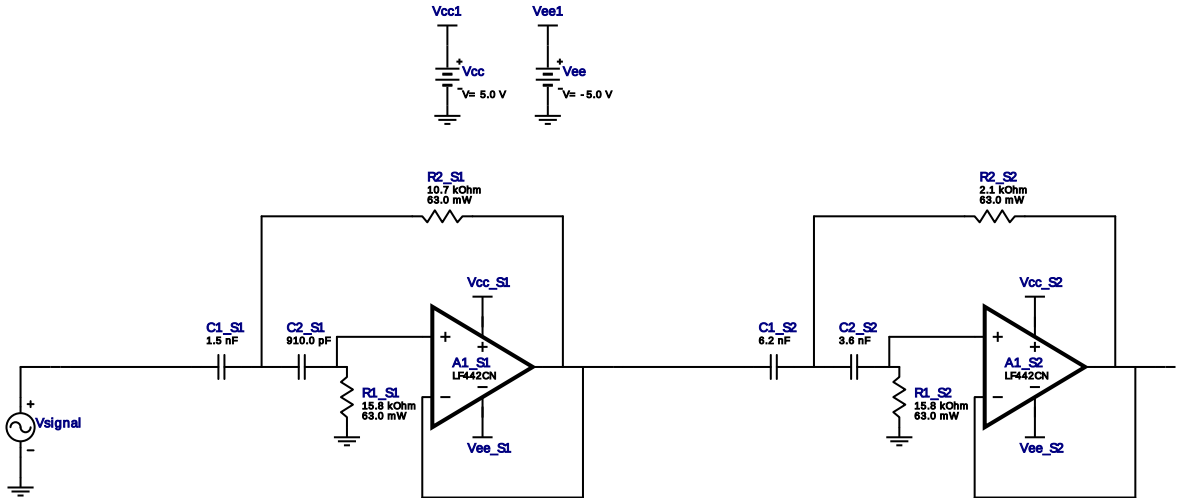
Type : Highpass
Response : Gaussian_6dB
Order : 4
Number of Stages : 2

Device = LF442CN
Created = Jun 12 2015 1:20AM

WEBENCH® Design Report

Design : 4111572/4 LF442CN
Highpass, Sallen Key, Gaussian to 6 dB



Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	A1_S1	Texas Instruments	LF442CN	GbwTyp= 1.0 MHz VccMin= 6.0 V VccMax= 36.0 V	1	$0.55	DIP 0 mm²
2.	A1_S2	Texas Instruments	LF442CN	GbwTyp= 1.0 MHz VccMin= 6.0 V VccMax= 36.0 V	1	$0.55	DIP 0 mm²
3.	C1_S1	MuRata	GRM1885C1E152JA01D Series= C0G/NP0	Cap= 1.5 nF VDC= 25.0 V Tolerance= 5.0 %	1	$0.02	0603 5 mm²
4.	C1_S2	MuRata	GRM2195C1H622JA01D Series= C0G/NP0	Cap= 6.2 nF VDC= 50.0 V Tolerance= 5.0 %	1	$0.05	0805 7 mm²
5.	C2_S1	MuRata	GRM1555C1E911JA01D Series= C0G/NP0	Cap= 910.0 pF VDC= 25.0 V Tolerance= 5.0 %	1	$0.01	0402 3 mm²
6.	C2_S2	MuRata	GRM1885C1H362JA01D Series= C0G/NP0	Cap= 3.6 nF VDC= 50.0 V Tolerance= 5.0 %	1	$0.03	0603 5 mm²
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 mm²
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 mm²
9.	R2_S1	Vishay-Dale	CRCW040210K7FKED Series= CRCW..e3	Res= 10.7 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm²
10.	R2_S2	Vishay-Dale	CRCW04022K10FKED Series= CRCW..e3	Res= 2.1 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm²

Design Inputs

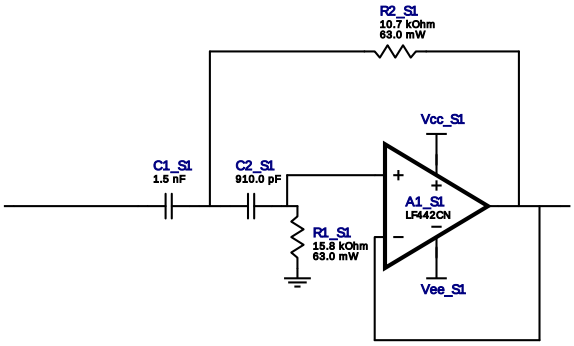
#	Name	Value	Description
1.	FilterType	Highpass	
2.	FilterResponse	Gaussian_6dB	
3.	FilterOrder	4.0	
4.	FilterTopology	Sallen_Key	
5.	NumberOfStages	2.0	
6.	PassbandFrequency	10.0 k	
7.	StopbandAttenuation	-45.0	
8.	StopbandFrequency	2.0 k	
9.	Gain	1.0	
10.	DualSupply	+/-5.0 V	Power supply(s) to active 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. **LF442CN** Product Folder : http://www.ti.com//product/LF442 : contains the data sheet and other resources.

Filter Stage :1

Cutoff Frequency	10.638 kHz
Min GBW Reqd	627.66 kHz
Stage Gain	1.0 V/V
Stage Q	590.0 m
Stage Topology	Sallen_Key

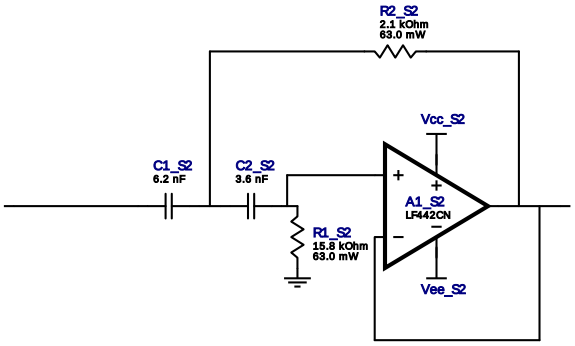


Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	A1_S1	Texas Instruments	LF442CN	GbwTyp= 1.0 MHz VccMin= 6.0 V VccMax= 36.0 V	1	$0.55	DIP 0 mm²
2.	C1_S1	MuRata	GRM1885C1E152JA01D Series= C0G/NP0	Cap= 1.5 nF VDC= 25.0 V Tolerance= 5.0 %	1	$0.02	0603 5 mm²
3.	C2_S1	MuRata	GRM1555C1E911JA01D Series= C0G/NP0	Cap= 910.0 pF VDC= 25.0 V Tolerance= 5.0 %	1	$0.01	0402 3 mm²
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 mm²
5.	R2_S1	Vishay-Dale	CRCW040210K7FKED Series= CRCW..e3	Res= 10.7 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm²

Filter Stage :2

Cutoff Frequency	6.006 kHz
Min GBW Reqd	792.793 kHz
Stage Gain	1.0 V/V
Stage Q	1.32
Stage Topology	Sallen_Key



Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	A1_S2	Texas Instruments	LF442CN	GbwTyp= 1.0 MHz VccMin= 6.0 V VccMax= 36.0 V	1	$0.55	DIP 0 mm²
2.	C1_S2	MuRata	GRM2195C1H622JA01D Series= C0G/NP0	Cap= 6.2 nF VDC= 50.0 V Tolerance= 5.0 %	1	$0.05	0805 7 mm²
3.	C2_S2	MuRata	GRM1885C1H362JA01D Series= C0G/NP0	Cap= 3.6 nF VDC= 50.0 V Tolerance= 5.0 %	1	$0.03	0603 5 mm²
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 mm²
5.	R2_S2	Vishay-Dale	CRCW04022K10FKED Series= CRCW..e3	Res= 2.1 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm²