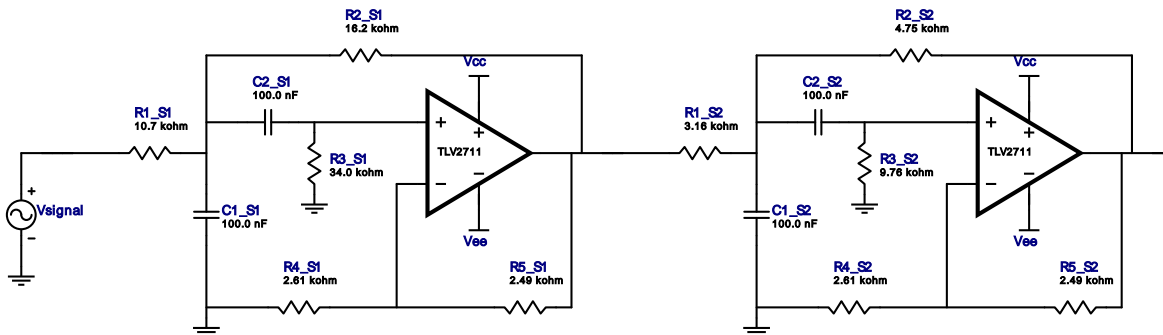


## Filter Design Report

 Design : Bandpass Filter - 4th order Bessel  
 Design ID: 15


## Electrical BOM

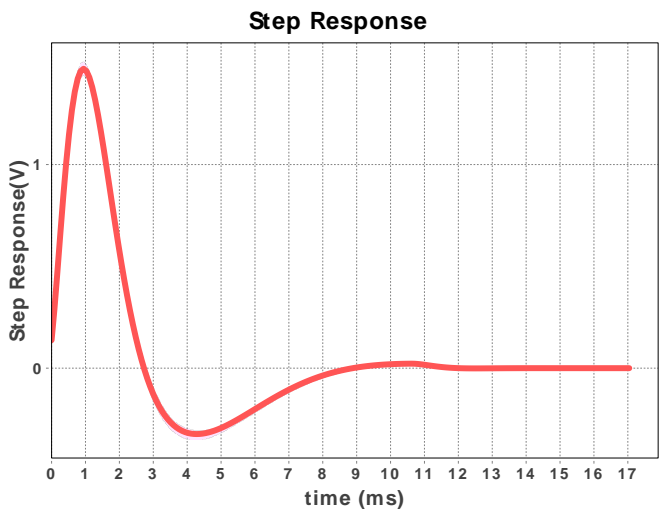
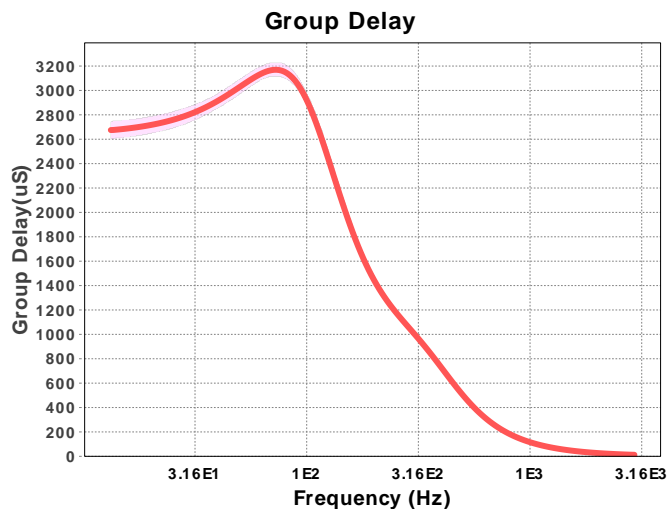
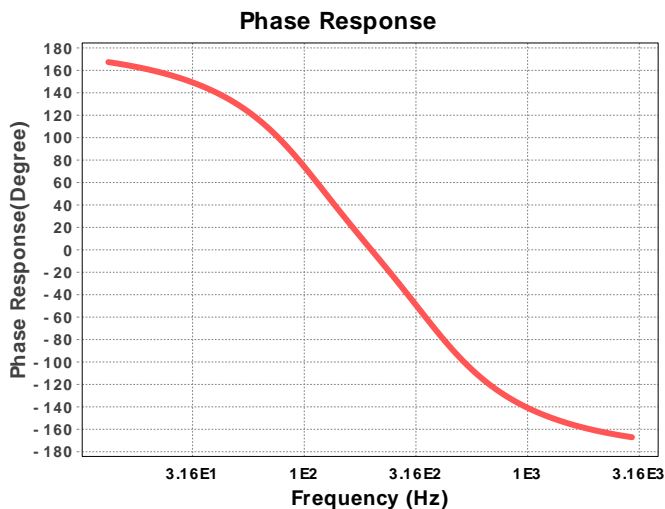
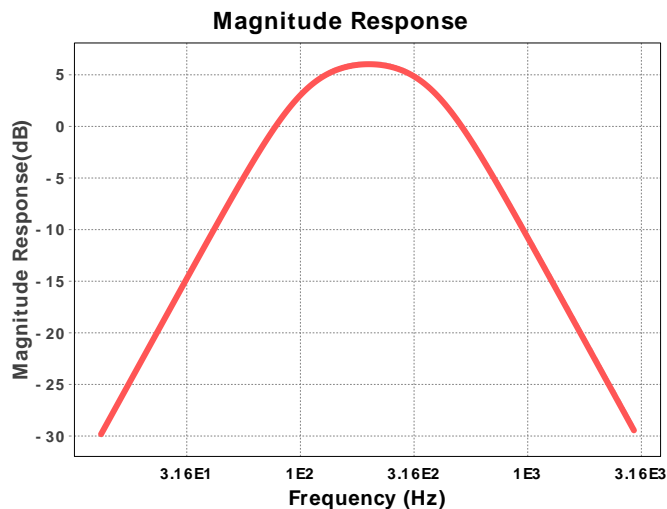
#	Name	Manufacturer	Part Number	Properties	Qty
1.	A1_S1	Texas Instruments Inc.	TLV2711	GbwTyp= 0.065MHz VccMax= 10V VccMin= 2.7V	1
2.	A1_S2	Texas Instruments Inc.	TLV2711	GbwTyp= 0.065MHz VccMax= 10V VccMin= 2.7V	1
3.	C1_S1	Generic	Ideal	Cap= 100.0 nF Tolerance= 2.0 %	1
4.	C1_S2	Generic	Ideal	Cap= 100.0 nF Tolerance= 2.0 %	1
5.	C2_S1	Generic	Ideal	Cap= 100.0 nF Tolerance= 2.0 %	1
6.	C2_S2	Generic	Ideal	Cap= 100.0 nF Tolerance= 2.0 %	1
7.	R1_S1	Generic	Ideal	Res= 10700.0ohm Tolerance= 1%	1
8.	R1_S2	Generic	Ideal	Res= 3160.0ohm Tolerance= 1%	1
9.	R2_S1	Generic	Ideal	Res= 16200.0ohm Tolerance= 1%	1
10.	R2_S2	Generic	Ideal	Res= 4750.0ohm Tolerance= 1%	1
11.	R3_S1	Generic	Ideal	Res= 34000.0ohm Tolerance= 1%	1
12.	R3_S2	Generic	Ideal	Res= 9760.0ohm Tolerance= 1%	1
13.	R4_S1	Generic	Ideal	Res= 2610.0ohm Tolerance= 1%	1

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#	Name	Manufacturer	Part Number	Properties	Qty
14.	R4_S2	Generic	Ideal	Res= 2610.0ohm Tolerance= 1%	1
15.	R5_S1	Generic	Ideal	Res= 2490.0ohm Tolerance= 1%	1
16.	R5_S2	Generic	Ideal	Res= 2490.0ohm Tolerance= 1%	1

### Sensitivity Analysis

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



## Design Inputs

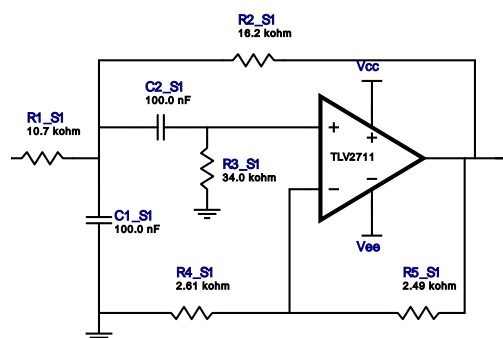
#	Name	Value	Description
1.	FilterType	bandpass	
2.	FilterResponse	Bessel	
3.	FilterOrder	4.0	
4.	FilterTopology	Sallen-Key	
5.	NumberOfStages	2.0	
6.	CenterFrequency	200.0	
7.	StopbandAttenuation	-17.385	
8.	PassbandBandwidth	300.0	
9.	StopbandBandwidth	1,000.0	
10.	Gain	2.0	
11.	SingleSupply	3.3	Power supply(s) to active chips
12.	ResistorTolerance	E96	Resistor series - 1% Passive resistor tolerance
13.	CapacitorTolerance	E48	Capacitor series - 2% Passive capacitor tolerance

## Design Assistance

1. **TLV2711** Product Folder : <http://www.ti.com/product/TLV2711> : contains the data sheet and other resources.

## Filter Stage :1

Cutoff Frequency      107.524 Hz  
 Min GBW Req'd        15.251 kHz  
 Stage Gain            1.954 V/V  
 Stage Q                723.405 m  
 Stage Topology        Sallen-Key

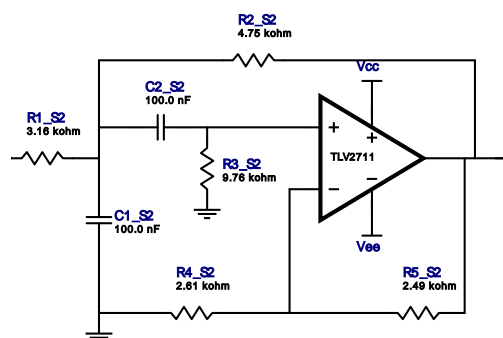


## Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty
1.	A1_S1	Texas Instruments Inc.	TLV2711	GbwTyp= 0.065MHz VccMax= 10V VccMin= 2.7V	1
2.	C1_S1	Generic	Ideal	Cap= 100.0 nF Tolerance= 2.0 %	1
3.	C2_S1	Generic	Ideal	Cap= 100.0 nF Tolerance= 2.0 %	1
4.	R1_S1	Generic	Ideal	Res= 10700.0ohm Tolerance= 1%	1
5.	R2_S1	Generic	Ideal	Res= 16200.0ohm Tolerance= 1%	1
6.	R3_S1	Generic	Ideal	Res= 34000.0ohm Tolerance= 1%	1
7.	R4_S1	Generic	Ideal	Res= 2610.0ohm Tolerance= 1%	1
8.	R5_S1	Generic	Ideal	Res= 2490.0ohm Tolerance= 1%	1

## Filter Stage :2

Cutoff Frequency      369.822 Hz  
 Min GBW Req'd        52.673 kHz  
 Stage Gain            1.954 V/V  
 Stage Q                724.951 m  
 Stage Topology        Sallen-Key



### Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty
1.	A1_S2	Texas Instruments Inc.	TLV2711	GbwTyp= 0.065MHz VccMax= 10V VccMin= 2.7V	1
2.	C1_S2	Generic	Ideal	Cap= 100.0 nF Tolerance= 2.0 %	1
3.	C2_S2	Generic	Ideal	Cap= 100.0 nF Tolerance= 2.0 %	1
4.	R1_S2	Generic	Ideal	Res= 3160.0ohm Tolerance= 1%	1
5.	R2_S2	Generic	Ideal	Res= 4750.0ohm Tolerance= 1%	1
6.	R3_S2	Generic	Ideal	Res= 9760.0ohm Tolerance= 1%	1
7.	R4_S2	Generic	Ideal	Res= 2610.0ohm Tolerance= 1%	1

#	Name	Manufacturer	Part Number	Properties	Qty
8.	R5_S2	Generic	Ideal	Res= 2490.0ohm Tolerance= 1%	1

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