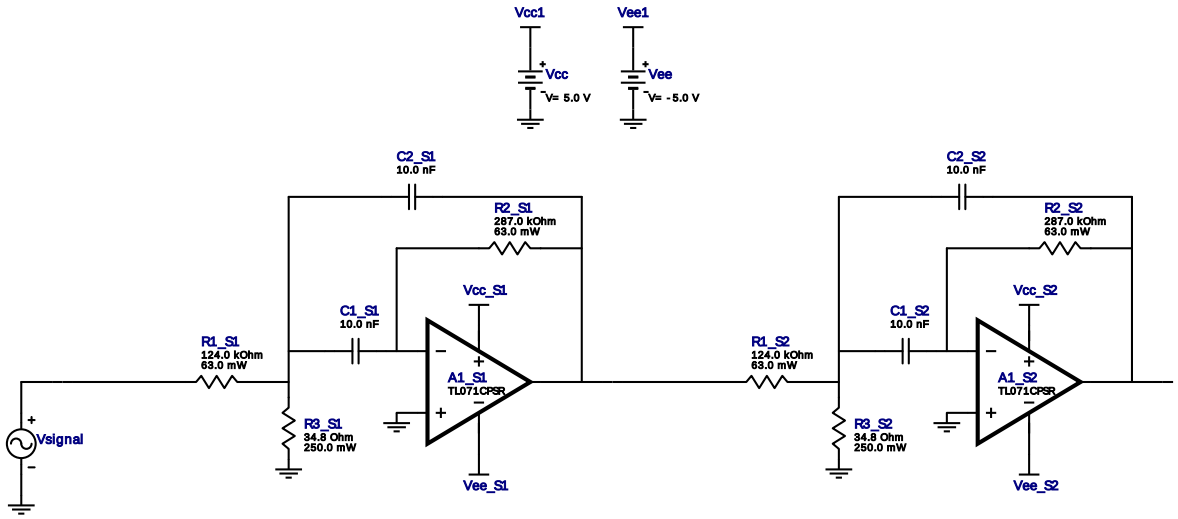
Type : Bandpass
Response : Bessel
Order : 4
Number of Stages : 2

Device = TL071CPSR
Created = Jul 25 2016 8:39AM

WEBENCH® Design Report

Design : 4738714/19 TL071CPSR
Bandpass, Multiple Feedback, 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.	C1_S1	Kemet	C0603C103J5RACTU Series= X7R	Cap= 10.0 nF VDC= 50.0 V Tolerance= 5.0 %	1	$0.01	 0603 5 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_S1	Kemet	C0603C103J5RACTU Series= X7R	Cap= 10.0 nF VDC= 50.0 V Tolerance= 5.0 %	1	$0.01	 0603 5 mm^2
6.	C2_S2	Kemet	C0603C103J5RACTU Series= X7R	Cap= 10.0 nF VDC= 50.0 V Tolerance= 5.0 %	1	$0.01	 0603 5 mm^2
7.	R1_S1	Vishay-Dale	CRCW0402124KFKED Series= CRCW..e3	Res= 124.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	 0402 3 mm^2
8.	R1_S2	Vishay-Dale	CRCW0402124KFKED Series= CRCW..e3	Res= 124.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	 0402 3 mm^2
9.	R2_S1	Vishay-Dale	CRCW0402287KFKED Series= CRCW..e3	Res= 287.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	 0402 3 mm^2

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#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
10.	R2_S2	Vishay-Dale	CRCW0402287KFKED Series= CRCW..e3	Res= 287.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	 0402 3 mm^2
11.	R3_S1	Panasonic	ERJ-8ENF34R8V Series= ERJ-8E	Res= 34.8 Ohm Power= 250.0 mW Tolerance= 1.0%	1	$0.01	 1206 11 mm^2
12.	R3_S2	Panasonic	ERJ-8ENF34R8V Series= ERJ-8E	Res= 34.8 Ohm Power= 250.0 mW Tolerance= 1.0%	1	$0.01	 1206 11 mm^2

Design Inputs

#	Name	Value	Description
1.	FilterType	Bandpass	
2.	FilterResponse	Bessel	
3.	FilterOrder	4.0	
4.	FilterTopology	Multiple_Feedback	
5.	NumberOfStages	2.0	
6.	CenterFrequency	5.0 k	
7.	StopbandAttenuation	-45.0	
8.	PassbandBandwidth	100.0	
9.	StopbandBandwidth	10.0 k	
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.

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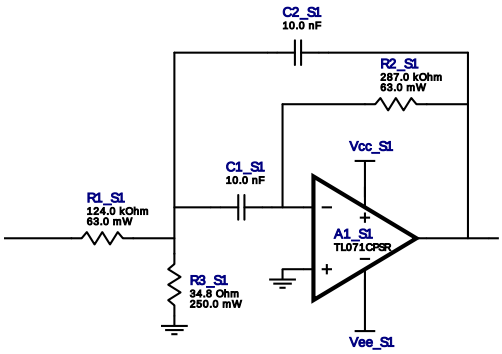
Filter Stage :1

Cutoff Frequency	4.968 kHz
Min GBW Reqd	22.522 MHz
Stage Gain	1.0 V/V
Stage Q	45.332
Stage Topology	Multiple_Feedback



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.	C1_S1	Kemet	C0603C103J5RACTU Series= X7R	Cap= 10.0 nF VDC= 50.0 V Tolerance= 5.0 %	1	$0.01	 0603 5 mm²
3.	C2_S1	Kemet	C0603C103J5RACTU Series= X7R	Cap= 10.0 nF VDC= 50.0 V Tolerance= 5.0 %	1	$0.01	 0603 5 mm²
4.	R1_S1	Vishay-Dale	CRCW0402124KFKED Series= CRCW..e3	Res= 124.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	 0402 3 mm²
5.	R2_S1	Vishay-Dale	CRCW0402287KFKED Series= CRCW..e3	Res= 287.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	 0402 3 mm²
6.	R3_S1	Panasonic	ERJ-8ENF34R8V Series= ERJ-8E	Res= 34.8 Ohm Power= 250.0 mW Tolerance= 1.0%	1	$0.01	 1206 11 mm²

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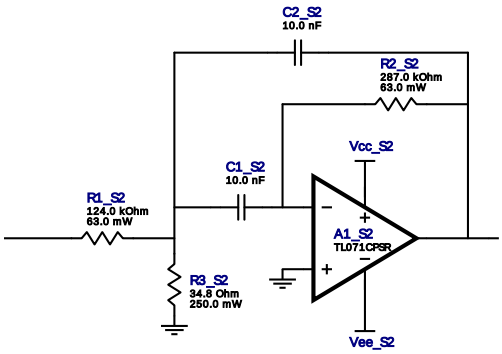
Filter Stage :2

Cutoff Frequency	5.032 kHz
Min GBW Reqd	22.811 MHz
Stage Gain	1.0 V/V
Stage Q	45.332
Stage Topology	Multiple_Feedback



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 mm²
2.	C1_S2	Kemet	C0603C103J5RACTU Series= X7R	Cap= 10.0 nF VDC= 50.0 V Tolerance= 5.0 %	1	$0.01	 0603 5 mm²
3.	C2_S2	Kemet	C0603C103J5RACTU Series= X7R	Cap= 10.0 nF VDC= 50.0 V Tolerance= 5.0 %	1	$0.01	 0603 5 mm²
4.	R1_S2	Vishay-Dale	CRCW0402124KFKED Series= CRCW..e3	Res= 124.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	 0402 3 mm²
5.	R2_S2	Vishay-Dale	CRCW0402287KFKED Series= CRCW..e3	Res= 287.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	 0402 3 mm²

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#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
6.	R3_S2	Panasonic	ERJ-8ENF34R8V Series= ERJ-8E	Res= 34.8 Ohm Power= 250.0 mW Tolerance= 1.0%	1	$0.01	 1206 11 mm^2

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