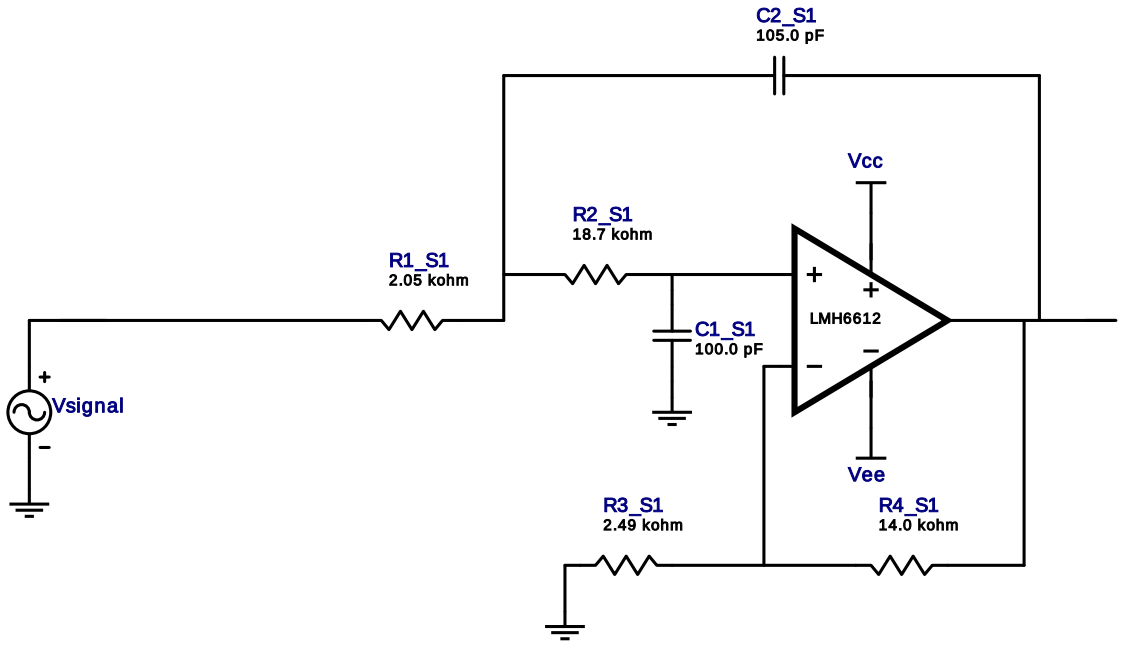
Type : Lowpass
Response : Butterworth
Order : 2
Number of Stages : 1

# Filter Design Report

Design : Lowpass Filter - 2nd order Butterworth
Design ID: 2

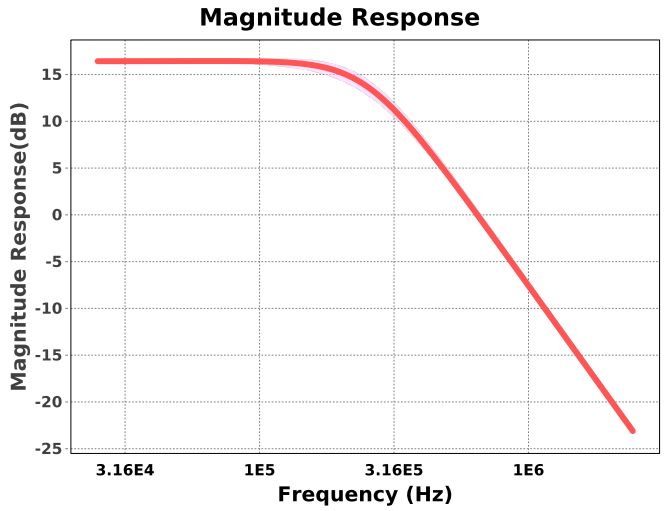


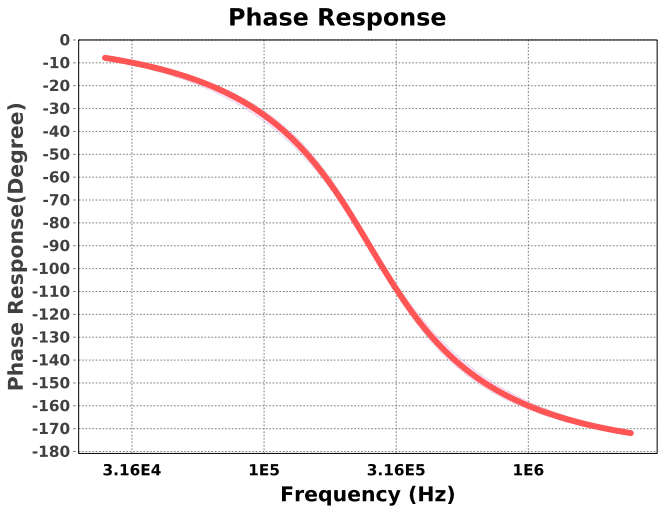

## Electrical BOM

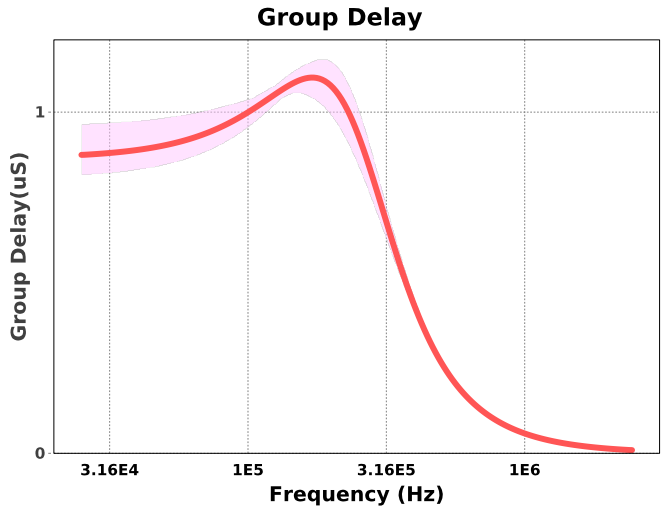
| # | Name | Manufacturer | Part Number | Properties | Qty |
|---|---|---|---|---|---|
| 1. | A1_S1 | Texas Instruments Inc. | LMH6612 | GbwTyp= 130MHz<br>VccMax= 11V<br>VccMin= 2.7V | 1 |
| 2. | C1_S1 | Generic | Ideal | Cap= 100.0 pF<br>Tolerance= 2.0 % | 1 |
| 3. | C2_S1 | Generic | Ideal | Cap= 105.0 pF<br>Tolerance= 2.0 % | 1 |
| 4. | R1_S1 | Generic | Ideal | Res= 2050.0ohm<br>Tolerance= 1% | 1 |
| 5. | R2_S1 | Generic | Ideal | Res= 18700.0ohm<br>Tolerance= 1% | 1 |
| 6. | R3_S1 | Generic | Ideal | Res= 2490.0ohm<br>Tolerance= 1% | 1 |
| 7. | R4_S1 | Generic | Ideal | Res= 14000.0ohm<br>Tolerance= 1% | 1 |

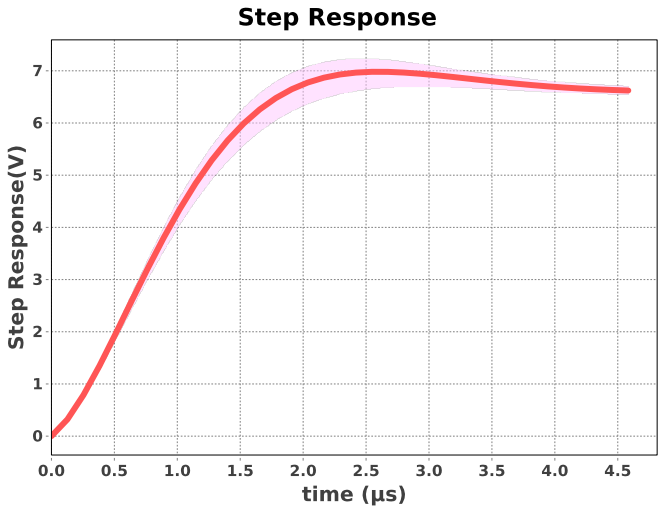
## Sensitivity Analysis

| # | Name | Series | Tolerance |
|---|---|---|---|
| 1. | Cap | E48 | 2% |
| 2. | Res | E96 | 1% |



## Design Inputs

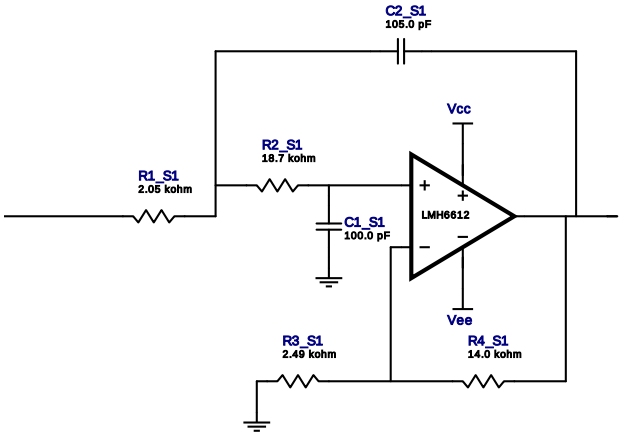
| # | Name | Value | Description |
|---|---|---|---|
| 1. | FilterType | lowpass | |
| 2. | FilterResponse | Butterworth | |
| 3. | FilterOrder | 2.0 | |
| 4. | FilterTopology | Sallen-Key | |
| 5. | NumberOfStages | 1.0 | |
| 6. | PassbandFrequency | 250.0 k | |
| 7. | StopbandAttenuation | -40.001 | |
| 8. | StopbandFrequency | 2.5 M | |
| 9. | Gain | 6.6 | |
| 10. | DualSupply | +/-5.00 V | Power supply(s) to active chips |
| 11. | ResistorTolerance | E96 | Resistor series - 1% Passive resistor tolerance |
| 12. | CapacitorTolerance | E48 | Capacitor series - 2% Passive capacitor tolerance |

## Design Assistance

1. **LMH6612** Product Folder : http://www.ti.com/product/LMH6612 : contains the data sheet and other resources.

# Filter Stage :1

| | |
|---|---|
| Cutoff Frequency | 250.858 kHz |
| Min GBW Reqd | 116.671 MHz |
| Stage Gain | 6.622 V/V |
| Stage Q | 733.664 m |
| Stage Topology | Sallen-Key |




## Electrical BOM

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| # | Name | Manufacturer | Part Number | Properties | Qty |
|---|---|---|---|---|---|
| 7. | R4_S1 | Generic | Ideal | Res= 14000.0ohm<br>Tolerance= 1% | 1 |