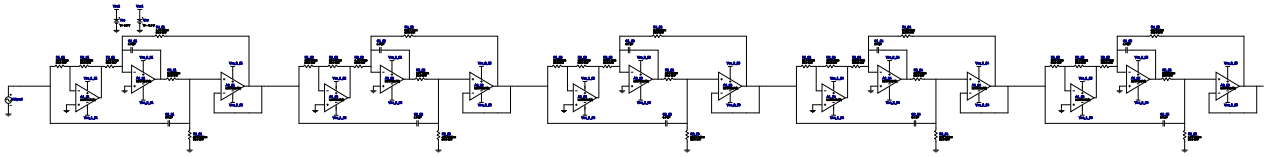
Type : Bandstop
Response : Butterworth
Order : 10
Number of Stages : 0

Device = LMC7111AIN
Created = Jul 16 2015 6:56PM

WEBENCH® Design Report

Design : 4232493/8 LMC7111AIN
Bandstop, Bainter, Butterworth



Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	A1_S1	Texas Instruments	LMC7111AIN	GbwTyp= 50.0 mMHz VccMin= 2.7 V VccMax= 11.0 V	1	$0.55	DIP 0 mm²
2.	A1_S2	Texas Instruments	LMC7111AIN	GbwTyp= 50.0 mMHz VccMin= 2.7 V VccMax= 11.0 V	1	$0.55	DIP 0 mm²
3.	A1_S3	Texas Instruments	LMC7111AIN	GbwTyp= 50.0 mMHz VccMin= 2.7 V VccMax= 11.0 V	1	$0.55	DIP 0 mm²
4.	A1_S4	Texas Instruments	LMC7111AIN	GbwTyp= 50.0 mMHz VccMin= 2.7 V VccMax= 11.0 V	1	$0.55	DIP 0 mm²
5.	A1_S5	Texas Instruments	LMC7111AIN	GbwTyp= 50.0 mMHz VccMin= 2.7 V VccMax= 11.0 V	1	$0.55	DIP 0 mm²
6.	A2_S1	Texas Instruments	LMC7111AIN	GbwTyp= 50.0 mMHz VccMin= 2.7 V VccMax= 11.0 V	1	$0.55	DIP 0 mm²
7.	A2_S2	Texas Instruments	LMC7111AIN	GbwTyp= 50.0 mMHz VccMin= 2.7 V VccMax= 11.0 V	1	$0.55	DIP 0 mm²
8.	A2_S3	Texas Instruments	LMC7111AIN	GbwTyp= 50.0 mMHz VccMin= 2.7 V VccMax= 11.0 V	1	$0.55	DIP 0 mm²
9.	A2_S4	Texas Instruments	LMC7111AIN	GbwTyp= 50.0 mMHz VccMin= 2.7 V VccMax= 11.0 V	1	$0.55	DIP 0 mm²
10.	A2_S5	Texas Instruments	LMC7111AIN	GbwTyp= 50.0 mMHz VccMin= 2.7 V VccMax= 11.0 V	1	$0.55	DIP 0 mm²
11.	A3_S1	Texas Instruments	LMC7111AIN	GbwTyp= 50.0 mMHz VccMin= 2.7 V VccMax= 11.0 V	1	$0.55	DIP 0 mm²
12.	A3_S2	Texas Instruments	LMC7111AIN	GbwTyp= 50.0 mMHz VccMin= 2.7 V VccMax= 11.0 V	1	$0.55	DIP 0 mm²
13.	A3_S3	Texas Instruments	LMC7111AIN	GbwTyp= 50.0 mMHz VccMin= 2.7 V VccMax= 11.0 V	1	$0.55	DIP 0 mm²
14.	A3_S4	Texas Instruments	LMC7111AIN	GbwTyp= 50.0 mMHz VccMin= 2.7 V VccMax= 11.0 V	1	$0.55	DIP 0 mm²
15.	A3_S5	Texas Instruments	LMC7111AIN	GbwTyp= 50.0 mMHz VccMin= 2.7 V VccMax= 11.0 V	1	$0.55	DIP 0 mm²

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
16.	C1_S1	CUSTOM	CUSTOM Series= ?	Cap= 1.0 uF VDC= 0.0 V Tolerance= 0.0 %	1	NA	CUSTOM 0 mm^2
17.	C1_S2	CUSTOM	CUSTOM Series= ?	Cap= 1.0 uF VDC= 0.0 V Tolerance= 0.0 %	1	NA	CUSTOM 0 mm^2
18.	C1_S3	CUSTOM	CUSTOM Series= ?	Cap= 1.0 uF VDC= 0.0 V Tolerance= 0.0 %	1	NA	CUSTOM 0 mm^2
19.	C1_S4	CUSTOM	CUSTOM Series= ?	Cap= 1.0 uF VDC= 0.0 V Tolerance= 0.0 %	1	NA	CUSTOM 0 mm^2
20.	C1_S5	CUSTOM	CUSTOM Series= ?	Cap= 1.0 uF VDC= 0.0 V Tolerance= 0.0 %	1	NA	CUSTOM 0 mm^2
21.	C2_S1	CUSTOM	CUSTOM Series= ?	Cap= 1.0 uF VDC= 0.0 V Tolerance= 0.0 %	1	NA	CUSTOM 0 mm^2
22.	C2_S2	CUSTOM	CUSTOM Series= ?	Cap= 1.0 uF VDC= 0.0 V Tolerance= 0.0 %	1	NA	CUSTOM 0 mm^2
23.	C2_S3	CUSTOM	CUSTOM Series= ?	Cap= 1.0 uF VDC= 0.0 V Tolerance= 0.0 %	1	NA	CUSTOM 0 mm^2
24.	C2_S4	CUSTOM	CUSTOM Series= ?	Cap= 1.0 uF VDC= 0.0 V Tolerance= 0.0 %	1	NA	CUSTOM 0 mm^2
25.	C2_S5	CUSTOM	CUSTOM Series= ?	Cap= 1.0 uF VDC= 0.0 V Tolerance= 0.0 %	1	NA	CUSTOM 0 mm^2
26.	R1_S1	Vishay-Dale	CRCW040210K0FKED Series= CRCW..e3	Res= 10.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm^2
27.	R1_S2	Vishay-Dale	CRCW040210K0FKED Series= CRCW..e3	Res= 10.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm^2
28.	R1_S3	Vishay-Dale	CRCW040210K0FKED Series= CRCW..e3	Res= 10.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm^2
29.	R1_S4	Vishay-Dale	CRCW040210K0FKED Series= CRCW..e3	Res= 10.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm^2
30.	R1_S5	Vishay-Dale	CRCW040210K0FKED Series= CRCW..e3	Res= 10.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm^2
31.	R2_S1	Vishay-Dale	CRCW040210K0FKED Series= CRCW..e3	Res= 10.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm^2
32.	R2_S2	Vishay-Dale	CRCW040210K0FKED Series= CRCW..e3	Res= 10.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm^2
33.	R2_S3	Vishay-Dale	CRCW040210K0FKED Series= CRCW..e3	Res= 10.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm^2
34.	R2_S4	Vishay-Dale	CRCW040210K0FKED Series= CRCW..e3	Res= 10.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm^2
35.	R2_S5	Vishay-Dale	CRCW040210K0FKED Series= CRCW..e3	Res= 10.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm^2
36.	R3_S1	Vishay-Dale	CRCW04021K24FKED Series= CRCW..e3	Res= 1.24 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm^2

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
37.	R3_S2	Vishay-Dale	CRCW04021K13FKED Series= CRCW..e3	Res= 1.13 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm²
38.	R3_S3	Vishay-Dale	CRCW0402887RFKED Series= CRCW..e3	Res= 887.0 Ohm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm²
39.	R3_S4	Vishay-Dale	CRCW0603453RFKEA Series= CRCW..e3	Res= 453.0 Ohm Power= 100.0 mW Tolerance= 1.0%	1	$0.01	0603 5 mm²
40.	R3_S5	Vishay-Dale	CRCW0603316RFKEA Series= CRCW..e3	Res= 316.0 Ohm Power= 100.0 mW Tolerance= 1.0%	1	$0.01	0603 5 mm²
41.	R4_S1	Vishay-Dale	CRCW04021K24FKED Series= CRCW..e3	Res= 1.24 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm²
42.	R4_S2	Vishay-Dale	CRCW0402887RFKED Series= CRCW..e3	Res= 887.0 Ohm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm²
43.	R4_S3	Vishay-Dale	CRCW04021K13FKED Series= CRCW..e3	Res= 1.13 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm²
44.	R4_S4	Vishay-Dale	CRCW0805309RFKEA Series= CRCW..e3	Res= 309.0 Ohm Power= 125.0 mW Tolerance= 1.0%	1	$0.01	0805 7 mm²
45.	R4_S5	Vishay-Dale	CRCW0603464RFKEA Series= CRCW..e3	Res= 464.0 Ohm Power= 100.0 mW Tolerance= 1.0%	1	$0.01	0603 5 mm²
46.	R5_S1	Vishay-Dale	CRCW04028K06FKED Series= CRCW..e3	Res= 8.06 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm²
47.	R5_S2	Vishay-Dale	CRCW04028K87FKED Series= CRCW..e3	Res= 8.87 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm²
48.	R5_S3	Vishay-Dale	CRCW040211K3FKED Series= CRCW..e3	Res= 11.3 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm²
49.	R5_S4	Vishay-Dale	CRCW040222K1FKED Series= CRCW..e3	Res= 22.1 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm²
50.	R5_S5	Vishay-Dale	CRCW040232K4FKED Series= CRCW..e3	Res= 32.4 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm²
51.	R6_S1	Vishay-Dale	CRCW0402402KFKED Series= CRCW..e3	Res= 402.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm²
52.	R6_S2	Vishay-Dale	CRCW0402442KFKED Series= CRCW..e3	Res= 442.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm²
53.	R6_S3	Vishay-Dale	CRCW0402562KFKED Series= CRCW..e3	Res= 562.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm²
54.	R6_S4	Vishay-Dale	CRCW04021M07FKED Series= CRCW..e3	Res= 1.07 MOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm²
55.	R6_S5	Vishay-Dale	CRCW04021M58FKED Series= CRCW..e3	Res= 1.58 MOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm²

Design Inputs

#	Name	Value	Description
1.	FilterType	Bandstop	
2.	FilterResponse	Butterworth	
3.	FilterOrder	10.0	

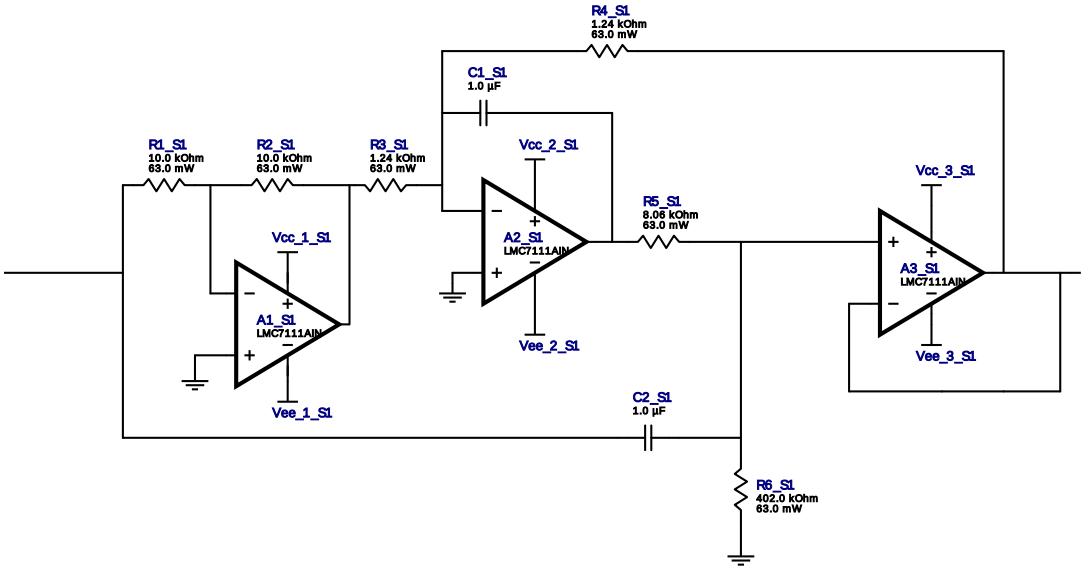
#	Name	Value	Description
4.	FilterTopology	Bainter	
5.	NumberOfStages	0.0	
6.	CenterFrequency	50.0	
7.	StopbandAttenuation	-45.0	
8.	PassbandBandwidth	20.0	
9.	StopbandBandwidth	6.0	
10.	Gain	1.0	
11.	DualSupply	+/-5.0 V	Power supply(s) to active chips
12.	ResistorTolerance	E96	Resistor series - 1% Passive resistor tolerance
13.	CapacitorTolerance	E24	Capacitor series - 5% Passive capacitance tolerance
14.	SeedCapacitance	1.0 µ	Seed Capacitance to start design of filter

Design Assistance

1. **LMC7111AIN** Product Folder : http://www.ti.com//product/LMC7111 : contains the data sheet and other resources.

Filter Stage :1

Cutoff Frequency	50.0 Hz
Min GBW Reqd	12.5 kHz
Stage Gain	1.0 V/V
Stage Q	2.5
Stage Topology	Bainter



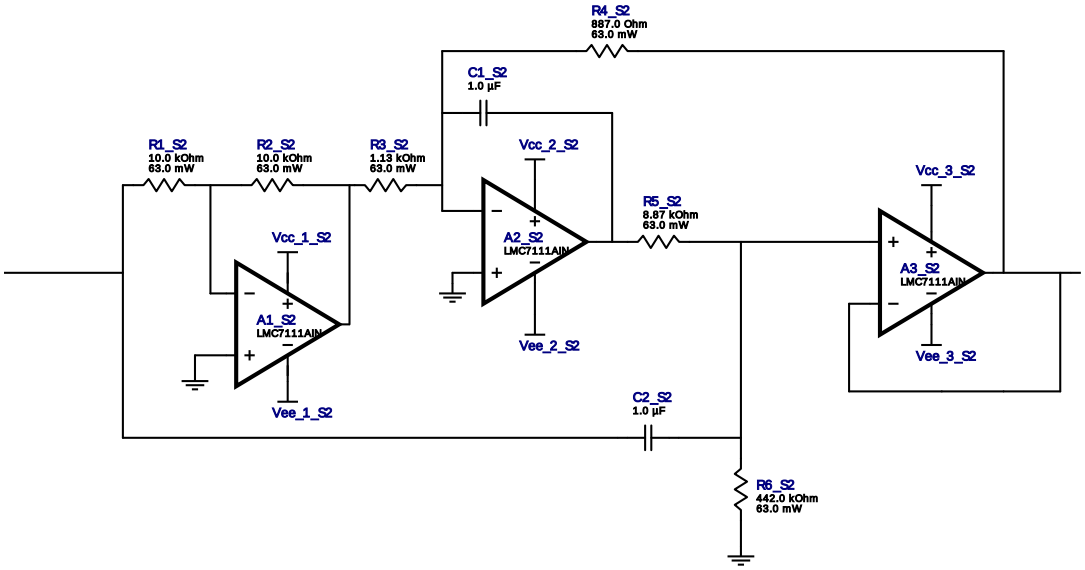
Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	A1_S1	Texas Instruments	LMC7111AIN	GbwTyp= 50.0 mMHz VccMin= 2.7 V VccMax= 11.0 V	1	$0.55	DIP 0 mm²
2.	A2_S1	Texas Instruments	LMC7111AIN	GbwTyp= 50.0 mMHz VccMin= 2.7 V VccMax= 11.0 V	1	$0.55	DIP 0 mm²
3.	A3_S1	Texas Instruments	LMC7111AIN	GbwTyp= 50.0 mMHz VccMin= 2.7 V VccMax= 11.0 V	1	$0.55	DIP 0 mm²
4.	C1_S1	CUSTOM	CUSTOM Series= ?	Cap= 1.0 uF VDC= 0.0 V Tolerance= 0.0 %	1	NA	CUSTOM 0 mm²
5.	C2_S1	CUSTOM	CUSTOM Series= ?	Cap= 1.0 uF VDC= 0.0 V Tolerance= 0.0 %	1	NA	CUSTOM 0 mm²
6.	R1_S1	Vishay-Dale	CRCW040210K0FKED Series= CRCW..e3	Res= 10.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm²
7.	R2_S1	Vishay-Dale	CRCW040210K0FKED Series= CRCW..e3	Res= 10.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm²
8.	R3_S1	Vishay-Dale	CRCW04021K24FKED Series= CRCW..e3	Res= 1.24 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm²
9.	R4_S1	Vishay-Dale	CRCW04021K24FKED Series= CRCW..e3	Res= 1.24 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm²
10.	R5_S1	Vishay-Dale	CRCW04028K06FKED Series= CRCW..e3	Res= 8.06 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm²

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
11.	R6_S1	Vishay-Dale	CRCW0402402KFKED Series= CRCW..e3	Res= 402.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	 0402 3 mm^2

Filter Stage :2

Cutoff Frequency	50.0 Hz
Min GBW Reqd	17.524 kHz
Stage Gain	1.0 V/V
Stage Q	3.112
Stage Topology	Bainter



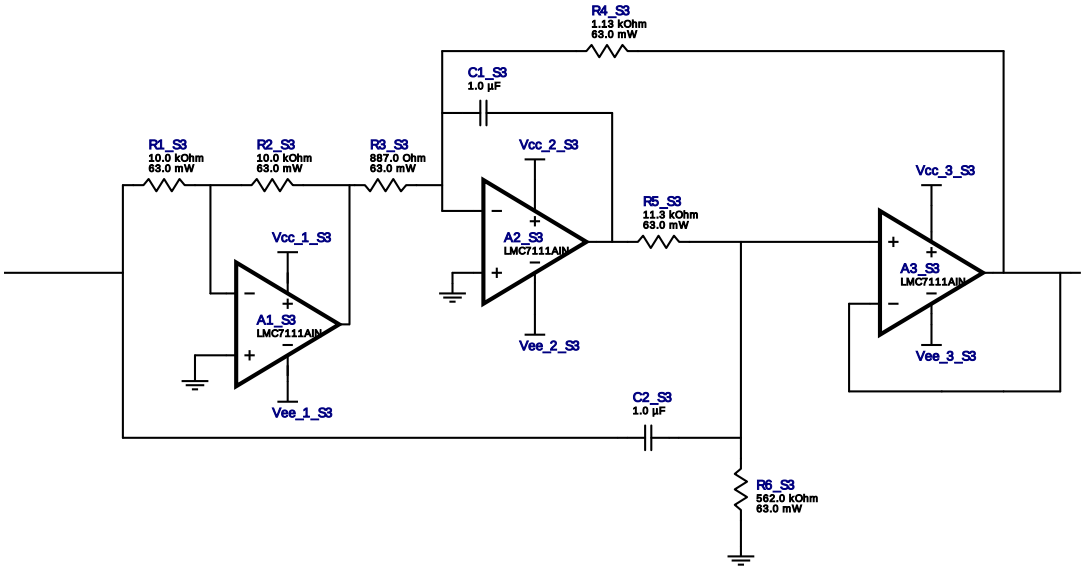
Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	A1_S2	Texas Instruments	LMC7111AIN	GbwTyp= 50.0 mMHz VccMin= 2.7 V VccMax= 11.0 V	1	$0.55	DIP 0 mm²
2.	A2_S2	Texas Instruments	LMC7111AIN	GbwTyp= 50.0 mMHz VccMin= 2.7 V VccMax= 11.0 V	1	$0.55	DIP 0 mm²
3.	A3_S2	Texas Instruments	LMC7111AIN	GbwTyp= 50.0 mMHz VccMin= 2.7 V VccMax= 11.0 V	1	$0.55	DIP 0 mm²
4.	C1_S2	CUSTOM	CUSTOM Series= ?	Cap= 1.0 uF VDC= 0.0 V Tolerance= 0.0 %	1	NA	CUSTOM 0 mm²
5.	C2_S2	CUSTOM	CUSTOM Series= ?	Cap= 1.0 uF VDC= 0.0 V Tolerance= 0.0 %	1	NA	CUSTOM 0 mm²
6.	R1_S2	Vishay-Dale	CRCW040210K0FKED Series= CRCW..e3	Res= 10.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm²
7.	R2_S2	Vishay-Dale	CRCW040210K0FKED Series= CRCW..e3	Res= 10.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm²
8.	R3_S2	Vishay-Dale	CRCW04021K13FKED Series= CRCW..e3	Res= 1.13 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm²
9.	R4_S2	Vishay-Dale	CRCW0402887RFKED Series= CRCW..e3	Res= 887.0 Ohm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm²
10.	R5_S2	Vishay-Dale	CRCW04028K87FKED Series= CRCW..e3	Res= 8.87 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm²

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
11.	R6_S2	Vishay-Dale	CRCW0402442KFKED Series= CRCW..e3	Res= 442.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	 0402 3 mm^2

Filter Stage :3

Cutoff Frequency	50.0 Hz
Min GBW Reqd	13.817 kHz
Stage Gain	1.0 V/V
Stage Q	3.112
Stage Topology	Bainter



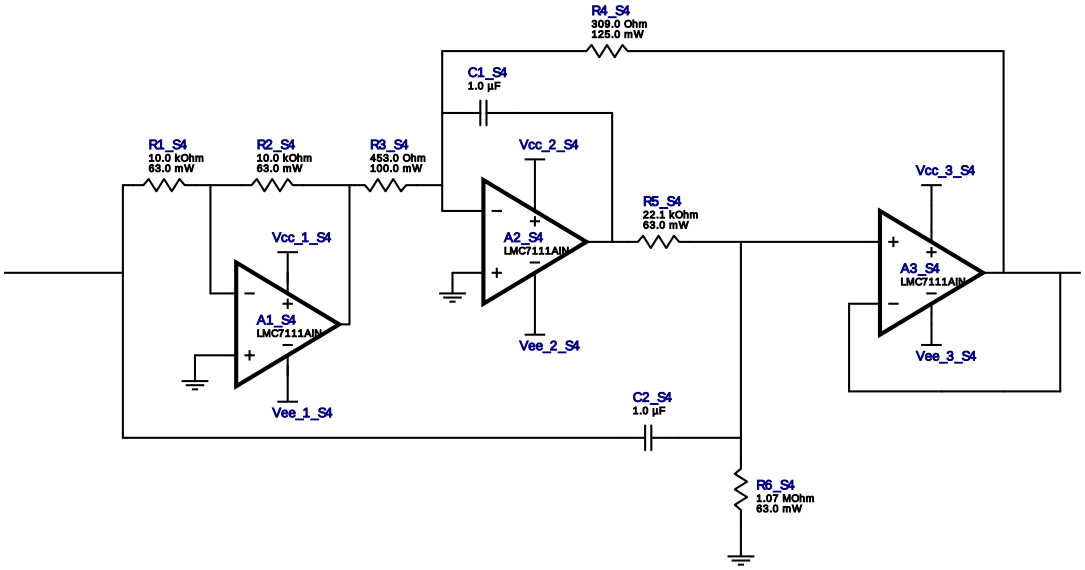
Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	A1_S3	Texas Instruments	LMC7111AIN	GbwTyp= 50.0 mMHz VccMin= 2.7 V VccMax= 11.0 V	1	$0.55	DIP 0 mm²
2.	A2_S3	Texas Instruments	LMC7111AIN	GbwTyp= 50.0 mMHz VccMin= 2.7 V VccMax= 11.0 V	1	$0.55	DIP 0 mm²
3.	A3_S3	Texas Instruments	LMC7111AIN	GbwTyp= 50.0 mMHz VccMin= 2.7 V VccMax= 11.0 V	1	$0.55	DIP 0 mm²
4.	C1_S3	CUSTOM	CUSTOM Series= ?	Cap= 1.0 uF VDC= 0.0 V Tolerance= 0.0 %	1	NA	CUSTOM 0 mm²
5.	C2_S3	CUSTOM	CUSTOM Series= ?	Cap= 1.0 uF VDC= 0.0 V Tolerance= 0.0 %	1	NA	CUSTOM 0 mm²
6.	R1_S3	Vishay-Dale	CRCW040210K0FKED Series= CRCW..e3	Res= 10.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm²
7.	R2_S3	Vishay-Dale	CRCW040210K0FKED Series= CRCW..e3	Res= 10.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm²
8.	R3_S3	Vishay-Dale	CRCW0402887RFKED Series= CRCW..e3	Res= 887.0 Ohm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm²
9.	R4_S3	Vishay-Dale	CRCW04021K13FKED Series= CRCW..e3	Res= 1.13 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm²
10.	R5_S3	Vishay-Dale	CRCW040211K3FKED Series= CRCW..e3	Res= 11.3 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm²

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
11.	R6_S3	Vishay-Dale	CRCW0402562KFKED Series= CRCW..e3	Res= 562.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	 0402 3 mm^2

Filter Stage :4

Cutoff Frequency	50.0 Hz
Min GBW Reqd	49.773 kHz
Stage Gain	1.0 V/V
Stage Q	8.237
Stage Topology	Bainter



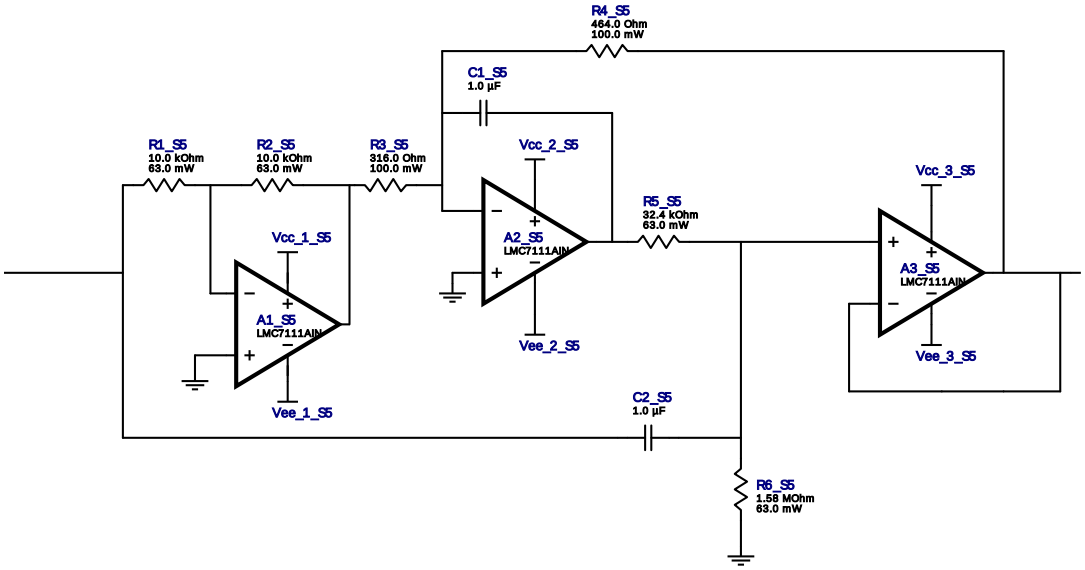
Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	A1_S4	Texas Instruments	LMC7111AIN	GbwTyp= 50.0 mMHz VccMin= 2.7 V VccMax= 11.0 V	1	$0.55	DIP 0 mm²
2.	A2_S4	Texas Instruments	LMC7111AIN	GbwTyp= 50.0 mMHz VccMin= 2.7 V VccMax= 11.0 V	1	$0.55	DIP 0 mm²
3.	A3_S4	Texas Instruments	LMC7111AIN	GbwTyp= 50.0 mMHz VccMin= 2.7 V VccMax= 11.0 V	1	$0.55	DIP 0 mm²
4.	C1_S4	CUSTOM	CUSTOM Series= ?	Cap= 1.0 uF VDC= 0.0 V Tolerance= 0.0 %	1	NA	CUSTOM 0 mm²
5.	C2_S4	CUSTOM	CUSTOM Series= ?	Cap= 1.0 uF VDC= 0.0 V Tolerance= 0.0 %	1	NA	CUSTOM 0 mm²
6.	R1_S4	Vishay-Dale	CRCW040210K0FKED Series= CRCW..e3	Res= 10.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm²
7.	R2_S4	Vishay-Dale	CRCW040210K0FKED Series= CRCW..e3	Res= 10.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm²
8.	R3_S4	Vishay-Dale	CRCW0603453RFKEA Series= CRCW..e3	Res= 453.0 Ohm Power= 100.0 mW Tolerance= 1.0%	1	$0.01	0603 5 mm²
9.	R4_S4	Vishay-Dale	CRCW0805309RFKEA Series= CRCW..e3	Res= 309.0 Ohm Power= 125.0 mW Tolerance= 1.0%	1	$0.01	0805 7 mm²
10.	R5_S4	Vishay-Dale	CRCW040222K1FKED Series= CRCW..e3	Res= 22.1 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm²

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
11.	R6_S4	Vishay-Dale	CRCW04021M07FKED Series= CRCW..e3	Res= 1.07 MOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	 0402 3 mm^2

Filter Stage :5

Cutoff Frequency	50.0 Hz
Min GBW Reqd	34.077 kHz
Stage Gain	1.0 V/V
Stage Q	8.237
Stage Topology	Bainter



Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	A1_S5	Texas Instruments	LMC7111AIN	GbwTyp= 50.0 mMHz VccMin= 2.7 V VccMax= 11.0 V	1	$0.55	DIP 0 mm^2
2.	A2_S5	Texas Instruments	LMC7111AIN	GbwTyp= 50.0 mMHz VccMin= 2.7 V VccMax= 11.0 V	1	$0.55	DIP 0 mm^2
3.	A3_S5	Texas Instruments	LMC7111AIN	GbwTyp= 50.0 mMHz VccMin= 2.7 V VccMax= 11.0 V	1	$0.55	DIP 0 mm^2
4.	C1_S5	CUSTOM	CUSTOM Series= ?	Cap= 1.0 uF VDC= 0.0 V Tolerance= 0.0 %	1	NA	CUSTOM 0 mm^2
5.	C2_S5	CUSTOM	CUSTOM Series= ?	Cap= 1.0 uF VDC= 0.0 V Tolerance= 0.0 %	1	NA	CUSTOM 0 mm^2
6.	R1_S5	Vishay-Dale	CRCW040210K0FKED Series= CRCW..e3	Res= 10.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm^2
7.	R2_S5	Vishay-Dale	CRCW040210K0FKED Series= CRCW..e3	Res= 10.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm^2
8.	R3_S5	Vishay-Dale	CRCW0603316RFKEA Series= CRCW..e3	Res= 316.0 Ohm Power= 100.0 mW Tolerance= 1.0%	1	$0.01	0603 5 mm^2
9.	R4_S5	Vishay-Dale	CRCW0603464RFKEA Series= CRCW..e3	Res= 464.0 Ohm Power= 100.0 mW Tolerance= 1.0%	1	$0.01	0603 5 mm^2
10.	R5_S5	Vishay-Dale	CRCW040232K4FKED Series= CRCW..e3	Res= 32.4 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm^2

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
11.	R6_S5	Vishay-Dale	CRCW04021M58FKED Series= CRCW..e3	Res= 1.58 MOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	 0402 3 mm^2