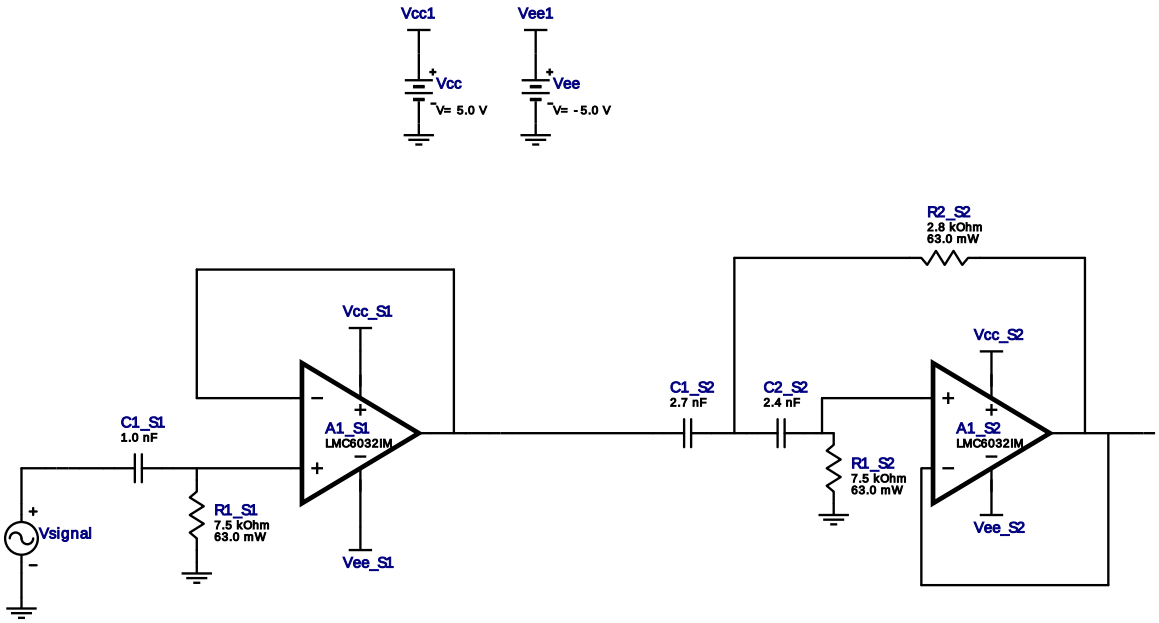
Type : Highpass
Response : Gaussian_12dB
Order : 3
Number of Stages : 2

Device = LMC6032IM
Created = Jun 13 2015 7:28AM

WEBENCH® Design Report

Design : 3728462/8 LMC6032IM
Highpass, Sallen Key, Gaussian to 12 dB



Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	A1_S1	Texas Instruments	LMC6032IM	GbwTyp= 1.4 MHz VccMin= 4.75 V VccMax= 15.5 V	1	$0.32	SOIC 0 mm²
2.	A1_S2	Texas Instruments	LMC6032IM	GbwTyp= 1.4 MHz VccMin= 4.75 V VccMax= 15.5 V	1	$0.32	SOIC 0 mm²
3.	C1_S1	Samsung Electro-Mechanics	CL05C102JO5NNNC Series= C0G/NP0	Cap= 1.0 nF VDC= 16.0 V Tolerance= 5.0 %	1	$0.01	0402 3 mm²
4.	C1_S2	MuRata	GRM1885C1H272JA01J Series= C0G/NP0	Cap= 2.7 nF VDC= 50.0 V Tolerance= 5.0 %	1	$0.02	0603 5 mm²
5.	C2_S2	MuRata	GRM1885C1H242JA01D Series= C0G/NP0	Cap= 2.4 nF VDC= 50.0 V Tolerance= 5.0 %	1	$0.02	0603 5 mm²
6.	R1_S1	Vishay-Dale	CRCW04027K50FKED Series= CRCW..e3	Res= 7.5 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm²
7.	R1_S2	Vishay-Dale	CRCW04027K50FKED Series= CRCW..e3	Res= 7.5 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm²
8.	R2_S2	Vishay-Dale	CRCW04022K80FKED Series= CRCW..e3	Res= 2.8 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm²

Design Inputs

#	Name	Value	Description
1.	FilterType	Highpass	
2.	FilterResponse	Gaussian_12dB	

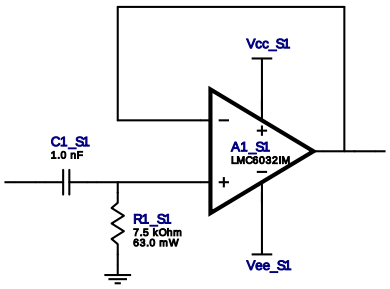
#	Name	Value	Description
3.	FilterOrder	3.0	
4.	FilterTopology	Sallen_Key	
5.	NumberOfStages	2.0	
6.	PassbandFrequency	21.0 k	
7.	StopbandAttenuation	-45.0	
8.	StopbandFrequency	2.0 k	
9.	Gain	1.0	
10.	DualSupply	+/-5.0 V	Power supply(s) to active chips
11.	ResistorTolerance	E96	Resistor series - 1% 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. **LMC6032IM** Product Folder : http://www.ti.com//product/LMC6032 : contains the data sheet and other resources.

Filter Stage :1

Cutoff Frequency	21.807 kHz
Min GBW Reqd	1.09 MHz
Stage Gain	1.0 V/V
Stage Q	500.0 m
Stage Topology	Real_Pole

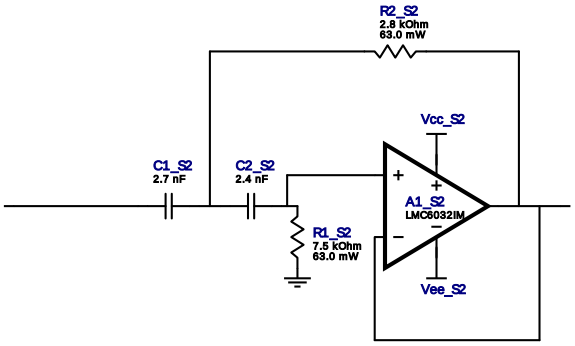


Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	A1_S1	Texas Instruments	LMC6032IM	GbwTyp= 1.4 MHz VccMin= 4.75 V VccMax= 15.5 V	1	$0.32	SOIC 0 mm^2
2.	C1_S1	Samsung Electro-Mechanics	CL05C102JO5NNNC Series= C0G/NP0	Cap= 1.0 nF VDC= 16.0 V Tolerance= 5.0 %	1	$0.01	0402 3 mm^2
3.	R1_S1	Vishay-Dale	CRCW04027K50FKED Series= CRCW..e3	Res= 7.5 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm^2

Filter Stage :2

Cutoff Frequency	13.681 kHz
Min GBW Reqd	1.122 MHz
Stage Gain	1.0 V/V
Stage Q	820.0 m
Stage Topology	Sallen_Key



Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	A1_S2	Texas Instruments	LMC6032IM	GbwTyp= 1.4 MHz VccMin= 4.75 V VccMax= 15.5 V	1	$0.32	SOIC 0 mm²
2.	C1_S2	MuRata	GRM1885C1H272JA01J Series= C0G/NP0	Cap= 2.7 nF VDC= 50.0 V Tolerance= 5.0 %	1	$0.02	0603 5 mm²
3.	C2_S2	MuRata	GRM1885C1H242JA01D Series= C0G/NP0	Cap= 2.4 nF VDC= 50.0 V Tolerance= 5.0 %	1	$0.02	0603 5 mm²
4.	R1_S2	Vishay-Dale	CRCW04027K50FKED Series= CRCW..e3	Res= 7.5 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm²
5.	R2_S2	Vishay-Dale	CRCW04022K80FKED Series= CRCW..e3	Res= 2.8 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm²