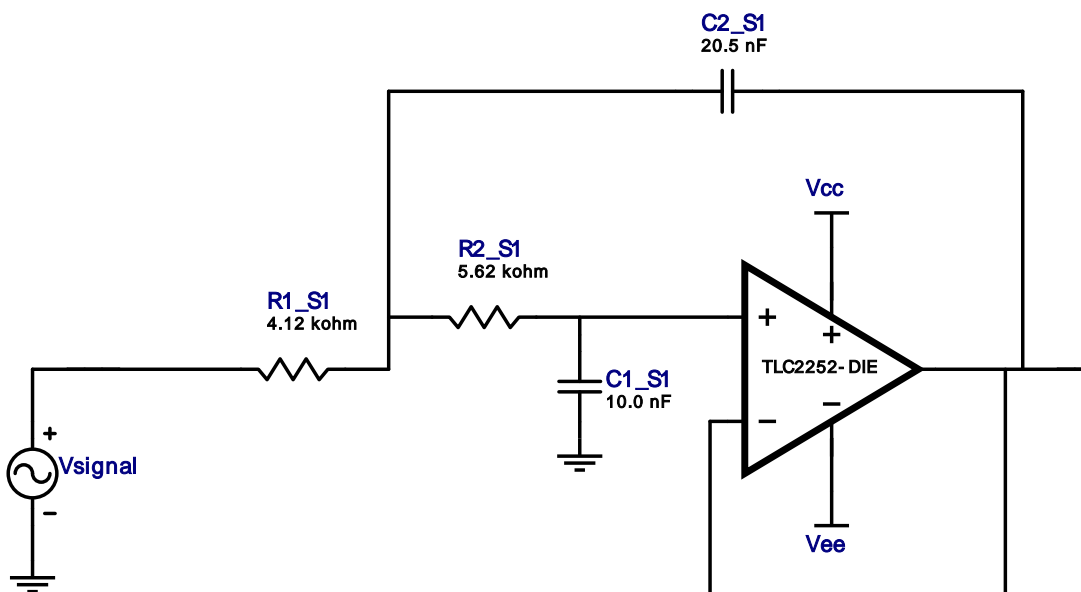


Filter Design Report

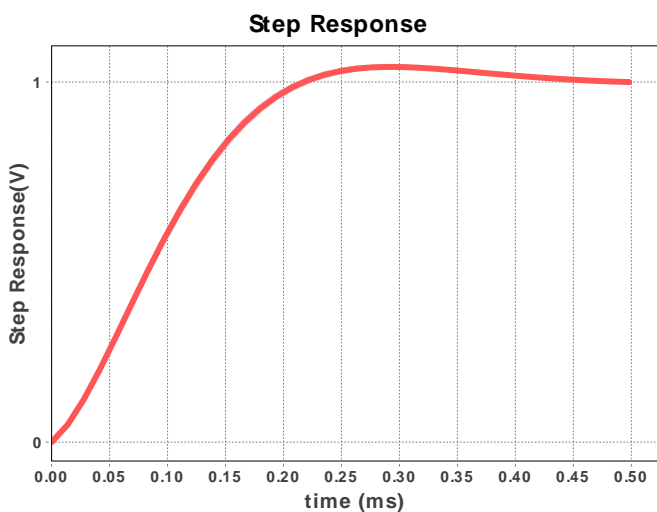
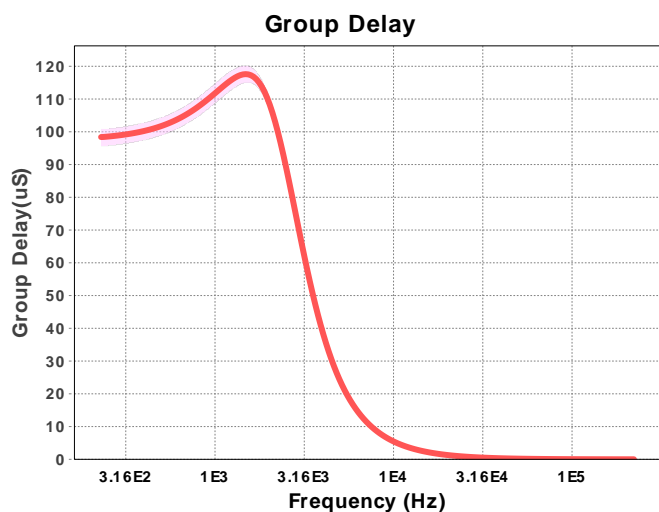
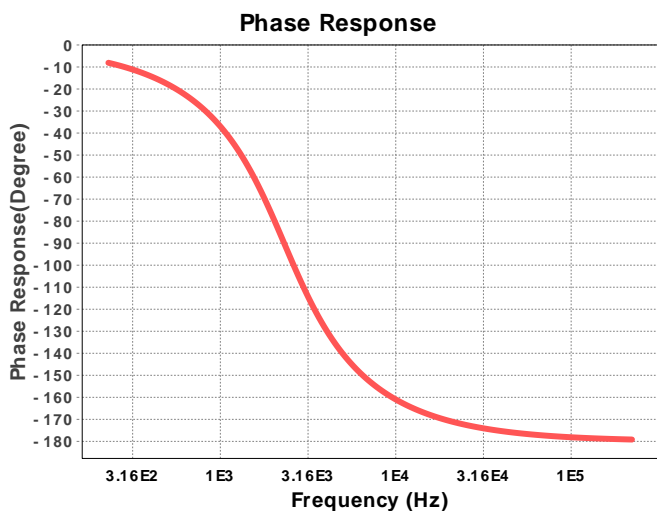
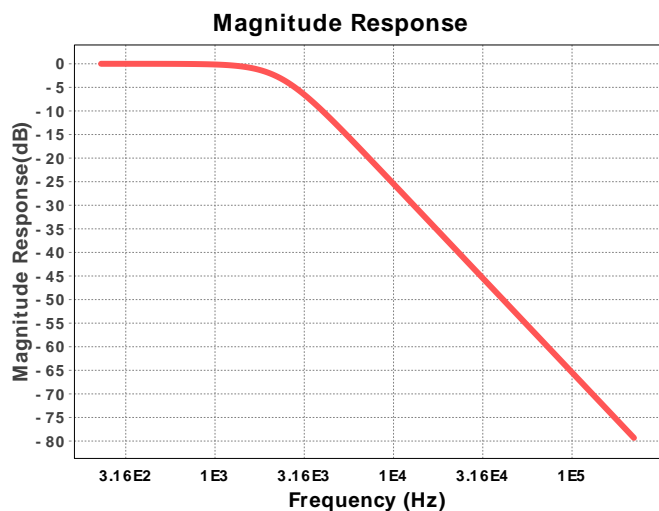
 Design : Lowpass Filter - 2nd order Butterworth
 Design ID: 319


Electrical BOM

| # | Name | Manufacturer | Part Number | Properties | Qty |
|----|-------|------------------------|-------------|---|-----|
| 1. | A1_S1 | Texas Instruments Inc. | TLC2252-DIE | GbwTyp= 0.2MHz VccMax= 16V VccMin= 4.4V | 1 |
| 2. | C1_S1 | Generic | Ideal | Cap= 10.0 nF Tolerance= 2.0 % | 1 |
| 3. | C2_S1 | Generic | Ideal | Cap= 20.5 nF Tolerance= 2.0 % | 1 |
| 4. | R1_S1 | Generic | Ideal | Res= 4120.0ohm Tolerance= 1% | 1 |
| 5. | R2_S1 | Generic | Ideal | Res= 5620.0ohm Tolerance= 1% | 1 |

Sensitivity Analysis

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



Design Inputs

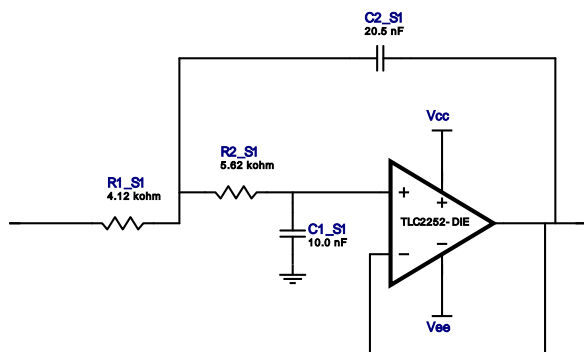
| # | Name | Value | Description |
|-----|---------------------|-------------|---|
| 1. | FilterType | lowpass | |
| 2. | FilterResponse | Butterworth | |
| 3. | FilterOrder | 2.0 | |
| 4. | FilterTopology | Sallen-Key | |
| 5. | NumberOfStages | 1.0 | |
| 6. | PassbandFrequency | 2.3 k | |
| 7. | StopbandAttenuation | -40.001 | |
| 8. | StopbandFrequency | 23.0 k | |
| 9. | Gain | 1.0 | |
| 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. **TLC2252-DIE** Product Folder : <http://www.ti.com/product/TLC2252-DIE> : contains the data sheet and other resources.

Filter Stage :1

| | |
|------------------|-------------|
| Cutoff Frequency | 2.31 kHz |
| Min GBW Req'd | 162.633 kHz |
| Stage Gain | 1.0 V/V |
| Stage Q | 707.351 m |
| Stage Topology | Sallen-Key |



Electrical BOM

| # | Name | Manufacturer | Part Number | Properties | Qty |
|----|-------|------------------------|-------------|---|-----|
| 1. | A1_S1 | Texas Instruments Inc. | TLC2252-DIE | GbwTyp= 0.2MHz VccMax= 16V VccMin= 4.4V | 1 |
| 2. | C1_S1 | Generic | Ideal | Cap= 10.0 nF Tolerance= 2.0 % | 1 |
| 3. | C2_S1 | Generic | Ideal | Cap= 20.5 nF Tolerance= 2.0 % | 1 |
| 4. | R1_S1 | Generic | Ideal | Res= 4120.0ohm Tolerance= 1% | 1 |
| 5. | R2_S1 | Generic | Ideal | Res= 5620.0ohm Tolerance= 1% | 1 |

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