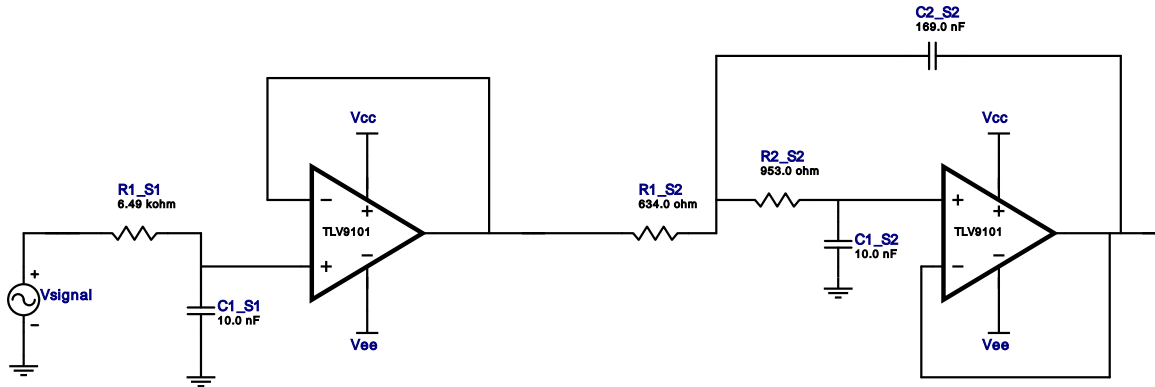


Type : Lowpass  
Response : Chebyshev  
Order : 3  
Number of Stages : 2

## Filter Design Report

Design : Lowpass Filter - 3rd order Chebyshev  
Design ID: 4

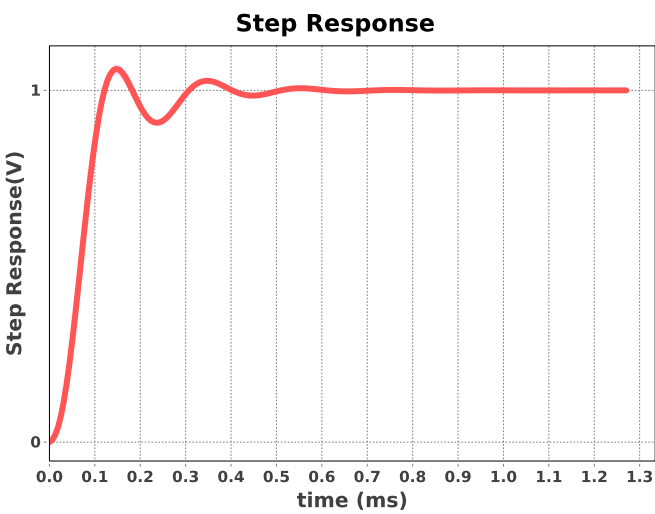
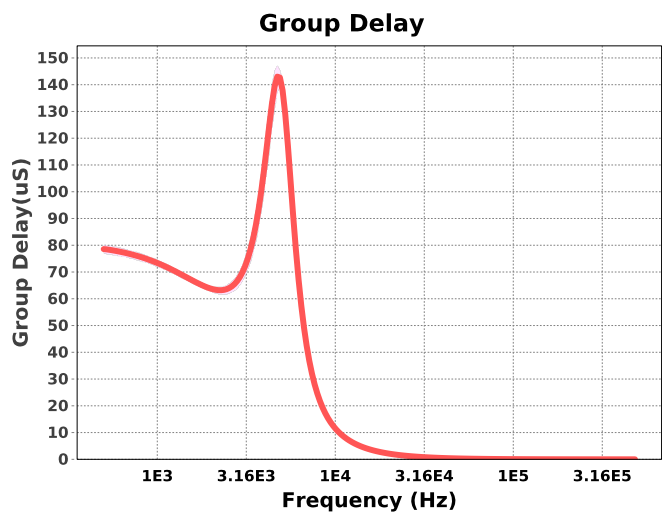
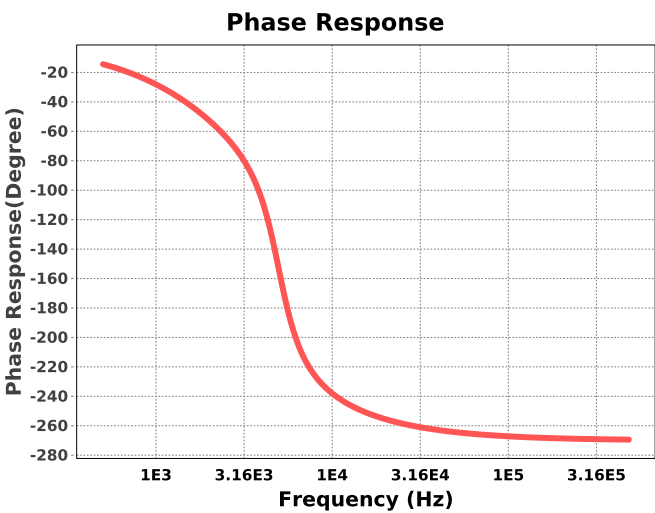
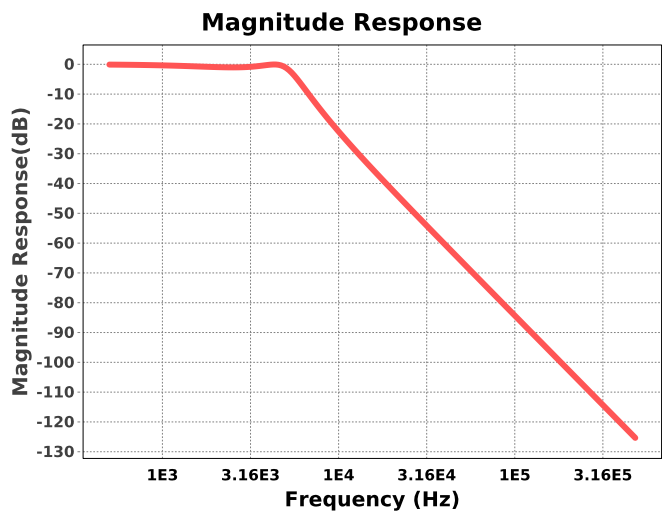


## Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty
1.	A1_S1	Texas Instruments Inc.	TLV9101	GbwTyp= 1.1MHz VccMax= 16V VccMin= 2.7V	1
2.	A1_S2	Texas Instruments Inc.	TLV9101	GbwTyp= 1.1MHz VccMax= 16V VccMin= 2.7V	1
3.	C1_S1	Generic	Ideal	Cap= 10.0 nF Tolerance= 2.0 %	1
4.	C1_S2	Generic	Ideal	Cap= 10.0 nF Tolerance= 2.0 %	1
5.	C2_S2	Generic	Ideal	Cap= 169.0 nF Tolerance= 2.0 %	1
6.	R1_S1	Generic	Ideal	Res= 6490.0ohm Tolerance= 1%	1
7.	R1_S2	Generic	Ideal	Res= 634.0ohm Tolerance= 1%	1
8.	R2_S2	Generic	Ideal	Res= 953.0ohm Tolerance= 1%	1

Sensitivity Analysis

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



## Design Inputs

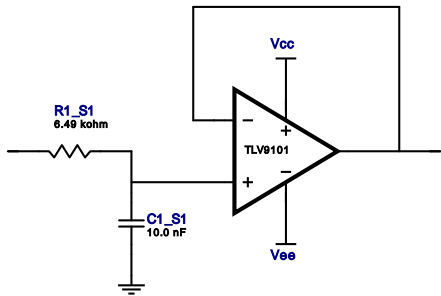
#	Name	Value	Description
1.	FilterType	lowpass	
2.	FilterResponse	Chebyshev	
3.	FilterOrder	3.0	
4.	FilterTopology	Single Pole	
5.	NumberOfStages	2.0	
6.	PassbandFrequency	5.0 k	
7.	StopbandAttenuation	-66.108	
8.	StopbandFrequency	50.0 k	
9.	Gain	1.0	
10.	DualSupply	+/-5.00 V	Power supply(s) to active chips
11.	ResistorTolerance	E96	Resistor series - 1% Passive resistor tolerance
12.	CapacitorTolerance	E48	Capacitor series - 2% Passive capacitor tolerance

## Design Assistance

1. **TLV9101** Product Folder : <http://www.ti.com/product/TLV9101> : contains the data sheet and other resources.

# Filter Stage :1

Cutoff Frequency 2.452 kHz  
Min GBW Req'd 123.543 kHz  
Stage Gain 1.0 V/V  
Stage Q 500.0 m  
Stage Topology Single Pole

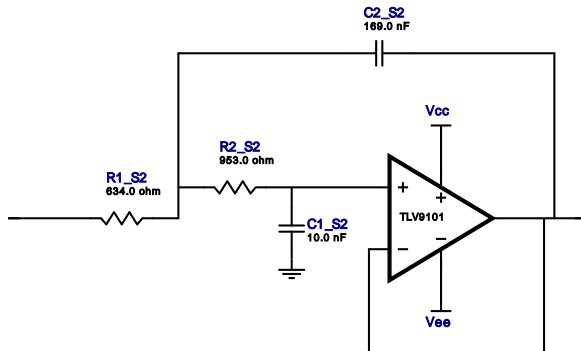


## Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty
1.	A1_S1	Texas Instruments Inc.	TLV9101	GbwTyp= 1.1MHz VccMax= 16V VccMin= 2.7V	1
2.	C1_S1	Generic	Ideal	Cap= 10.0 nF Tolerance= 2.0 %	1
3.	R1_S1	Generic	Ideal	Res= 6490.0ohm Tolerance= 1%	1

## Filter Stage :2

Cutoff Frequency      4.981 kHz  
 Min GBW Req'd        1.006 MHz  
 Stage Gain             1.0 V/V  
 Stage Q                2.014  
 Stage Topology        Sallen-Key



### Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty
1.	A1_S2	Texas Instruments Inc.	TLV9101	GbwTyp= 1.1MHz VccMax= 16V VccMin= 2.7V	1
2.	C1_S2	Generic	Ideal	Cap= 10.0 nF Tolerance= 2.0 %	1
3.	C2_S2	Generic	Ideal	Cap= 169.0 nF Tolerance= 2.0 %	1
4.	R1_S2	Generic	Ideal	Res= 634.0ohm Tolerance= 1%	1
5.	R2_S2	Generic	Ideal	Res= 953.0ohm Tolerance= 1%	1

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