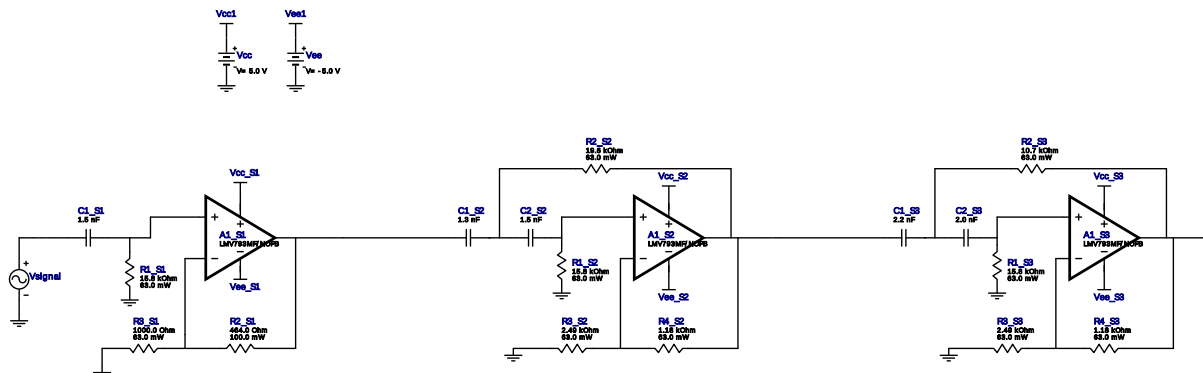


WEBENCH® Design Report

Design : 4412135/9 LMV793MF/NOPB
Highpass, Sallen Key, Bessel



My Comments

No comments

Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	A1_S1	Texas Instruments, Inc.	LMV793MF/NOPB	GbwTyp= 88.0MHz VccMin= 1.8 V VccMax= 5.0 V	1	\$0.51	 DBV0005A 15 mm ²
2.	A1_S2	Texas Instruments, Inc.	LMV793MF/NOPB	GbwTyp= 88.0MHz VccMin= 1.8 V VccMax= 5.0 V	1	\$0.51	 DBV0005A 15 mm ²
3.	A1_S3	Texas Instruments, Inc.	LMV793MF/NOPB	GbwTyp= 88.0MHz VccMin= 1.8 V VccMax= 5.0 V	1	\$0.51	 DBV0005A 15 mm ²
4.	C1_S1	MuRata	GRM1885C1H152JA01D Series= C0G/NP0	Cap= 1.5 nF VDC= 50.0 V Tolerance= 5.0 %	1	\$0.01	 0603 5 mm ²
5.	C1_S2	MuRata	GRM1885C1E132JA01D Series= C0G/NP0	Cap= 1.3 nF VDC= 25.0 V Tolerance= 5.0 %	1	\$0.02	 0603 5 mm ²
6.	C1_S3	AVX	04025A221JAT2A Series= C0G/NP0	Cap= 2.2 nF VDC= 50.0 V Tolerance= 5.0 %	1	\$0.01	 0402 3 mm ²
7.	C2_S2	MuRata	GRM1885C1H152JA01D Series= C0G/NP0	Cap= 1.5 nF VDC= 50.0 V Tolerance= 5.0 %	1	\$0.01	 0603 5 mm ²
8.	C2_S3	MuRata	GRM1885C1H202JA01D Series= C0G/NP0	Cap= 2.0 nF VDC= 50.0 V Tolerance= 5.0 %	1	\$0.01	 0603 5 mm ²
9.	R1_S1	Vishay-Dale	CRCW040215K8FKED Series= CRCW..e3	Res= 15.8 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
10.	R1_S2	Vishay-Dale	CRCW040215K8FKED Series= CRCW..e3	Res= 15.8 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
11.	R1_S3	Vishay-Dale	CRCW040215K8FKED Series= CRCW..e3	Res= 15.8 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
12.	R2_S1	Vishay-Dale	CRCW0603464RFKEA Series= CRCW..e3	Res= 464.0 Ohm Power= 100.0 mW Tolerance= 1.0%	1	\$0.01	0603 5 mm ²
13.	R2_S2	Vishay-Dale	CRCW040219K6FKED Series= CRCW..e3	Res= 19.6 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
14.	R2_S3	Vishay-Dale	CRCW040210K7FKED Series= CRCW..e3	Res= 10.7 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
15.	R3_S1	Vishay-Dale	CRCW04021K00FKED Series= CRCW..e3	Res= 1000.0 Ohm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
16.	R3_S2	Vishay-Dale	CRCW04022K49FKED Series= CRCW..e3	Res= 2.49 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
17.	R3_S3	Vishay-Dale	CRCW04022K49FKED Series= CRCW..e3	Res= 2.49 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
18.	R4_S2	Vishay-Dale	CRCW04021K18FKED Series= CRCW..e3	Res= 1.18 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
19.	R4_S3	Vishay-Dale	CRCW04021K18FKED Series= CRCW..e3	Res= 1.18 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²

Design Inputs

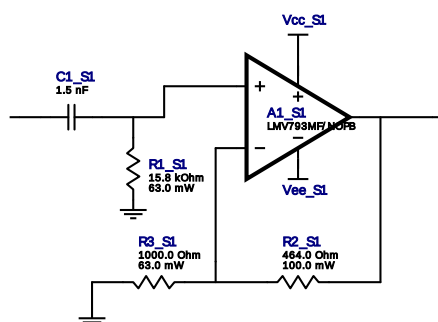
#	Name	Value	Description
1.	FilterType	Highpass	
2.	FilterResponse	Bessel	
3.	FilterOrder	5.0	
4.	FilterTopology	Sallen_Key	
5.	NumberOfStages	3.0	
6.	PassbandFrequency	10.0 k	
7.	StopbandAttenuation	-45.0	
8.	StopbandFrequency	2.0 k	
9.	Gain	3.162	
10.	DualSupply	+/-5.0 V	Power supply(s) to active chips
11.	ResistorTolerance	E96	Resistor series - 1% Passive resistor tolerance
12.	CapacitorTolerance	E24	Capacitor series - 5% Passive capacitance tolerance
13.	SeedCapacitance	1.0 n	Seed Capacitance to start design of filter

Design Assistance

1. **LMV793MF/NOPB** Product Folder : <http://www.ti.com//product/LMV793> : contains the data sheet and other resources.

Filter Stage :1

Cutoff Frequency 6.636 kHz
 Min GBW Req'd 487.06 kHz
 Stage Gain 1.468 V/V
 Stage Q 500.0 m
 Stage Topology Real_Pole

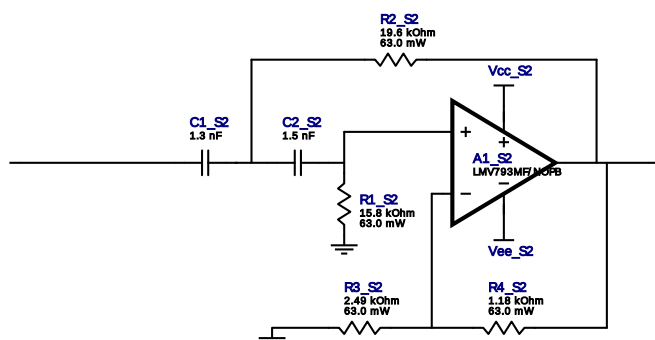


Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	A1_S1	Texas Instruments, Inc.	LMV793MF/NOPB	GbwTyp= 88.0MHz VccMin= 1.8 V VccMax= 5.0 V	1	\$0.51	 DBV0005A 15 mm ²
2.	C1_S1	MuRata	GRM1885C1H152JA01D Series= C0G/NP0	Cap= 1.5 nF VDC= 50.0 V Tolerance= 5.0 %	1	\$0.01	 0603 5 mm ²
3.	R1_S1	Vishay-Dale	CRCW040215K8FKED Series= CRCW..e3	Res= 15.8 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
4.	R2_S1	Vishay-Dale	CRCW0603464RFKEA Series= CRCW..e3	Res= 464.0 Ohm Power= 100.0 mW Tolerance= 1.0%	1	\$0.01	 0603 5 mm ²
5.	R3_S1	Vishay-Dale	CRCW04021K00FKED Series= CRCW..e3	Res= 1000.0 Ohm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²

Filter Stage :2

Cutoff Frequency 6.406 kHz
 Min GBW Req'd 526.637 kHz
 Stage Gain 1.468 V/V
 Stage Q 560.0 m
 Stage Topology Sallen_Key

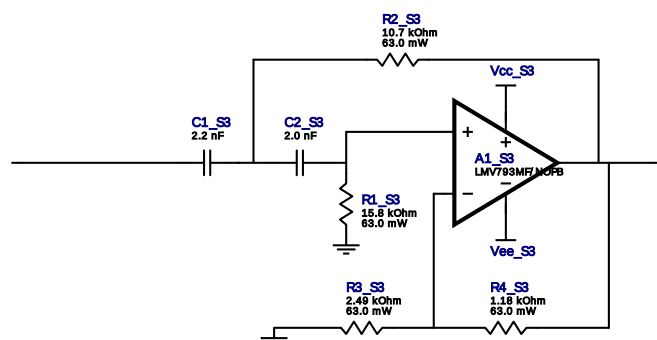


Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	A1_S2	Texas Instruments, Inc.	LMV793MF/NOPB	GbwTyp= 88.0MHz VccMin= 1.8 V VccMax= 5.0 V	1	\$0.51	 DBV0005A 15 mm ²
2.	C1_S2	MuRata	GRM1885C1E132JA01D Series= C0G/NP0	Cap= 1.3 nF VDC= 25.0 V Tolerance= 5.0 %	1	\$0.02	 0603 5 mm ²
3.	C2_S2	MuRata	GRM1885C1H152JA01D Series= C0G/NP0	Cap= 1.5 nF VDC= 50.0 V Tolerance= 5.0 %	1	\$0.01	 0603 5 mm ²
4.	R1_S2	Vishay-Dale	CRCW040215K8FKED Series= CRCW..e3	Res= 15.8 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
5.	R2_S2	Vishay-Dale	CRCW040219K6FKED Series= CRCW..e3	Res= 19.6 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
6.	R3_S2	Vishay-Dale	CRCW04022K49FKED Series= CRCW..e3	Res= 2.49 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
7.	R4_S2	Vishay-Dale	CRCW04021K18FKED Series= CRCW..e3	Res= 1.18 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²

Filter Stage :3

Cutoff Frequency 5.679 kHz
 Min GBW Req'd 766.928 kHz
 Stage Gain 1.468 V/V
 Stage Q 920.0 m
 Stage Topology Sallen_Key



Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	A1_S3	Texas Instruments, Inc.	LMV793MF/NOPB	GbwTyp= 88.0MHz VccMin= 1.8 V VccMax= 5.0 V	1	\$0.51	 DBV0005A 15 mm ²
2.	C1_S3	AVX	04025A221JAT2A Series= C0G/NP0	Cap= 2.2 nF VDC= 50.0 V Tolerance= 5.0 %	1	\$0.01	 0402 3 mm ²
3.	C2_S3	MuRata	GRM1885C1H202JA01D Series= C0G/NP0	Cap= 2.0 nF VDC= 50.0 V Tolerance= 5.0 %	1	\$0.01	 0603 5 mm ²
4.	R1_S3	Vishay-Dale	CRCW040215K8FKED Series= CRCW..e3	Res= 15.8 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
5.	R2_S3	Vishay-Dale	CRCW040210K7FKED Series= CRCW..e3	Res= 10.7 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
6.	R3_S3	Vishay-Dale	CRCW04022K49FKED Series= CRCW..e3	Res= 2.49 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
7.	R4_S3	Vishay-Dale	CRCW04021K18FKED Series= CRCW..e3	Res= 1.18 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²

Texas Instruments' WEBENCH simulation tools attempt to recreate the performance of a substantially equivalent physical implementation of the design. Simulations are created using Texas Instruments' published specifications as well as the published specifications of other device manufacturers. While Texas Instruments does update this information periodically, this information may not be current at the time the simulation is built. Texas Instruments does not warrant the accuracy or completeness of the specifications or any information contained therein. Texas Instruments does not warrant that any designs or recommended parts will meet the specifications you entered, will be suitable for your application or fit for any particular purpose, or will operate as shown in the simulation in a physical implementation. Texas Instruments does not warrant that the designs are production worthy.

You should completely validate and test your design implementation to confirm the system functionality for your application prior to production.

Use of Texas Instruments' WEBENCH simulation tools is subject to [Texas Instruments' Site Terms and Conditions of Use](#). Prototype boards based on WEBENCH created designs are provided AS IS without warranty of any kind for evaluation and testing purposes and are subject to the terms of the [Evaluation License Agreement](#).