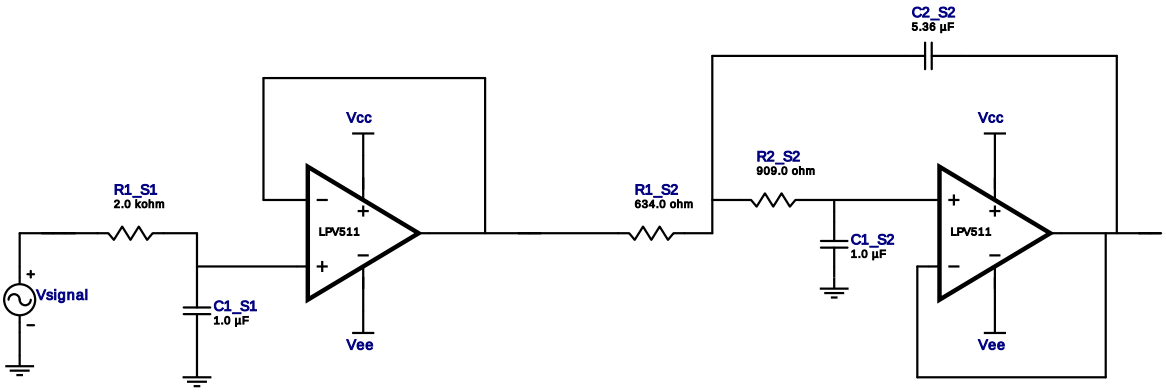
Type : Lowpass
Response : Chebyshev
Order : 3
Number of Stages : 2

Filter Design Report

Design : Lowpass Filter - 3rd order Chebyshev
Design ID: 8

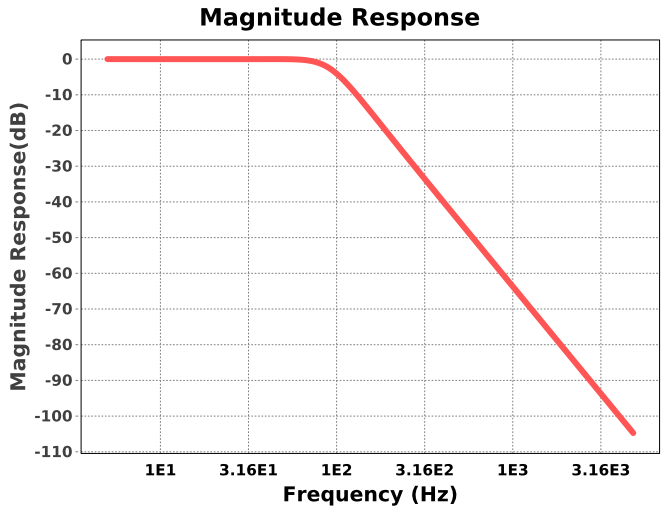


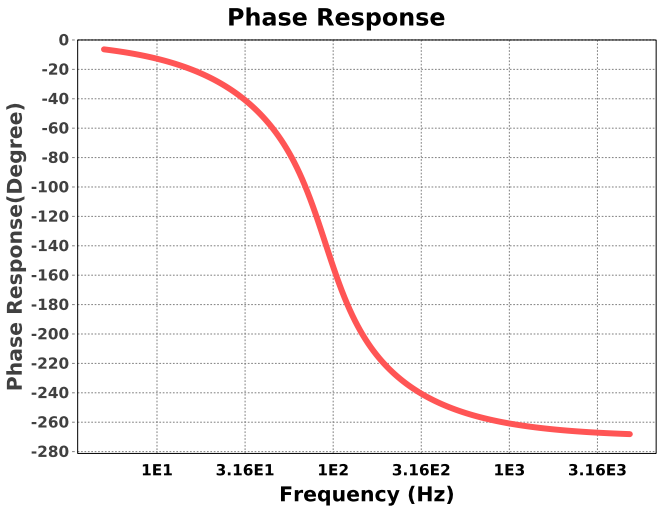
Electrical BOM

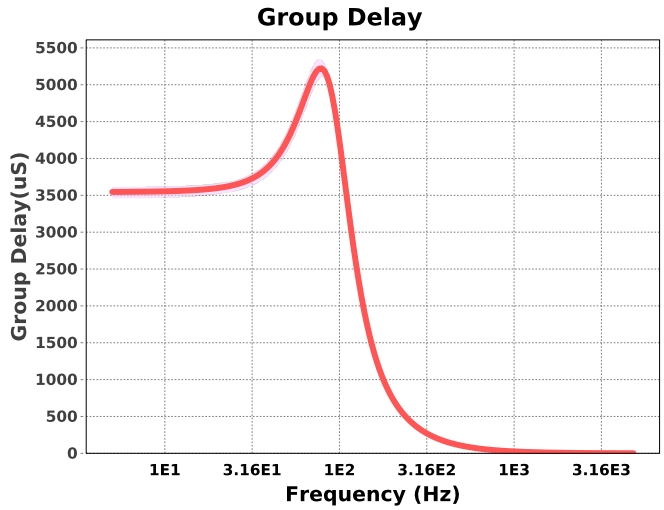
#	Name	Manufacturer	Part Number	Properties	Qty
1.	A1_S1	Texas Instruments Inc.	LPV511	GbwTyp= 0.027MHz VccMax= 12V VccMin= 2.7V	1
2.	A1_S2	Texas Instruments Inc.	LPV511	GbwTyp= 0.027MHz VccMax= 12V VccMin= 2.7V	1
3.	C1_S1	Generic	Ideal	Cap= 1.0 uF Tolerance= 2.0 %	1
4.	C1_S2	Generic	Ideal	Cap= 1.0 uF Tolerance= 2.0 %	1
5.	C2_S2	Generic	Ideal	Cap= 5.36 uF Tolerance= 2.0 %	1
6.	R1_S1	Generic	Ideal	Res= 2000.0ohm Tolerance= 1%	1
7.	R1_S2	Generic	Ideal	Res= 634.0ohm Tolerance= 1%	1
8.	R2_S2	Generic	Ideal	Res= 909.0ohm Tolerance= 1%	1

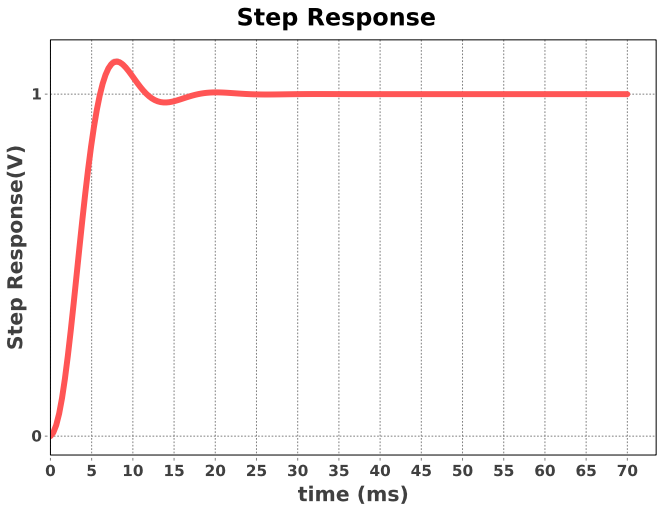
Sensitivity Analysis

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









Design Inputs

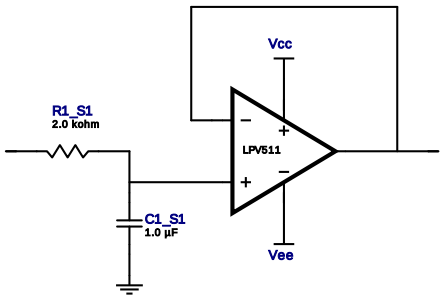
#	Name	Value	Description
1.	FilterType	lowpass	
2.	FilterResponse	Chebyshev	
3.	FilterOrder	3.0	
4.	FilterTopology	Single Pole	
5.	NumberOfStages	2.0	
6.	PassbandFrequency	50.0	
7.	StopbandAttenuation	-45.604	
8.	StopbandFrequency	500.0	
9.	Gain	1.0	
10.	DualSupply	+/-5.00 V	Power supply(s) to active chips
11.	ResistorTolerance	E96	Resistor series - 1% Passive resistor tolerance
12.	CapacitorTolerance	E48	Capacitor series - 2% Passive capacitor tolerance

Design Assistance

1. **LPV511** Product Folder : http://www.ti.com/product/LPV511 : contains the data sheet and other resources.

Filter Stage :1

Cutoff Frequency	79.577 Hz
Min GBW Reqd	3.973 kHz
Stage Gain	1.0 V/V
Stage Q	500.0 m
Stage Topology	Single Pole

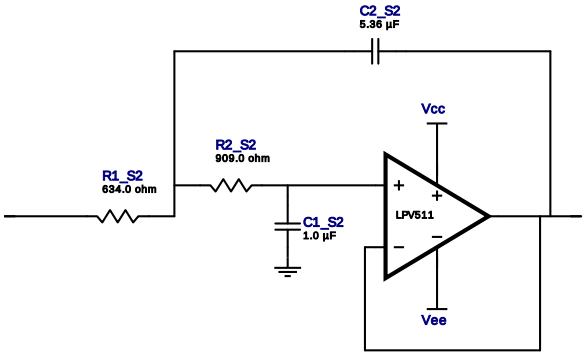


Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty
1.	A1_S1	Texas Instruments Inc.	LPV511	GbwTyp= 0.027MHz VccMax= 12V VccMin= 2.7V	1
2.	C1_S1	Generic	Ideal	Cap= 1.0 uF Tolerance= 2.0 %	1
3.	R1_S1	Generic	Ideal	Res= 2000.0ohm Tolerance= 1%	1

Filter Stage :2

Cutoff Frequency	90.555 Hz
Min GBW Reqd	10.306 kHz
Stage Gain	1.0 V/V
Stage Q	1.139
Stage Topology	Sallen-Key



Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty
1.	A1_S2	Texas Instruments Inc.	LPV511	GbwTyp= 0.027MHz VccMax= 12V VccMin= 2.7V	1
2.	C1_S2	Generic	Ideal	Cap= 1.0 uF Tolerance= 2.0 %	1
3.	C2_S2	Generic	Ideal	Cap= 5.36 uF Tolerance= 2.0 %	1
4.	R1_S2	Generic	Ideal	Res= 634.0ohm Tolerance= 1%	1
5.	R2_S2	Generic	Ideal	Res= 909.0ohm Tolerance= 1%	1