

## The High Octane phono preamp - building notes

Hannes Allmaier

*Editor's note: This document provides notes and information for building the High-Octane phono preamp from Linear Audio Vol 6 (Sept. 2013). The author also kindly provided the PCB Gerber files for personal and/or study use. Please contact the author if you plan to use this design or parts of it for a commercial purpose.*

### General

I'll try to give you a few hints as to make the journey easier. Together with this text-file you'll find the standard Gerber 274X-files needed for professional board manufacturing. While the file extensions of the files are not standard, the files themselves are standard Gerber 274X files (can be viewed with Gerbview or Viewmate etc.). All board houses should accept these as they are.

Please note that these are exactly the files I used for my prototype (version v3e), which was improved during testing. So this version lacks 3 small modifications to make it the final version 'F':

- Voltage regulator: do NOT insert CP1 (will damage the opamp) and DO NOT ground its second leg (which is connected to the opamp input);
- Amplifier inputs: leave out C6/C1061 (C6/C106 is a remnant from the original circuit where it formed the cartridge load capacitance which is replaced by the switchable load capacitors in this version);
- Amplifier inputs: bridge R2/R102 with a jumper;
- Output resistors R5/R105 are not on the board but mounted on the output RCA's.

The board has a few peculiarities you need to be aware of. In case there is some interest I may rework the boards to make building the preamp easier. To enable remote sensing of the regulator connect VSENSE to SENSEV and GNDSENSE to SENSEGND with wires. PSU\_IN and PSU\_GND need to be connected to the external 48VDC power supply, and 1\_IN/1\_GND/1\_OUT/1\_OGND are the in- and outputs together with their grounds of channel 1 (replace 1 by 2 for channel 2).

### Parts list

I have attached my current BOM below; resistors are standard 0207 types on a 10mm grid with the exception of RP1 in the power supply which is a 1W type 0309 (still 10mm grid). Part numbers for channel 2 are those for channel 1 + 100.

These are the parts I used for the preamp. In some cases I added the parts numbers from Farnell in case you have access to this distributor. Of course the same or similar parts are available from Digikey and Mouser.

Please note that the RIAA resistors and caps need to be mounted partly from the bottom and the RIAA polystyrene caps need to be mounted standing upright due to the limited space available. Isolate the bend leads of the RIAA-caps to avoid shorts. Just look at the photo of my prototype in the article and you'll see what I mean.

Happy building, and for any questions, shoot me an email: [allmaier@gmx.net](mailto:allmaier@gmx.net) .

### Power supply parts

1	LED3MM	LED1	
1	18V	ZENER DIODE	NXP 771-1N4746A-T/R
2	47uF/63V	CP1	NHG 667-ECA-1JHG470
2	47uF/63V	CP2	NHG 667-ECA-1JHG470
1	FET	QP	ST Micro STP55NF06FP
1	THS4031	ICP	595-THS4031CD
1	270	RP1 1W!	Panasonic ERG-1SJ271, 667-ERG-1SJ271A
1	1k	RP3	
1	25k5	RP2	
1	34k8	RP4	
1	100	RP5	

### Capacitors - electrolytic

1	1000uF/16V	C8	NHG 667-ECA-1CHG102
1	47uF/63V	C7	NHG 667-ECA-1JHG470
1	100uF/50V	C10	NHG 667-ECA-1HHG101

### Capacitors - film/ceramic

F1	1nF	C13B	Farnell: LCR FSCEX 1% 9520651
F1	1n2F	C12	Farnell: LCR FSCEX 1% 9520457
F1	3n3F	C13	Farnell: LCR FSCEX 1% 9520538
1	10pF	C9	TDK 10pF 50V 810-FK18C0G1H100D
1	25pF	C2	TDK 22PF 50V 810-FK18C0G1H220J
1	50pF	C3	TDK 47PF 50V 810-FK18C0G1H470J
1	100pF	C4,C6	TDK 100PF 50V 810-FK18C0G1H101J
1	200pF	C5	TDK 220PF 50V 810-FK18C0G1H221J
2	1uF	C1, C11	PS 667-ECQ-V1H105JL

### Resistors

1	230	R11	
2	300	R14, R114	
1	390	R3	
1	720k	R12	
1	1k21	R7	
1	2k7	R15	
3	10k	R6, R9, R10	
1	40k2	R16	
1	62k	R13	
3	100k	R1, R4, R8	

### Miscellaneous

2	SW_DIP-4	SW1, SW101	FARNELL: ERG SDS-4-014, 422642
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### FETs/Transistors

2	DN2540	Q4, Q104	689-DN2540N3-G
6	2SC2547	Q1, Q2, Q3, Q101, Q102, Q103	