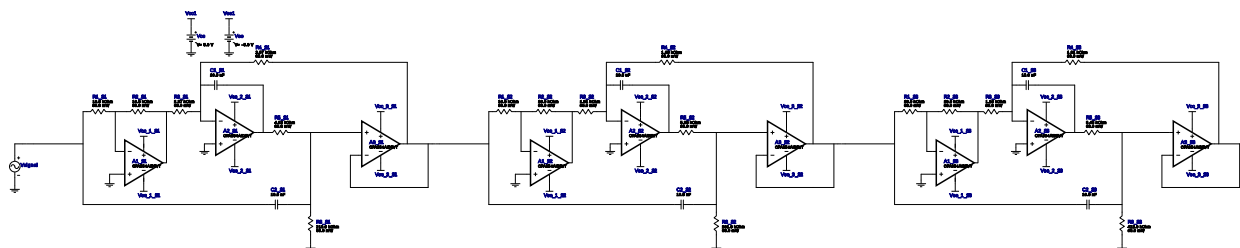


WEBENCH® Design Report

Design : 4738714/27 OPA354AIDBVT
Bandstop, Bainter, Bessel



My Comments

No comments

Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	A1_S1	Texas Instruments, Inc.	OPA354AIDBVT	GbwTyp= 250.0MHz VccMin= 2.5 V VccMax= 5.5 V	1	\$0.80	 DBV0005A 15 mm²
2.	A1_S2	Texas Instruments, Inc.	OPA354AIDBVT	GbwTyp= 250.0MHz VccMin= 2.5 V VccMax= 5.5 V	1	\$0.80	 DBV0005A 15 mm²
3.	A1_S3	Texas Instruments, Inc.	OPA354AIDBVT	GbwTyp= 250.0MHz VccMin= 2.5 V VccMax= 5.5 V	1	\$0.80	 DBV0005A 15 mm²
4.	A2_S1	Texas Instruments, Inc.	OPA354AIDBVT	GbwTyp= 250.0MHz VccMin= 2.5 V VccMax= 5.5 V	1	\$0.80	 DBV0005A 15 mm²
5.	A2_S2	Texas Instruments, Inc.	OPA354AIDBVT	GbwTyp= 250.0MHz VccMin= 2.5 V VccMax= 5.5 V	1	\$0.80	 DBV0005A 15 mm²
6.	A2_S3	Texas Instruments, Inc.	OPA354AIDBVT	GbwTyp= 250.0MHz VccMin= 2.5 V VccMax= 5.5 V	1	\$0.80	 DBV0005A 15 mm²
7.	A3_S1	Texas Instruments, Inc.	OPA354AIDBVT	GbwTyp= 250.0MHz VccMin= 2.5 V VccMax= 5.5 V	1	\$0.80	 DBV0005A 15 mm²
8.	A3_S2	Texas Instruments, Inc.	OPA354AIDBVT	GbwTyp= 250.0MHz VccMin= 2.5 V VccMax= 5.5 V	1	\$0.80	 DBV0005A 15 mm²
9.	A3_S3	Texas Instruments, Inc.	OPA354AIDBVT	GbwTyp= 250.0MHz VccMin= 2.5 V VccMax= 5.5 V	1	\$0.80	 DBV0005A 15 mm²
10.	C1_S1	Kemet	C0603C103J5RACTU Series= X7R	Cap= 10.0 nF VDC= 50.0 V Tolerance= 5.0 %	1	\$0.01	 0603 5 mm²
11.	C1_S2	Kemet	C0603C103J5RACTU Series= X7R	Cap= 10.0 nF VDC= 50.0 V Tolerance= 5.0 %	1	\$0.01	 0603 5 mm²
12.	C1_S3	Kemet	C0603C103J5RACTU Series= X7R	Cap= 10.0 nF VDC= 50.0 V Tolerance= 5.0 %	1	\$0.01	 0603 5 mm²
13.	C2_S1	Kemet	C0603C103J5RACTU Series= X7R	Cap= 10.0 nF VDC= 50.0 V Tolerance= 5.0 %	1	\$0.01	 0603 5 mm²

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
14.	C2_S2	Kemet	C0603C103J5RACTU Series= X7R	Cap= 10.0 nF VDC= 50.0 V Tolerance= 5.0 %	1	\$0.01	 0603 5 mm ²
15.	C2_S3	Kemet	C0603C103J5RACTU Series= X7R	Cap= 10.0 nF VDC= 50.0 V Tolerance= 5.0 %	1	\$0.01	 0603 5 mm ²
16.	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
17.	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
18.	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
19.	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
20.	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
21.	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
22.	R3_S1	Vishay-Dale	CRCW04022K37FKED Series= CRCW..e3	Res= 2.37 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
23.	R3_S2	Vishay-Dale	CRCW04021K91FKED Series= CRCW..e3	Res= 1.91 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
24.	R3_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
25.	R4_S1	Vishay-Dale	CRCW04022K37FKED Series= CRCW..e3	Res= 2.37 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
26.	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
27.	R4_S3	Vishay-Dale	CRCW04021K91FKED Series= CRCW..e3	Res= 1.91 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
28.	R5_S1	Vishay-Dale	CRCW04024K32FKED Series= CRCW..e3	Res= 4.32 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
29.	R5_S2	Vishay-Dale	CRCW04025K23FKED Series= CRCW..e3	Res= 5.23 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
30.	R5_S3	Vishay-Dale	CRCW04028K45FKED Series= CRCW..e3	Res= 8.45 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
31.	R6_S1	Vishay-Dale	CRCW0402210KFKED Series= CRCW..e3	Res= 210.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
32.	R6_S2	Vishay-Dale	CRCW0402261KFKED Series= CRCW..e3	Res= 261.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
33.	R6_S3	Vishay-Dale	CRCW0402422KFKED Series= CRCW..e3	Res= 422.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²

Design Inputs

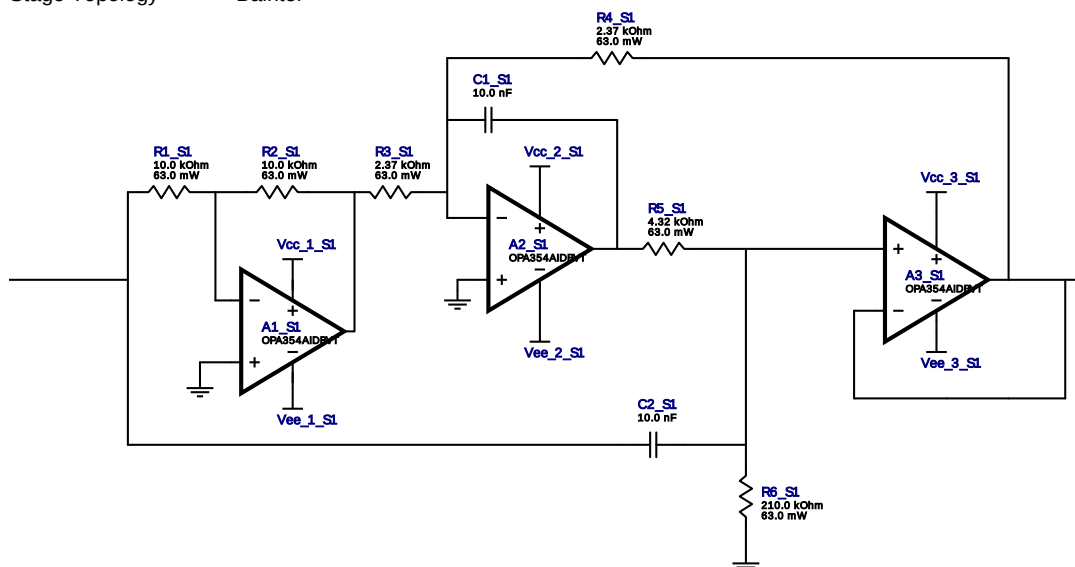
#	Name	Value	Description
1.	FilterType	Bandstop	
2.	FilterResponse	Bessel	
3.	FilterOrder	6.0	
4.	FilterTopology	Bainter	
5.	NumberOfStages	0.0	
6.	CenterFrequency	5.0 k	
7.	StopbandAttenuation	-45.0	
8.	PassbandBandwidth	5.0 k	
9.	StopbandBandwidth	500.0	
10.	Gain	1.0	
11.	DualSupply	+/-5.0 V	Power 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	10.0 n	Seed Capacitance to start design of filter

Design Assistance

1. **OPA354AIDBVT** Product Folder : <http://www.ti.com/product/OPA354> : contains the data sheet and other resources.

Filter Stage :1

Cutoff Frequency 5.0 kHz
 Min GBW Req'd 663.5 kHz
 Stage Gain 1.0 V/V
 Stage Q 1.327
 Stage Topology Bainter



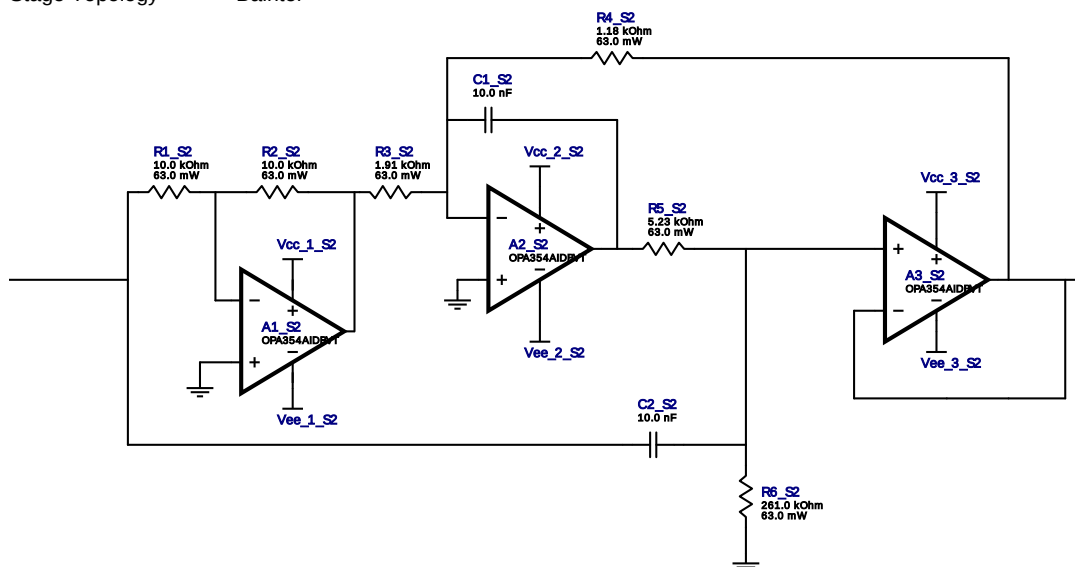
Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	A1_S1	Texas Instruments, Inc.	OPA354AIDBVT	GbwTyp= 250.0MHz VccMin= 2.5 V VccMax= 5.5 V	1	\$0.80	 DBV0005A 15 mm²
2.	A2_S1	Texas Instruments, Inc.	OPA354AIDBVT	GbwTyp= 250.0MHz VccMin= 2.5 V VccMax= 5.5 V	1	\$0.80	 DBV0005A 15 mm²
3.	A3_S1	Texas Instruments, Inc.	OPA354AIDBVT	GbwTyp= 250.0MHz VccMin= 2.5 V VccMax= 5.5 V	1	\$0.80	 DBV0005A 15 mm²
4.	C1_S1	Kemet	C0603C103J5RACTU Series= X7R	Cap= 10.0 nF VDC= 50.0 V Tolerance= 5.0 %	1	\$0.01	 0603 5 mm²
5.	C2_S1	Kemet	C0603C103J5RACTU Series= X7R	Cap= 10.0 nF VDC= 50.0 V Tolerance= 5.0 %	1	\$0.01	 0603 5 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	CRCW04022K37FKED Series= CRCW..e3	Res= 2.37 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm²
9.	R4_S1	Vishay-Dale	CRCW04022K37FKED Series= CRCW..e3	Res= 2.37 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm²
10.	R5_S1	Vishay-Dale	CRCW04024K32FKED Series= CRCW..e3	Res= 4.32 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	CRCW0402210KFKED Series= CRCW..e3	Res= 210.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²

Filter Stage :2

Cutoff Frequency 5.0 kHz
 Min GBW Req'd 1.317 MHz
 Stage Gain 1.0 V/V
 Stage Q 2.067
 Stage Topology Bainter



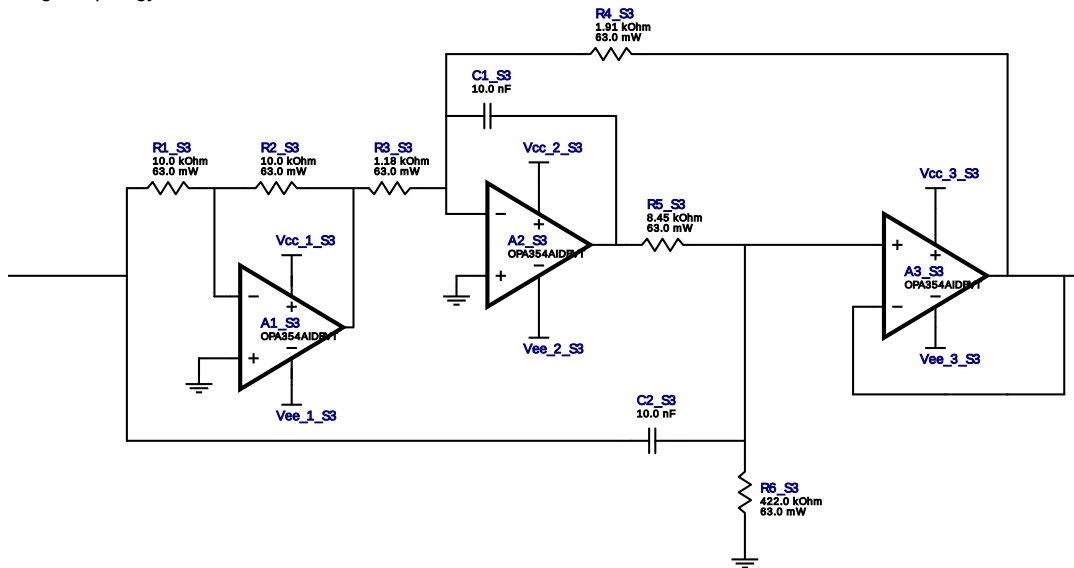
Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	A1_S2	Texas Instruments, Inc.	OPA354AIDBVT	GbwTyp= 250.0MHz VccMin= 2.5 V VccMax= 5.5 V	1	\$0.80	 DBV0005A 15 mm²
2.	A2_S2	Texas Instruments, Inc.	OPA354AIDBVT	GbwTyp= 250.0MHz VccMin= 2.5 V VccMax= 5.5 V	1	\$0.80	 DBV0005A 15 mm²
3.	A3_S2	Texas Instruments, Inc.	OPA354AIDBVT	GbwTyp= 250.0MHz VccMin= 2.5 V VccMax= 5.5 V	1	\$0.80	 DBV0005A 15 mm²
4.	C1_S2	Kemet	C0603C103J5RACTU Series= X7R	Cap= 10.0 nF VDC= 50.0 V Tolerance= 5.0 %	1	\$0.01	 0603 5 mm²
5.	C2_S2	Kemet	C0603C103J5RACTU Series= X7R	Cap= 10.0 nF VDC= 50.0 V Tolerance= 5.0 %	1	\$0.01	 0603 5 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	CRCW04021K91FKED Series= CRCW..e3	Res= 1.91 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm²
9.	R4_S2	Vishay-Dale	CRCW04021K18FKED Series= CRCW..e3	Res= 1.18 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm²
10.	R5_S2	Vishay-Dale	CRCW04025K23FKED Series= CRCW..e3	Res= 5.23 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	CRCW0402261KFKED Series= CRCW..e3	Res= 261.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²

Filter Stage :3

Cutoff Frequency 5.0 kHz
 Min GBW Req'd 810.757 kHz
 Stage Gain 1.0 V/V
 Stage Q 2.067
 Stage Topology Bainter



Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	A1_S3	Texas Instruments, Inc.	OPA354AIDBVT	GbwTyp= 250.0MHz VccMin= 2.5 V VccMax= 5.5 V	1	\$0.80	 DBV0005A 15 mm²
2.	A2_S3	Texas Instruments, Inc.	OPA354AIDBVT	GbwTyp= 250.0MHz VccMin= 2.5 V VccMax= 5.5 V	1	\$0.80	 DBV0005A 15 mm²
3.	A3_S3	Texas Instruments, Inc.	OPA354AIDBVT	GbwTyp= 250.0MHz VccMin= 2.5 V VccMax= 5.5 V	1	\$0.80	 DBV0005A 15 mm²
4.	C1_S3	Kemet	C0603C103J5RACTU Series= X7R	Cap= 10.0 nF VDC= 50.0 V Tolerance= 5.0 %	1	\$0.01	 0603 5 mm²
5.	C2_S3	Kemet	C0603C103J5RACTU Series= X7R	Cap= 10.0 nF VDC= 50.0 V Tolerance= 5.0 %	1	\$0.01	 0603 5 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	CRCW04021K18FKED Series= CRCW..e3	Res= 1.18 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm²
9.	R4_S3	Vishay-Dale	CRCW04021K91FKED Series= CRCW..e3	Res= 1.91 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm²
10.	R5_S3	Vishay-Dale	CRCW04028K45FKED Series= CRCW..e3	Res= 8.45 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	CRCW0402422KFKED Series= CRCW..e3	Res= 422.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²

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