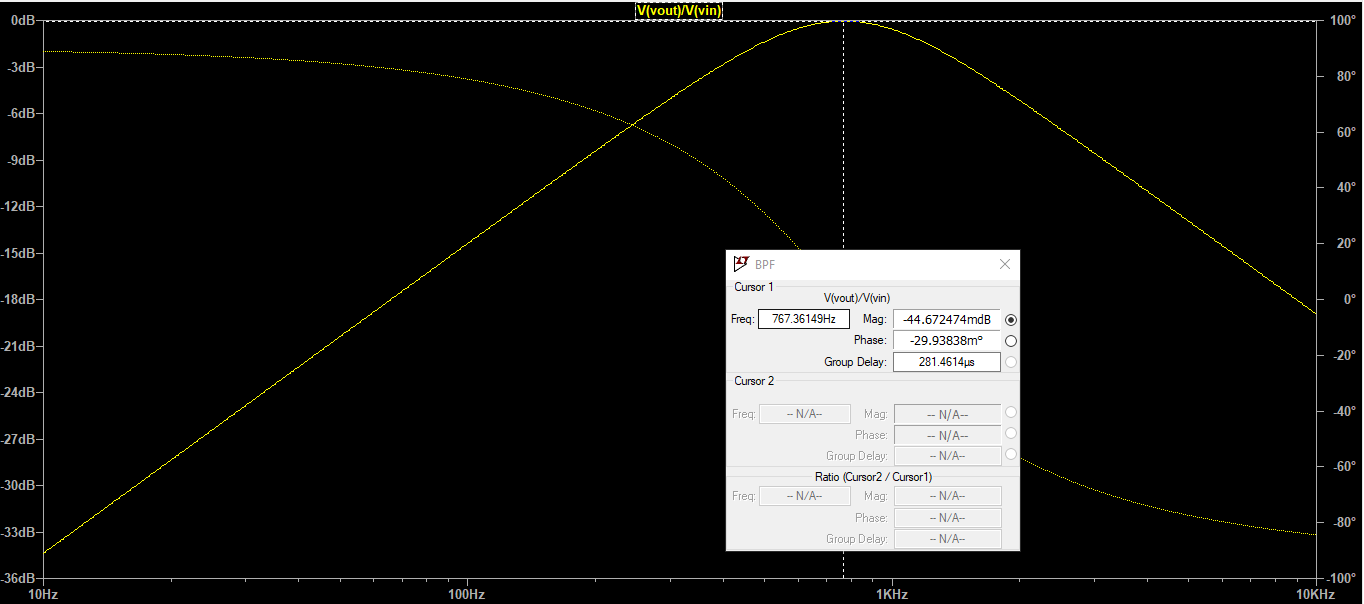




1. Band Pass Filter

Schematic and Frequency Response Plot





Results

|  |  |  |
| --- | --- | --- |
| **Type of filter** | **Theoretical value of 3dB/cutoff frequency** | **Simulated value of 3dB/corner frequency** |
| Low pass filter |  | 331.894 Hz |
| High pass filter |  | 345.127 Hz |
| Band-pass filter |  | 767.361 Hz |