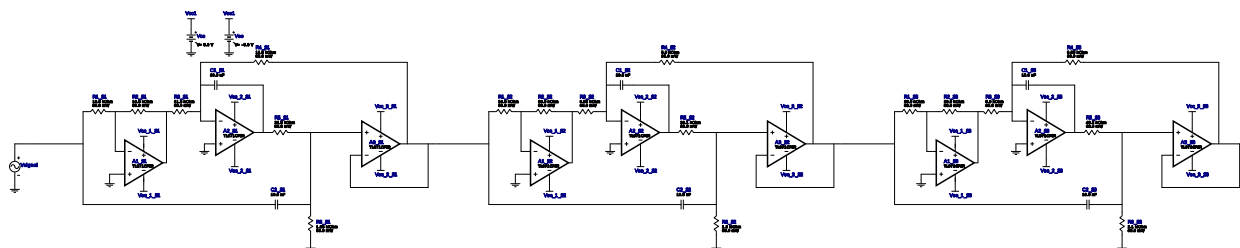


WEBENCH® Design Report

Design : 4738714/8 TL071CPSR
Bandstop, Bainter, Bessel



My Comments

No comments

Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	A1_S1	Texas Instruments, Inc.	TL071CPSR	GbwTyp= 3.0MHz VccMin= 10.0 V VccMax= 36.0 V	1	\$0.13	 PS0008A 80 mm ²
2.	A1_S2	Texas Instruments, Inc.	TL071CPSR	GbwTyp= 3.0MHz VccMin= 10.0 V VccMax= 36.0 V	1	\$0.13	 PS0008A 80 mm ²
3.	A1_S3	Texas Instruments, Inc.	TL071CPSR	GbwTyp= 3.0MHz VccMin= 10.0 V VccMax= 36.0 V	1	\$0.13	 PS0008A 80 mm ²
4.	A2_S1	Texas Instruments, Inc.	TL071CPSR	GbwTyp= 3.0MHz VccMin= 10.0 V VccMax= 36.0 V	1	\$0.13	 PS0008A 80 mm ²
5.	A2_S2	Texas Instruments, Inc.	TL071CPSR	GbwTyp= 3.0MHz VccMin= 10.0 V VccMax= 36.0 V	1	\$0.13	 PS0008A 80 mm ²
6.	A2_S3	Texas Instruments, Inc.	TL071CPSR	GbwTyp= 3.0MHz VccMin= 10.0 V VccMax= 36.0 V	1	\$0.13	 PS0008A 80 mm ²
7.	A3_S1	Texas Instruments, Inc.	TL071CPSR	GbwTyp= 3.0MHz VccMin= 10.0 V VccMax= 36.0 V	1	\$0.13	 PS0008A 80 mm ²
8.	A3_S2	Texas Instruments, Inc.	TL071CPSR	GbwTyp= 3.0MHz VccMin= 10.0 V VccMax= 36.0 V	1	\$0.13	 PS0008A 80 mm ²
9.	A3_S3	Texas Instruments, Inc.	TL071CPSR	GbwTyp= 3.0MHz VccMin= 10.0 V VccMax= 36.0 V	1	\$0.13	 PS0008A 80 mm ²
10.	C1_S1	Kemet	C0603C103J5RACTU Series= X7R	Cap= 10.0 nF VDC= 50.0 V Tolerance= 5.0 %	1	\$0.01	 0603 5 mm ²

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
11.	C1_S2	Kemet	C0603C103J5RACTU Series= X7R	Cap= 10.0 nF VDC= 50.0 V Tolerance= 5.0 %	1	\$0.01	 0603 5 mm ²
12.	C1_S3	Kemet	C0603C103J5RACTU Series= X7R	Cap= 10.0 nF VDC= 50.0 V Tolerance= 5.0 %	1	\$0.01	 0603 5 mm ²
13.	C2_S1	Kemet	C0603C103J5RACTU Series= X7R	Cap= 10.0 nF VDC= 50.0 V Tolerance= 5.0 %	1	\$0.01	 0603 5 mm ²
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	CRCW040211K8FKED Series= CRCW..e3	Res= 11.8 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
23.	R3_S2	Vishay-Dale	CRCW04029K53FKED Series= CRCW..e3	Res= 9.53 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
24.	R3_S3	Vishay-Dale	CRCW04025K90FKED Series= CRCW..e3	Res= 5.9 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
25.	R4_S1	Vishay-Dale	CRCW040211K8FKED Series= CRCW..e3	Res= 11.8 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
26.	R4_S2	Vishay-Dale	CRCW04025K90FKED Series= CRCW..e3	Res= 5.9 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
27.	R4_S3	Vishay-Dale	CRCW04029K53FKED Series= CRCW..e3	Res= 9.53 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
28.	R5_S1	Vishay-Dale	CRCW040221K5FKED Series= CRCW..e3	Res= 21.5 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
29.	R5_S2	Vishay-Dale	CRCW040226K1FKED Series= CRCW..e3	Res= 26.1 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
30.	R5_S3	Vishay-Dale	CRCW040243K2FKED Series= CRCW..e3	Res= 43.2 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
31.	R6_S1	Vishay-Dale	CRCW04021M05FKED Series= CRCW..e3	Res= 1.05 MOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
32.	R6_S2	Vishay-Dale	CRCW04021M30FKED Series= CRCW..e3	Res= 1.3 MOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
33.	R6_S3	Vishay-Dale	CRCW04022M10FKED Series= CRCW..e3	Res= 2.1 MOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²

Design Inputs

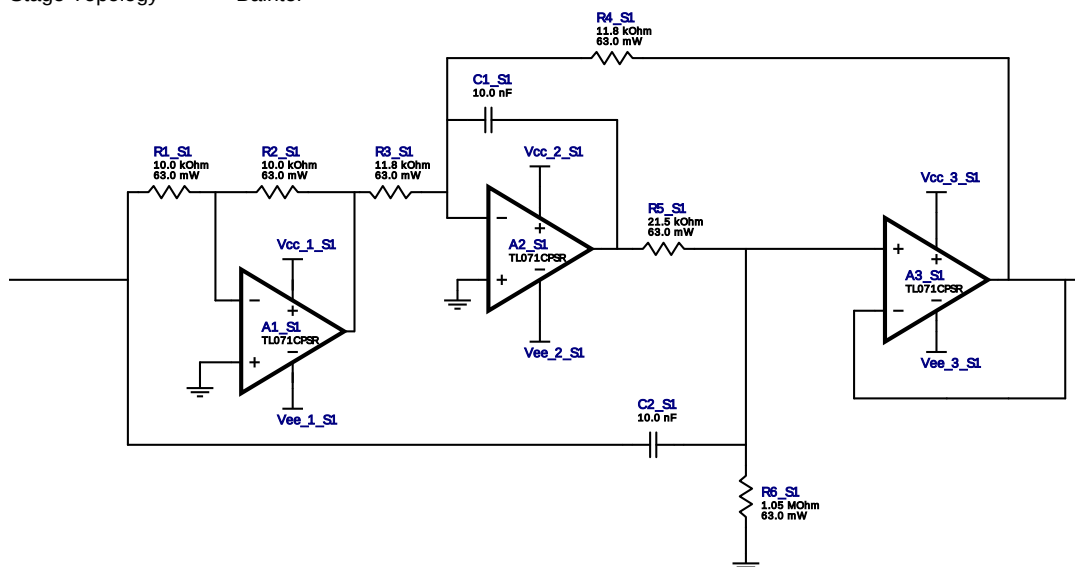
#	Name	Value	Description
1.	FilterType	Bandstop	
2.	FilterResponse	Bessel	
3.	FilterOrder	6.0	
4.	FilterTopology	Bainter	
5.	NumberOfStages	0.0	
6.	CenterFrequency	1,000.0	
7.	StopbandAttenuation	-45.0	
8.	PassbandBandwidth	1,000.0	
9.	StopbandBandwidth	100.0	
10.	Gain	1.0	
11.	DualSupply	+/-5.0 V	Power 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. **TL071CPSR** Product Folder : <http://www.ti.com/product/TL071> : contains the data sheet and other resources.

Filter Stage :1

Cutoff Frequency 1,000.0 Hz
 Min GBW Req'd 132.7 kHz
 Stage Gain 1.0 V/V
 Stage Q 1.327
 Stage Topology Bainter



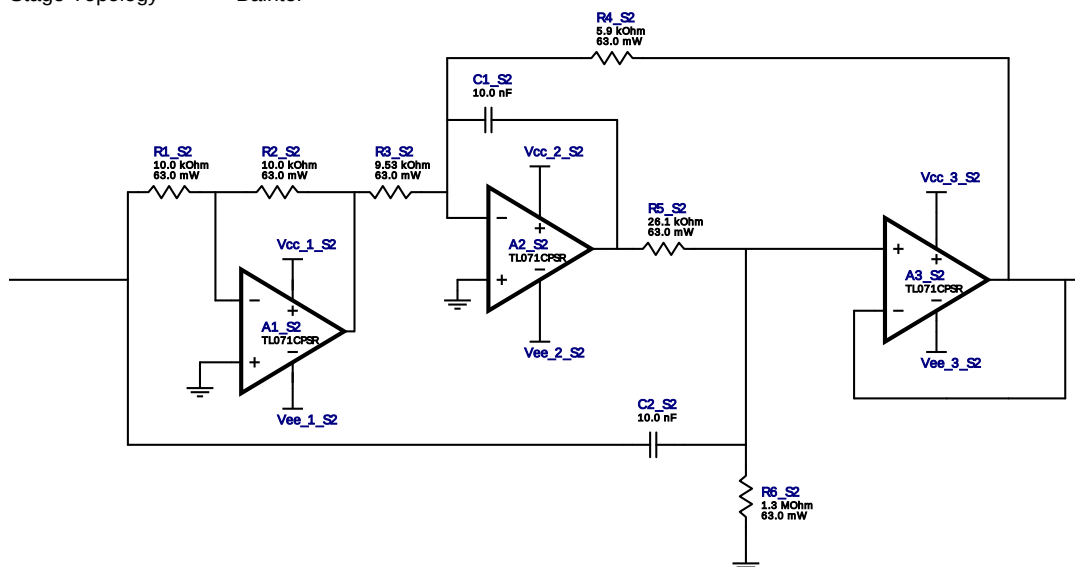
Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	A1_S1	Texas Instruments, Inc.	TL071CPSR	GbwTyp= 3.0MHz VccMin= 10.0 V VccMax= 36.0 V	1	\$0.13	 PS0008A 80 mm²
2.	A2_S1	Texas Instruments, Inc.	TL071CPSR	GbwTyp= 3.0MHz VccMin= 10.0 V VccMax= 36.0 V	1	\$0.13	 PS0008A 80 mm²
3.	A3_S1	Texas Instruments, Inc.	TL071CPSR	GbwTyp= 3.0MHz VccMin= 10.0 V VccMax= 36.0 V	1	\$0.13	 PS0008A 80 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	CRCW040211K8FKED Series= CRCW..e3	Res= 11.8 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm²
9.	R4_S1	Vishay-Dale	CRCW040211K8FKED Series= CRCW..e3	Res= 11.8 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm²

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
10.	R5_S1	Vishay-Dale	CRCW040221K5FKED Series= CRCW..e3	Res= 21.5 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
11.	R6_S1	Vishay-Dale	CRCW04021M05FKED Series= CRCW..e3	Res= 1.05 MOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²

Filter Stage :2

Cutoff Frequency 1,000.0 Hz
 Min GBW Req'd 263.372 kHz
 Stage Gain 1.0 V/V
 Stage Q 2.067
 Stage Topology Bainter



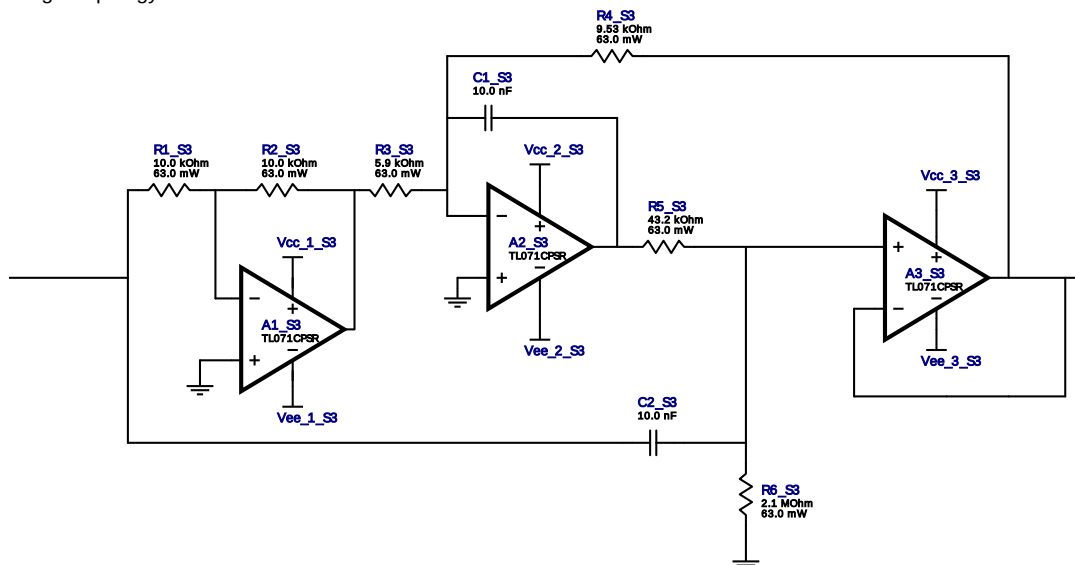
Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	A1_S2	Texas Instruments, Inc.	TL071CPSR	GbwTyp= 3.0MHz VccMin= 10.0 V VccMax= 36.0 V	1	\$0.13	 PS0008A 80 mm ²
2.	A2_S2	Texas Instruments, Inc.	TL071CPSR	GbwTyp= 3.0MHz VccMin= 10.0 V VccMax= 36.0 V	1	\$0.13	 PS0008A 80 mm ²
3.	A3_S2	Texas Instruments, Inc.	TL071CPSR	GbwTyp= 3.0MHz VccMin= 10.0 V VccMax= 36.0 V	1	\$0.13	 PS0008A 80 mm ²
4.	C1_S2	Kemet	C0603C103J5RACTU Series= X7R	Cap= 10.0 nF VDC= 50.0 V Tolerance= 5.0 %	1	\$0.01	 0603 5 mm ²
5.	C2_S2	Kemet	C0603C103J5RACTU Series= X7R	Cap= 10.0 nF VDC= 50.0 V Tolerance= 5.0 %	1	\$0.01	 0603 5 mm ²
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 mm ²
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 mm ²
8.	R3_S2	Vishay-Dale	CRCW04029K53FKED Series= CRCW..e3	Res= 9.53 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
9.	R4_S2	Vishay-Dale	CRCW04025K90FKED Series= CRCW..e3	Res= 5.9 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
10.	R5_S2	Vishay-Dale	CRCW040226K1FKED Series= CRCW..e3	Res= 26.1 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
11.	R6_S2	Vishay-Dale	CRCW04021M30FKED Series= CRCW..e3	Res= 1.3 MOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²

Filter Stage :3

Cutoff Frequency 1,000.0 Hz
 Min GBW Req'd 162.151 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.	TL071CPSR	GbwTyp= 3.0MHz VccMin= 10.0 V VccMax= 36.0 V	1	\$0.13	 PS0008A 80 mm²
2.	A2_S3	Texas Instruments, Inc.	TL071CPSR	GbwTyp= 3.0MHz VccMin= 10.0 V VccMax= 36.0 V	1	\$0.13	 PS0008A 80 mm²
3.	A3_S3	Texas Instruments, Inc.	TL071CPSR	GbwTyp= 3.0MHz VccMin= 10.0 V VccMax= 36.0 V	1	\$0.13	 PS0008A 80 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	CRCW04025K90FKED Series= CRCW..e3	Res= 5.9 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm²
9.	R4_S3	Vishay-Dale	CRCW04029K53FKED Series= CRCW..e3	Res= 9.53 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm²

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
10.	R5_S3	Vishay-Dale	CRCW040243K2FKED Series= CRCW..e3	Res= 43.2 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
11.	R6_S3	Vishay-Dale	CRCW04022M10FKED Series= CRCW..e3	Res= 2.1 MOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²

Texas Instruments' WEBENCH simulation tools attempt to recreate the performance of a substantially equivalent physical implementation of the design. Simulations are created using Texas Instruments' published specifications as well as the published specifications of other device manufacturers. While Texas Instruments does update this information periodically, this information may not be current at the time the simulation is built. Texas Instruments does not warrant the accuracy or completeness of the specifications or any information contained therein. Texas Instruments does not warrant that any designs or recommended parts will meet the specifications you entered, will be suitable for your application or fit for any particular purpose, or will operate as shown in the simulation in a physical implementation. Texas Instruments does not warrant that the designs are production worthy.

You should completely validate and test your design implementation to confirm the system functionality for your application prior to production.

Use of Texas Instruments' WEBENCH simulation tools is subject to [Texas Instruments' Site Terms and Conditions of Use](#). Prototype boards based on WEBENCH created designs are provided AS IS without warranty of any kind for evaluation and testing purposes and are subject to the terms of the [Evaluation License Agreement](#).