

DDDAC 1794 NOS

A Modular DAC,
based on PCM1794
WM8804 and USB
WaveIO

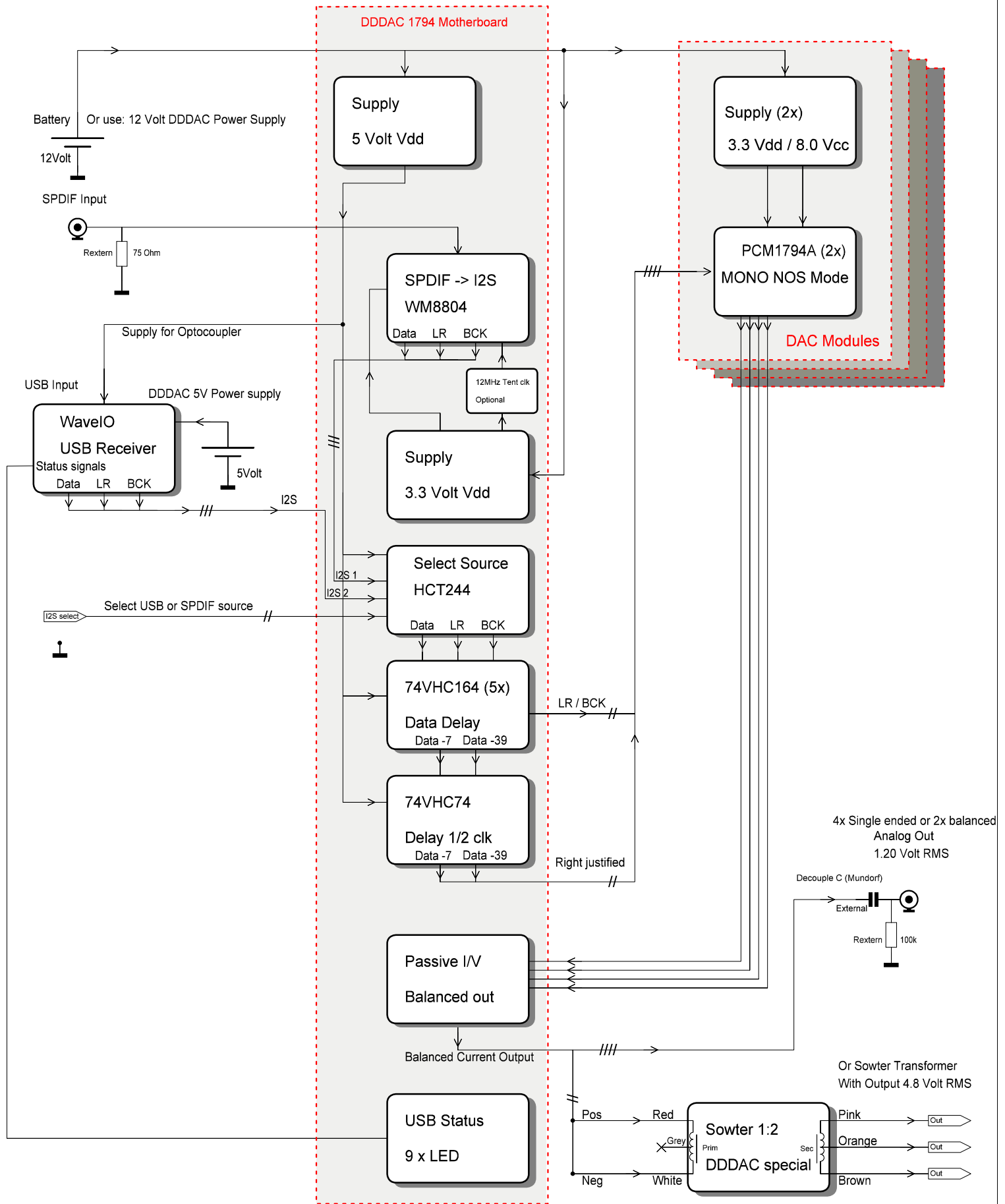
USB	384kHz
SPDIF	192kHz

By Doede Douma

Version 4.2

Updated 11th May 2014

<http://www.dddac.com/>



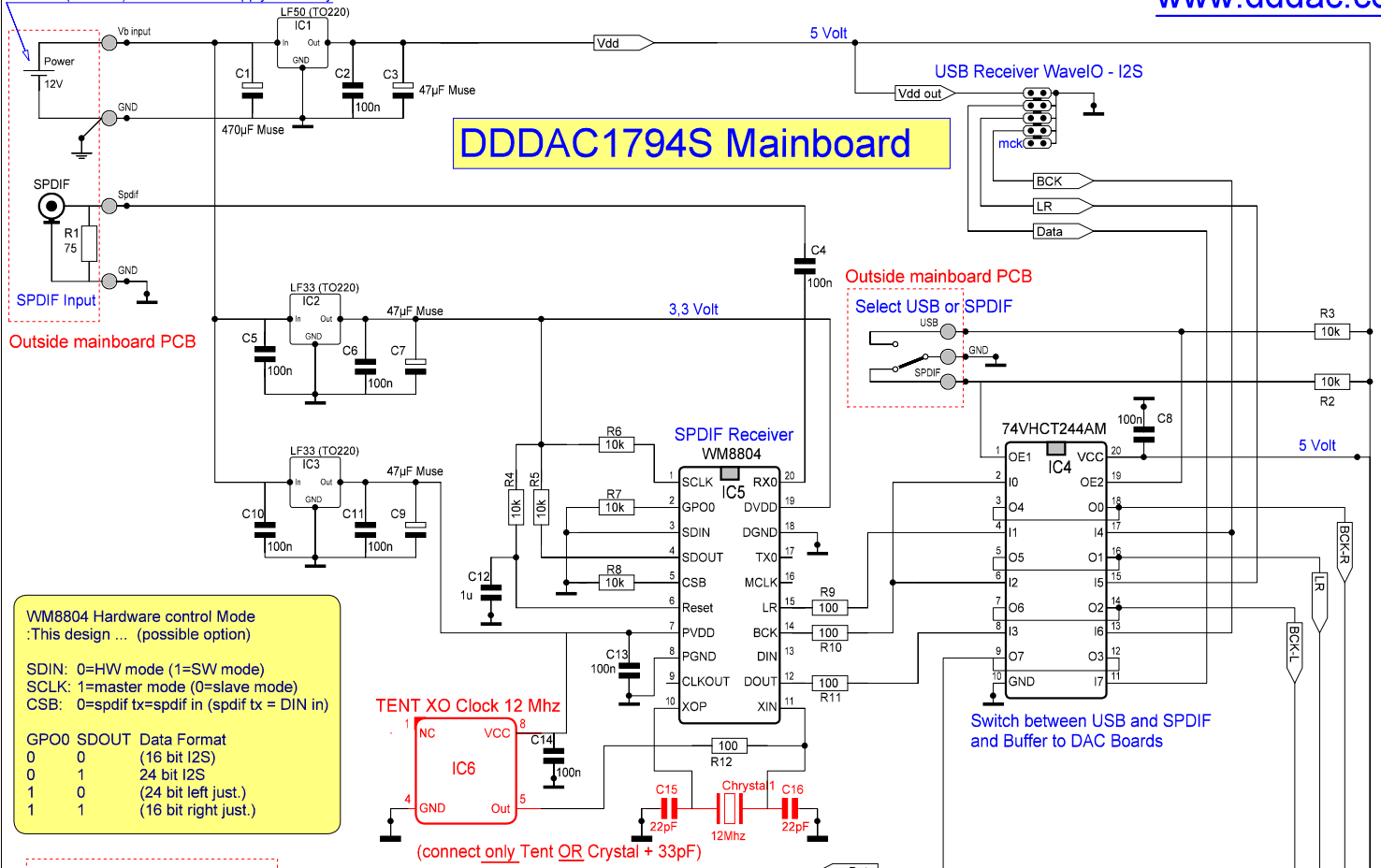
Notes for data delay section:

Data delay is needed to convert I2S data into right justified datastream to work with "no digital filter" mode
 Datastream must be delayed by 7 clock cycles (31 - 24)
 Left Channel must be delayed another 32 clock cycles to align left and right channel sample

DDDAC 1794S NOS DAC

Update: 11-05-2014		Author: Doede Douma	
Revision: 4.2	Built: YES	Design ready: YES	Page: 1 # 4

External (DDDAC) 12 Volt Power supply or battery



DDDAC1794S Mainboard

Outside mainboard PCB

Outside mainboard PCB

Select USB or SPIDF

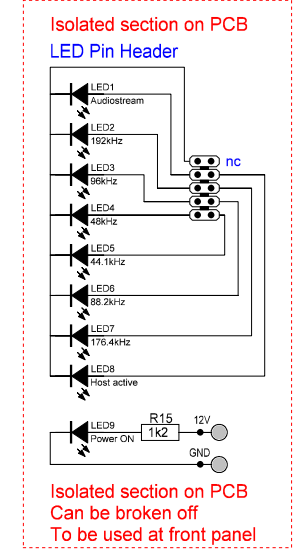
WM8804 Hardware control Mode
 :This design ... (possible option)

SDIN: 0=HW mode (1=SW mode)
 SCLK: 1=master mode (0=slave mode)
 CSB: 0=spdif tx=spdif in (spdif tx = DIN in)

GPO0	SDOUT	Data Format
0	0	(16 bit I2S)
0	1	24 bit I2S
1	0	(24 bit left just.)
1	1	(16 bit right just.)

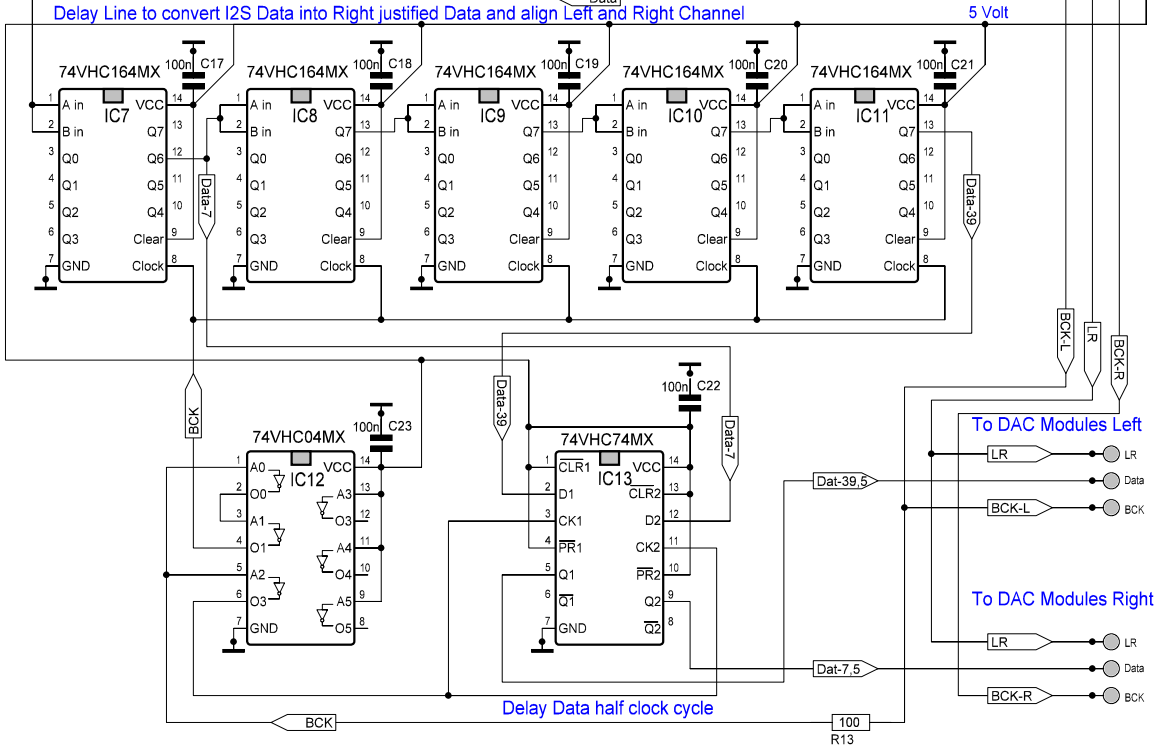
TENT XO Clock 12 Mhz

(connect only Tent OR Crystal + 33pF)

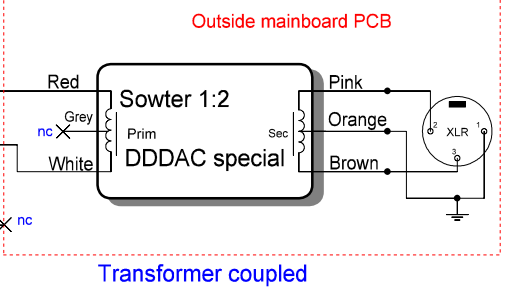
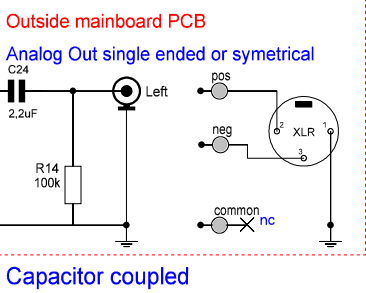


Isolated section on PCB
 Can be broken off
 To be used at front panel

# Modules	Ra	Rb
1	133	-
2	68	-
4	68	68
4	34	-
8	34	34



Analog Out options / Only one Channel shown



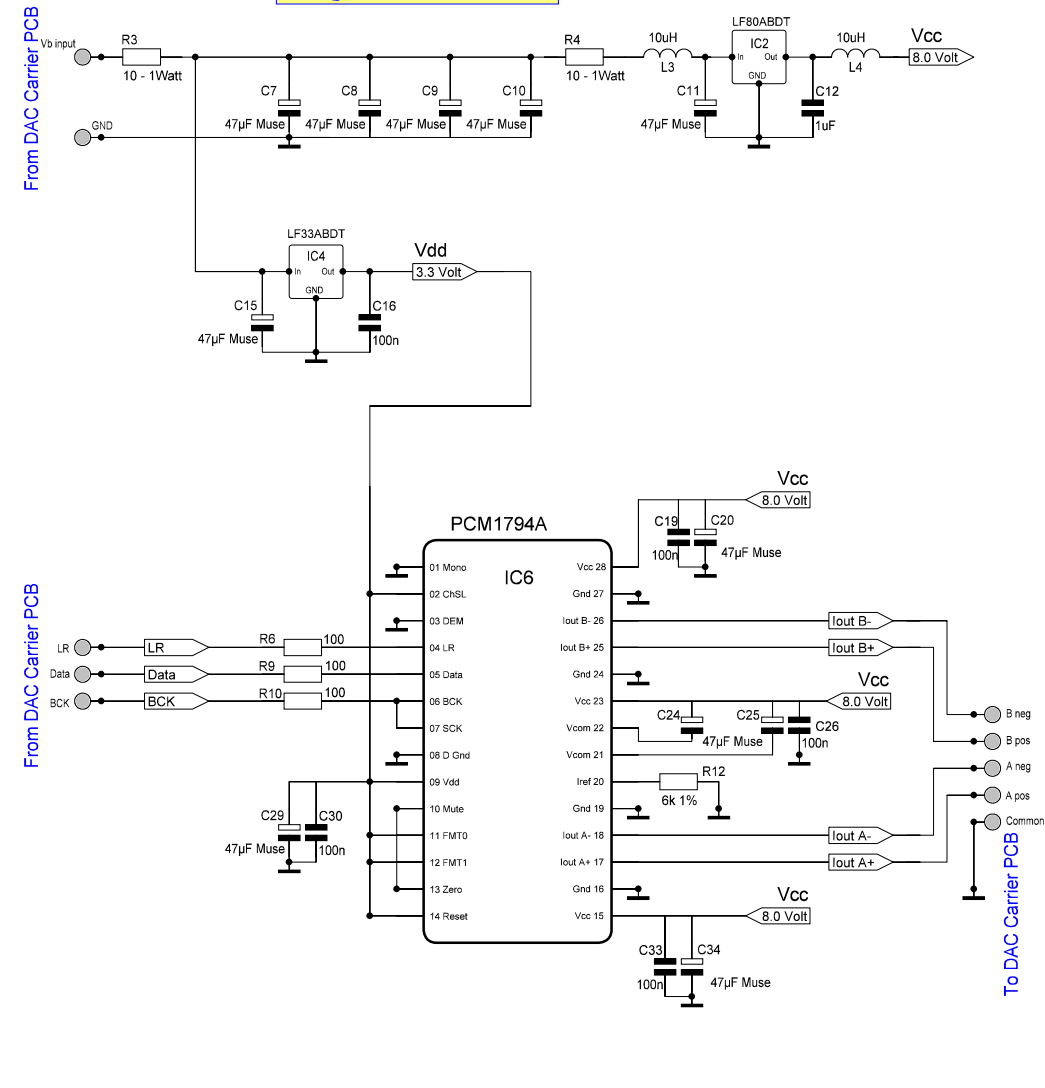
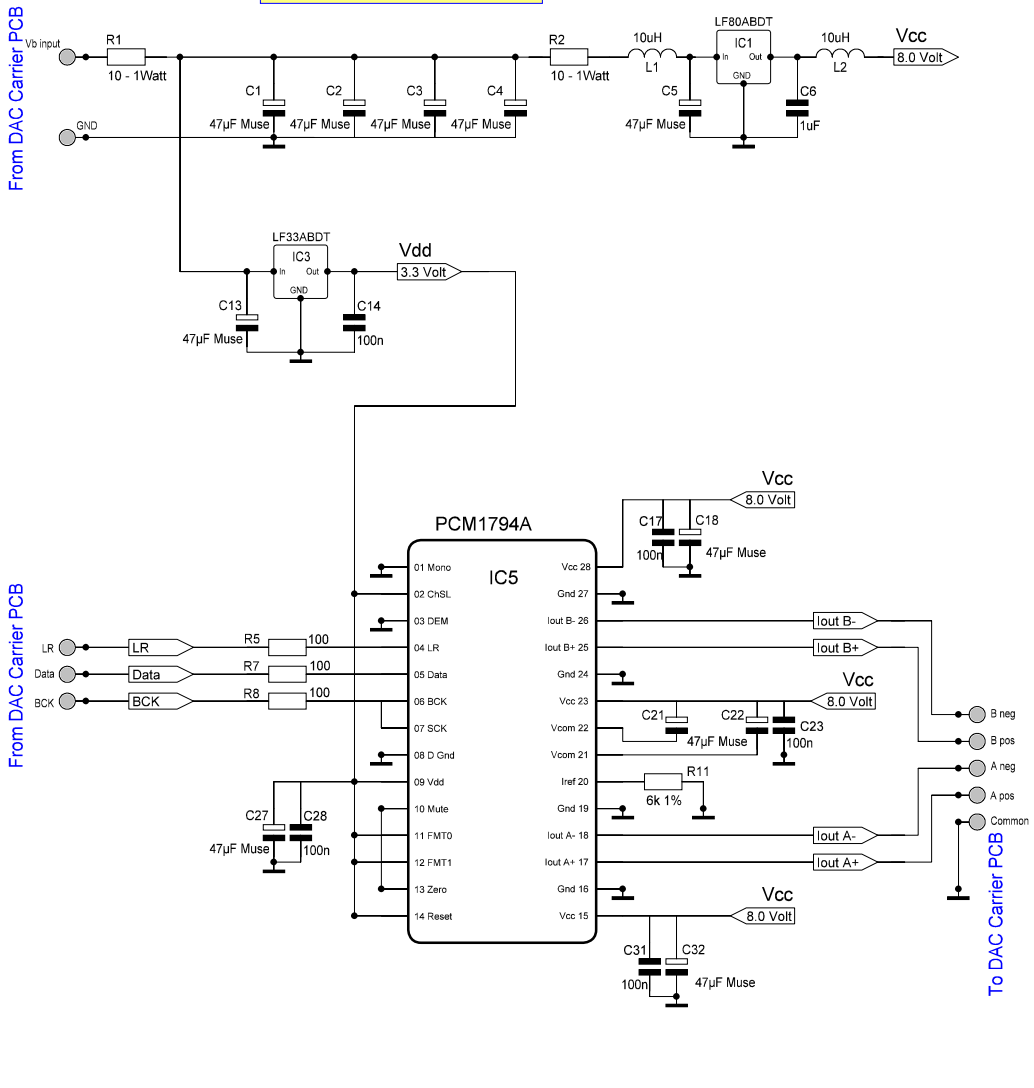
Notes:
 Rload depends on number of DAC Modules being used (so far up to 8 boards tested)
 Rload = 134 / number of DAC Modules
 Rload can be combined on PCB by paralleling 2 resistors - see table at left
 Output Capacitor should always be changed to one of own personal choice ! This is the best tweak possible
 *) Optional HF filter Capacitor. Best use MKP or similar. Value not critical. Aprox 4,7nF to 10nF per Deck

DDDAC 1794S NOS DAC			
Update: 11-05-2014	Author: Doede Douma		
Revision: 4.2	Built: YES	Design ready: YES	Page: 2 # 4

DDDAC1794 DAC Module PCB

Left Channel

Right Channel



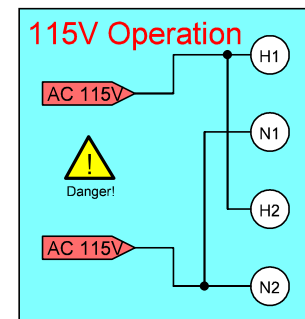
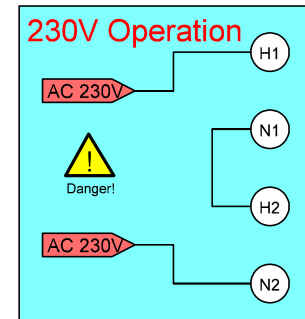
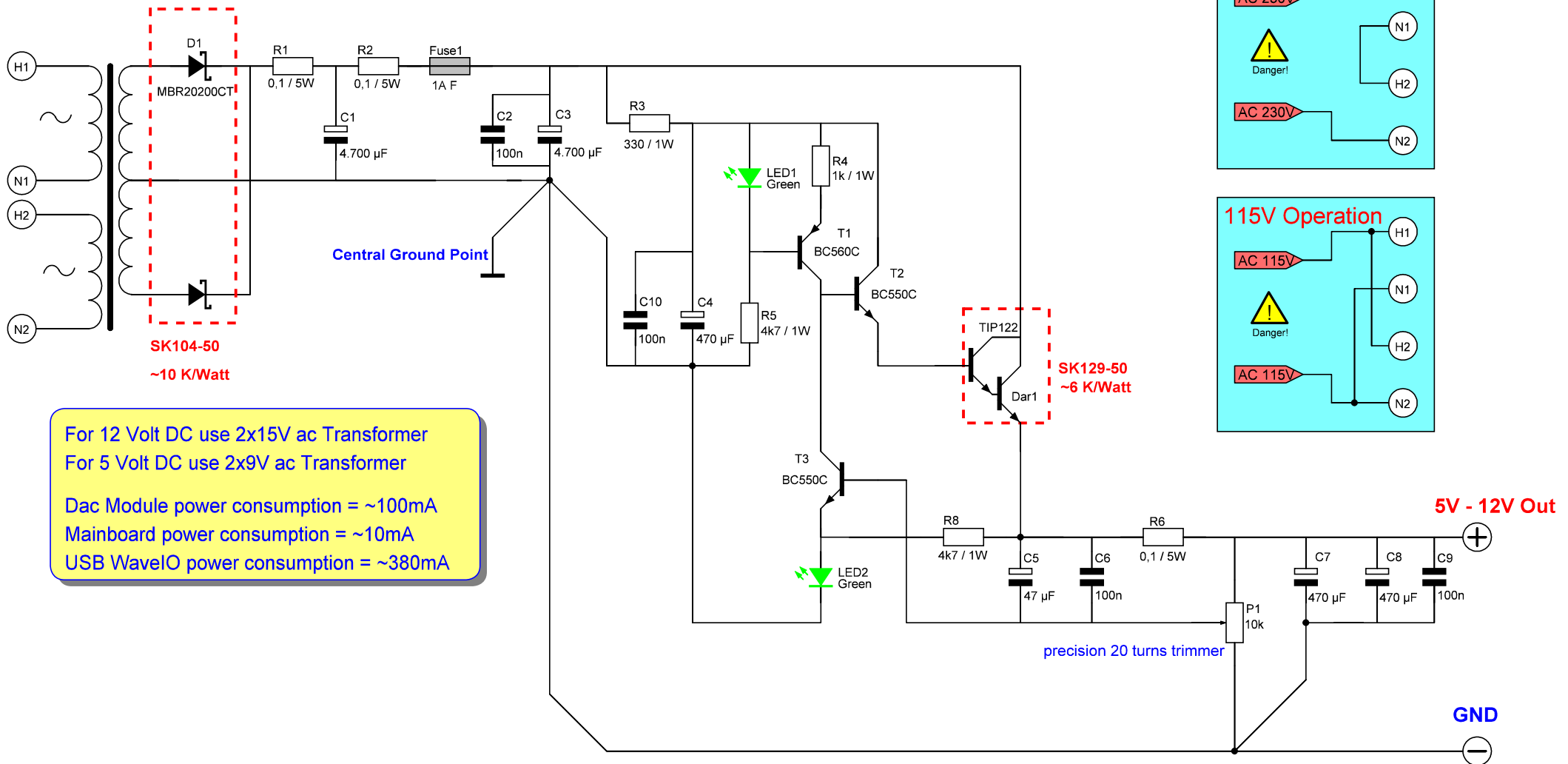
Groundplanes are separated

Notes:
 All Film capacitors are Wima MKS2
 All Electrolyte capacitors 25 Volt DC Nichicon Muse
 Optional HF Decouple capacitors are Wima MKP4 or MKP10 *) Per Deck use multiples of ~ 4,7nF, i.e 4 Decks 22nF

DDDAC 1794S NOS DAC			
Update: 11-05-2014	Author: Doede Douma		
Revision: 4.2	Built: YES	Design ready: YES	Page: 3 # 4

DDDAC1794 Power Supply 5V / 12V 1A

Tr / 25VA
2 x9V or 2x15V



For 12 Volt DC use 2x15V ac Transformer
For 5 Volt DC use 2x9V ac Transformer

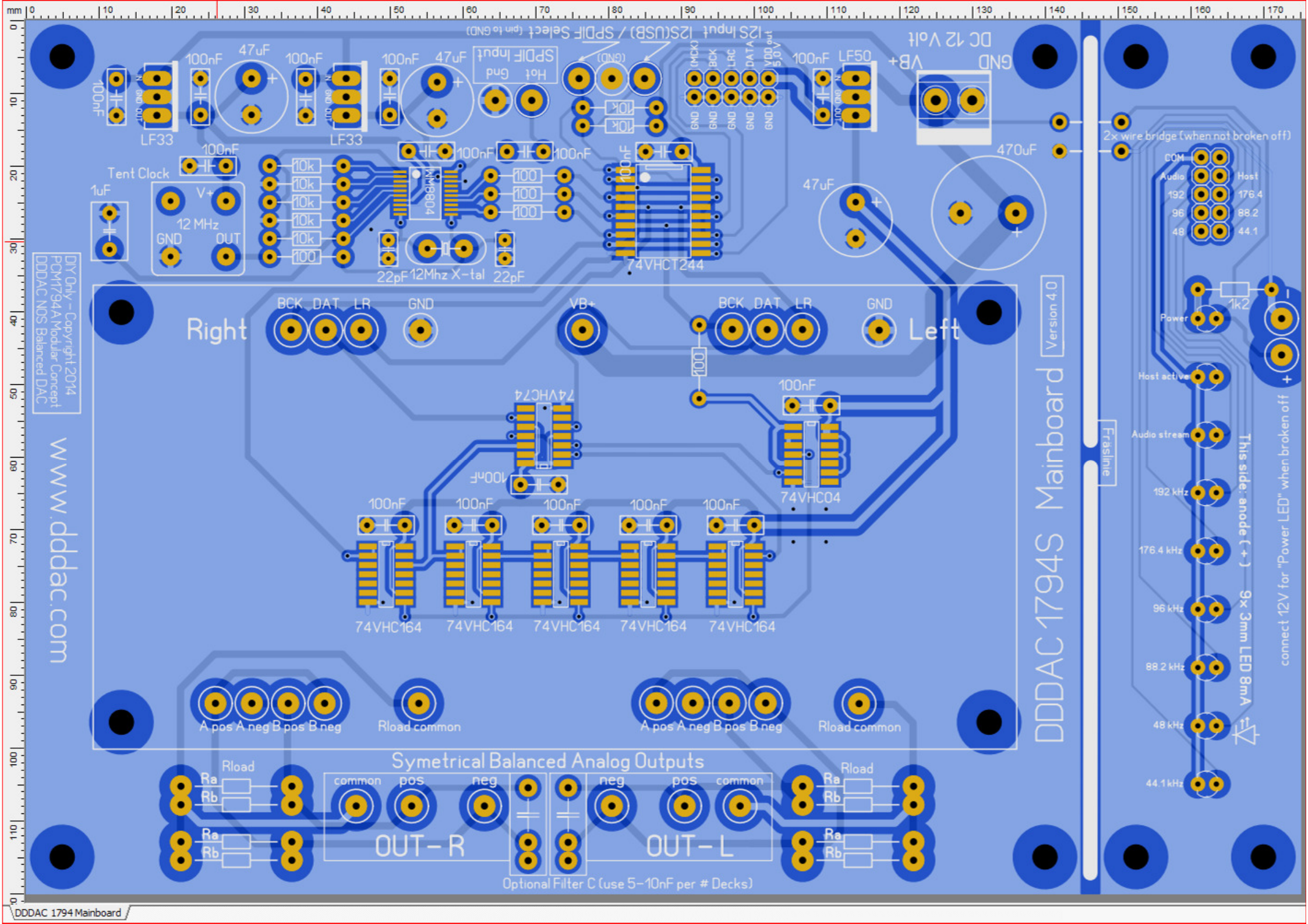
Dac Module power consumption = ~100mA
Mainboard power consumption = ~10mA
USB WaveIO power consumption = ~380mA

Notes:

Use Trimmer P1 to adjust output at 5.0 Volt or 12 Volt
Actual Output current is limited by Fuse and rating of Transformer
47uF and 470uF are Nichicon Muze Audio Grade KZ series Capacitors - (25 or 50 Volts)
4.700uF are Nichicon Long Life Capacitors. Series HE (25 Volts)

DDDAC 1794 NOS DAC

Update: 14-11-2012		Author: Doede Douma	
Revision: 3.1	Built: YES	Design ready: YES	Page: 4 # 4



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 PCM1794A Modular Concept
 DDDAC NOS, Balanced DAC

www.dddac.com

DDDAC 1794S Mainboard Version 4.0

Fraserline

Right

Left

Symmetrical Balanced Analog Outputs

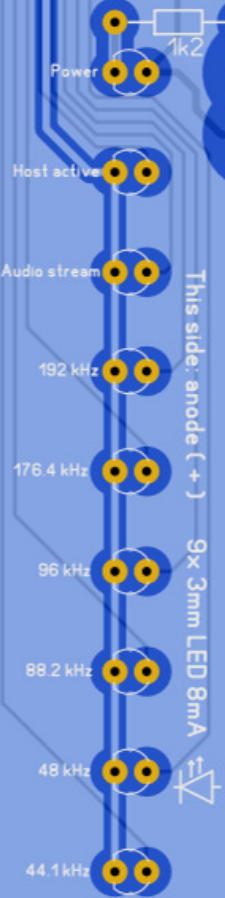
OUT - R

OUT - L

Optional Filter C (use 5-10nF per # Decks)

2x wire bridge (when not broken off)

COM	Host
192	176.4
96	88.2
48	44.1



Right

BCK DAT LR GND

10 - 1Watt

Left

BCK DAT LR GND

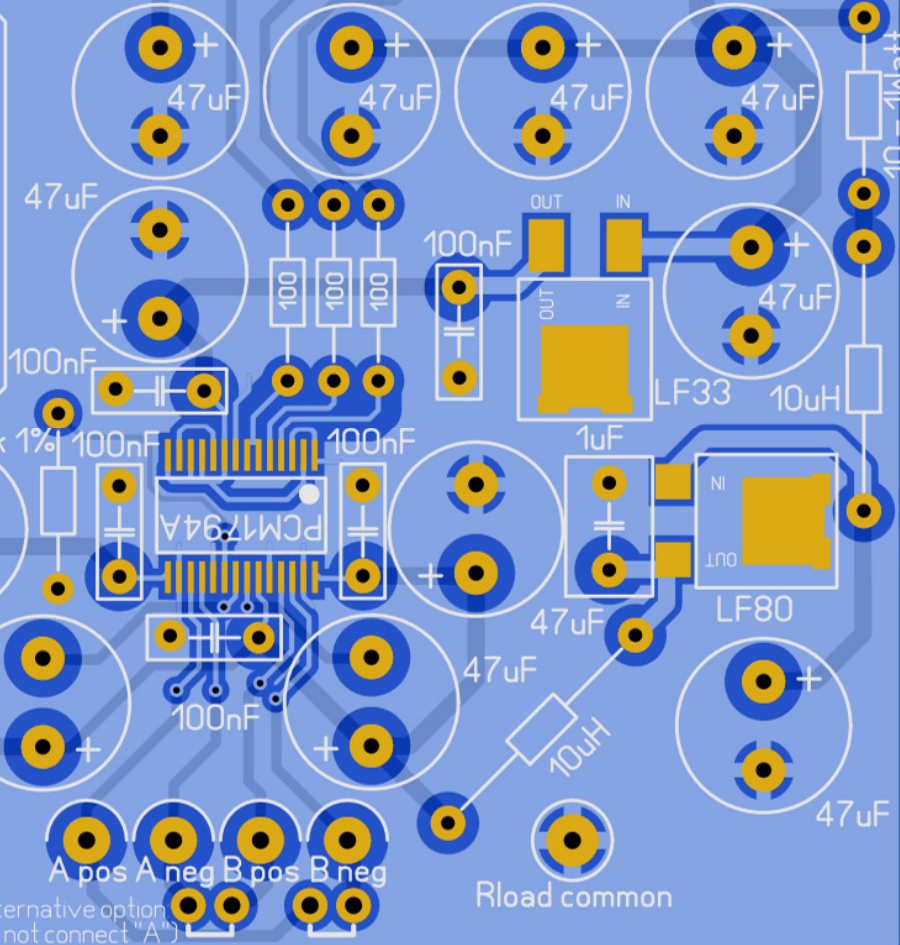
10 - 1Watt

10 - 1Watt

DDDAC NOS Balanced DAC
PCM1794A Modular Concept
DIY Only - Copyright 2014
384/24 www.dddac.com

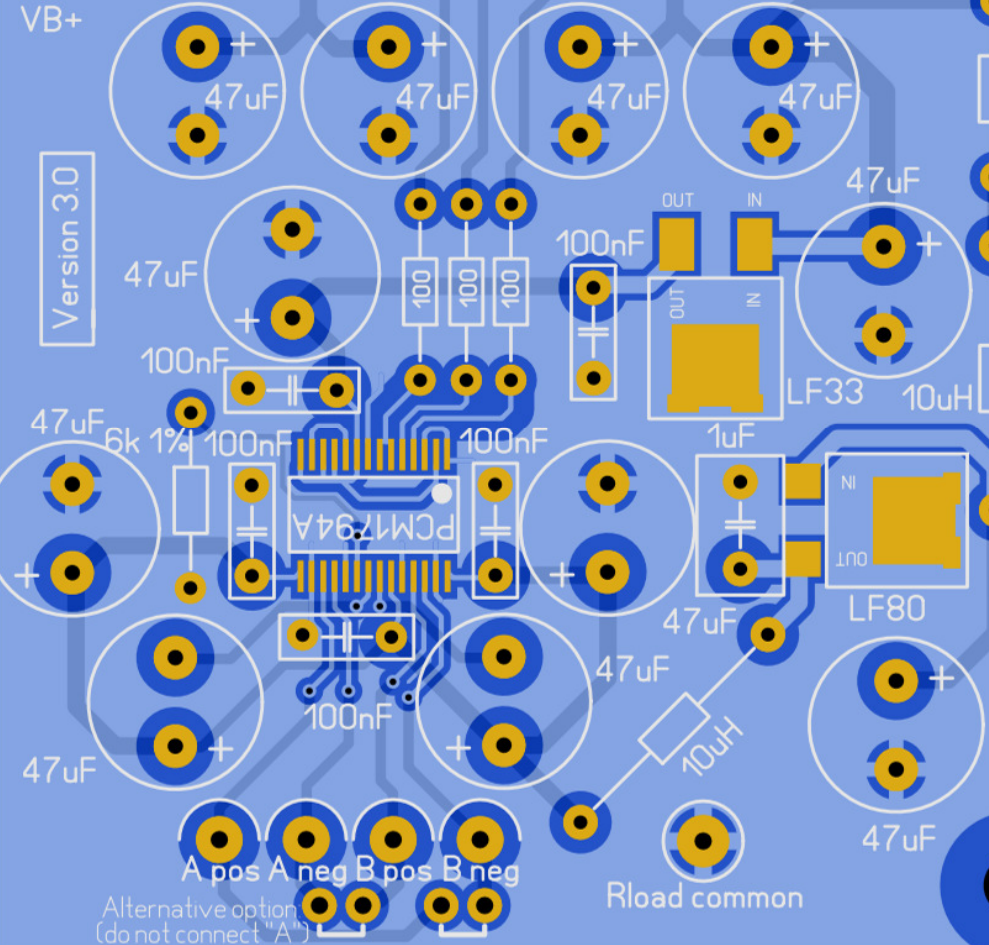
Version 3.0

384 kHz - 24bit



Alternative option
(do not connect "A")

Rload common



Alternative option
(do not connect "A")

Rload common

mm 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170

230 or 115V ac in

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www.ddpac.com

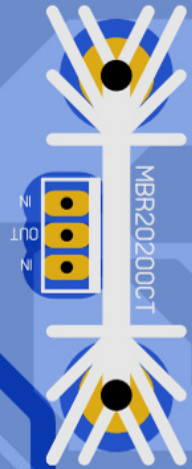
2x 115V

2x 9V or 2x 15V 25VA

Select wire bridge(s)
for 115V or 230V
operation

115Vac 230Vac 115Vac

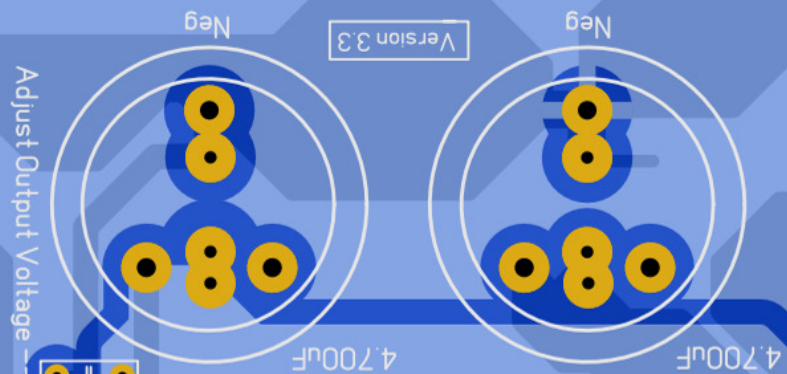
DDDAC Power Supply 1A max



MBR20200CT

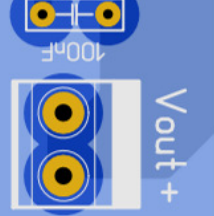


Fuse 1A/F

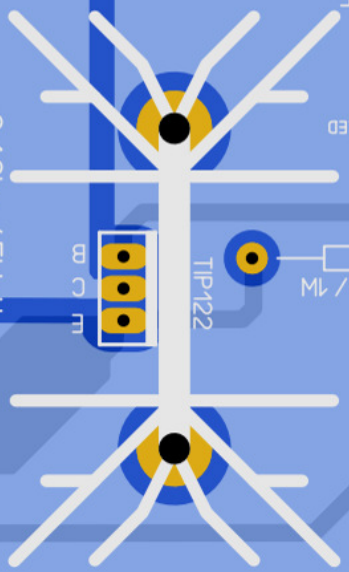


Adjust Output Voltage

Version 3.3



0.10hm/5Watt



TIP122

BC550C

BC560C

BC550C

BC560C

470uF

+

100nF

470uF

GND

Vout +

Neg

Neg

4.700uF

4.700uF

470uF

100nF

100nF

Green LED

Green LED

BC550C

BC560C

BC550C

BC560C

47uF

100nF

E B C

E B C

E B C

E B C

