

Combo V1.0

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Combo output stage for X-DAC 3.0

This is a short description of an output stage I have tried for my X-DAC. It uses op-amp combos to improve performance. It produces a gain of two and is best powered by +/- 12V rails.

The layout is very tight and there are components on both sides of the pcb, so before soldering, make sure you do it in an order that will make you reach all points with the soldering iron. If C5 is needed due to oscillation, squeeze it in gently. There really is no room for it.

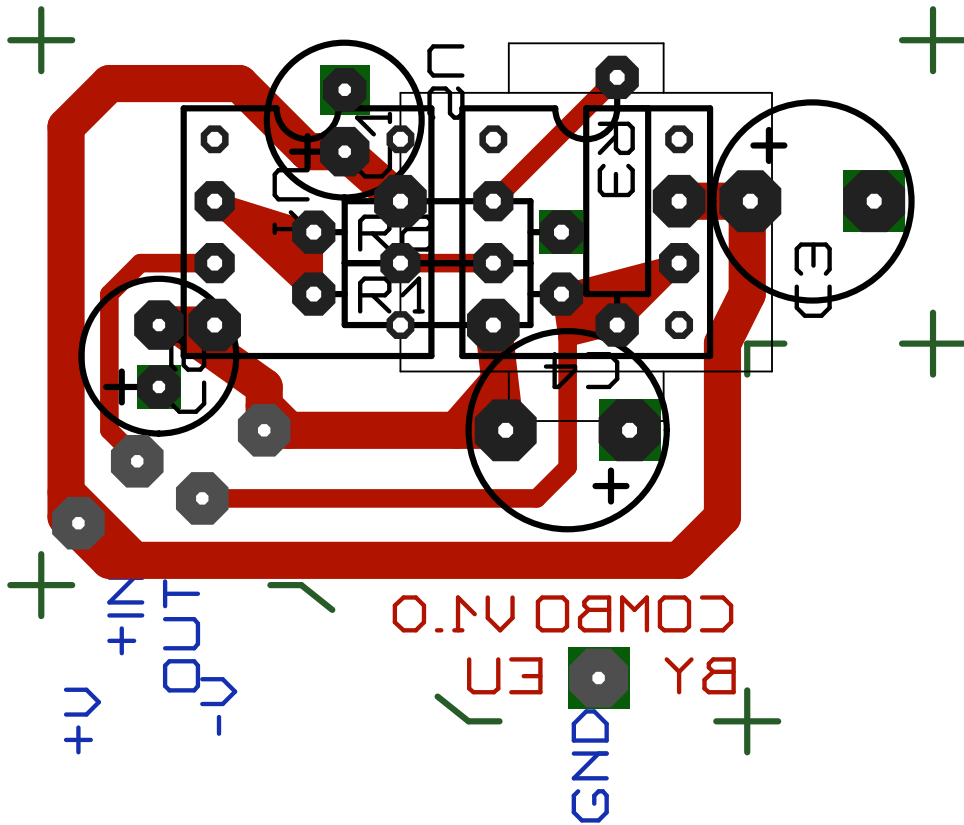
Only U1 and U2 goes on the normal component side, that is the ground plane side. All resistors and caps goes on the "back" side.

After each pcb is finished, they should be mounted on the 8 pin DIL adapters to replace the AD811's on the X-DAC pcb. This is the only connection to the main pcb, apart from the ground connection. The ground connection is made by a jumper soldered between the ground point on the compo pcb and the close by ground hole for the RG resistor on the main pcb. Since this is a very tight implementation, the right channel pcb should be mounted to the very right on its adapter. And likewise should the left channel be mounted on the very left on its adapter. The soldered jumpers between the pcb and the adapter is sufficient to keep them both firmly together. At least if normal resistor cut off is used.

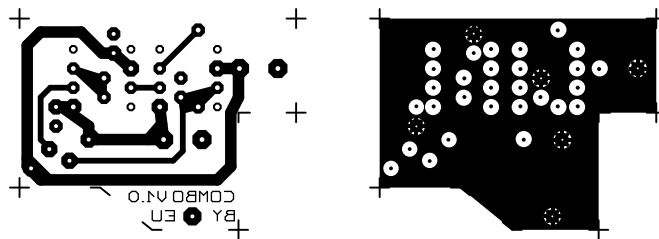
Again since the implementation is tight, if for some reason other capacitors is used, make sure they will fit both on the pcb and in the hole when the pcbs are mounted on the main pcb. Especially when taking the heat sinks into account.

The output capacitors C10 and C13 on the main pcb must also be moved to the signal plane side of the pcb to make room for the combos.

Silk etc



Pcb



Parts List

The following is needed for each channel.

C. Id	Description	Value	Art.no.	Page	Com.	N	DH
U1	OP-amp	AD797BN					
U2	OP-amp	AD811AN					
U1'	IC socket, DIL	8 pin					
U2'	IC socket, DIL	8 pin					
U2''	Heat sink	DIL8					
R1	MF resistor 1% (1/4W)	1K					
R2	MF resistor 1% (1/4W)	1K					
R3	MF resistor 1% (1/4W)	1K					
C1	Capacitor, OSCON, SA	47 uF 16V					
C2	Capacitor, OSCON, SA	47 uF 16V					
C3	Capacitor, ELNA, RSH	470 uF 16V					
C4	Capacitor, ELNA, RSH	470 uF 16V					
C5 ¹	Film cap	100 pF					
CON1	IC adapter	8 pin					

¹ C5 is needed if the stage oscillates. Mine did at about 5MHz. Add this cap between pin 6 and 2 on U1.