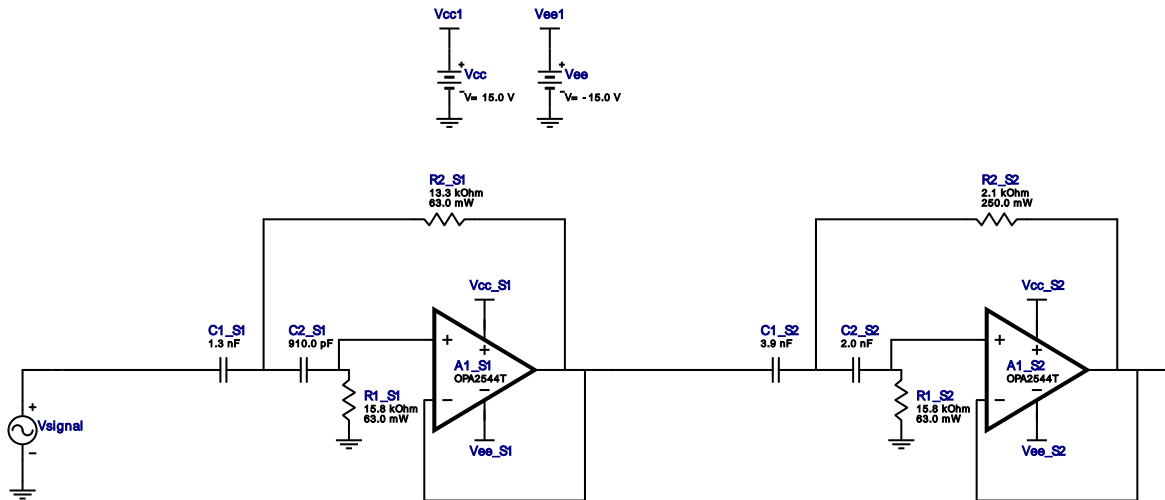


## WEBENCH® Design Report

 Design : 3778301/2 OPA2544T  
 Highpass, Sallen Key, Butterworth


### Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	A1_S1	Texas Instruments	OPA2544T	GbwTyp= 1.4 MHz VccMin= 20.0 V VccMax= 70.0 V	1	\$12.00	TO220-11 0 mm <sup>2</sup>
2.	A1_S2	Texas Instruments	OPA2544T	GbwTyp= 1.4 MHz VccMin= 20.0 V VccMax= 70.0 V	1	\$12.00	TO220-11 0 mm <sup>2</sup>
3.	C1_S1	MuRata	GRM1885C1E132JA01D Series= C0G/NP0	Cap= 1.3 nF VDC= 25.0 V Tolerance= 5.0 %	1	\$0.02	0603 5 mm <sup>2</sup>
4.	C1_S2	Samsung Electro-Mechanics	CL21C392JAANNNC Series= C0G/NP0	Cap= 3.9 nF VDC= 25.0 V Tolerance= 5.0 %	1	\$0.04	0805 7 mm <sup>2</sup>
5.	C2_S1	MuRata	GRM1555C1E9111JA01D Series= C0G/NP0	Cap= 910.0 pF VDC= 25.0 V Tolerance= 5.0 %	1	\$0.01	0402 3 mm <sup>2</sup>
6.	C2_S2	MuRata	GRM1885C1H202JA01D Series= C0G/NP0	Cap= 2.0 nF VDC= 50.0 V Tolerance= 5.0 %	1	\$0.02	0603 5 mm <sup>2</sup>
7.	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 <sup>2</sup>
8.	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 <sup>2</sup>
9.	R2_S1	Vishay-Dale	CRCW040213K3FKED Series= CRCW..e3	Res= 13.3 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm <sup>2</sup>
10.	R2_S2	Panasonic	ERJ-8ENF2101V Series= ERJ-8E	Res= 2.1 kOhm Power= 250.0 mW Tolerance= 1.0%	1	\$0.01	1206 11 mm <sup>2</sup>

### Design Inputs

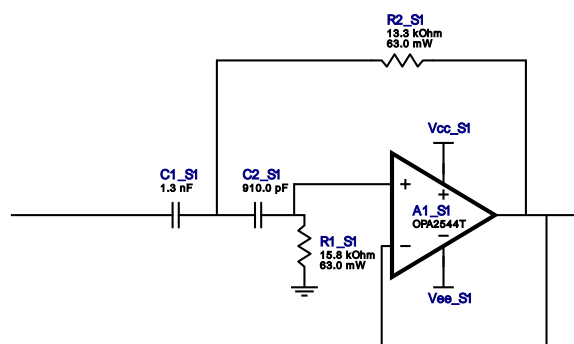
#	Name	Value	Description
1.	FilterType	Highpass	
2.	FilterResponse	Butterworth	
3.	FilterOrder	4.0	
4.	FilterTopology	Sallen_Key	
5.	NumberOfStages	2.0	
6.	PassbandFrequency	10.0 k	
7.	StopbandAttenuation	-45.0	
8.	StopbandFrequency	2.0 k	
9.	Gain	1.0	
10.	DualSupply	+/-15.0 V	Power supply(s) to active 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. **OPA2544T** Product Folder : <http://www.ti.com//product/OPA2544> : contains the data sheet and other resources.

## Filter Stage :1

Cutoff Frequency 10.0 kHz  
 Min GBW Req'd 540.0 kHz  
 Stage Gain 1.0 V/V  
 Stage Q 540.0 m  
 Stage Topology Sallen\_Key

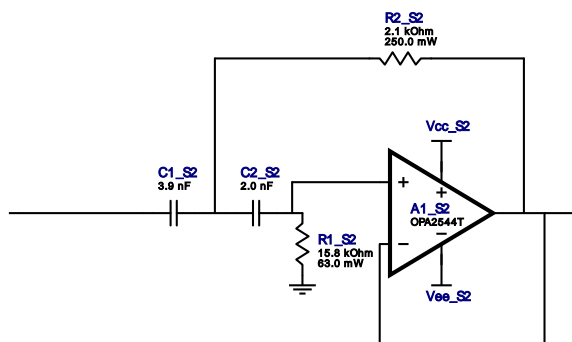


## Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	A1_S1	Texas Instruments	OPA2544T	GbwTyp= 1.4 MHz VccMin= 20.0 V VccMax= 70.0 V	1	\$12.00	TO220-11 0 mm <sup>2</sup>
2.	C1_S1	MuRata	GRM1885C1E132JA01D Series= C0G/NP0	Cap= 1.3 nF VDC= 25.0 V Tolerance= 5.0 %	1	\$0.02	0603 5 mm <sup>2</sup>
3.	C2_S1	MuRata	GRM1555C1E911JA01D Series= C0G/NP0	Cap= 910.0 pF VDC= 25.0 V Tolerance= 5.0 %	1	\$0.01	0402 3 mm <sup>2</sup>
4.	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 <sup>2</sup>
5.	R2_S1	Vishay-Dale	CRCW040213K3FKED Series= CRCW..e3	Res= 13.3 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm <sup>2</sup>

## Filter Stage :2

Cutoff Frequency	10.0 kHz
Min GBW Req'd	1.31 MHz
Stage Gain	1.0 V/V
Stage Q	1.31
Stage Topology	Sallen_Key



## Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	A1_S2	Texas Instruments	OPA2544T	GbwTyp= 1.4 MHz VccMin= 20.0 V VccMax= 70.0 V	1	\$12.00	TO220-11 0 mm <sup>2</sup>
2.	C1_S2	Samsung Electro-Mechanics	CL21C392JAANNNC Series= C0G/NP0	Cap= 3.9 nF VDC= 25.0 V Tolerance= 5.0 %	1	\$0.04	0805 7 mm <sup>2</sup>
3.	C2_S2	MuRata	GRM1885C1H202JA01D Series= C0G/NP0	Cap= 2.0 nF VDC= 50.0 V Tolerance= 5.0 %	1	\$0.02	0603 5 mm <sup>2</sup>
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 <sup>2</sup>
5.	R2_S2	Panasonic	ERJ-8ENF2101V Series= ERJ-8E	Res= 2.1 kOhm Power= 250.0 mW Tolerance= 1.0%	1	\$0.01	1206 11 mm <sup>2</sup>

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