

## CS3318VolumeControl 5.1channel version – mounting instructions

Thanks for buying this CS3318VolumeControl 5.1channel pcb or kit! Now the fun of mounting starts. Make sure you read the complete instructions before you start mounting. Complete assembly can be done by an experienced hobbyist in about two hours. This circuit was designed to be used in a preamplifier project. More information can be found on the project page:

<http://www.djuke.nl/en/projects/10-pre-amplifiers/34-preamplifierv2>

### List of components

The kit consists of the following components. If you bought the pcb, these components are suggested (but you can of course adapt it to your needs).

#### SMD components

This kit contains (small) SMD components, which have been pre-mounted for convenience.

Value	Device	Parts
100nF	C-1206	C1, C2, C3, C5, C7, C9, C12, C14, C16, C36, C38, C42, C44, C45, C46, C47
1n	C-1206	C19, C23, C24, C26, C27, C29, C31
3n3	C-1206	C34, C35
470n	C-1206	C18, C20, C21, C22, C28, C30
BSS138	nFet-SOT23	Q1, Q7
CS3318	LQFP-48	IC1
100	R-1206	R14, R16, R19, R31, R32, R36, R37, R57, R63, R69, R73, R74, R79, R82, R85, R86
2k7	R-1206	R29
0R	R-1206	R3
100k	R-1206	R2, R18, R26, R27, R40, R41, R42, R43, R48, R49, R53, R54, R56, R59, R60, R62, R65, R66, R68, R71, R72
10k	R-1206	R1, R77, R78, R80, R81, R83, R84
1k	R-1206	R5, R21, R23, R28, R38, R39, R52, R55, R58, R61, R64, R67, R70
1k5	R-1206	R15, R17, R20
1M	R-1206	R33
3k3	R-1206	R13, R22, R30
4k7	R-1206	R10, R11, R34, R46
TXB0104	SO-14	IC9
OPA2134	SO-8	IC3, IC4, IC5, IC6, IC7, IC8
1117-3V3	V-reg-SOT223	IC2

#### Through-hole components

Qty	Value	Device	Parts
2	BC550C	BJT-TO92	Q2, Q4
3	BC560C	BJT-TO92	Q3, Q5, Q6
5	22uF	C-Elec2.5-5	C11, C13, C15, C17, C25
6	47u	C-Elec2.5-5	C6, C8, C10, C37, C39, C43
5	100uF	C-Elec3.5-8	C4, C32, C33, C40, C41
1	3-pin	Con-pcb-5.08	SUPPLY
1	3-pin	Con-KK	FRONT-IN
1	4-pin	Con-KK	HEADPHONES
5	5-pin	Con-KK	CENTER/SUB-OUT, FRONT-OUT, MONITOR-OUT, REAR-OUT, SURROUND-IN
1	7-pin	Con-KK	LOOPBACK (not included)
1	10-pin	Con-IDC	CONTROL
2	1N400x	Diode	D4, D7
5	1N4148	Diode	D1, D2, D3, D5, D6
4	22	R-0207	R8, R9, R44, R45
2	47	R-0207	R50, R51
2	200	R-0207	R12, R47
2	DC5V	Relay	K1, K2

### Tools

Required:

- ✓ Soldering iron with small tip
- ✓ Flux, solder (0.5mm), solder wick
- ✓ Multi-meter (voltage and resistance)
- ✓ Side-cutting pliers, tweezers

Recommended:

- ✓ Adjustable power supply
- ✓ Oscilloscope
- ✓ PreampController pcb for testing

## Mounting

The easiest way of mounting the remaining through-hole components is by starting with the components with the lowest height and build up the PCB in steps, where components of the same height are fitted and soldered in each step. So, solder the components in this order: Resistors, diodes, connectors, transistors, electrolytic capacitor, relays.

Always double check all components before you solder them (especially the ones that are polarity dependent, electrolytic capacitors, etc), as it is difficult to remove them after soldering, much more time consuming and may break components or PCB.

## Hints

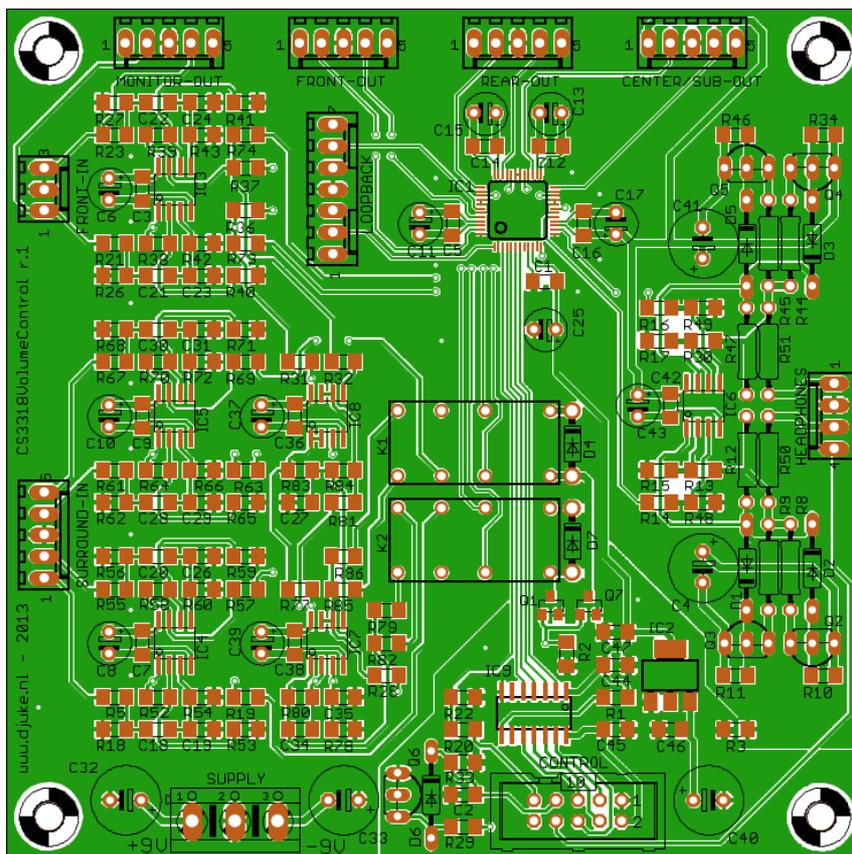
- The loopback connector can be used to redirect the front channels to a tone control circuit. If the loopback connector is not used, connect pin 2 to 3 and pin 5 to 6 using some remaining wire from the diodes
- The circuit is intended to be controlled from a SPI master, like a microcontroller. Please refer to the schematic and datasheets if you intend to use it in some other way
- The analog and digital GND are connected using R3, it can be removed if this is already done somewhere else

## Testing

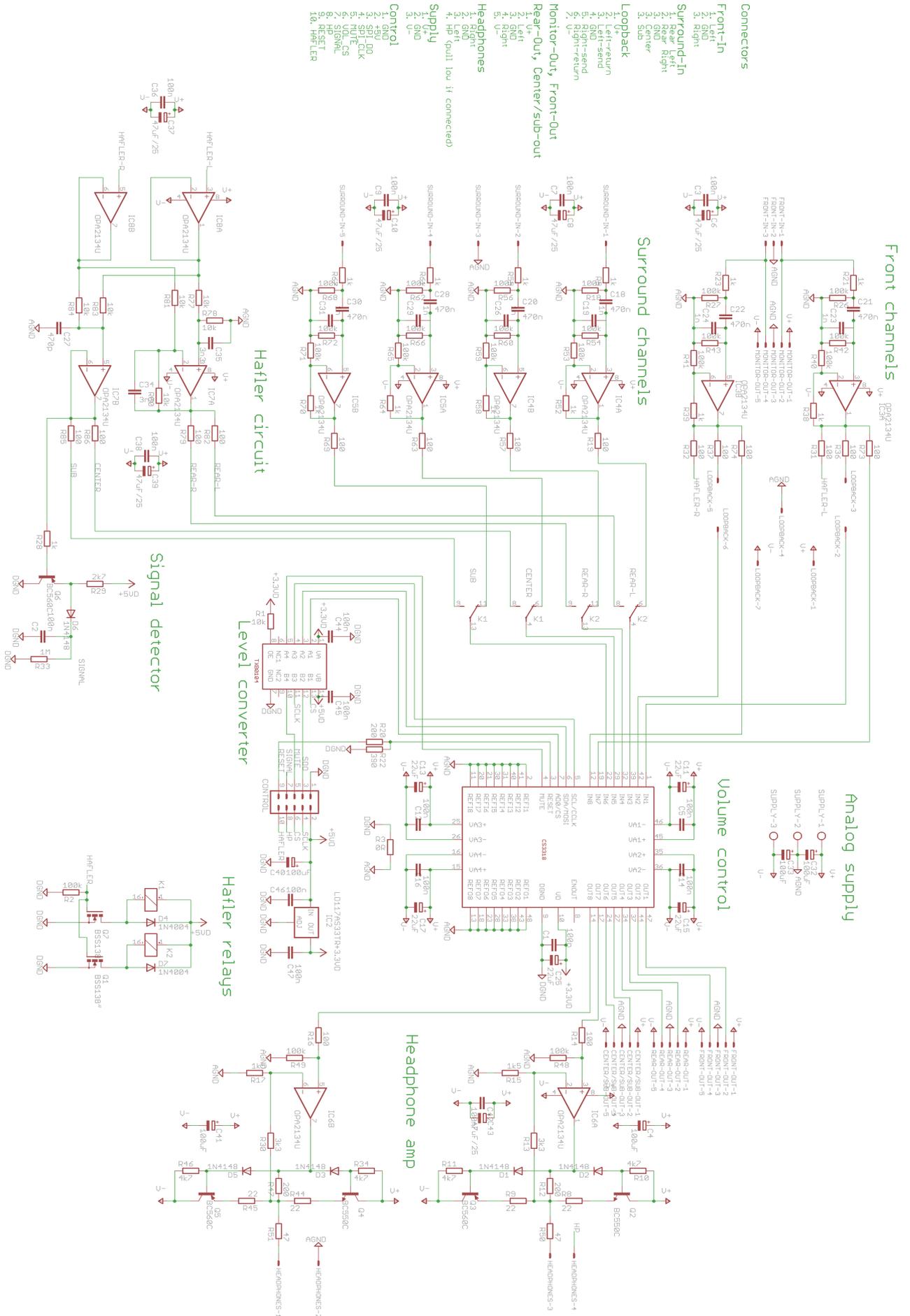
Double-check all soldering connections to make sure no shorts are present.

- Double-check all soldering connections to make sure no shorts are present.
- Connect the CONTROL connector to a 5V SPI master (e.g. PreampController)
- Check the output voltage of IC2 (should be 3.3V)
- Connect a dual supply (8 to 9V) to SUPPLY
- Check the connectors MONITOR, FRONT-OUT, REAR-OUT, CENTER/SUB-OUT for presence of supply (pin1=V+, pin5=V-)
- Check that the outputs of these connectors (pin2, pin4) is below 25mV
- Check that the outputs of the HEADPHONES connectors (pin1, pin3) is below 25mV

## Top silkscreen



# Schematic



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