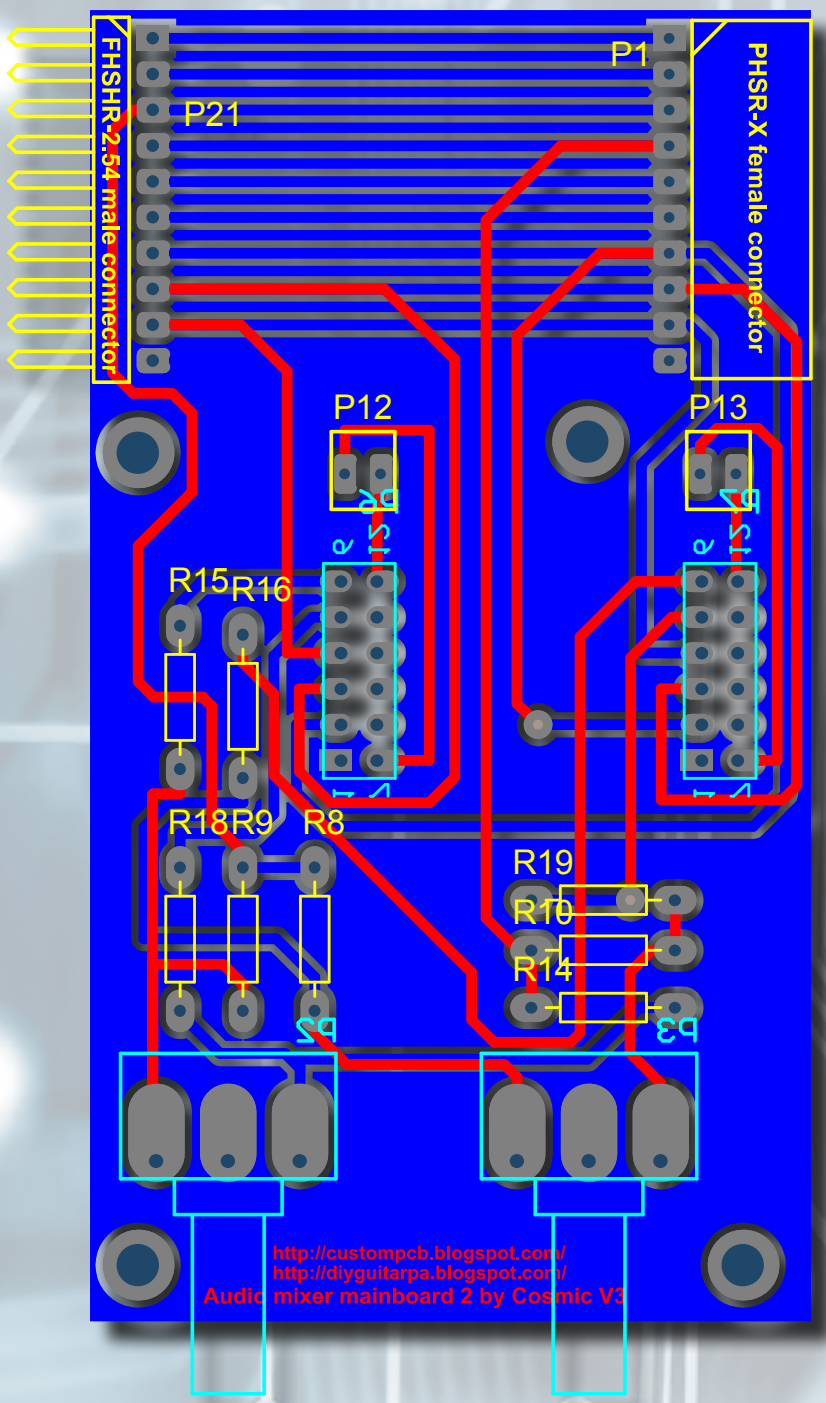
Expandable Modular Audio Mixer for any channels



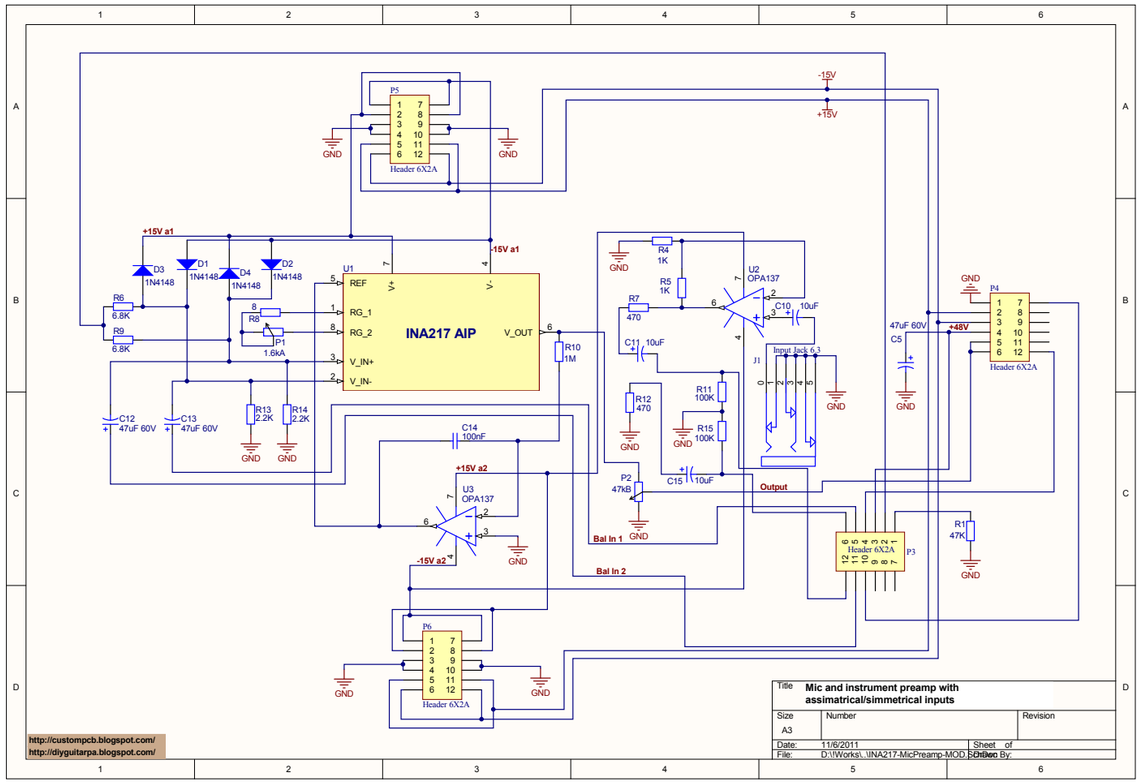
Schematics and BOM for expandable mixer project

This project is similar than my "Modular audio mixer", but the another is made for 4 or 8 channel mixers only, **this mixer is expandable to any inputs and any outputs**. The input preamplifiers of this project is same than in the simple modular mixer, but I have new line output and headphone amplifier modules. **With this mixer, have 3 stages** of mainboards. The first is the required only, this is 4 channel inputs and power supply connectors. But the first board can be continued with 2nd and 3rd stages. The 2nd stage made for 2 channel inputs, the 3rd for line or headphone outputs.

English blog and PCB order: http://custompcb.blogspot.com/
Hungarian blog and PCB order: http://diyguitarpa.blogspot.com/
The Youtube Channel • Picasa gallery • Email: gitarfogas@gmail.com

Schematics and Bill of materials for modular mixer

Schematic and BOM of cheap microphone preamp



The Picasa album about prototype testing

Bill of Materials — Preamp-INA217 Module.PrjPcb — 11/10/2011 — 16:31:13

Comment	Footprint	Value	Quantity	Description	Model:Footprint	Pins	Designator
OPA137	006E	OPA137	2	FET-Input Operational Amplifiers	DIP; 8 Leads; Row Spacing 7.62 mm; Pitch 2.54 mm	8	U3, U4
Res2	AXIAL-0.4	100K	2	Resistor	Axial Device, Thru-Hole; 2 Leads; 0.4 in Pin Spacing	2	R11, R15
Res2	AXIAL-0.4	1K	2	Resistor	Axial Device, Thru-Hole; 2 Leads; 0.4 in Pin Spacing	2	R4, R5
Res2	AXIAL-0.4	1M	1	Resistor	Resistor; 2 Leads	2	R10
Res2	AXIAL-0.4	2.2K	2	Resistor	Resistor; 2 Leads	2	R13, R14
Res2	AXIAL-0.4	470	2	Resistor	Axial Device, Thru-Hole; 2 Leads; 0.4 in Pin Spacing	2	R7, R12
Res2	AXIAL-0.4	47K	1	Resistor	Resistor; 2 Leads	2	R1
Res2	AXIAL-0.4	6.8K	2	Resistor	Resistor; 2 Leads	2	R6, R9
Res2	AXIAL-0.4	8	1	Resistor	Resistor; 2 Leads	2	R8
Cap Pol1	Cap, Tantal, 1mil	10uF	3	Polarized Capacitor (Radial)		2	C10, C11, C15
INA217AIP	DIP-8	INA217 AIP	1	Instrument Amp	DIP, 8-Pin, Row Spacing 7.62 mm, Pitch 2.54 mm	8	U1
1N4148	DO-35	1N4148	4	High Conductance Fast Diode	Diode, Axial; Body 3.8 x 1.9 mm (LxDia. max), Lead Dia. 0.53 mm (max)	2	D1, D2, D3, D4
Cap Pol1	Elco 12 mm, 2 mil pins	47uF 60V	3	Polarized Capacitor (Radial)		2	C5, C12, C13
Header 6X2A	HDR2X6_CEN		4	Header, 6-Pin, Dual row	Connector; Header; 6x2 Position	12	P3, P4, P5, P6
Input Jack 6.3	Jack input 6.3		1			6	J1
Pot Mono	Pot Mono MetalCase	1.6kA	1	Resistor	3 pin mono metal case pot, 2 mil	3	P1
Pot Mono	Pot Mono MetalCase	47kB	1	Resistor	3 pin mono metal case pot, 2 mil	3	P2
Cap	RAD-0.3	100nF	1	Capacitor	Capacitor; 2 Leads	2	C14
			34				

Notes

This circuit made for **mono microphone inputs** only. The input is mono, 6.3 mm jack inserted directly to the board with **unbalanced/balanced converter**, and 3 inputs header for symmetrical phones with XLR output. Switch module required to select between two inputs (unbalanced jack or balanced XLR). The main amplifier of this circuit is INA217. This instrument amp is very cheap, and noiseless. Volume and gain potentiometers included. This circuit must be soldered to the first stage of mainboard of audio mixer via 2x6 pin male "L" header.

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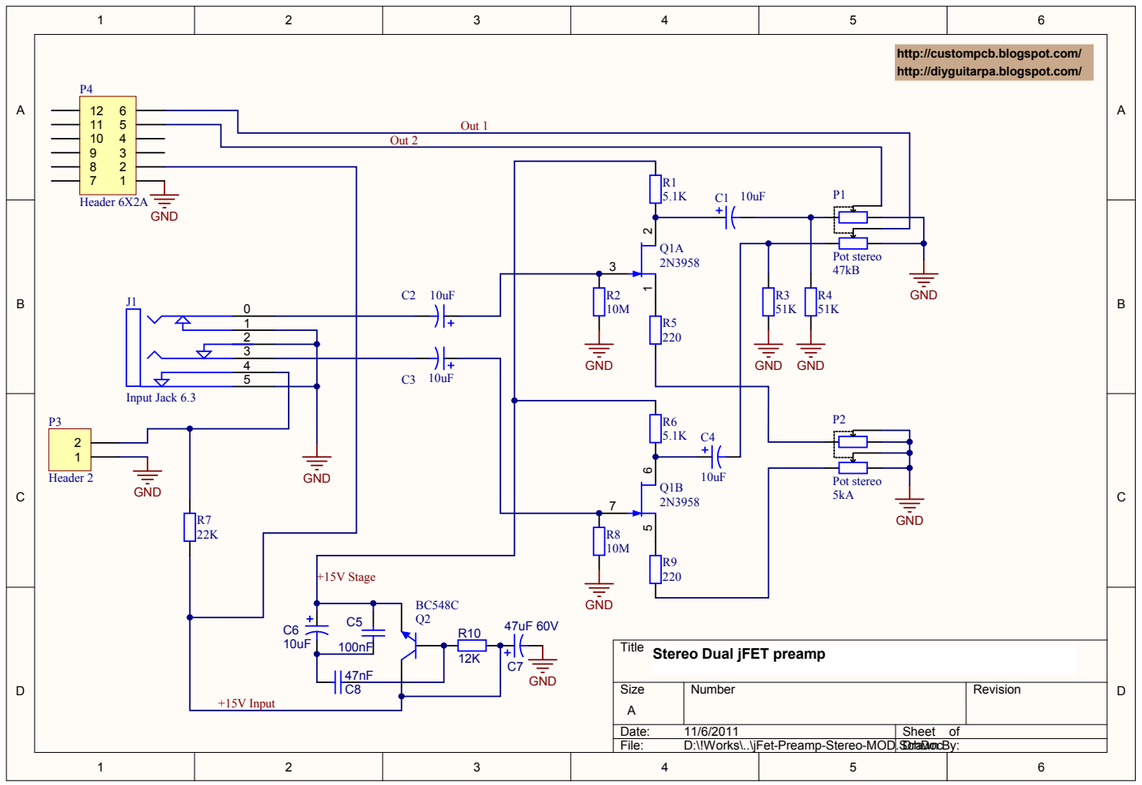
Schematics and Bill of materials for modular mixer

Stereo jFET guitar (instrument, effect) preamp



The Picasa album about jFET amplifier

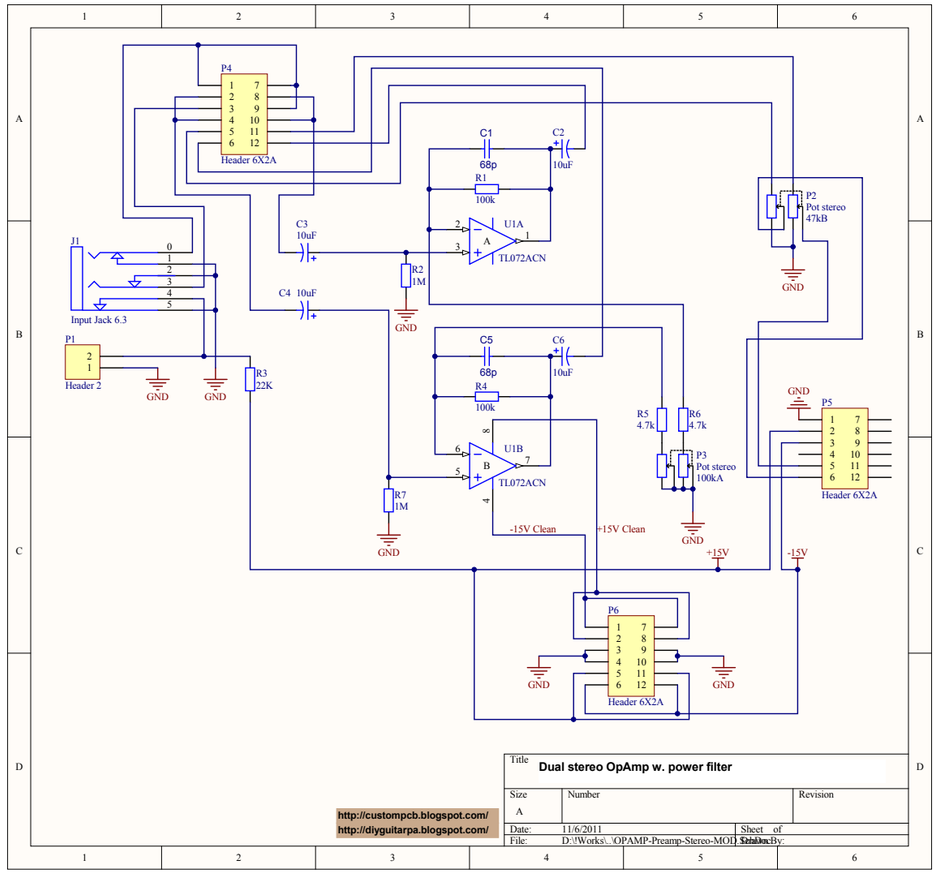
Bill of Materials				Preamp-jFET Module.PrjPcb	11/10/2011	16:46:17
Comment	Footprint	Value	Quantity	Description	Model:Footprint	Pins	Designator
BC548C	29-04		1	Amplifier Transistor NPN Silicon	TO, Flat Index; 3 In-Line, Axial Leads; Body Dia. 4.8mm; Leads 0.48 x 0.5 mm (max)	3	Q2
Res2	AXIAL-0.4	10M	2	Resistor	Axial Device, Thru-Hole; 2 Leads; 0.4 in Pin Spacing	2	R2, R8
Res2	AXIAL-0.4	12K	1	Resistor	Resistor; 2 Leads	2	R10
Res2	AXIAL-0.4	220	2	Resistor	Axial Device, Thru-Hole; 2 Leads; 0.4 in Pin Spacing	2	R5, R9
Res2	AXIAL-0.4	22K	1	Resistor	Axial Device, Thru-Hole; 2 Leads; 0.4 in Pin Spacing	2	R7
Res2	AXIAL-0.4	5.1K	2	Resistor	Axial Device, Thru-Hole; 2 Leads; 0.4 in Pin Spacing	2	R1, R6
Res2	AXIAL-0.4	51K	2	Resistor	Axial Device, Thru-Hole; 2 Leads; 0.4 in Pin Spacing	2	R3, R4
Cap Pol1	Cap, Tantal, 1mil	10uF	5	Polarized Capacitor (Radial)		2	C1, C2, C3, C4, C6
Cap Pol1	Elco 6mm, 1 mil pins	47uF 60V	1	Polarized Capacitor (Radial)		2	C7
Header 2	HDR1X2		1	Header, 2-Pin	Connector; Header; 2 Position	2	P3
Header 6X2A	HDR2X6_CEN		1	Header, 6-Pin, Dual row	Connector; Header; 6x2 Position	12	P4
Input Jack 6.3	Jack input 6.3		1			6	J1
Pot stereo	Pots Plastic Stereo	47kB	1	Resistor		6	P1
Pot stereo	Pots Plastic Stereo	5kA	1	Resistor		6	P2
Cap	RAD-0.3	100nF	1	Capacitor	Capacitor; 2 Leads	2	C5
Cap	RAD-0.3	47nF	1	Capacitor	Capacitor; 2 Leads	2	C8
2N3958	TO-71		1	N-Channel Dual JFET (General Purpose)	Can; 7 Leads (1 Absent); Pin Circle Dia. 2.54 mm; Lead Dia. 0.48 mm (max)	6	Q1
			25				

Notes

This very simple, small, cheap and **noiseless preamp** made for musical instruments with **stereo** (or mono) input. The main part of this circuit is 2N3958 dual jFET. Ideal for **stereo or mono guitar effects**, keyboards, or to connect another devices with stereo outputs like audio mixers. Stereo jack, gain and volume adjustable resistors are inserted to the PCB. Very cheap and very good quality for **guitars**. The possible gain is not too high of this circuit, but enough for guitars and guitar effects with very warm sound.

Schematics and Bill of materials for modular mixer

Stereo dual OpAmp instrument or audio preamplifier



The Picasa album about OpAmp amplifier

Bill of Materials				Preamp-dual OpAmp Module.PrjPcb	11/10/2011	17:02:26
Comment	Footprint	Value	Quantity	Description	Model:Footprint	Pins	Designator
Res2	AXIAL-0.4	100k	2	Resistor	Axial Device, Thru-Hole; 2 Leads; 0.4 in Pin Spacing	2	R1, R4
Res2	AXIAL-0.4	1M	2	Resistor	Axial Device, Thru-Hole; 2 Leads; 0.4 in Pin Spacing	2	R2, R7
Res2	AXIAL-0.4	22K	1	Resistor	Axial Device, Thru-Hole; 2 Leads; 0.4 in Pin Spacing	2	R3
Res2	AXIAL-0.4	4.7k	2	Resistor	Axial Device, Thru-Hole; 2 Leads; 0.4 in Pin Spacing	2	R5, R6
Cap Pol1	Cap, Tantal, 1mil	10uF	4	Polarized Capacitor (Radial)		2	C2, C3, C4, C6
TL072ACN	dip-8		1	Low-Noise J-FET Dual Operational Amplifier	DIP; 8 Leads; Row Spacing 7.62 mm; Pitch 2.54 mm	8	U1
Header 2	HDR1X2		1	Header, 2-Pin	Connector; Header; 2 Position	2	P1
Header 6X2A	HDR2X6_CEN		3	Header, 6-Pin, Dual row	Connector; Header; 6x2 Position	12	P4, P5, P6
Input Jack 6.3	Jack input 6.3		1			6	J1
Pot stereo	Pots Plastic Stereo	100kA	1	Resistor		6	P3
Pot stereo	Pots Plastic Stereo	47kB	1	Resistor		6	P2
Cap	RAD-0.3	68p	2	Capacitor	Capacitor; 2 Leads	2	C1, C5
			21				

Notes

This is another really simple, good quality and cheap preamplifier with **stereo jack** input for guitar effects or keyboards. The possible **gain is much higher than jFET** circuit, and the sound is better for keyboards or mixers than the guitars or guitar effects. The dual OpAmp must be compatible with TL072. Gain and volume pots has inserted to the PCB board.

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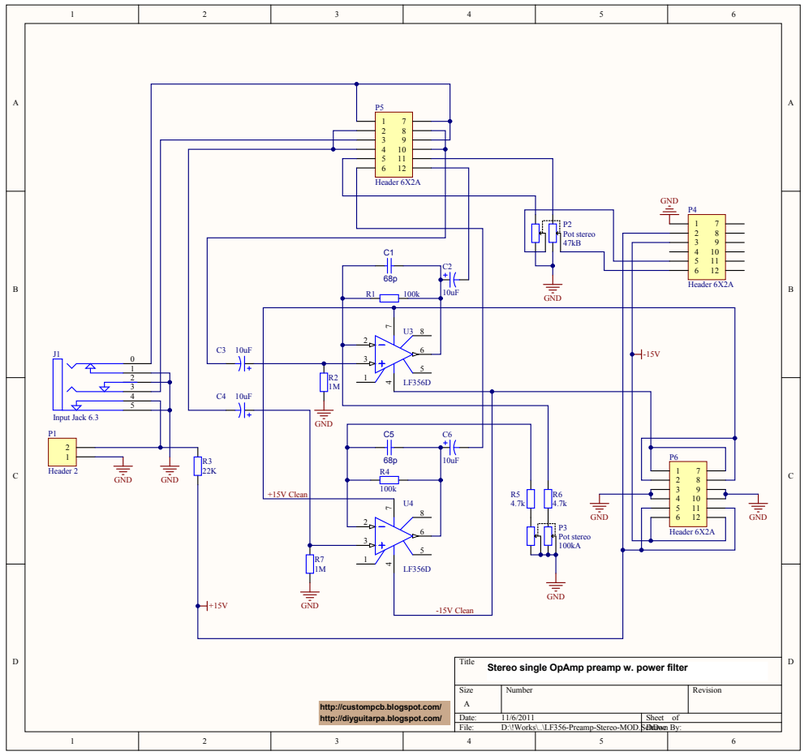
Schematics and Bill of materials for modular mixer

Stereo circuit with 2 single OpAmp, instrument and audio preamplifier



Notes

This circuit looks like the previous version of TL072 compatible dual OpAmp preamplifier, but for this, **two single OpAmp device required**, instead of one dual. The reason of this solution is the better quality, **if you want to use really noiseless single LF or LT serial integrated circuits instead of relative noisy one dual TL072**.

This solution is really cheap, against the noise one powerfilter circuit included (for both OpAmps). Stereo jack input, stereo/mono and bypass switch, gain and volume potentiometers inserted to the board.

Because the circuit noise, distortion (and the gain) depending on the included single OpAmp, the solution recommended for all non-guitar instrument, and audio amplifiers for home hi-fi solutions.

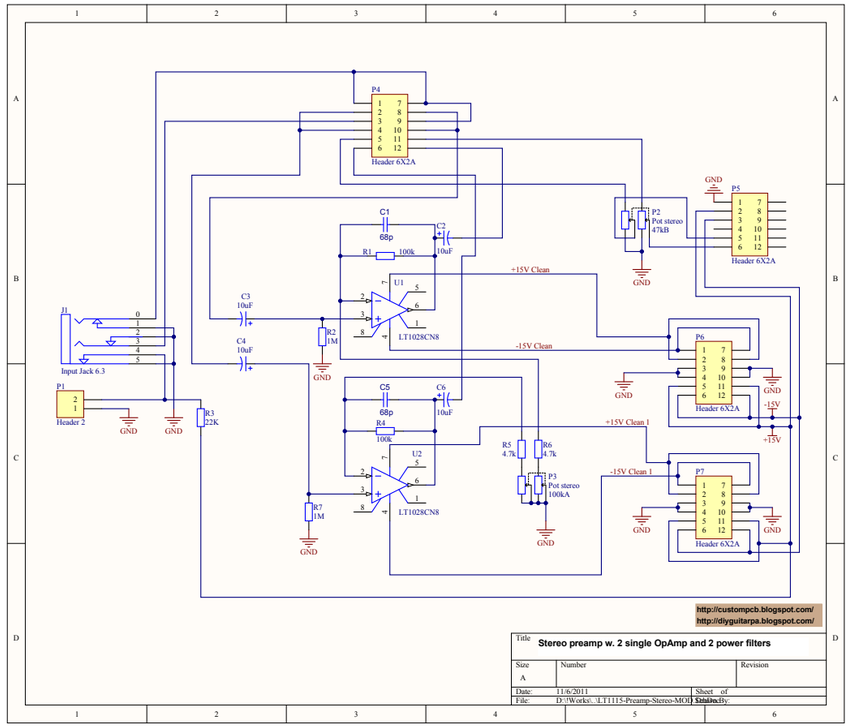
Bill of Materials

OpAmp Module.PrjPcb — 11/10/2011 — 17:06:34

Comment	Footprint	Value	Quantity	Description	Model:Footprint	Pins	Designator
Res2	AXIAL-0.4	100k	2	Resistor	Axial Device, Thru-Hole; 2 Leads; 0.4 in Pin Spacing	2	R1, R4
Res2	AXIAL-0.4	1M	2	Resistor	Axial Device, Thru-Hole; 2 Leads; 0.4 in Pin Spacing	2	R2, R7
Res2	AXIAL-0.4	22K	1	Resistor	Axial Device, Thru-Hole; 2 Leads; 0.4 in Pin Spacing	2	R3
Res2	AXIAL-0.4	4.7k	2	Resistor	Axial Device, Thru-Hole; 2 Leads; 0.4 in Pin Spacing	2	R5, R6
Cap Pol1	Cap, Tantal, 1mil	10uF	4	Polarized Capacitor (Radial)		2	C2, C3, C4, C6
LF356D	dip-8		2	Wide-Bandwidth Single J-FET Operational Amplifier	DIP; 8 Leads; Row Spacing 7.62 mm; Pitch 2.54 mm	8	U3, U4
Header 2	HDR1X2		1	Header, 2-Pin	Connector; Header; 2 Position	2	P1
Header 6X2A	HDR2X6_CEN		3	Header, 6-Pin, Dual row	Connector; Header; 6x2 Position	12	P4, P5, P6
Input Jack 6.3	Jack input 6.3		1			6	J1
Pot stereo	Pots Plastic Stereo	100kA	1	Resistor		6	P3
Pot stereo	Pots Plastic Stereo	47kB	1	Resistor		6	P2
Cap	RAD-0.3	68p	2	Capacitor	Capacitor; 2 Leads	2	C1, C5
			22				

Schematics and Bill of materials for modular mixer

Stereo low noise 2 single OpAmp instrument or hi-fi preamplifier



Notes

This is the last version of OpAmp preamplifiers. This have best quality. This is the reason why two single OpAmp included instead of one dual. **LT1115** or **LT1028** recommended for best result, maybe one of LF or NE serial OpAmps.

The difference between this and the previous version of board, here we have two power filter, one filter for one OpAmp for the best result of really low noise and distortion. The circuit recommended for **home hi-fi and instruments, included instrument effects**.

Gain and volume potentiometers, bypass and stereo/mono switches included to the board with stereo jack input.

Bill of Materials

OpAmp Module.PrjPcb — 11/10/2011 — 17:12:23

Comment	Footprint	Value	Quantity	Description	Model:Footprint	Pins	Designator
Res2	AXIAL-0.4	100k	2	Resistor	Axial Device, Thru-Hole; 2 Leads; 0.4 in Pin Spacing	2	R1, R4
Res2	AXIAL-0.4	1M	2	Resistor	Axial Device, Thru-Hole; 2 Leads; 0.4 in Pin Spacing	2	R2, R7
Res2	AXIAL-0.4	22K	1	Resistor	Axial Device, Thru-Hole; 2 Leads; 0.4 in Pin Spacing	2	R3
Res2	AXIAL-0.4	4.7k	2	Resistor	Axial Device, Thru-Hole; 2 Leads; 0.4 in Pin Spacing	2	R5, R6
Cap Pol1	Cap, Tantal, 1mil	10uF	4	Polarized Capacitor (Radial)		2	C2, C3, C4, C6
LT1028CN8	dip-8		2	Ultra Low Noise Precision High-Speed Operational Amplifier	DIP; 8 Leads; Row Spacing 7.62 mm; Pitch 2.54 mm	8	U1, U2
Header 2	HDR1X2		1	Header, 2-Pin	Connector; Header; 2 Position	2	P1
Header 6X2A	HDR2X6_CEN		4	Header, 6-Pin, Dual row	Connector; Header; 6x2 Position	12	P4, P5, P6, P7
Input Jack 6.3	Jack input 6.3		1			6	J1
Pot stereo	Pots Plastic Stereo	100kA	1	Resistor		6	P3
Pot stereo	Pots Plastic Stereo	47kB	1	Resistor		6	P2
Cap	RAD-0.3	68p	2	Capacitor	Capacitor; 2 Leads	2	C1, C5
			23				

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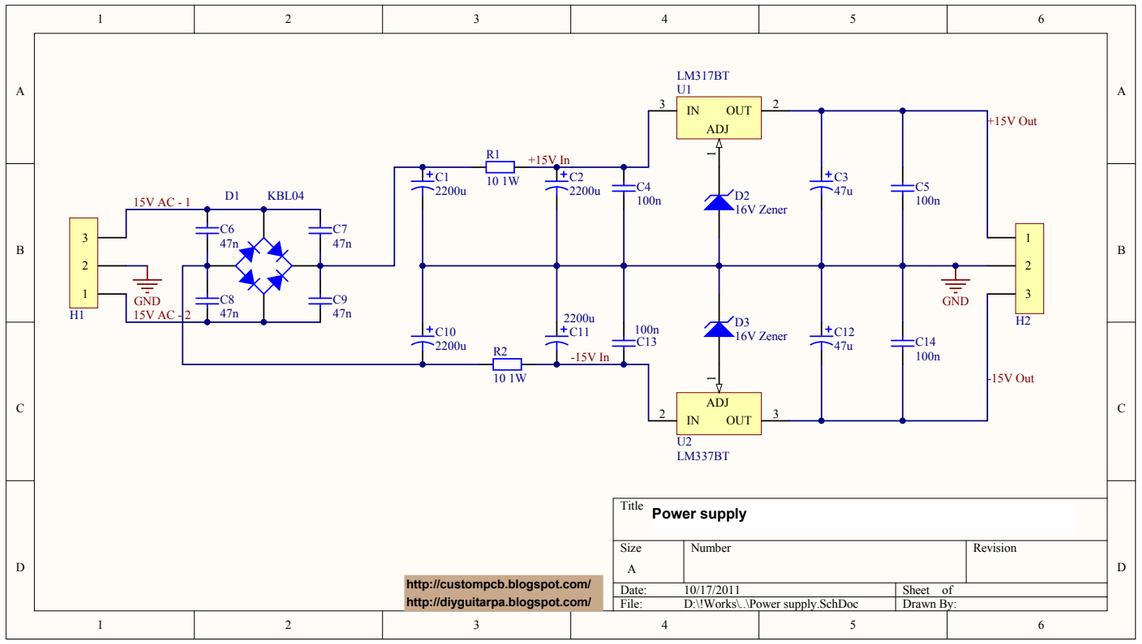
Schematics and Bill of materials for modular mixer

Schematic and BOM of power supply



Notes

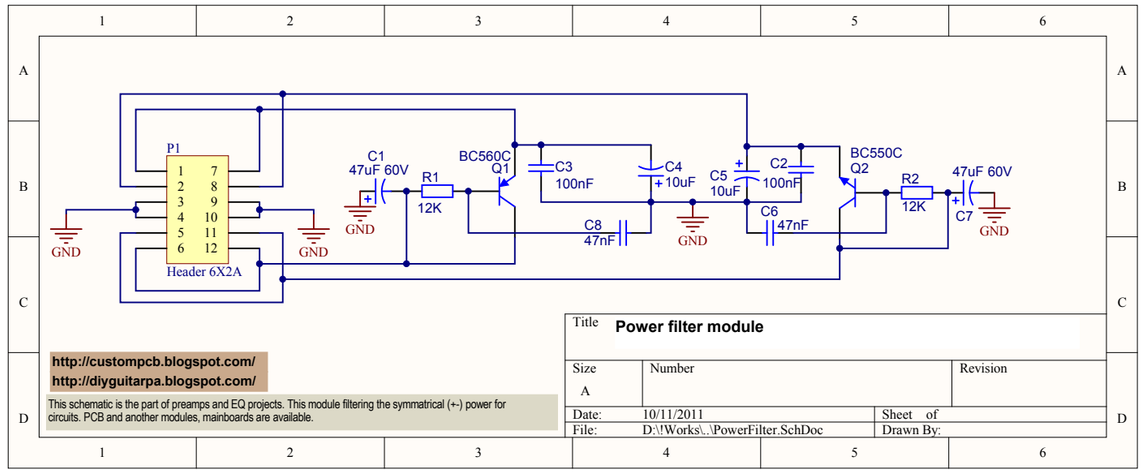
This is the power supply. Very simple and good quality low power circuit. Two adjustable regulators can be fixed to the heatsink. The adjustable regulator with Zener diode have cleaner output than simple 7815 and 7915 regulators.

Bill of Materials — PowerSupply.PrjPcb — 11/10/2011 — 17:24:05

Comment	Footprint	Value	Quantity	Description	Model:Footprint	Pins	Designator
LM317BT	221A-04		1	3-Terminal Adjustable Positive Voltage Regulator	TO, Thru-Hole, Vertical, Heatsink Mounted; 3 In-Line Leads; Pitch 2.54 mm	3	U1
LM337BT	221A-04		1	3-Terminal Adjustable Negative Voltage Regulator	TO, Thru-Hole, Vertical, Heatsink Mounted; 3 In-Line Leads; Pitch 2.54 mm	3	U2
Res2	AXIAL-0.4	10 1W	2	Resistor	Axial Device, Thru-Hole; 2 Leads; 0.4 in Pin Spacing	2	R1, R2
KBL04	Bridge hor.		1	Full Wave Diode Bridge		4	D1
16V Zener	DIODE-0.7		2	Zener Diode	Diode, Thru-Hole; 2 Leads; 0.7 in Pin Spacing	2	D2, D3
Cap Pol1	Elco 12 mm, 2 mil pins	47u	2	Polarized Capacitor (Radial)		2	C3, C12
Cap Pol1	ELCO 22 MM 4 MIL	2200u	4	Polarized Capacitor (Radial)		2	C1, C2, C10, C11
Connector	panel connector 3 input big		2		3 pin, 3 mil connector	3	H1, H2
Cap	RAD-0.3	100n	4	Capacitor	Radial Cap, Thru-Hole; 2 Leads; 0.3 in Pin Spacing	2	C4, C5, C13, C14
Cap	RAD-0.3	47n	4	Capacitor	Radial Cap, Thru-Hole; 2 Leads; 0.3 in Pin Spacing	2	C6, C7, C8, C9
			23				

Schematics and Bill of materials for modular mixer

Schematic and BOM of power filter module



Bill of Materials — Power Filter.PrjPcb — 11/10/2011 — 17:20:43

Comment	Footprint	Value	Quantity	Description	Model:Footprint	Pins	Designator
BC550C	29-04	BC550C	1	Transistor NPN Silicon	TO, Flat Index; 3 In-Line, Axial Leads; Body Dia. 4.8mm; Leads 0.48 x 0.5 mm (max)	3	Q2
BC560C	29-04	BC560C	1	Transistor PNP Silicon	TO, Flat Index; 3 In-Line, Axial Leads; Body Dia. 4.8mm; Leads 0.48 x 0.5 mm (max)	3	Q1
Res2	AXIAL-0.4	12K	2	Resistor	Resistor; 2 Leads	2	R1, R2
Cap Pol1	Cap, Tantal, 1mil	10uF	2	Polarized Capacitor (Radial)		2	C4, C5
Cap	CAP, WIMA, 2MIL	100nF	2	Capacitor		2	C2, C3
Cap	CAP, WIMA, 2MIL	47nF	2	Capacitor		2	C6, C8
Cap Pol1	Elco 6mm, 1 mil pins	47uF 60V	2	Polarized Capacitor (Radial)		2	C1, C7
Header 6X2A	HDR2X6_CEN		1	Header, 6-Pin, Dual row	Connector; Header; 6x2 Position	12	P1
			13				

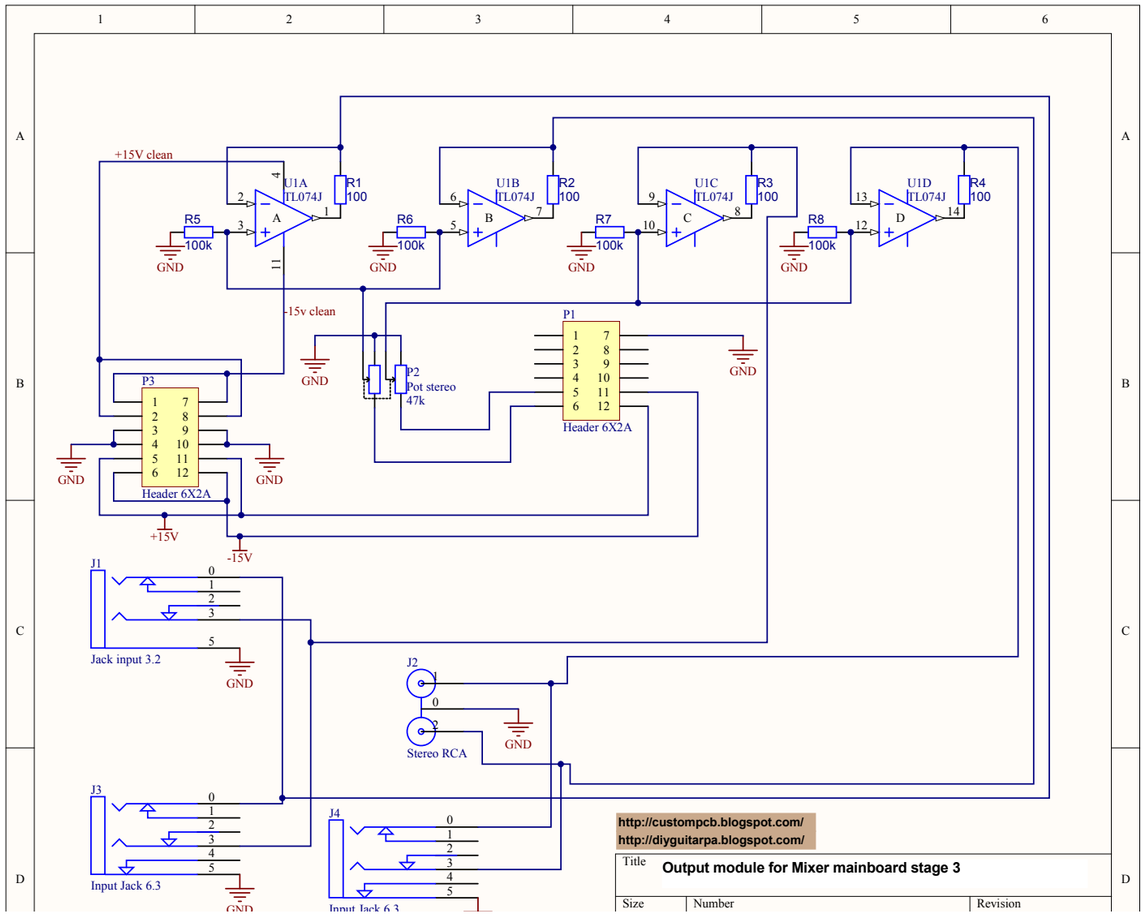
Notes

This module required for the preamplifier boards. This is the **power filter** circuit. I like to use this simple circuit to filter the problems of power. These circuits have to be connected to the 12 pins headers on the preamp PCB. **If you think this is not important, you can wire pin 8 to pin 11 and pin 7 to pin 12 to ignore these circuits** and boards.

We have four versions of power filter PCB. No difference between schematics, only the PCB size is the difference.

Schematics and Bill of materials for modular mixer

Schematic and BOM of variable line output module



Bill of Materials

Mixer outputs Stage3.PrjPcb | 11/10/2011 | 17:50:29

Comment	Footprint	Value	Quantity	Description	Model:Footprint	Pins	Designator
Res2	AXIAL-0.4	100	4	Resistor	Resistor; 2 Leads	2	R1, R2, R3, R4
Res2	AXIAL-0.4	100k	4	Resistor	Resistor; 2 Leads	2	R5, R6, R7, R8
Header 6X2A	HDR2X6_CEN		2	Header, 6-Pin, Dual row	Connector; Header; 6x2 Position	12	P1, P3
TL074J	J014		1	Low-Noise JFET-Input Operational Amplifier	DIP; 14 Leads; Row Spacing 7.62 mm; Pitch 2.54 mm	14	U1
Jack input 3.2	JACK INPUT 3.2		1			5	J1
Input Jack 6.3	Jack input 6.3		2			6	J3, J4
Pot stereo	Pots Plastic Stereo	47k	1	Resistor		6	P2
Stereo RCA	Stereo RCA input		1			3	J2
			16				

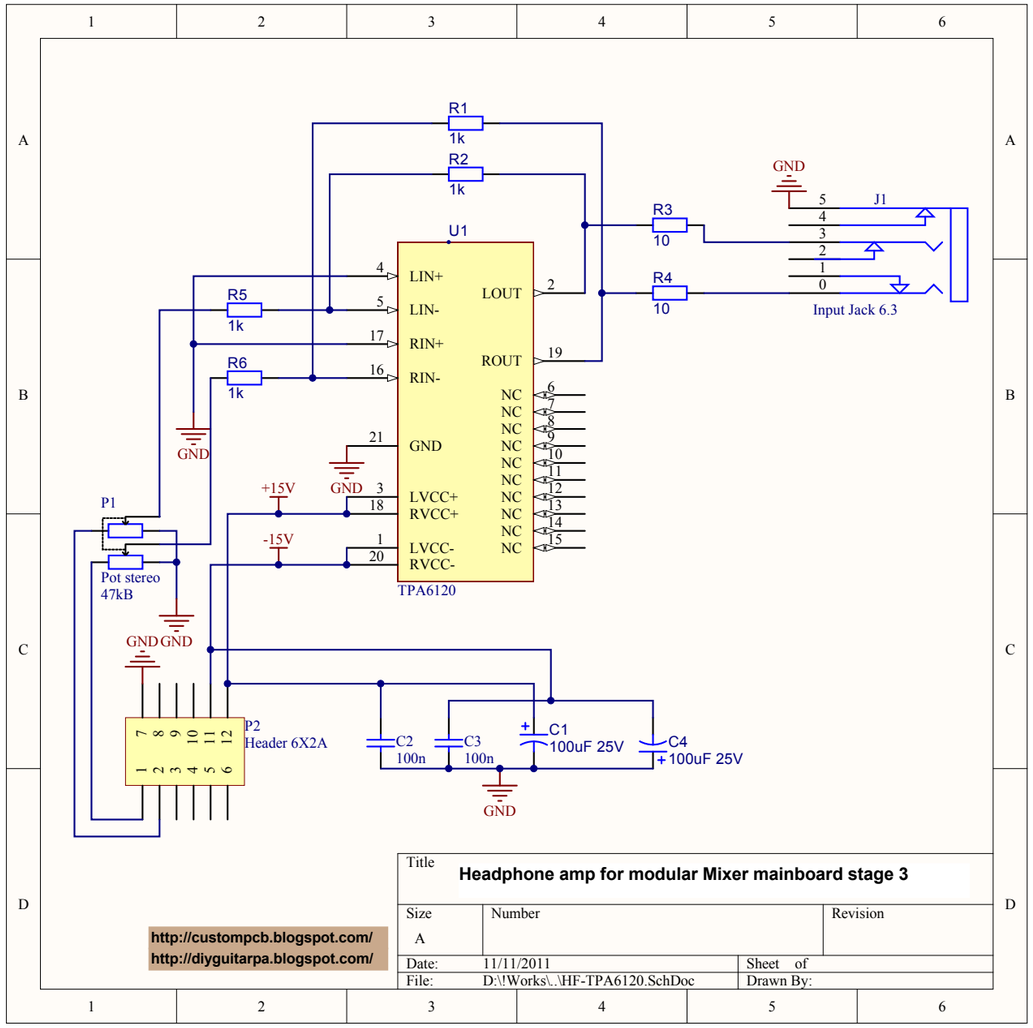
Notes

This is the PCB for line level mixer outputs with volume level stereo potentiometer. Have to be connected to the **stage no.3** of mixer mainboard. This stage of mixer have balance adjustment feature if required. With this board, you have two line outputs with variations:

- 2 pcs 6.3mm jack
- 1 pcs 6.3mm jack and 1 pcs 3.2mm jack
- 1 pcs 6.3mm jack and 1 pcs stereo RCA
- 1 pcs 3.2mm jack and 1 pcs stereo RCA

Schematics and Bill of materials for modular mixer

Schematic and BOM of simple headphone output module



Bill of Materials

TPA6120 Simple Mod.PrjPcb | 11/10/2011 | 17:52:41

Comment	Footprint	Value	Quantity	Description	Model:Footprint	Pins	Designator
Res2	AXIAL-0.4	10	2	Resistor	Resistor; 2 Leads	2	R3, R4
Res2	AXIAL-0.4	1k	4	Resistor	Resistor; 2 Leads	2	R1, R2, R5, R6
Cap	CAP, 2 and 3 MIL	100n	2	Capacitor		2	C2, C3
Cap Pol1	Elco 6mm, 1 mil pins	100uF 25V	2	Polarized Capacitor (Radial)		2	C1, C4
Header 6X2A	HDR2X6_CEN		1	Header, 6-Pin, Dual row	Connector; Header; 6x2 Position	12	P2
Input Jack 6.3	Jack input 6.3		1			6	J1
Pot stereo	Pots Plastic Stereo	47kB	1	Resistor		6	P1
TPA6120	Powerpad 20		1			21	U1
			14				

Notes

This is the circuit for headphone output for mixer with volume level stereo potentiometer. Have to be connected to the **stage no.3** of mixer mainboard. This stage of mixer have balance adjustment feature if required. This board contains SMD circuit. TPA6120 is the one of the best class-D headphone amplifier with 120dB dynamics. This is the smallest, cheapest, and simplest application of this module.

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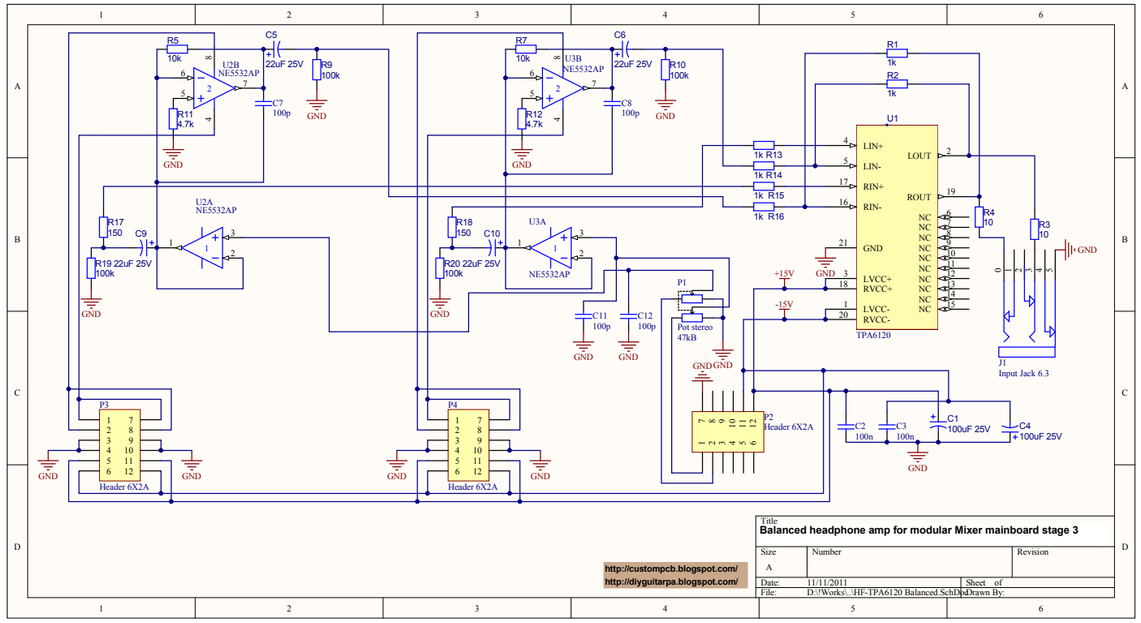
Schematics and Bill of materials for modular mixer

Schematic and BOM of balanced headphone output module



Bill of Materials				TPA6120 Balanced Mod.PrjPcb	11/10/2011 17:54:20		
Comment	Footprint	Value	Quantity	Description	Model:Footprint	Pins	Designator
Res2	AXIAL-0.4	10	2	Resistor	Resistor; 2 Leads	2	R3, R4
Res2	AXIAL-0.4	100k	4	Resistor	Resistor; 2 Leads	2	R9, R10, R19, R20
Res2	AXIAL-0.4	10k	2	Resistor	Resistor; 2 Leads	2	R5, R7
Res2	AXIAL-0.4	150	2	Resistor	Resistor; 2 Leads	2	R17, R18
Res2	AXIAL-0.4	1k	6	Resistor	Resistor; 2 Leads	2	R1, R2, R13, R14, R15, R16
Res2	AXIAL-0.4	4.7k	2	Resistor	Resistor; 2 Leads	2	R11, R12
Cap	CAP, 2 and 3 MIL	100n	2	Capacitor		2	C2, C3
Cap	CAP, Ceramic, 1MIL	100p	4	Capacitor		2	C7, C8, C11, C12
Cap Pol1	Cap, Tantal, 1mil	22uF 25V	4	Polarized Capacitor (Radial)		2	C5, C6, C9, C10
NE5532AP	dip-8		2	Dual Low-Noise Operational Amplifier	DIP; 8 Leads; Row Spacing 7.62 mm; Pitch 2.54 mm	8	U2, U3
Cap Pol1	Elco 6mm, 1 mil pins	100uF 25V	2	Polarized Capacitor (Radial)		2	C1, C4
Header 6X2A	HDR2X6_CEN		3	Header, 6-Pin, Dual row	Connector; Header; 6x2 Position	12	P2, P3, P4
Input Jack 6.3	Jack input 6.3		1			6	J1
Pot stereo	Pots Plastic Stereo	47kB	1	Resistor		6	P1
TPA6120	Powerpad 20		1			21	U1
			38				

Notes

This is the circuit for headphone output for mixer with volume level stereo potentiometer. Have to be connected to the **stage no.3** of mixer mainboard. This stage of mixer have balance adjustment feature if required. This board contains SMD circuit. TPA6120 is the one of the best class-D headphone amplifier with 120dB dynamics. This module contains unbalanced/balanced converter for better result. If this feature not required, use the previous version of this schematic.

Printed Circuit Boards for instrument and hi-fi preamps

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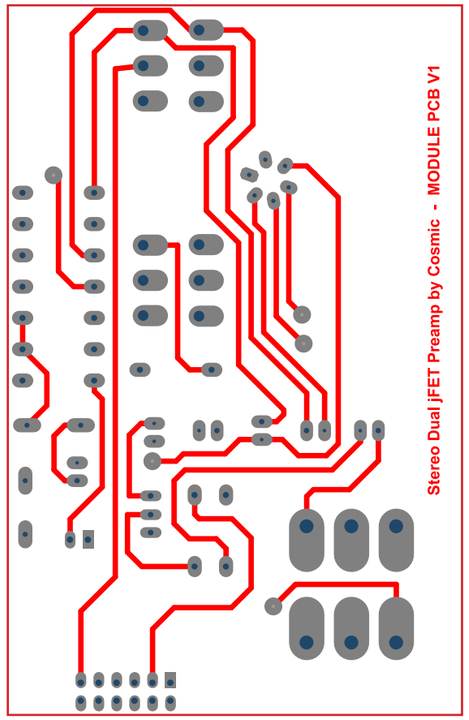
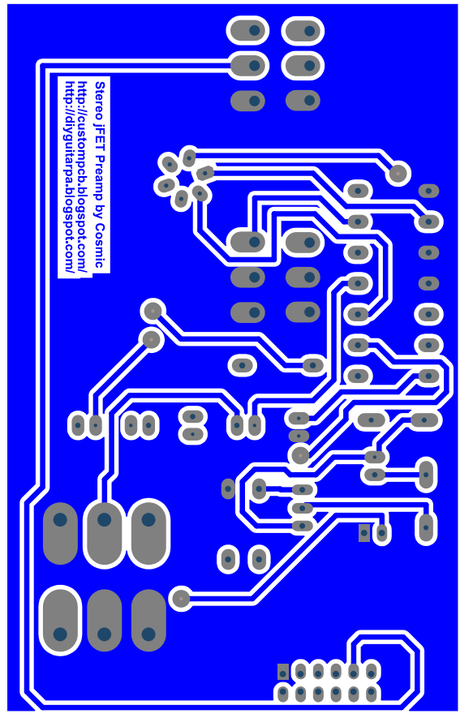
PCB for the modular audio mixer

Top and bottom PCBs and overlay of stereo jFET preamp

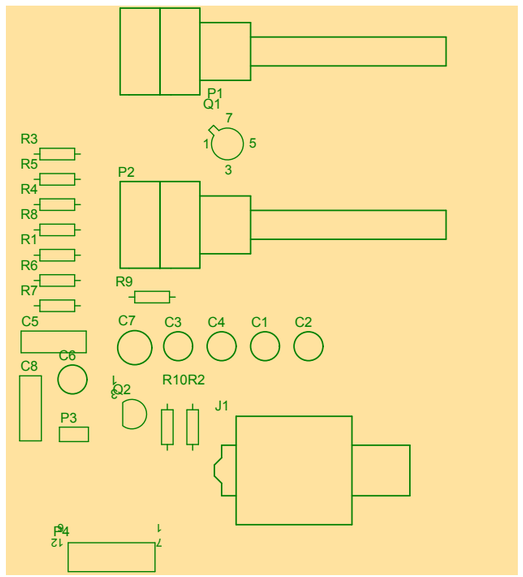


TOP LAYER

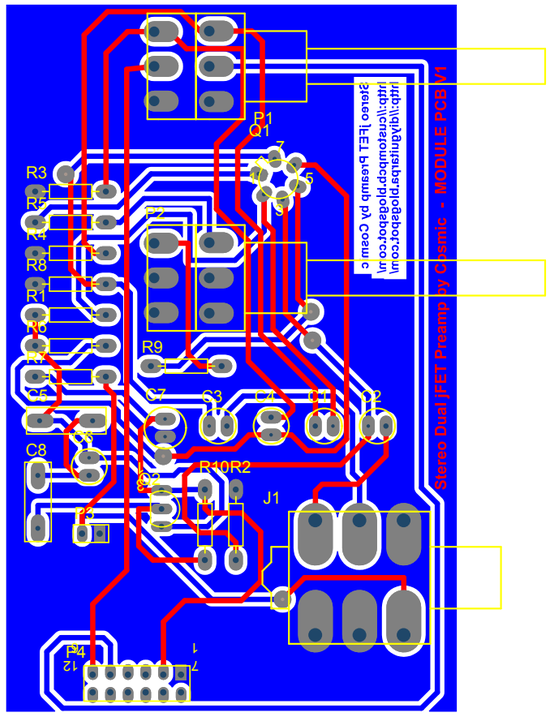
BOTTOM LAYER



PCB TOP OVERLAY

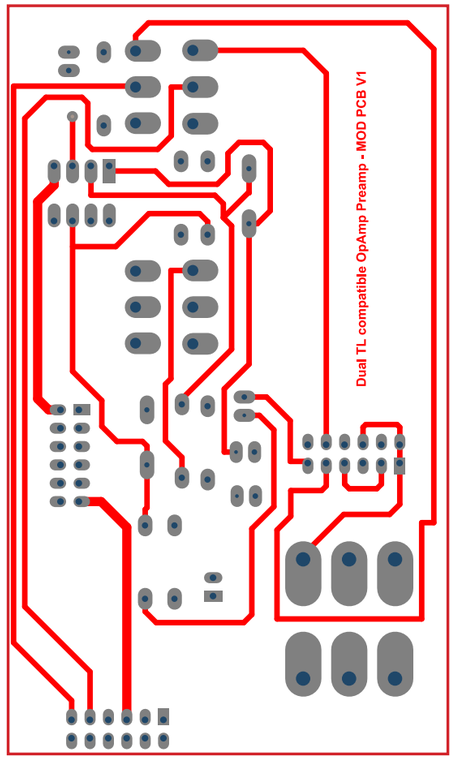


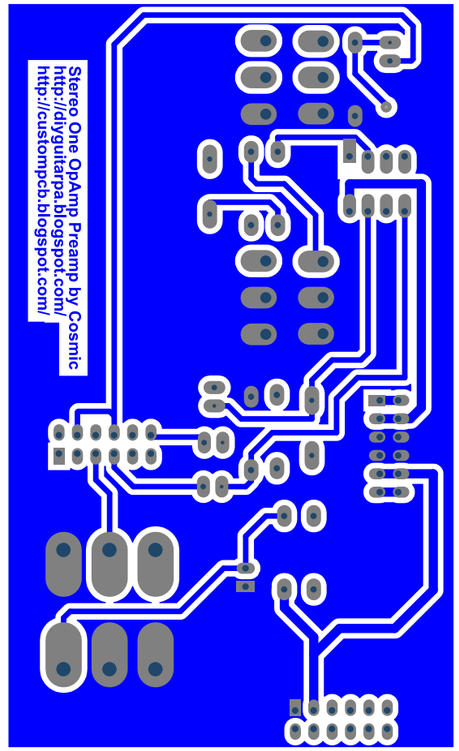
TOP OVERLAY ON TOP LAYER



PCB for the modular audio mixer

Top and bottom PCBs and overlay of simple dual OpAmp preamp

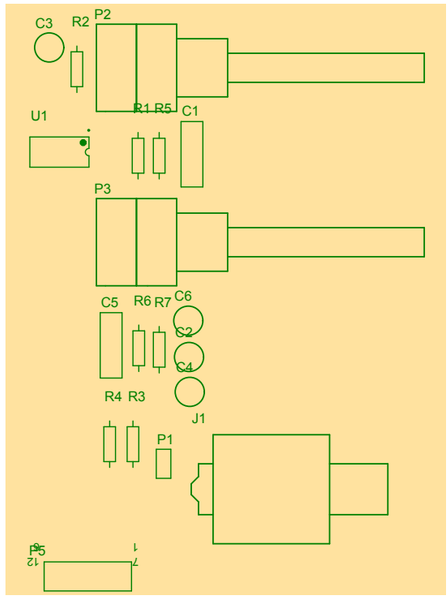




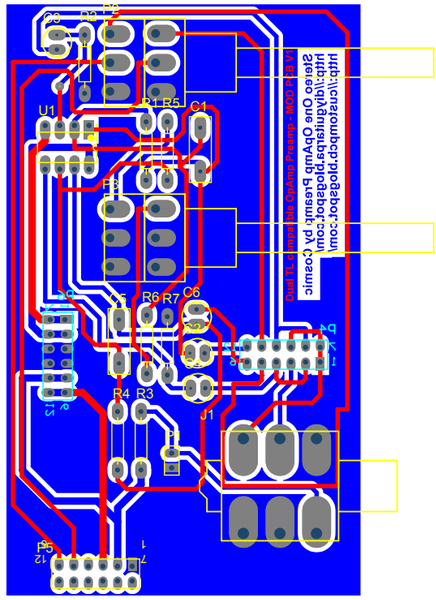
TOP LAYER

BOTTOM LAYER

PCB OVERLAY



OVERLAY ON TOP LAYER



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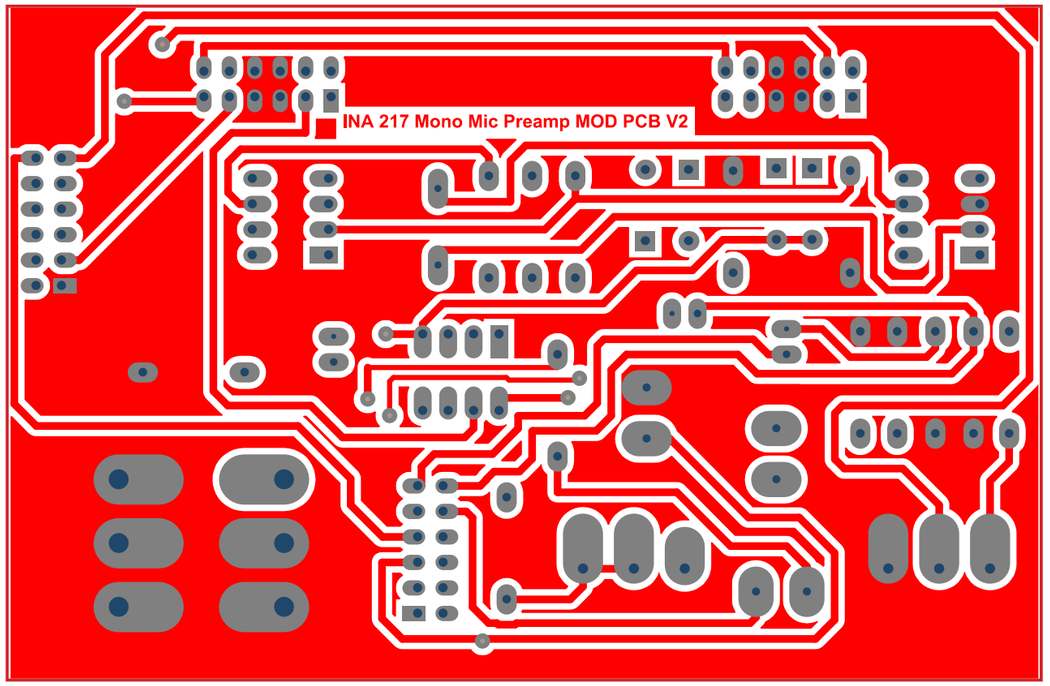
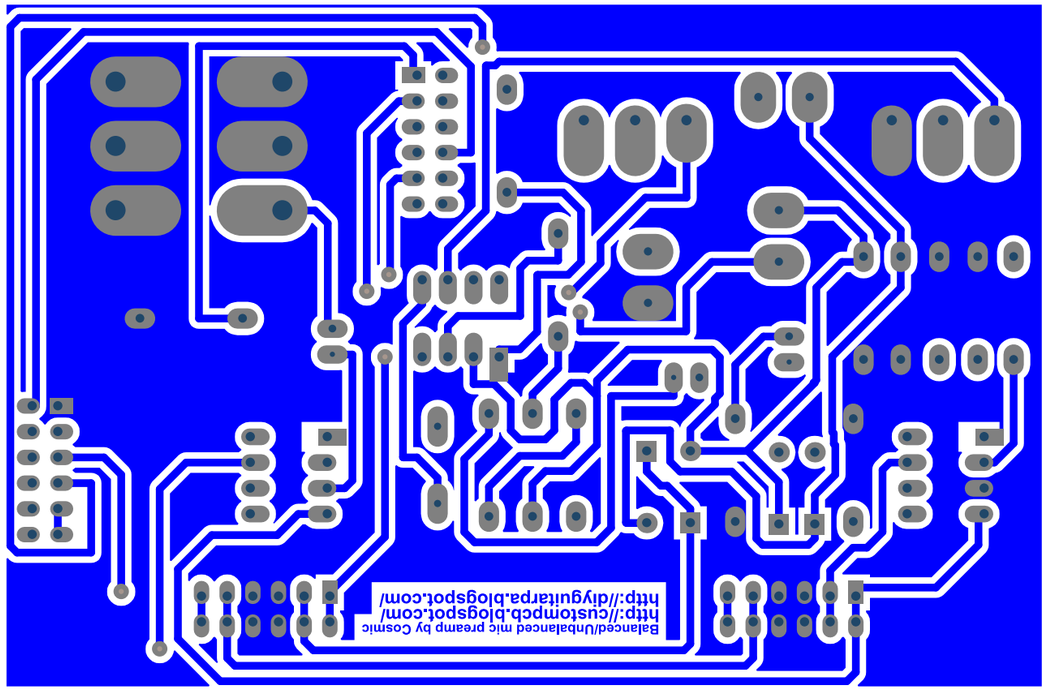
PCB for the modular audio mixer

Top and bottom PCBs and overlay of INA217 microphone preamp



TOP LAYER



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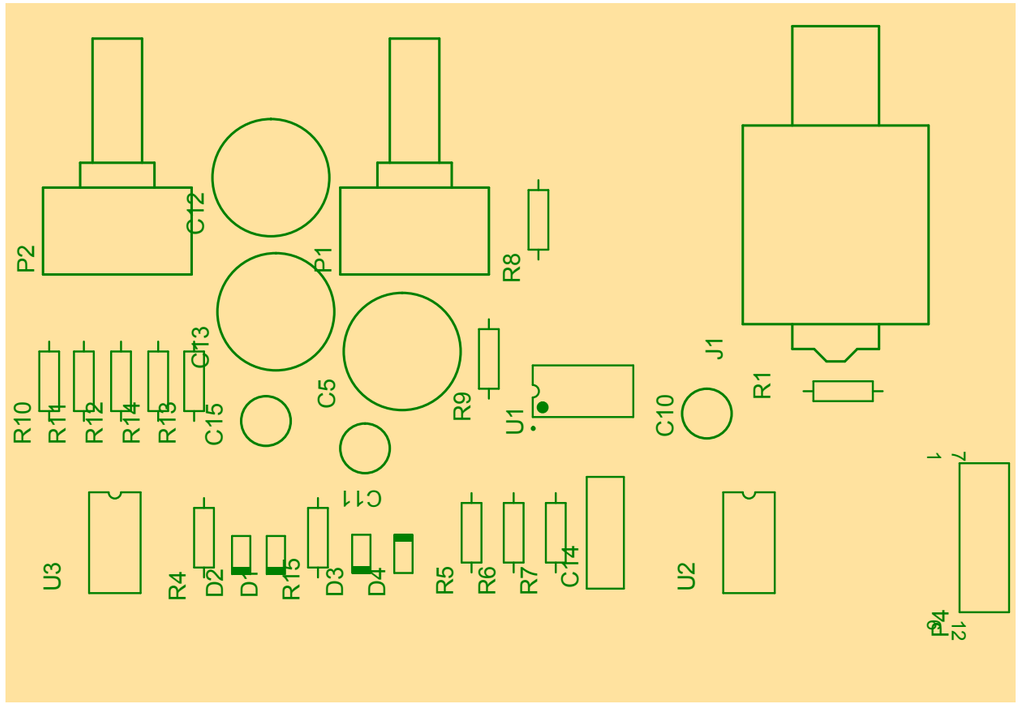
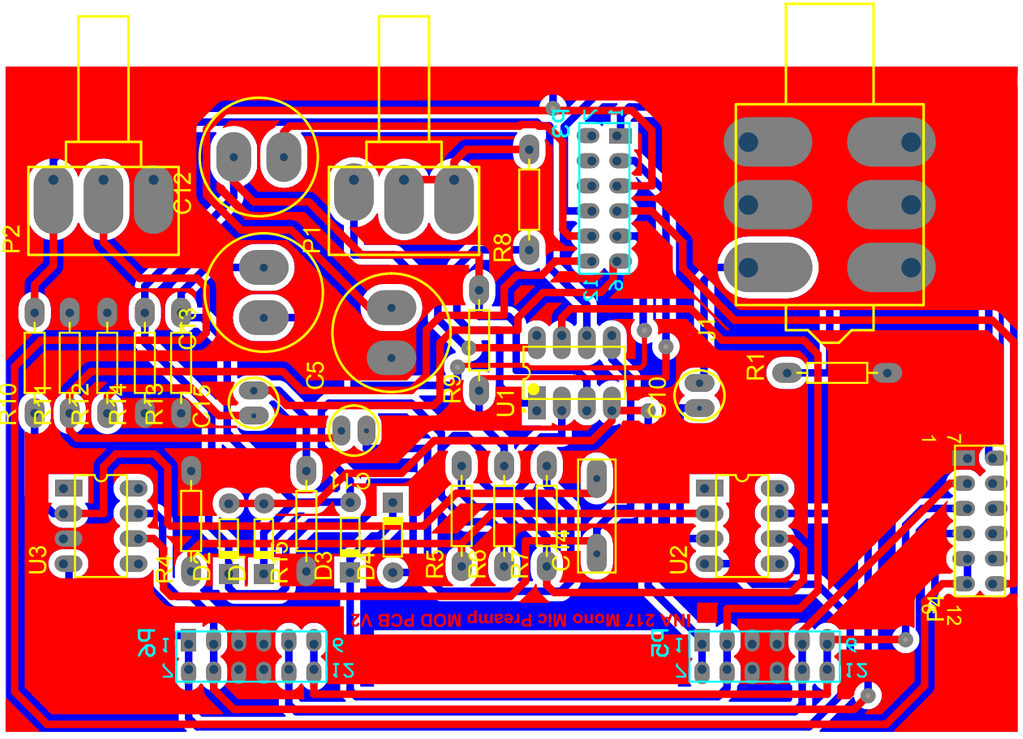


PCB TOP OVERLAY



TOP OVERLAY ON TOP LAYER

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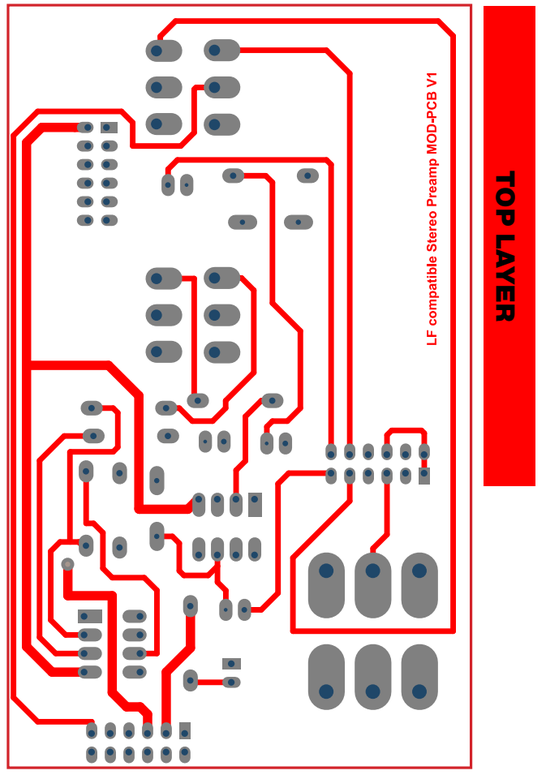
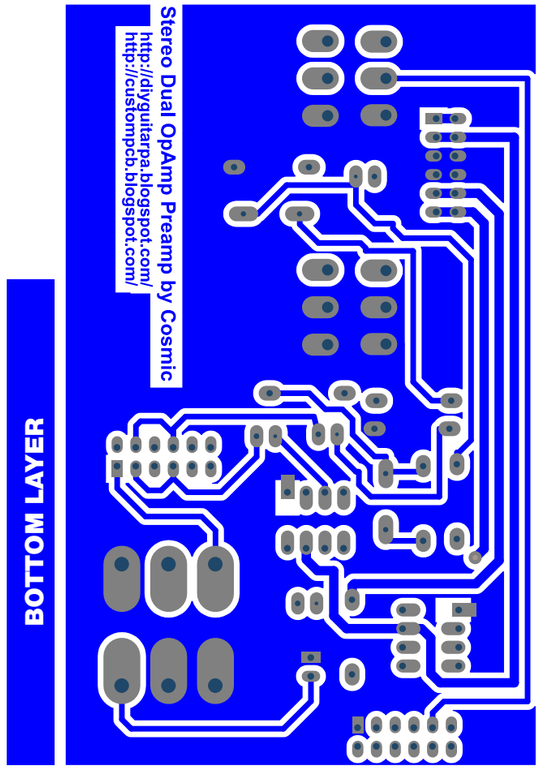
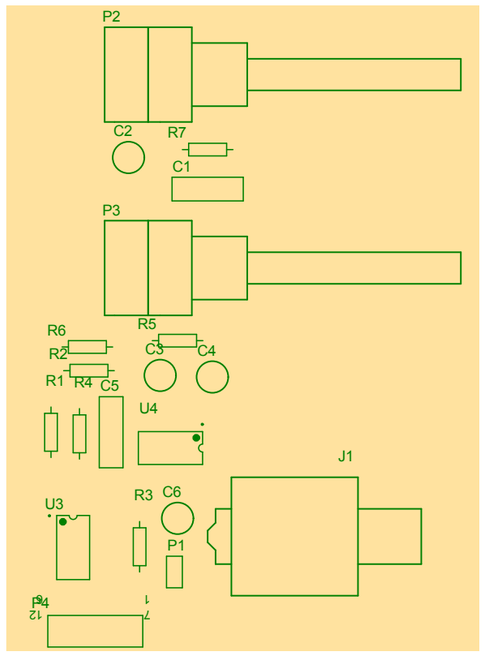
PCB for the modular audio mixer

Two single OpAmp - stereo universal preamp

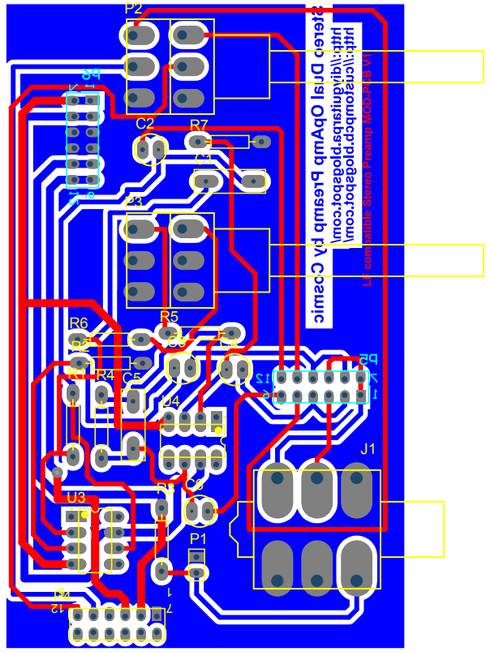




PCB OVERLAY

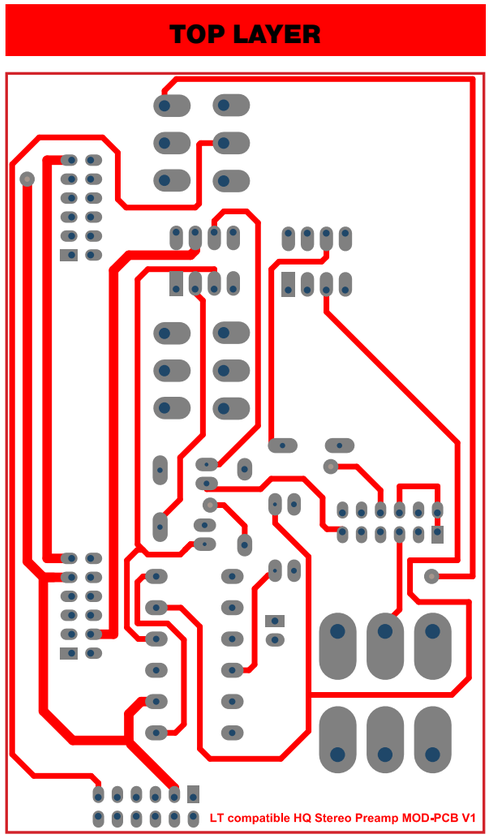


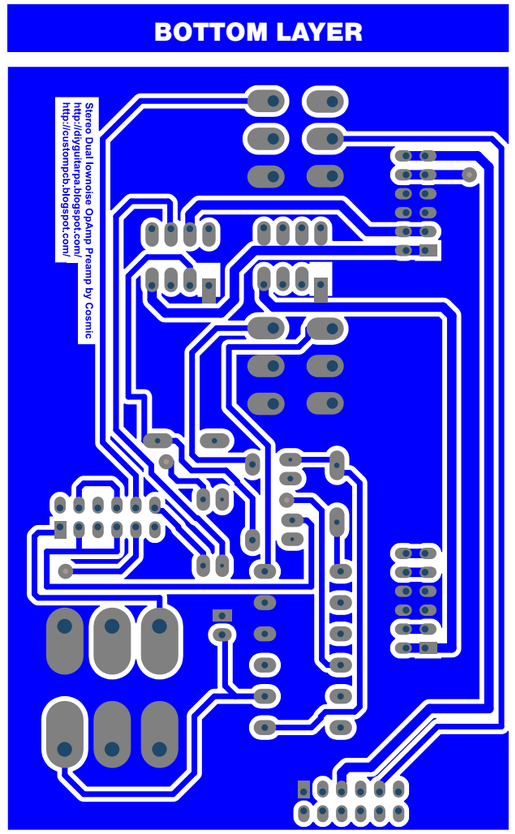
OVERLAY ON TOP LAYER



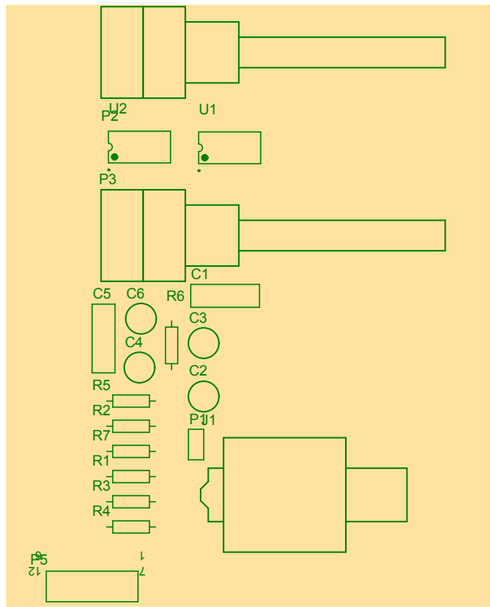
PCB for the modular audio mixer

Two single OpAmp - stereo low noise universal preamp

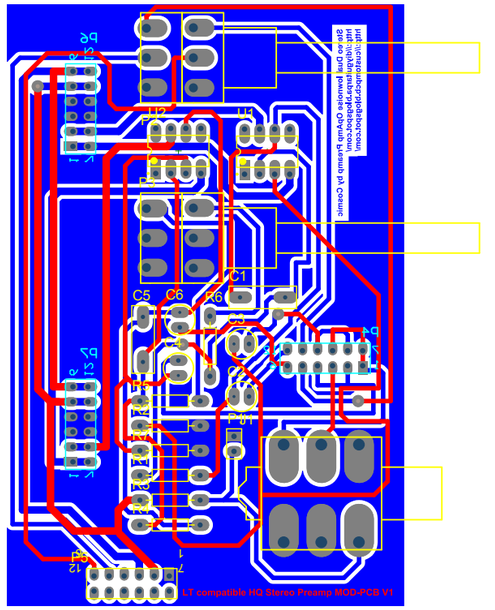




PCB OVERLAY



OVERLAY ON TOP LAYER



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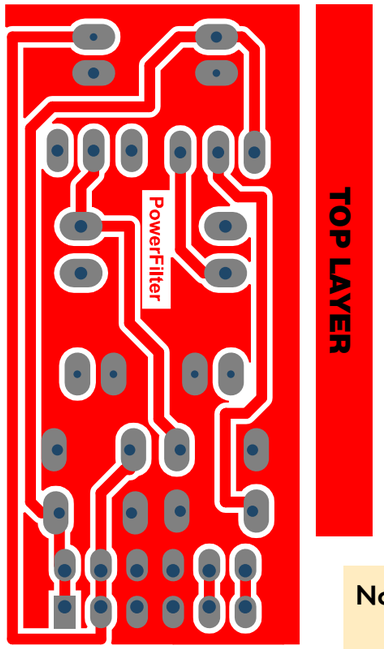
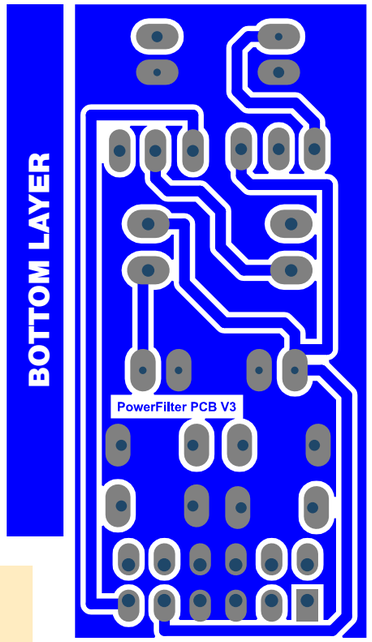
PCB for the modular audio mixer

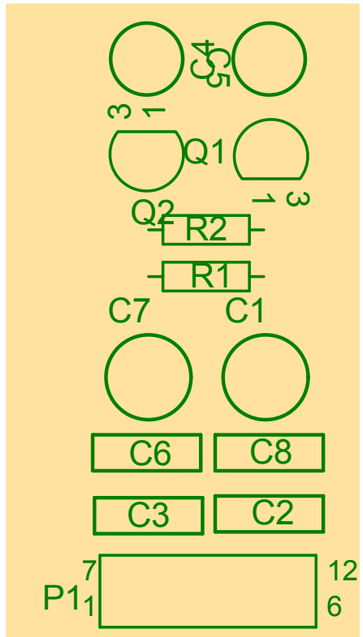
Top and bottom PCBs and overlay of power filters (ver.3)





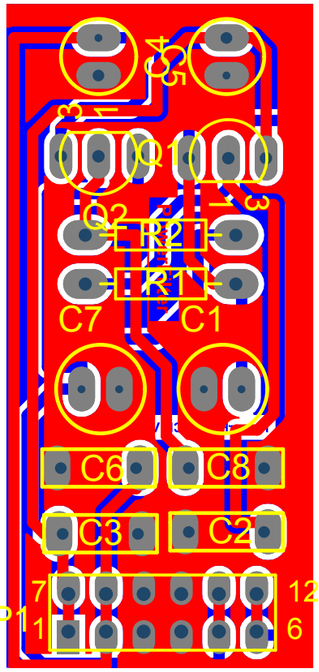
Notes

We have 5 versions of power filter PCB. No difference between schematics, the one of them is landscape, the another 2 is portrait, the 4th and 5th version is very small but maybe harder to assemble.



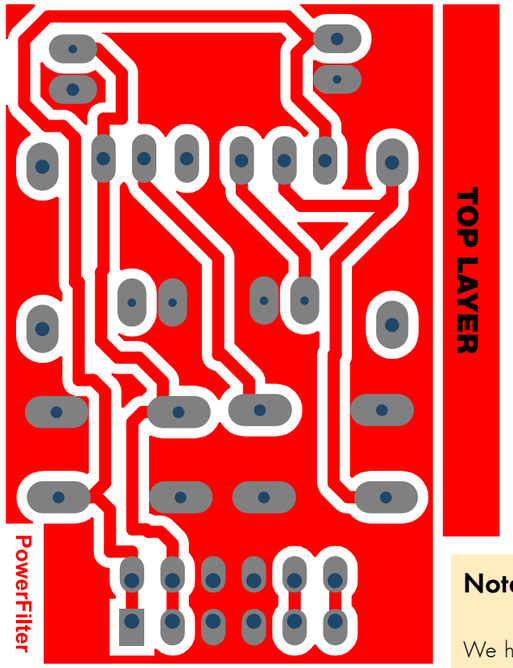
PCB OVERLAY

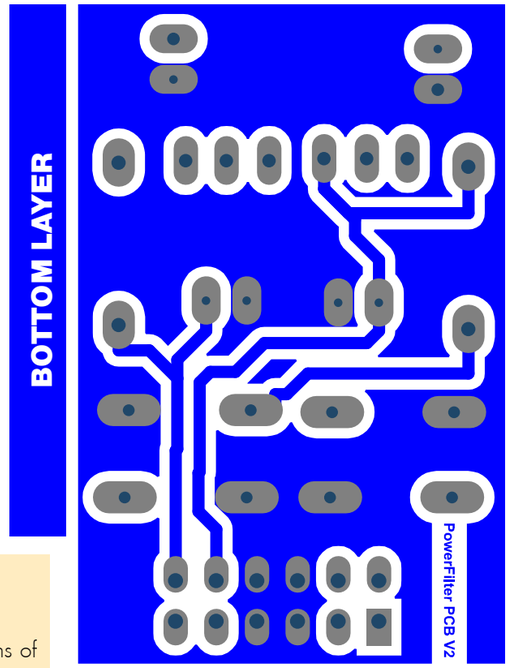
OVERLAY ON TOP LAYER



PCB for the modular audio mixer

Top and bottom PCBs and overlay of power filters (ver.2)

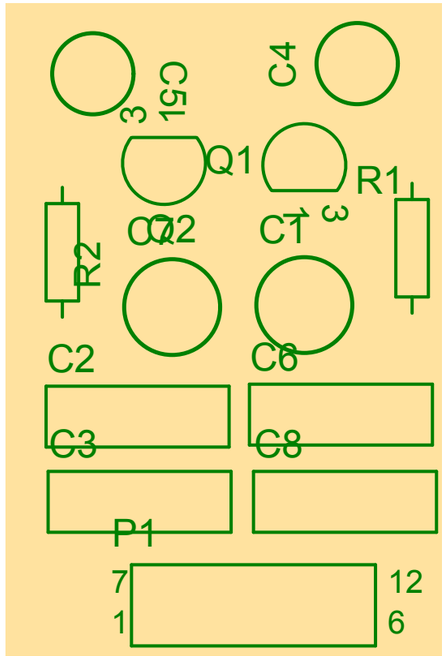




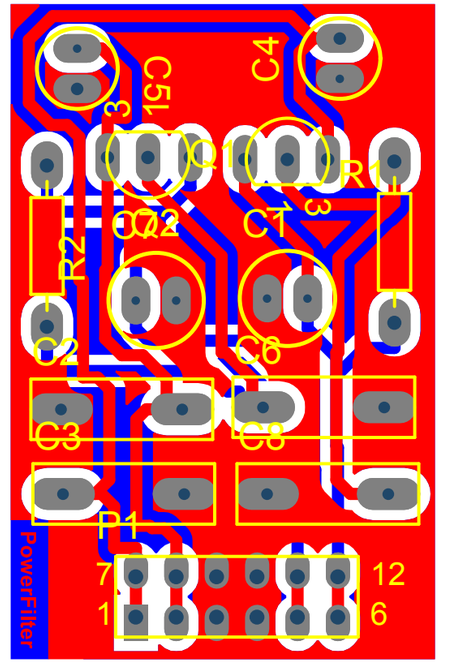
Notes

We have 5 versions of power filter PCB. No difference between schematics, the one of them is landscape, the another 2 is portrait, the 4th and 5th version is very small but maybe harder to assemble.

PCB OVERLAY

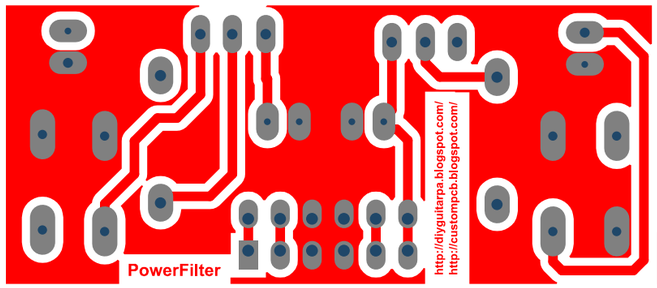


OVERLAY ON TOP LAYER

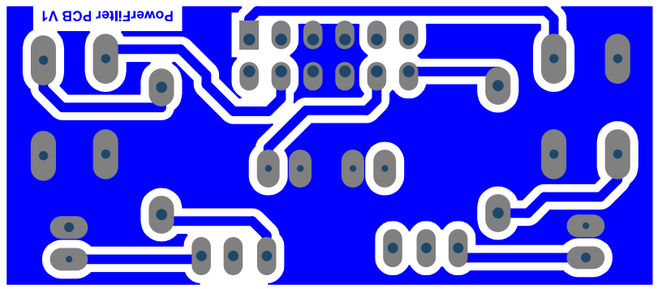


PCB for the modular audio mixer

Top and bottom PCBs and overlay of power filters (ver.1)



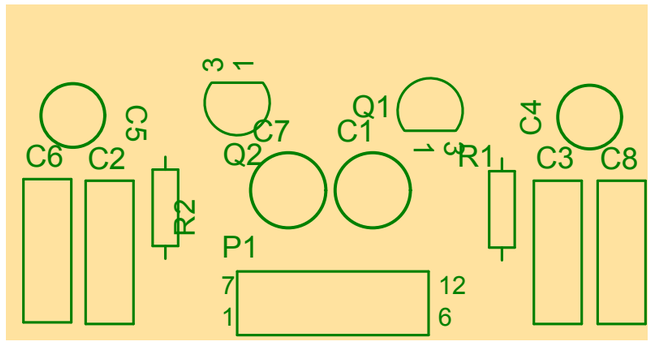
TOP LAYER



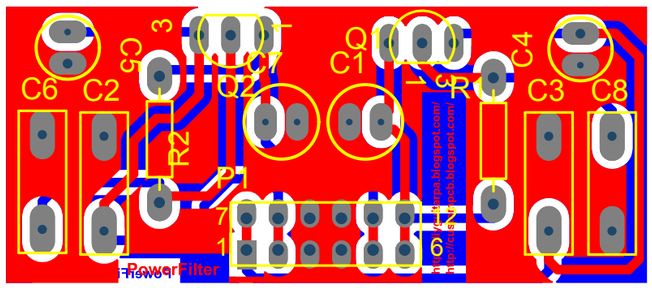
Notes

We have 5 versions of power filter PCB. No difference between schematics, the one of them is landscape, the another 2 is portrait, the 4th and 5th version is very small but maybe harder to assemble.

BOTTOM LAYER



PCB OVERLAY

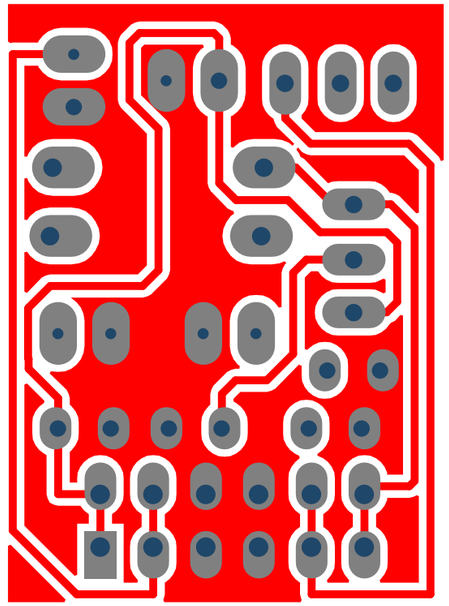


OVERLAY ON TOP LAYER

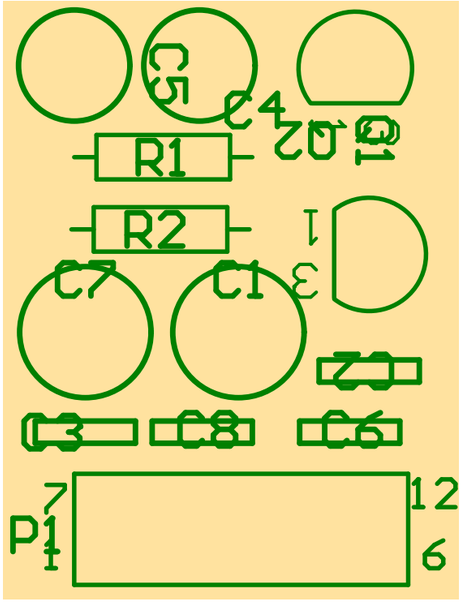
PCB for the modular audio mixer

Top and bottom PCBs and overlay of power filters (ver.4)

TOP LAYER



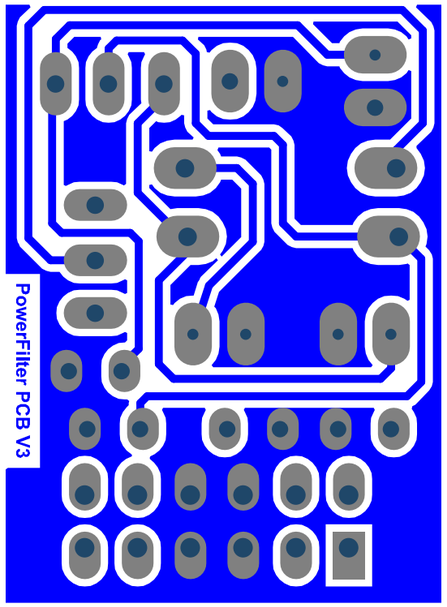
PCB OVERLAY



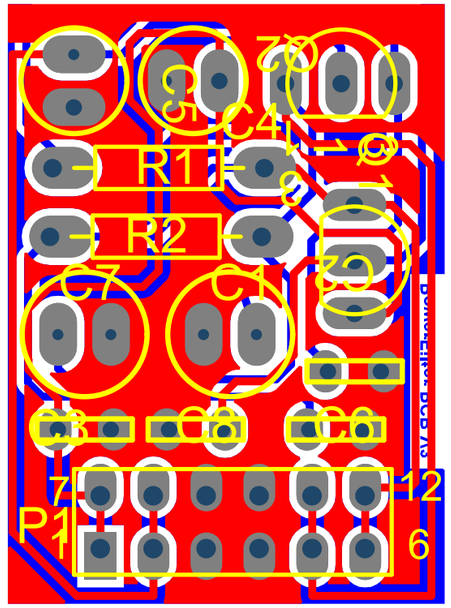
Notes

We have 5 versions of power filter PCB. No difference between schematics, the one of them is landscape, the another 2 is portrait, the 4th 5th version is very small but maybe harder to assemble.

BOTTOM LAYER



OVERLAY ON TOP LAYER



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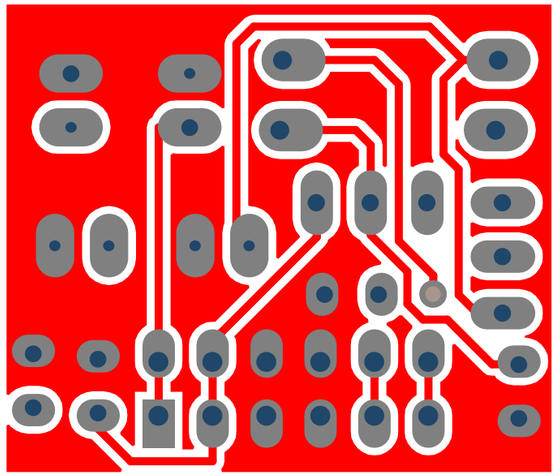
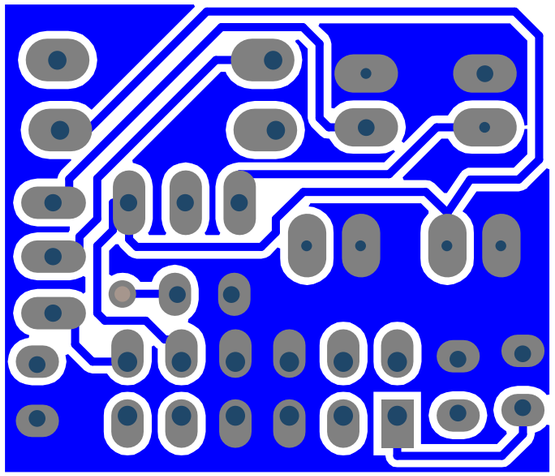
PCB for the modular audio mixer

Top and bottom PCBs and overlay of power filters (ver.5)

TOP LAYER



BOTTOM LAYER

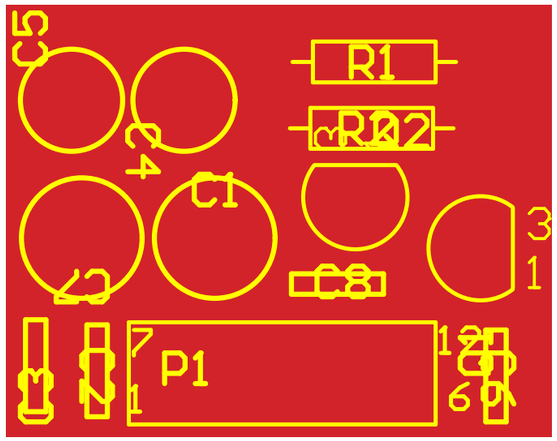


Notes

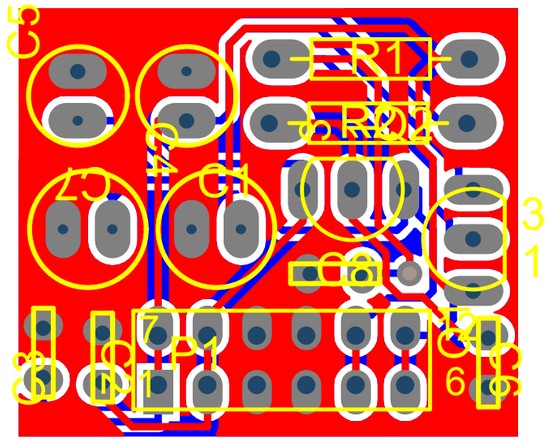
We have 5 versions of power filter PCB. No difference between schematics, the one of them is landscape, the another 2 is portrait, the 4th and 5th version is very small but maybe harder to assemble.

This smallest version recommended for this project, because not enough space between preamp modules.

PCB OVERLAY

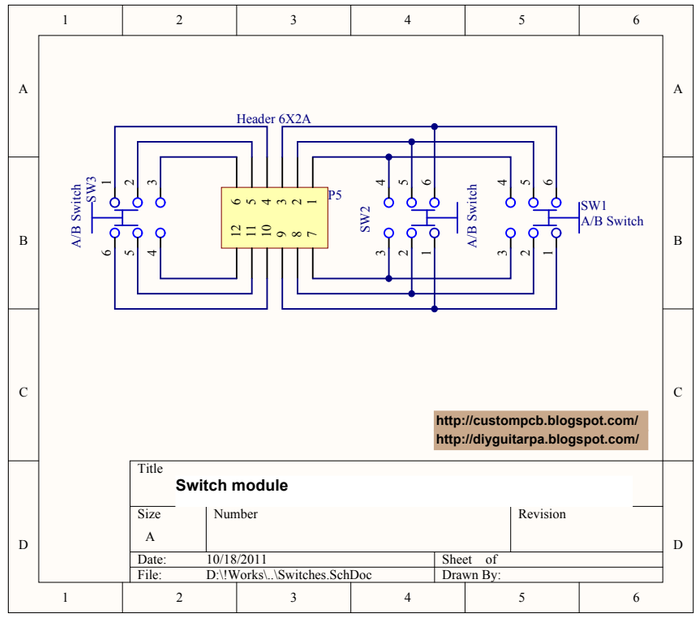


OVERLAY ON TOP LAYER

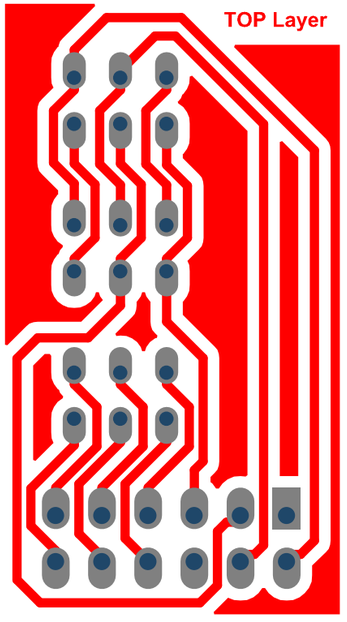


PCB for the modular audio mixer

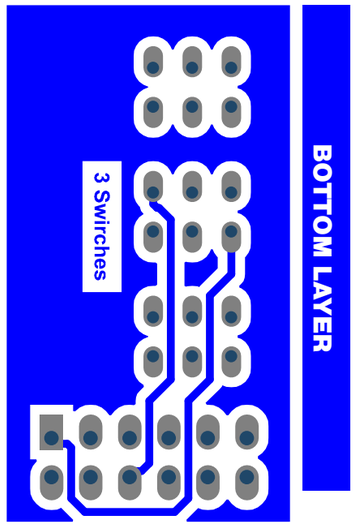
Switch module for preamps



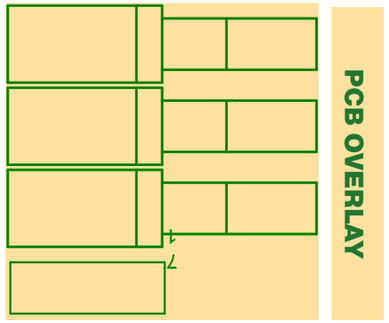
TOP LAYER



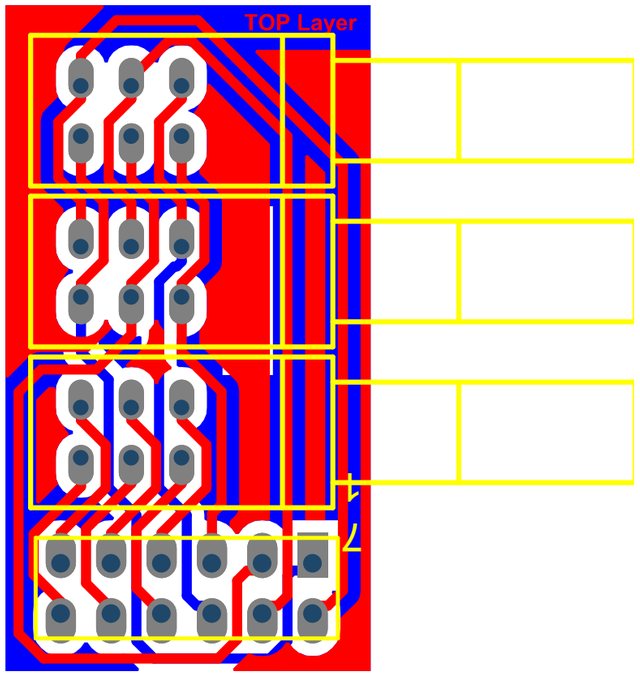
BOTTOM LAYER



PCB OVERLAY



OVERLAY ON TOP LAYER



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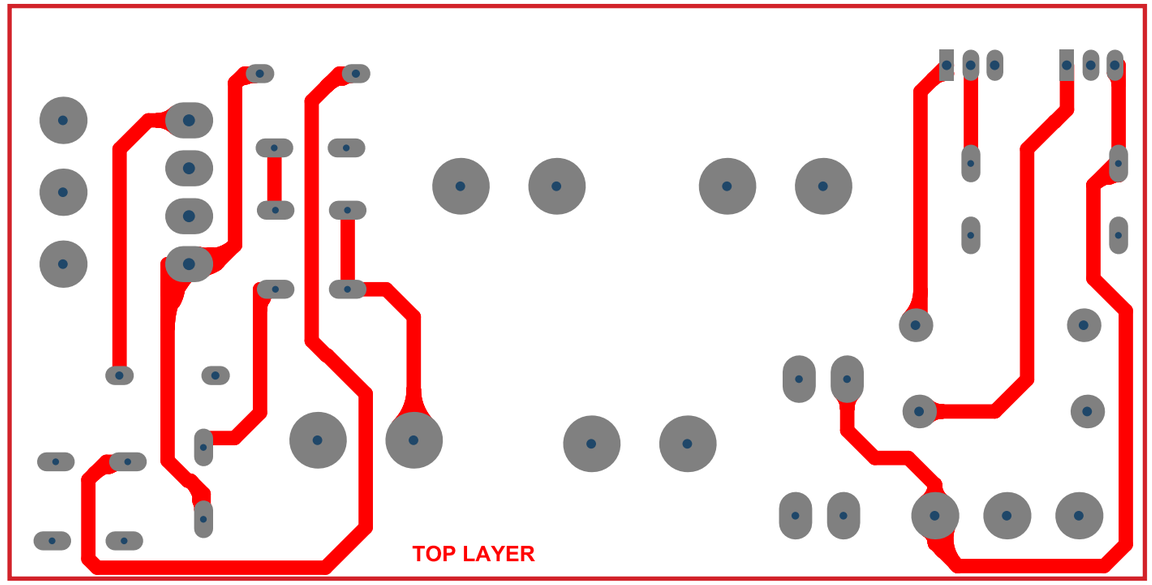
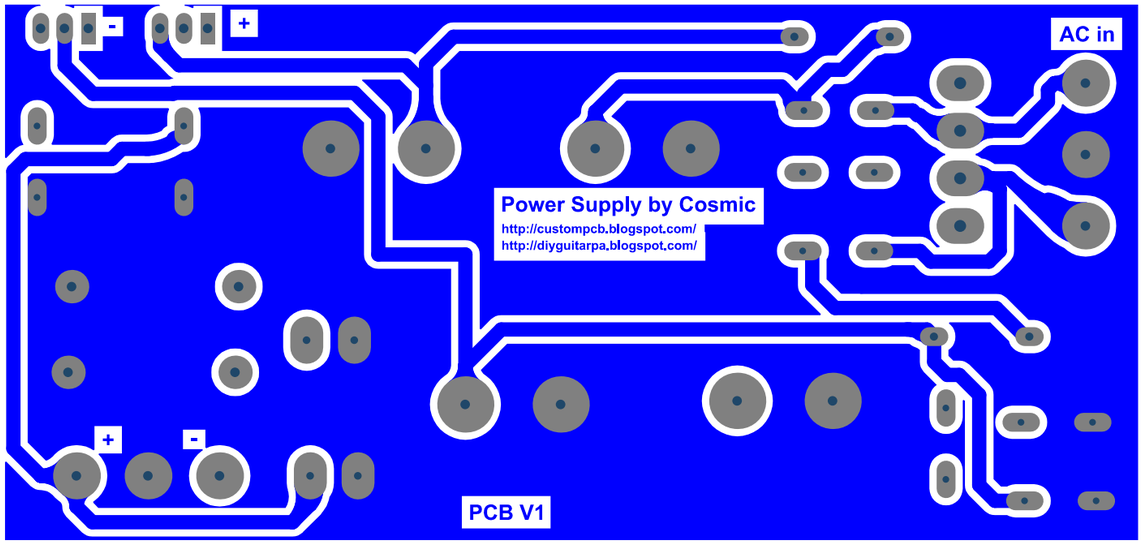
PCB for the modular audio mixer

The PCB of power supply

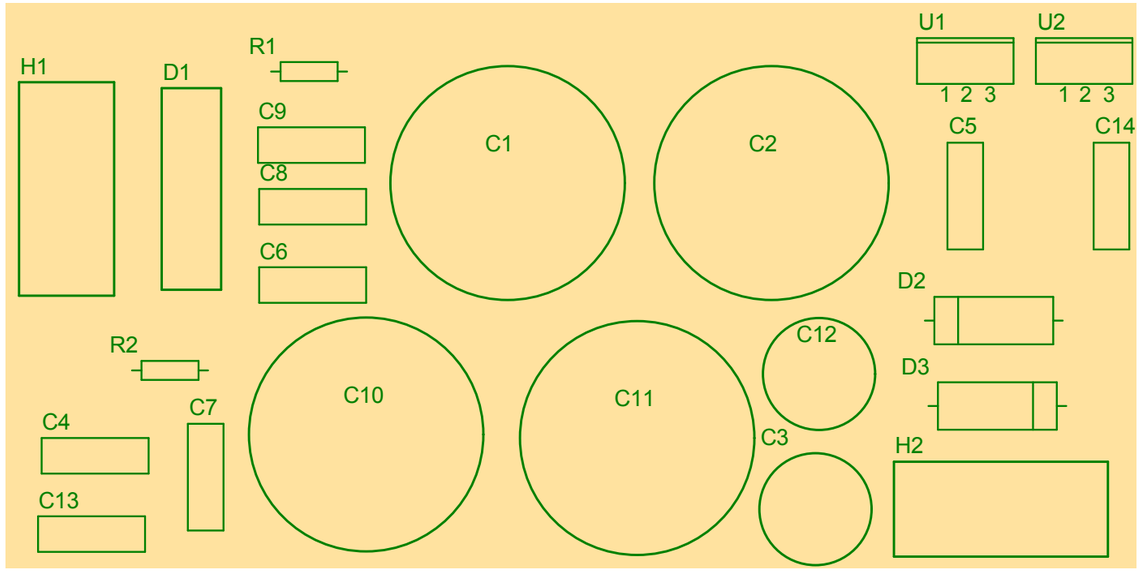
TOP LAYER



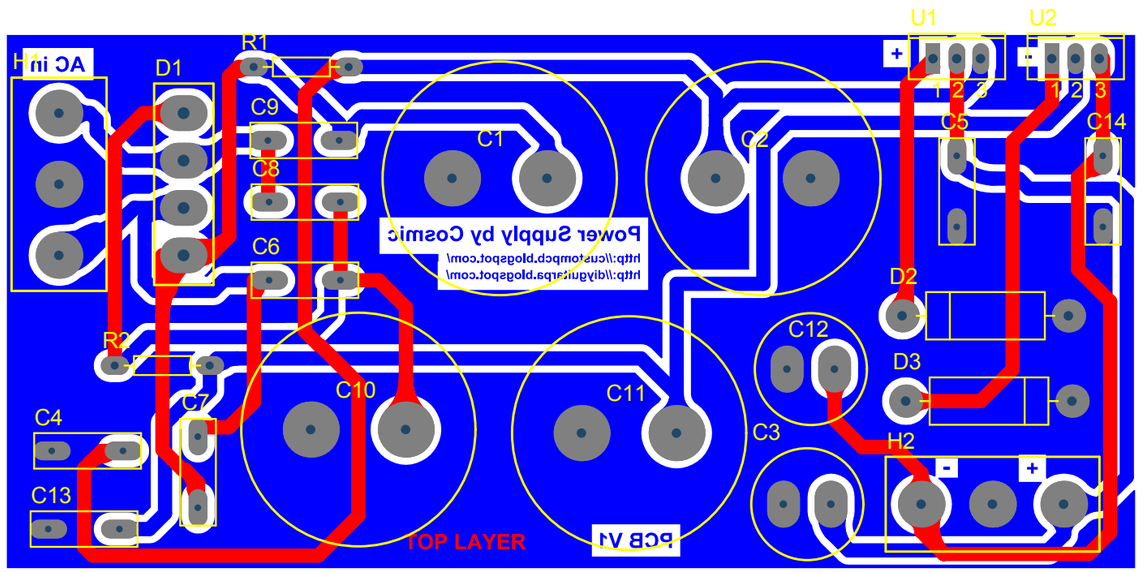
BOTTOM LAYER



PCB OVERLAY



OVERLAY ON TOP LAYER



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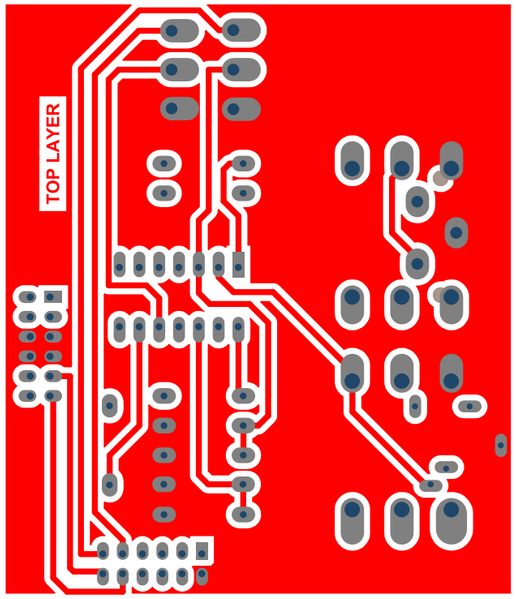
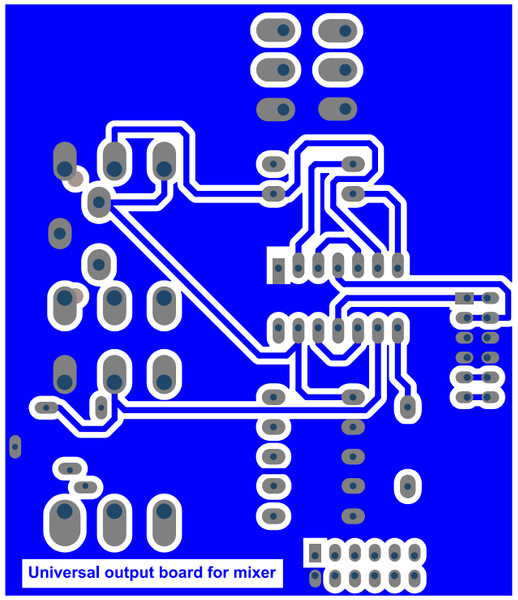
PCB for the modular audio mixer

Variable line output board

TOP LAYER



BOTTOM LAYER



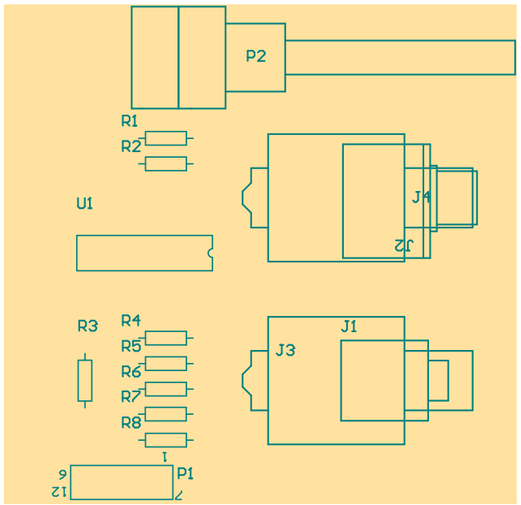
Notes

This is the PCB for line level mixer outputs with volume adjustment stereo potentiometer. Have to be connected to the **stage no.3** of mixer mainboard. This stage of mixer have balance adjustment feature if required. With this board, you have two line outputs with variations:

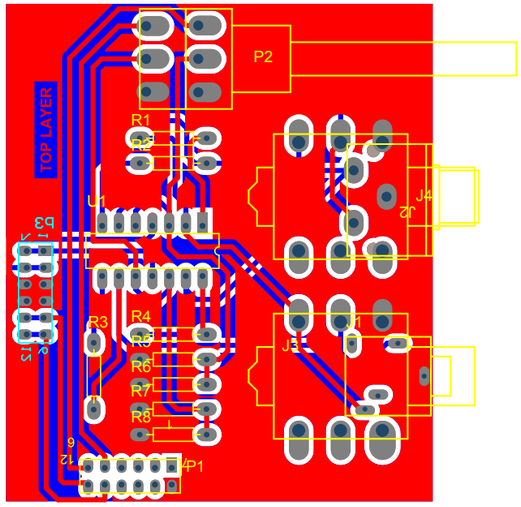
- 2 pcs 6.3mm jack
- 1 pcs 6.3mm jack and 1 pcs 3.2mm jack
- 1 pcs 6.3mm jack and 1 pcs stereo RCA
- 1 pcs 3.2mm jack and 1 pcs stereo RCA

You can use more than one output PCB if required.

PCB OVERLAY

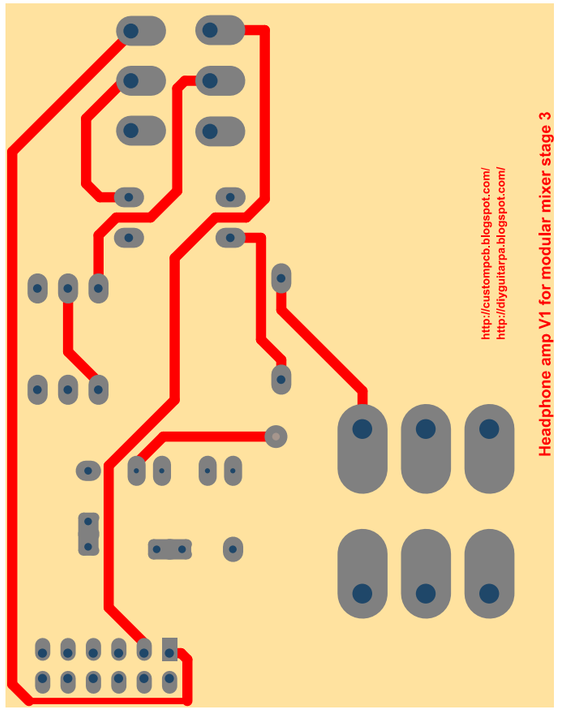


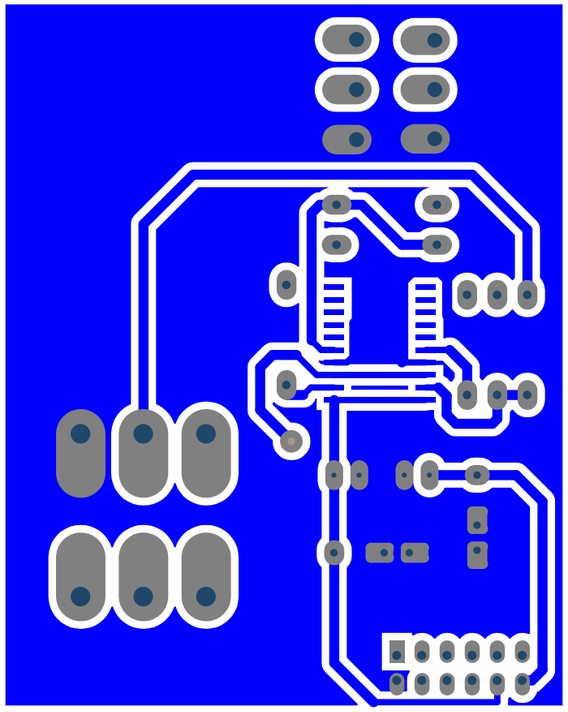
OVERLAY ON TOP LAYER

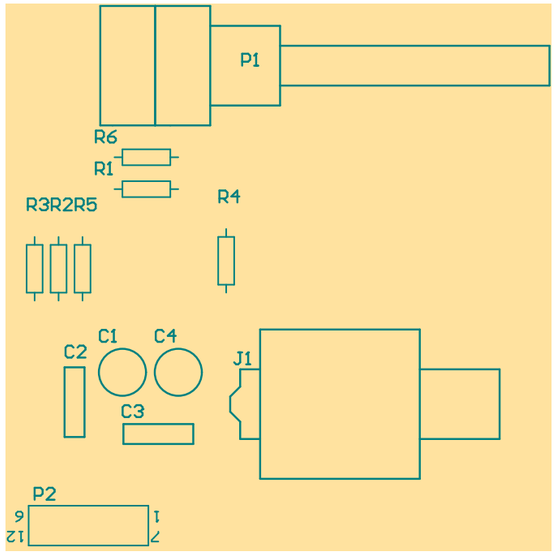


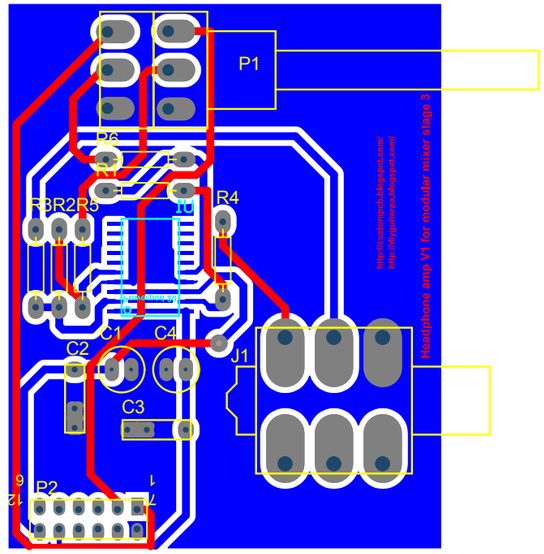
PCB for the modular audio mixer

Simple headphone amplifier









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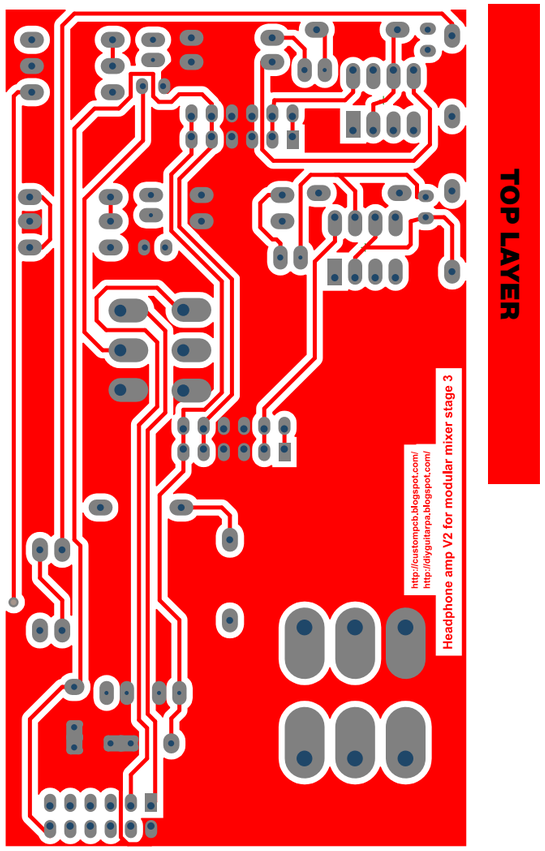
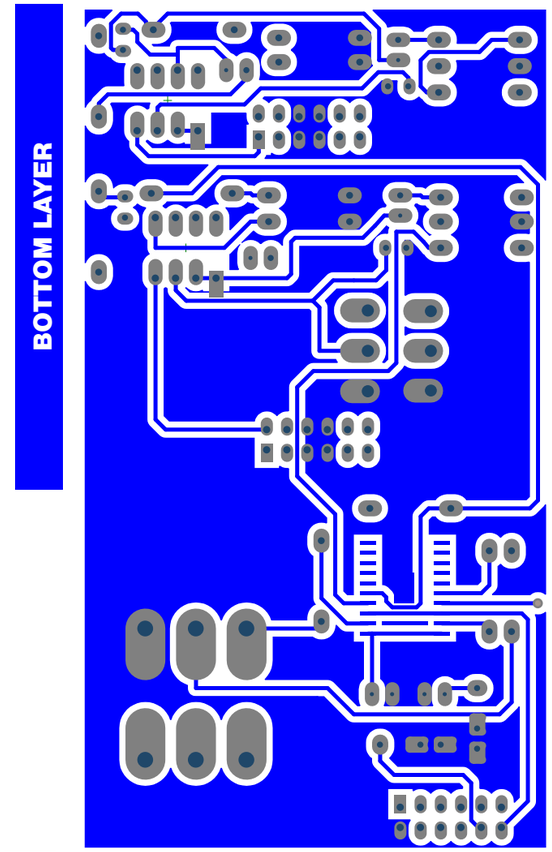
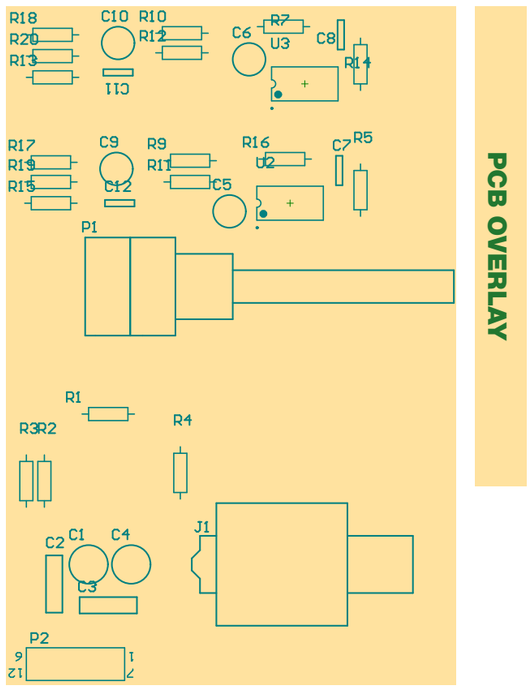
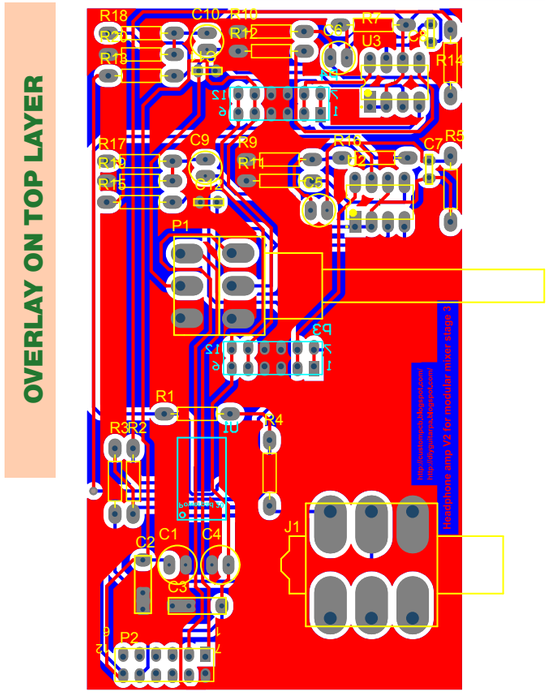
PCB for the modular audio mixer

Balanced headphone amplifier









Mainboards for any channels expandable modular audio mixer

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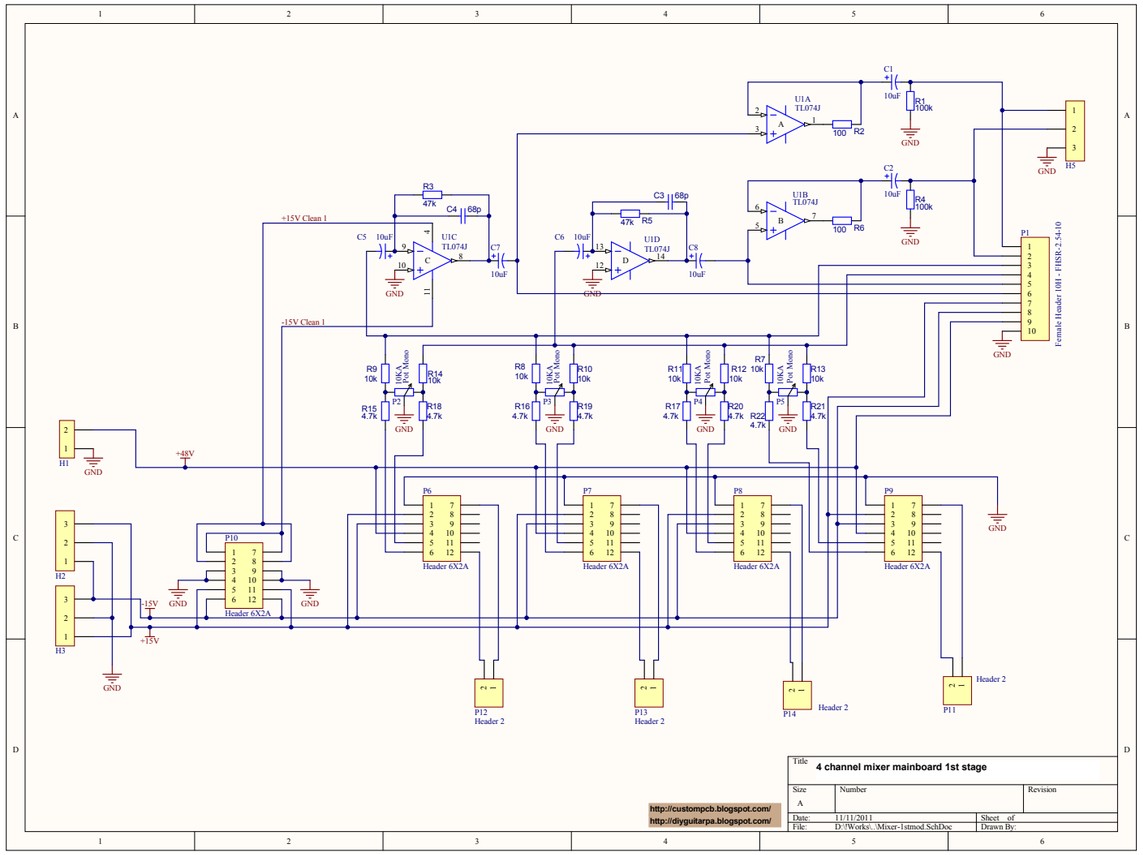
Mainboards of modular audio mixer

Schematic, BOM and PCB for any channel mixer mainboard **stage1**



Bill of Materials

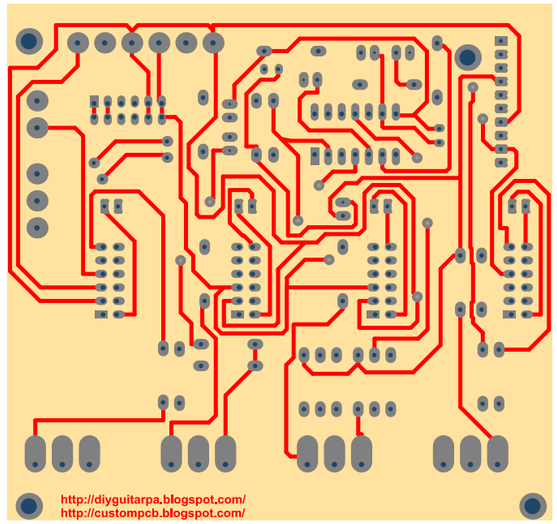
Mixer mainboard stage1.PrjPcb — 11/10/2011 — 17:59:46

Comment	Footprint	Value	Quantity	Description	Model:Footprint	Pins	Designator
Header 2	2 pin connector 100mil		4	Header, 2-Pin		2	P11, P12, P13, P14
Res2	AXIAL-0.4	100	2	Resistor	Resistor; 2 Leads	2	R2, R6
Res2	AXIAL-0.4	100k	2	Resistor	Resistor; 2 Leads	2	R1, R4
Res2	AXIAL-0.4	10k	8	Resistor	Resistor; 2 Leads	2	R7, R8, R9, R10, R11, R12, R13, R14
Res2	AXIAL-0.4	4.7k	8	Resistor	Resistor; 2 Leads	2	R15, R16, R17, R18, R19, R20, R21, R22
Res2	AXIAL-0.4	47k	2	Resistor	Resistor; 2 Leads	2	R3, R5
Cap	CAP, Ceramic, 1MIL	68p	2	Capacitor		2	C3, C4
Cap Pol1	Cap, Tantal, 1mil	10uF	6	Polarized Capacitor (Radial)		2	C1, C2, C5, C6, C7, C8
Female Header 10H - FHSR-2.54-10	HDR1X10X		1	Header, 10-Pin, Right Angle	Connector; Footer 10 Position; Right Angle	10	P1
Header 6X2A	HDR2X6_CEN		5	Header, 6-Pin, Dual row	Connector; Header; 6x2 Position	12	P6, P7, P8, P9, P10
TL074J	J014		1	Low-Noise JFET-Input Operational Amplifier	DIP; 14 Leads; Row Spacing 7.62 mm; Pitch 2.54 mm	14	U1
Connector	Panel Connector 2 input Small		1			2	H1
Connector	Panel Connector 3 input Small		3			3	H2, H3, H5
Pot Mono	Pot Mono MetalCase	10KA	4	Resistor		3	P2, P3, P4, P5
			49				

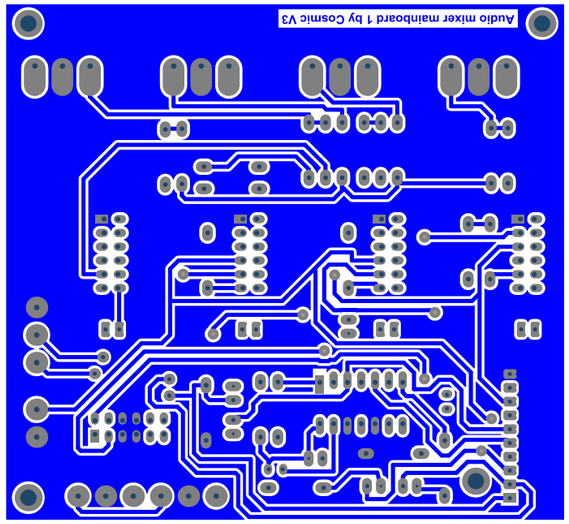
Notes

This is the first stage of expandable modular audio mixer. This stage is required. Contains 4 connectors for 4 inputs only with balance adjustment potentiometers. These potentiometers can be ignored if not required. Power supply, +48V source for microphone phantom power, balanced inputs must be connected to the headers of this board. The unbalanced or stereo inputs always soldered to the preamplifier modules as 6.3 mm stereo input jack. This board have line output on H5 header, but output module with level adjustment available. This stage can be connected to stage2 or stage3 if required with P1 female connector on the edge of the PCB.

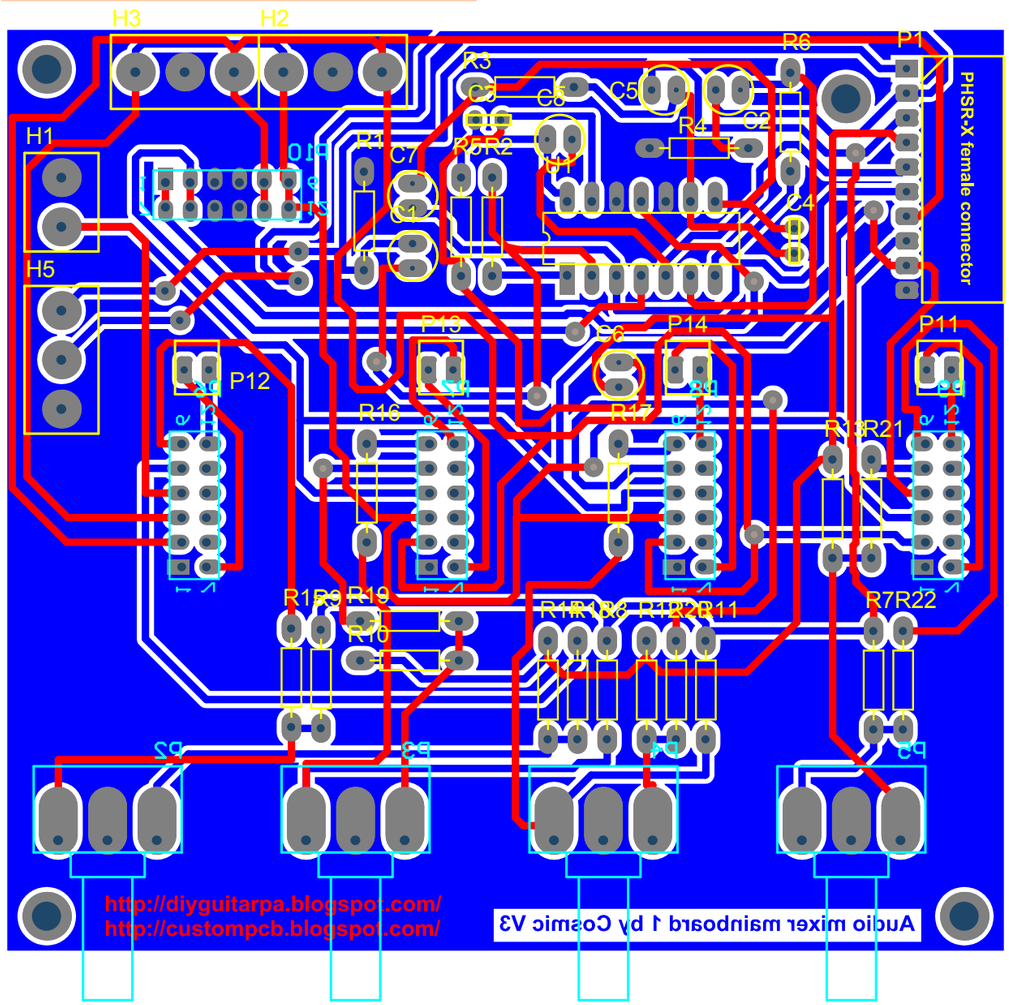
TOP LAYER



BOTTOM LAYER



OVERLAY ON TOP LAYER



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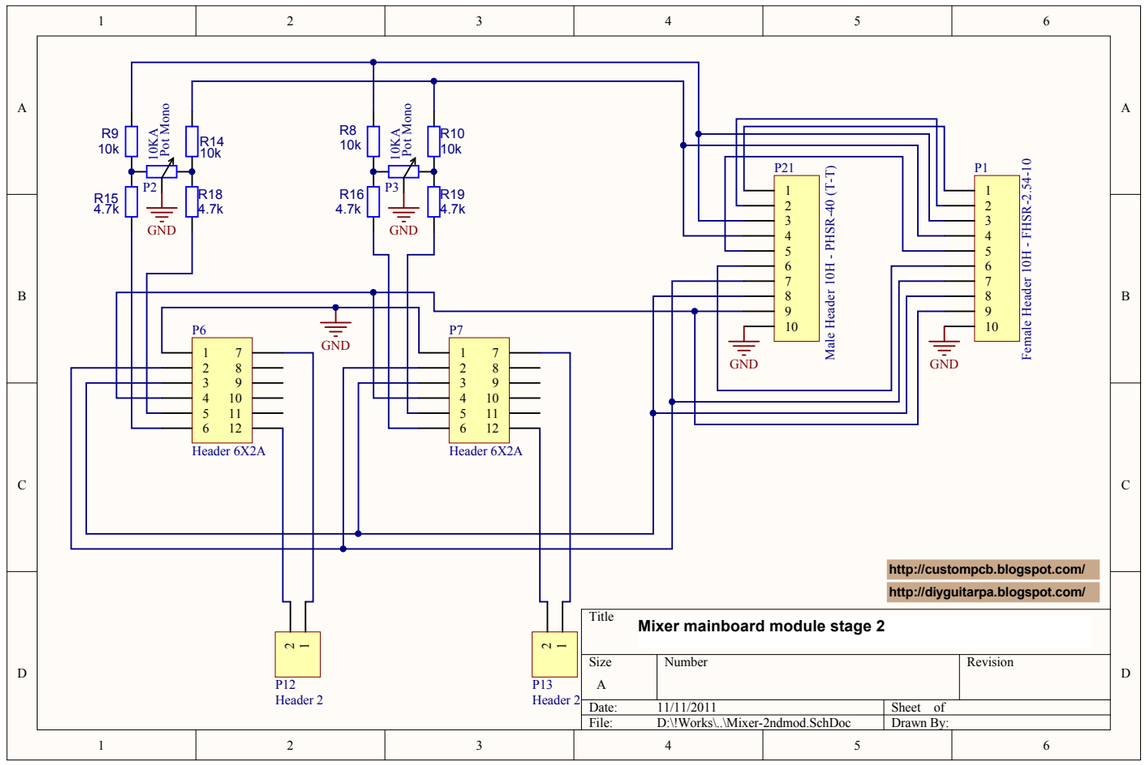
Mainboards of modular audio mixer

Schematic, BOM and PCB for any channel mixer mainboard **stage2**



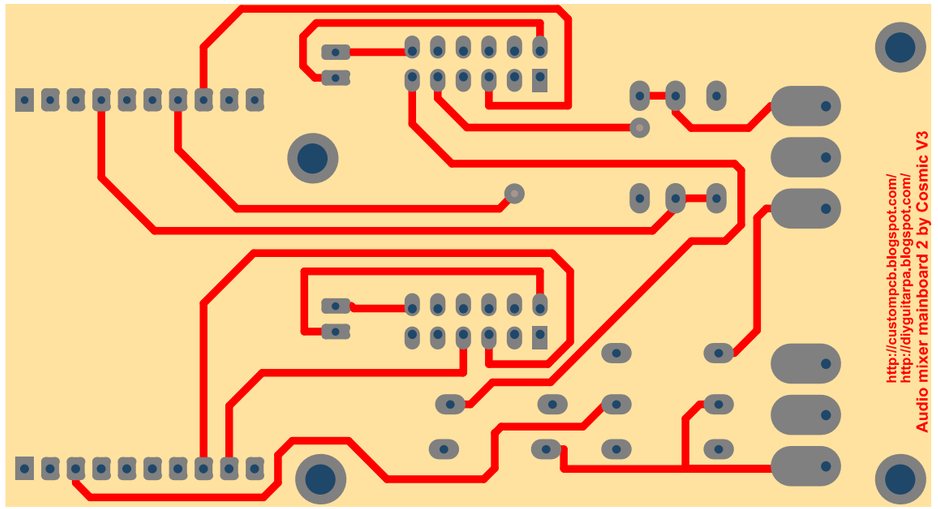
Bill of Materials

Mixer mainboard stage2.PrjPcb — 11/10/2011 — 18:01:15

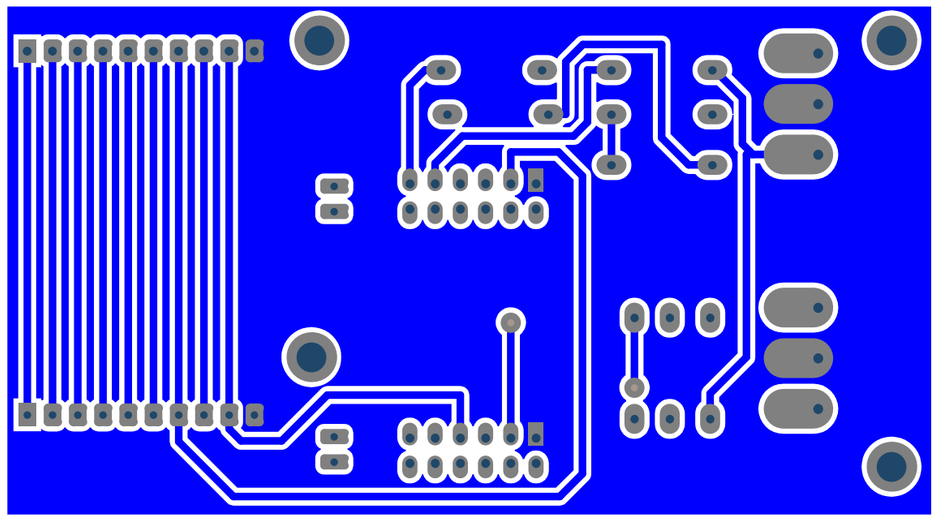
Comment	Footprint	Value	Quantity	Description	Model:Footprint	Pins	Designator
Header 2	2 pin connector 100mil		2	Header, 2-Pin		2	P12, P13
Res2	AXIAL-0.4	10k	4	Resistor	Resistor; 2 Leads	2	R8, R9, R10, R14
Res2	AXIAL-0.4	4.7k	4	Resistor	Resistor; 2 Leads	2	R15, R16, R18, R19
Male Header 10H - PHSR-40 (T-T)	HDR1X10H		1	Header, 10-Pin, Right Angle	Connector; Header; 10 Position; Right Angle	10	P21
Female Header 10H - FHSR-2.54-10	HDR1X10X		1	Header, 10-Pin, Right Angle	Connector; Footer 10 Position; Right Angle	10	P1
Header 6X2A	HDR2X6_CEN		2	Header, 6-Pin, Dual row	Connector; Header; 6x2 Position	12	P6, P7
Pot Mono	Pot Mono MetalCase	10KA	2	Resistor		3	P2, P3
			16				

Notes

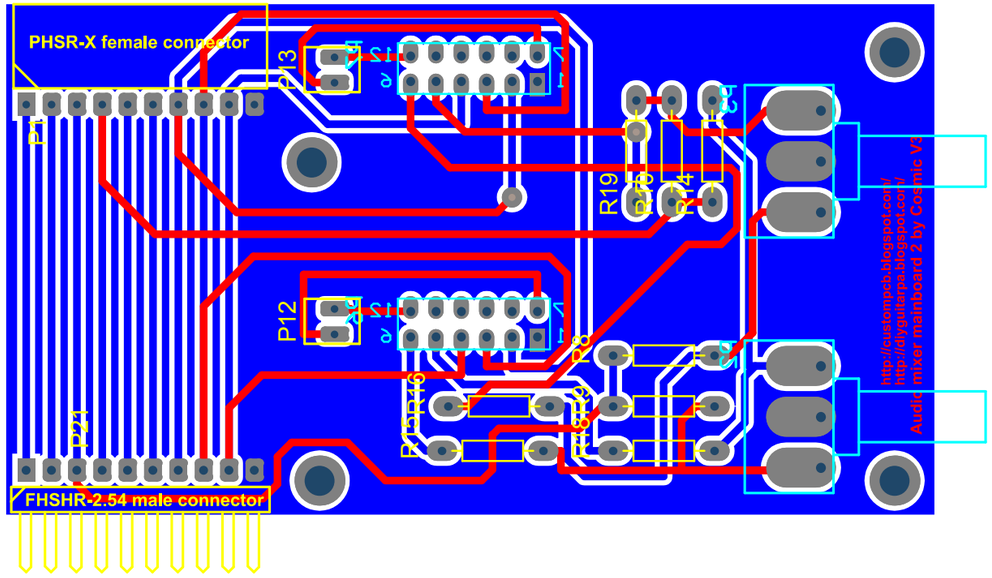
This is the second stage of expandable modular audio mixer. This stage is not required. Contains 2 connectors for 2 inputs only with balance adjustment potentiometers. These potentiometers can be ignored if not required. Power supply, +48V source for microphone phantom power have to be connected to the first board called stage1, but balanced inputs must be connected to the headers of this board (P12, P13). The unbalanced or stereo inputs always soldered to the preamplifier modules as 6.3 mm stereo input jack. This stage can be connected to stage3 if required with P1 female connector on the edge of the PCB, the another connector on the left edge (P21) most be connected to the previous stage. This board (with male connector P21) can be connected to the stage1, stage2, or stage3 on any queue. On the 12 pins headers of this board (P6, P7) can be connected input preamplifiers only. On the mixer, this board with any preamplifiers can be used anytime and anywhere.



TOP LAYER



BOTTOM LAYER



OVERLAY ON TOP LAYER

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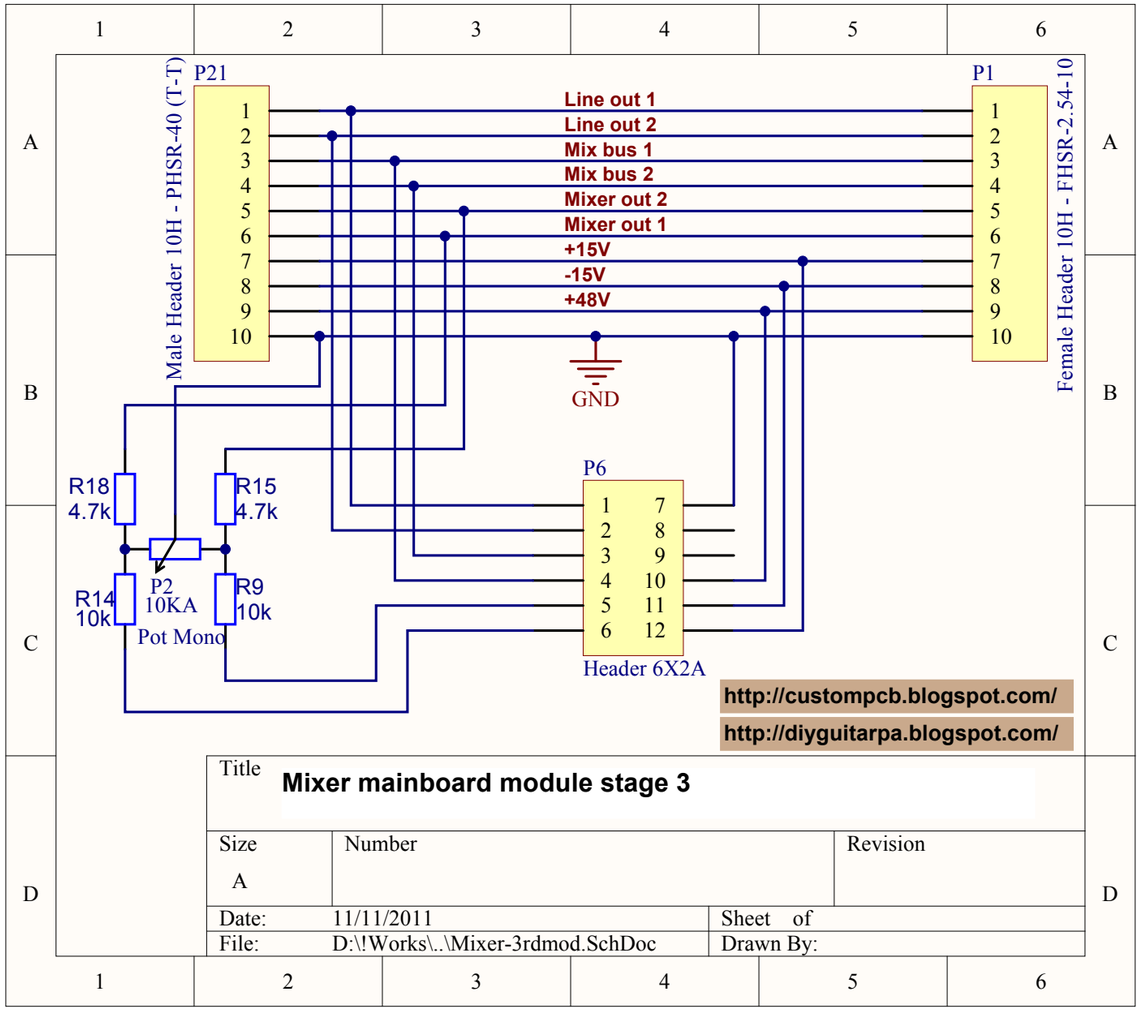
Mainboards of modular audio mixer

Schematic, BOM and PCB for any channel mixer mainboard **stage3**



Bill of Materials

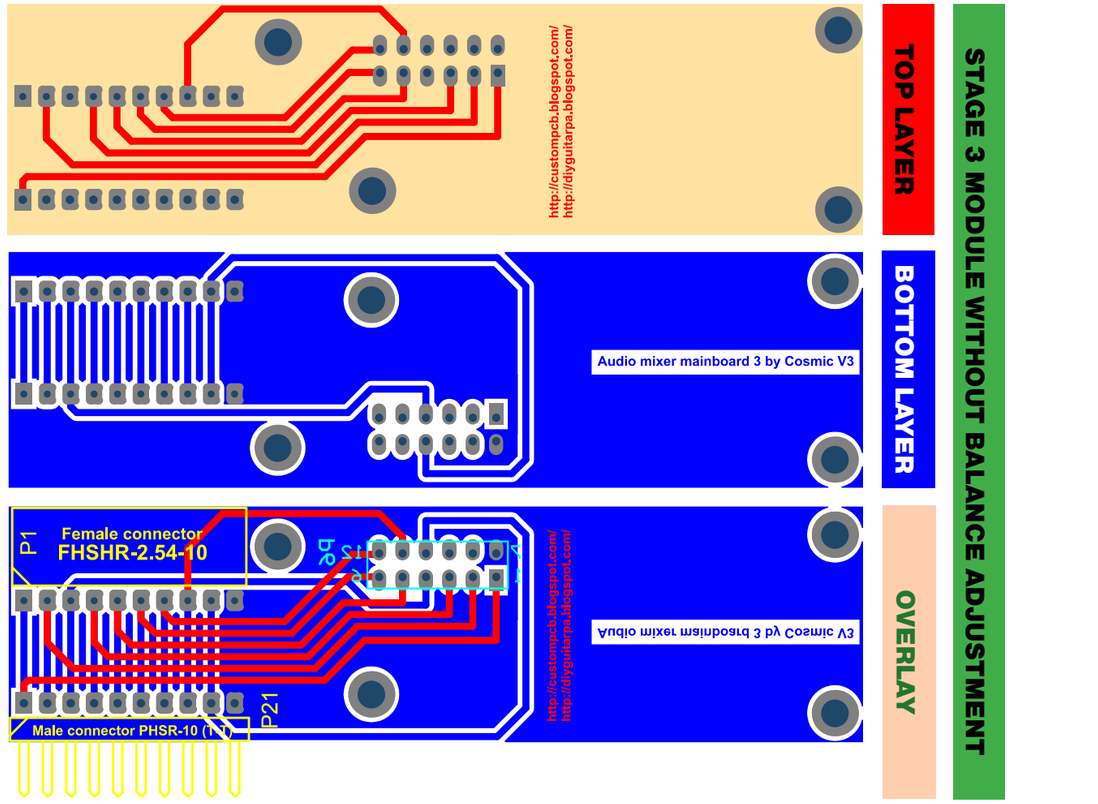
Mixer mainboard stage3.PrjPcb — 11/10/2011 — 18:03:04

Comment	Footprint	Value	Quantity	Description	Model:Footprint	Pins	Designator
Res2	AXIAL-0.4	10k	2	Resistor	Resistor; 2 Leads	2	R9, R14
Res2	AXIAL-0.4	4.7k	2	Resistor	Resistor; 2 Leads	2	R15, R18
Male Header 10H - PHSR-40 (T-T)	HDR1X10H		1	Header, 10-Pin, Right Angle	Connector; Header; 10 Position; Right Angle	10	P21
Female Header 10H - FHSR-2.54-10	HDR1X10X		1	Header, 10-Pin, Right Angle	Connector; Footer 10 Position; Right Angle	10	P1
Header 6X2A	HDR2X6_CEN		1	Header, 6-Pin, Dual row	Connector; Header; 6x2 Position	12	P6
Pot Mono	Pot Mono MetalCase	10KA	1	Resistor		3	P2
			8				

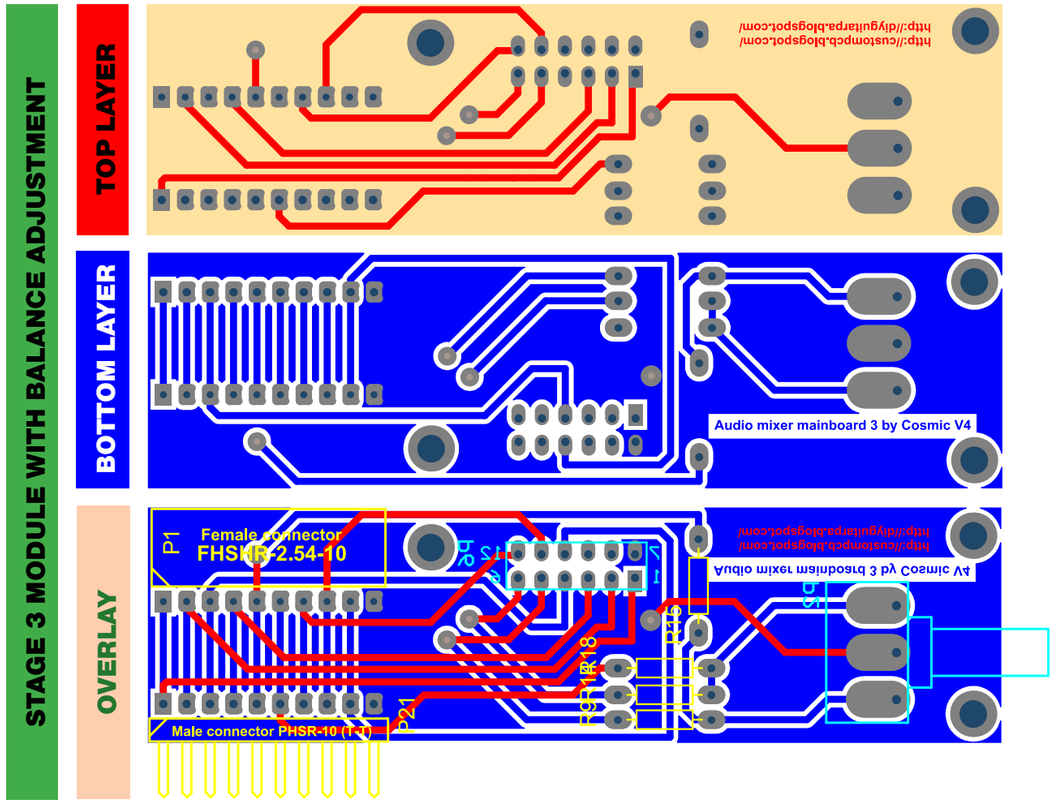
Notes

This is the third stage of expandable modular audio mixer. This stage is not required. Contains 1 connectors for 1 output module only with or without balance adjustment potentiometers (see two versions of PCBs). Use the correct PCB with balance feature if required. Power supply must be connected to the first stage only. Input modules cannot be user on this board. Two output modules available for this project, the one is the adjustable line output, the second is the stereo headphone amplifier. Any output board can be connected to these PCBs. The male header P21 must be connected to the first, second, or third stage of mixer on anytime and anywhere in the queue. The female header P1 is the output connector for 3rd or 2nd stage of this project.

STAGE 3 MODULE WITHOUT BALANCE ADJUSTMENT



STAGE 3 MODULE WITH BALANCE ADJUSTMENT



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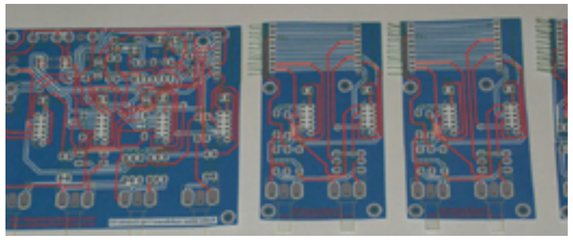
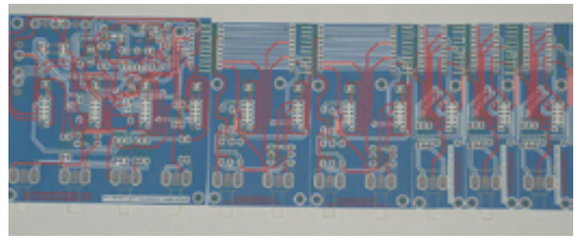
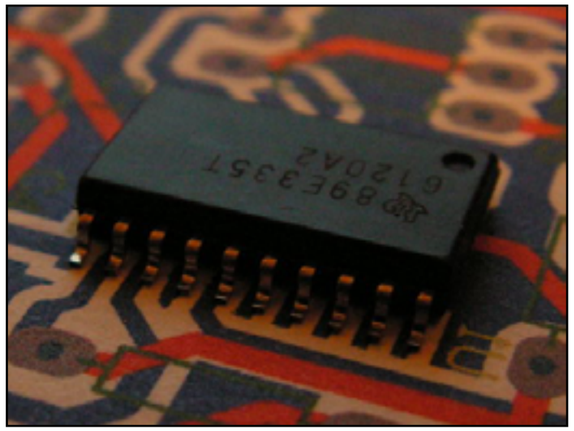
Images and Picasa galleries about the prototype of this project

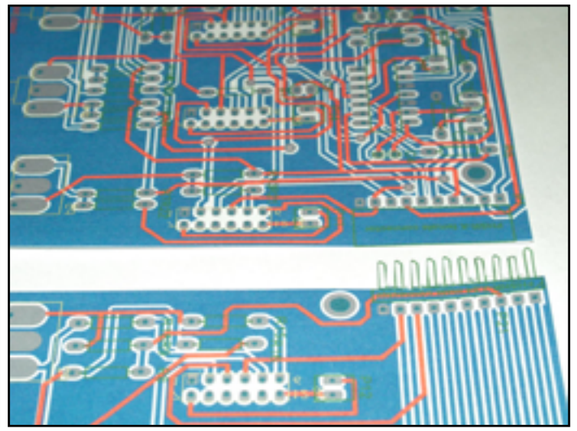
Images about the prototypes of this mixer project

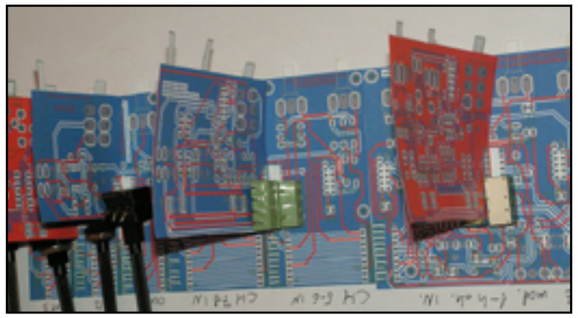
Modelling the PCBs of this project before manufacturing

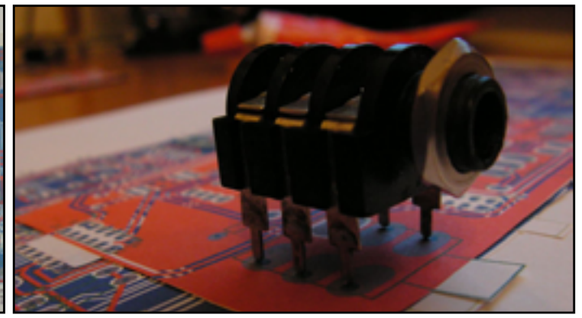


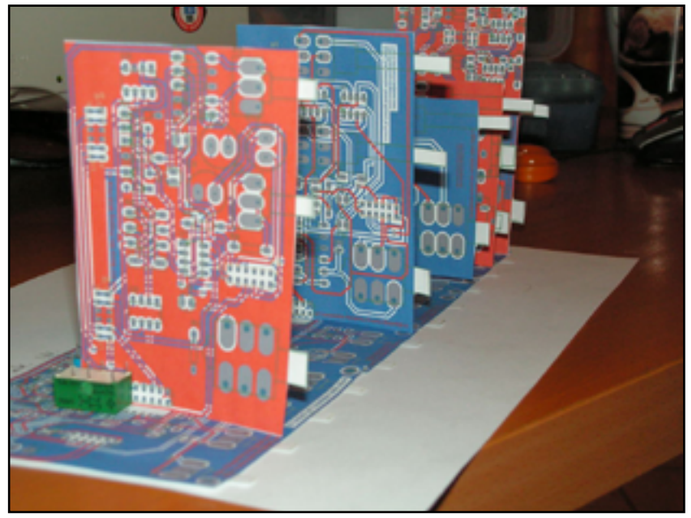












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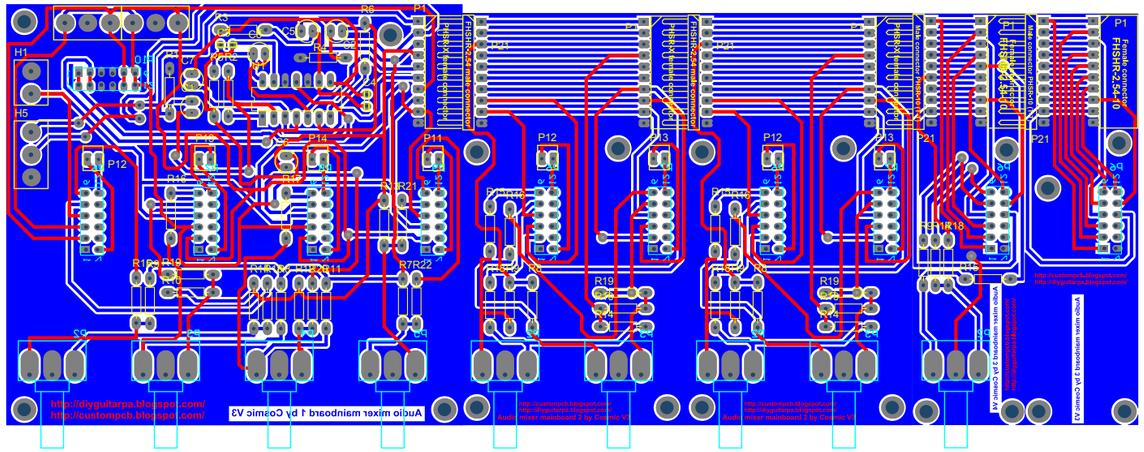
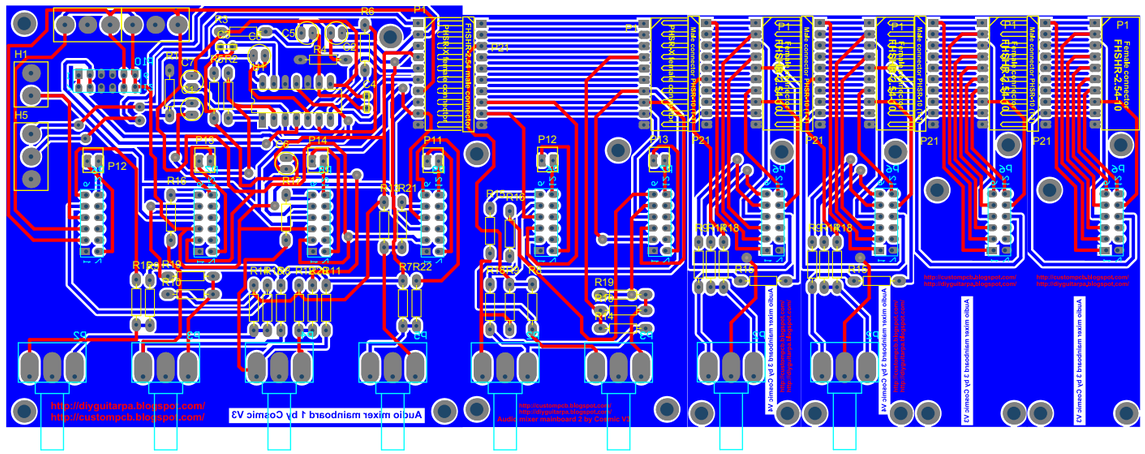
Images about the prototypes of this mixer project

Examples how to setup the 3 stages of mainboards

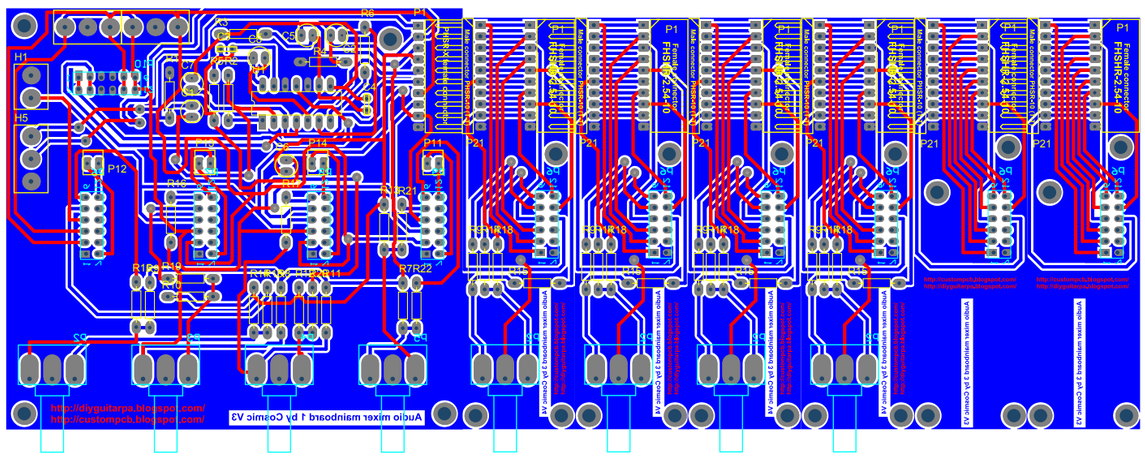
8 input channels, 2 output channles, one balanced for line output, and one for headphone.



6 input channels, 2 output channles for balanced line outputs, and 2 for headphones.



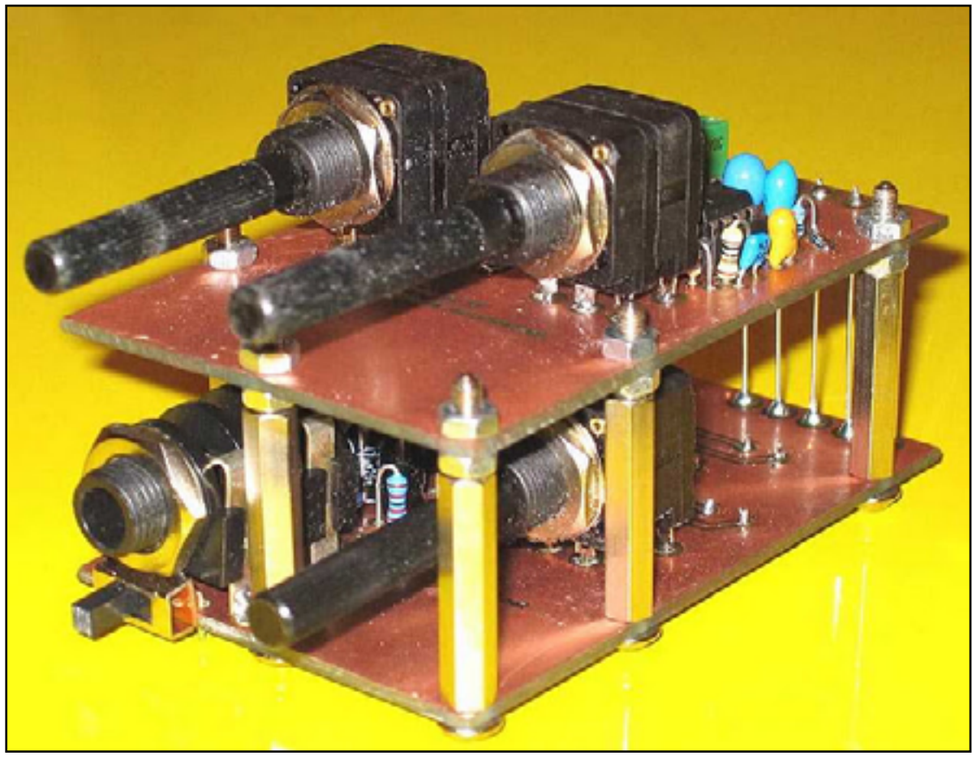
4 input channels, 4 output channles for balanced line outputs, and 2 for headphones.

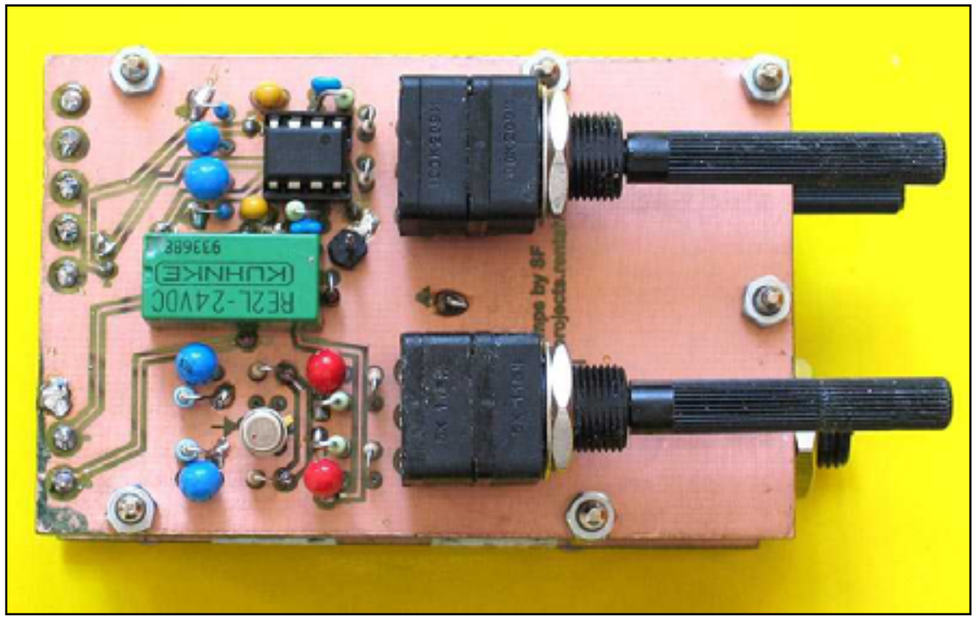


Images about the prototypes of this preamp project

The selectable prototype of jFEt and OpAmp projects

The Picasa gallery about this circuit





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Images about the prototypes of this preamp project

Audio mixer with jFET and OpAmp preamps

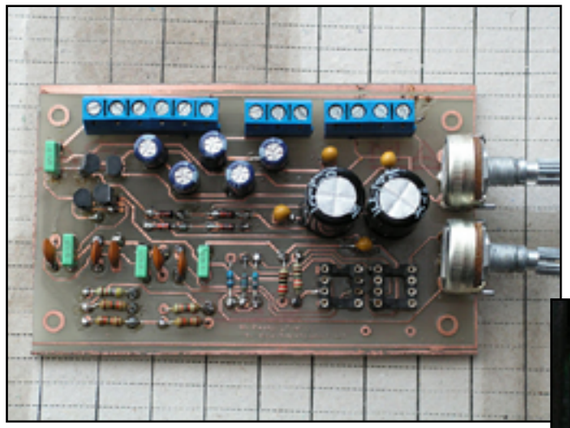
[The Picasa gallery about this circuit]

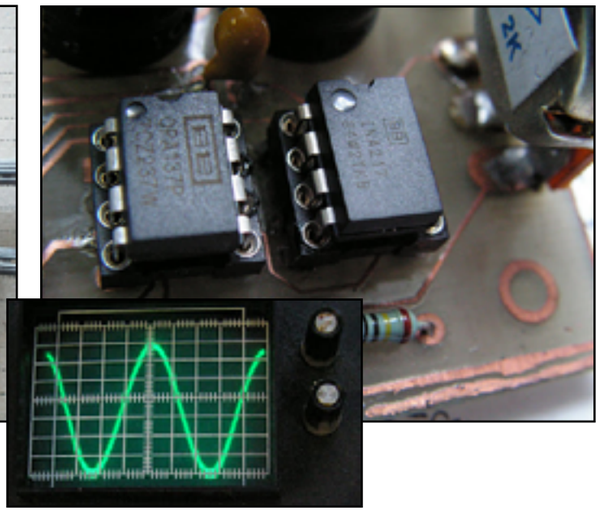
Images about the prototypes of this preamp project

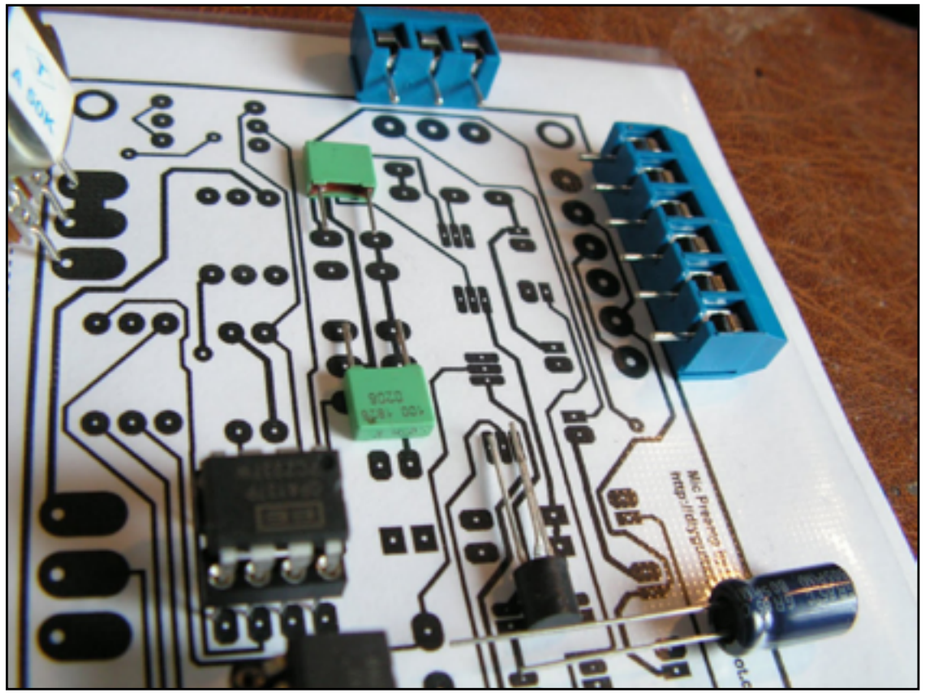
Microphone preamp with INA217

The Picasa galleries about this circuit:

- Planning and collecting parts
- Images about the prototype
- Testing the INA217 board







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English blog and PCB order: http://custompcb.blogspot.com/
Hungarian blog and PCB order: http://diyguitarpa.blogspot.com/
The Youtube Channel • Picasa gallery • Email: gitarfogas@gmail.com