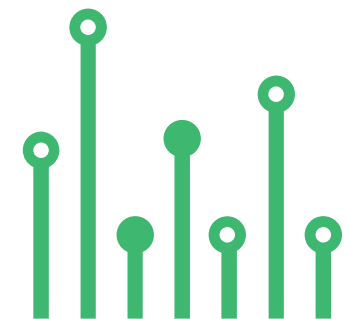


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AUDIO



Voltage Controlled Amplifier with Balanced Input



SKU: EL150155

Voltage Controlled Amplifier with Balanced Input

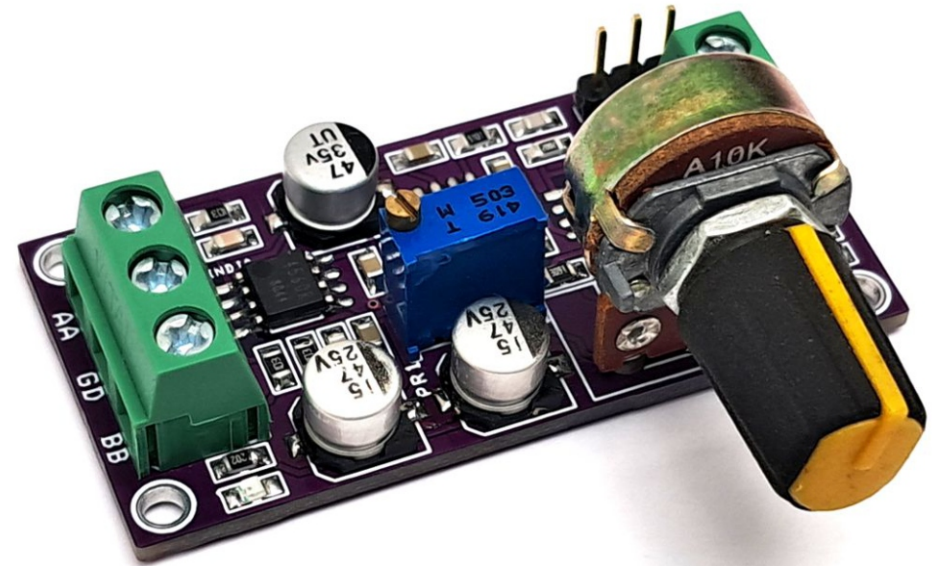


The project presented here is a Voltage Controlled Amplifier (VCA). A VCA board helps users control the audio level from a remote potentiometer. This board requires a balanced audio signal. Gain control voltage can be adjusted through potentiometer R13. The project works with a dual ($\pm 15V$) power supply. Screw terminal connectors are provided for signal input and signal output. The project is built using THAT2181LA chip which is a VCA, designed for high performance in audio-frequency applications requiring exponential gain control, low distortion, wide dynamic range, and low control-voltage feedthrough. This chip controls the gain by converting an input current signal to a bipolar logged voltage, adding a DC control voltage, and re-converting the summed voltage back to a current through a bipolar antilog circuit. Stereo control of VCA with a single potentiometer is possible.

THAT2181-series trimmable Blackmer voltage-controlled amplifier (VCA) ICs are very high-performance current-in/current-out devices with two opposing-polarity, voltage-sensitive control ports. They offer wide-range exponential control of gain and attenuation with low signal distortion.

FEATURES

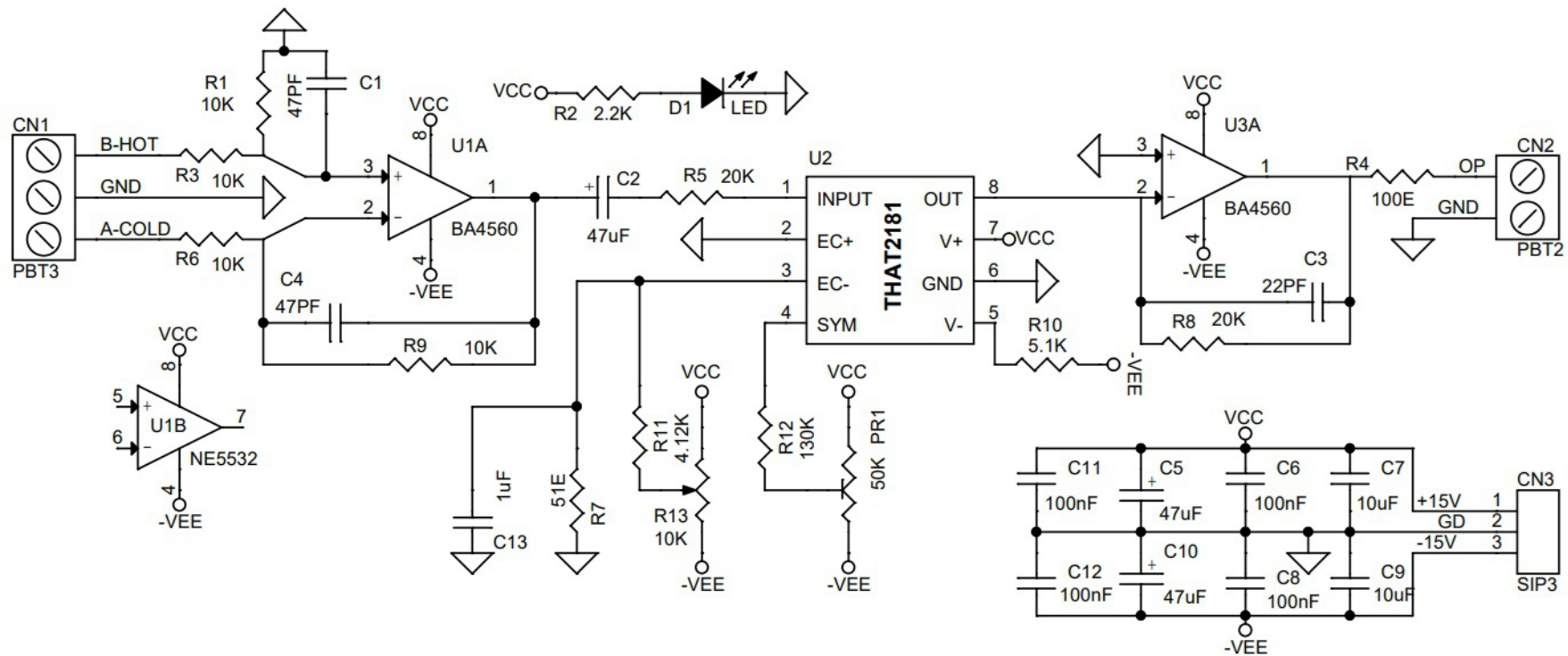
- Power Supply $\pm 15V$ DC @ 40mA
- Total Harmonic Distortion 1V 0dB Gain 0.0025%
- Screw Terminal for Balanced Audio Input
- Header Connector for Power Input
- Screw Terminal for Audio Output
- On Board Power LED
- 4X2.5MM Mounting Holes
- PCB Dimensions 53.34X25.72MM



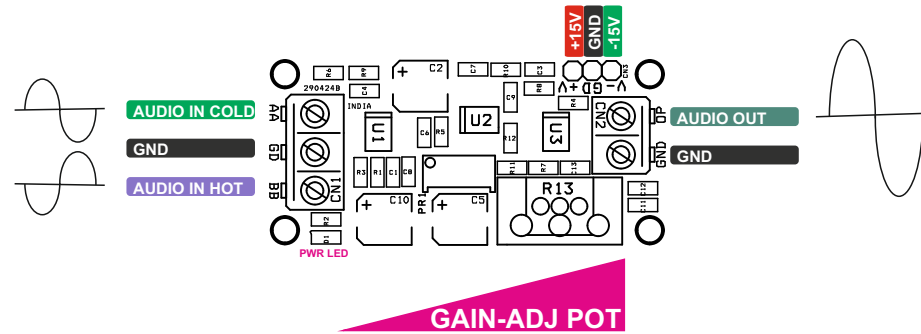
Trimming

The trim should be adjusted for minimum harmonic distortion using PR1. This is usually done by applying a middle-level, middle-frequency signal (e.g. 1 kHz at 1 V) to the audio input, setting the VCA to 0 dB gain, and adjusting the SYM trim while observing THD at the output. In 2181, this adjustment coincides closely with the setting which produces minimum control-voltage feedthrough, though the two settings are not always identical.

Schematic



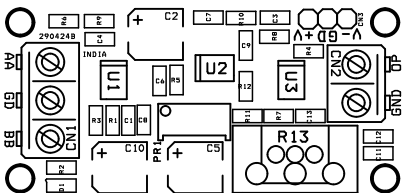
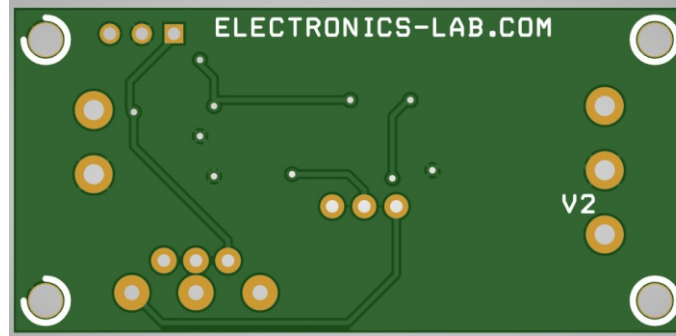
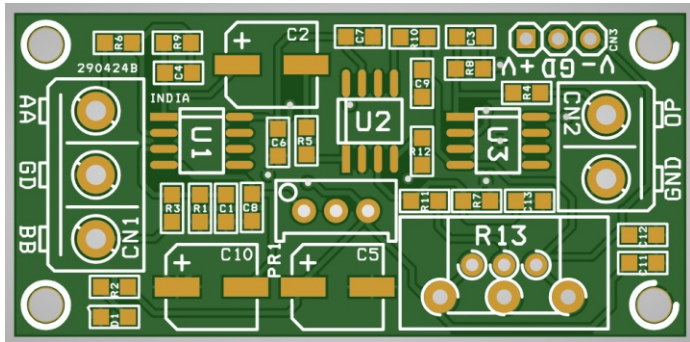
Connections



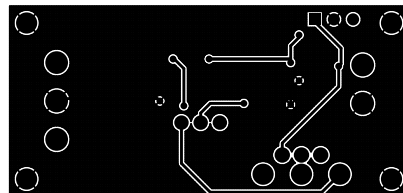
Connections

- CN1: Balance Audio Signal Input, Pin 1 = Audio-Hot, Pin 2 = GND, Pin 3 = Audio Cold
- CN2: Pin 1 = Audio Output, Pin 2 = GND
- CN3: Pin 1 = 15V DC, Pin 2 = GND, Pin 3 = -15V
- D1: Power LED
- R13: Gain Adjust Potentiometer
- PR1: Symmetry Adjust

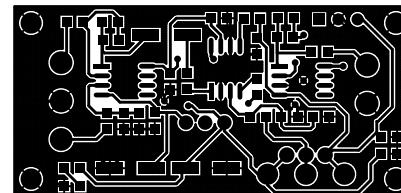
PCB



SILK SCREEN TOP



BOTTOM LAYER



TOP LAYER

PCB DIMENSIONS 53.34X25.72MM

Parts List

BOM						
BOM	QNTY.	REF.	DESC.	MANUFACTURER	SUPPLIER	SUPPLIER PART NO
1	1	CN1	3 PIN SCREW TERMINAL PITCH 5.08MM	PHOENIX	DIGIKEY	277-1248-ND
2	1	CN2	2 PIN SCREW TERMINAL PITCH 5.08MM	PHOENIX	DIGIKEY	277-1247-ND
3	1	CN3	3 PIN MALE HEADER PITCH 2.54MM	WURTH	DIGIKEY	732-5316-ND
4	2	C1,C4	47PF/50V CERAMIC SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
5	3	C2,C5,C10	47uF/35V ELEKTROLYTIC	WURTH	DIGIKEY	732-8508-1-ND
6	1	C3	22PF/50V CERAMIC SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
7	4	C6,C8,C11,C12	100nF/50V CERAMIC SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
8	2	C7,C9	10uF/25V CERAMIC SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
9	1	C13	1uF/25V CERAMIC SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
10	1	D1	LED RED SMD SIZE 0805	OSRAM	DIGIKEY	475-1278-1-ND
11	1	PR1	50K TRIMMER POT	BOURNS	DIGIKEY	3296W-503LF-ND
12	5	R1,R3,R6,R9,R13	10K 5% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
13	1	R2	2.2K 5% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
14	1	R4	100E 5% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
15	2	R5,R8	20K 1% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
16	1	R7	51E 1% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
17	1	R10	5.1K 1% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
18	1	R11	4.12K 1% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
19	1	R12	130K 1% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
20	2	U1,U3	BA4560 SOIC8	ROHM	DIGIKEY	BA4560F-E2CT-ND
21	1	U2	THAT2181A SOIC8	THAT CORP	MOUSER	887-2181AS08-U

Notes



APP

Android App

DOWNLOAD



Android App launched in 2017 and has 100k+ downloads - rated with 4.5 stars.

SCAN QR CODE





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