

## BalancedReceiver – mounting instructions

Thanks for buying this pcb or kit! Now the fun of mounting starts. Make sure you read the complete instructions before you start mounting. Assembling can be done by an experienced hobbyist in about one hour.

### List of components

Please check if all is complete. The kit should have the following components, if you bought the pcb, these components are suggested (or choose your own):

Qty	Value	Device	Parts
1	BC550C	BJT	Q1
1	BC560C	BJT	Q2
2	10u	C-elec-2.5-6	C1, C2
2	47u/63V*	C-elec-3.5-8	C5, C6
2	100u/35	C-elec-3.5-8	C7, C8
2	100n	C-multi	C3, C4
2	2-pin	con-KK	IN, OUT
1	3-pin	con-pcb-5.08	SUPPLY
2	1x2-pin	con-pinheader	JP1, JP2 (not included)
2	15V	D-zener	D1, D2
1	INA134P	DIP-8+socket	IC1
2	470*	R-0207	R4, R5
1	0R*	R-0207	R1 (not included)
4	1k5	R-0207	R2, R3, R6, R7

### Tools

Required:

- ✓ Soldering iron and solder
- ✓ Multi-meter (voltage and resistance)
- ✓ Side-cutting pliers

Recommended:

- ✓ Adjustable dual power supply
- ✓ Signal source
- ✓ Oscilloscope

### Mounting

The easiest way of mounting 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 in this order: resistors, zener diodes, multilayer capacitors, connectors, transistors, DIP, electrolytic capacitors.

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

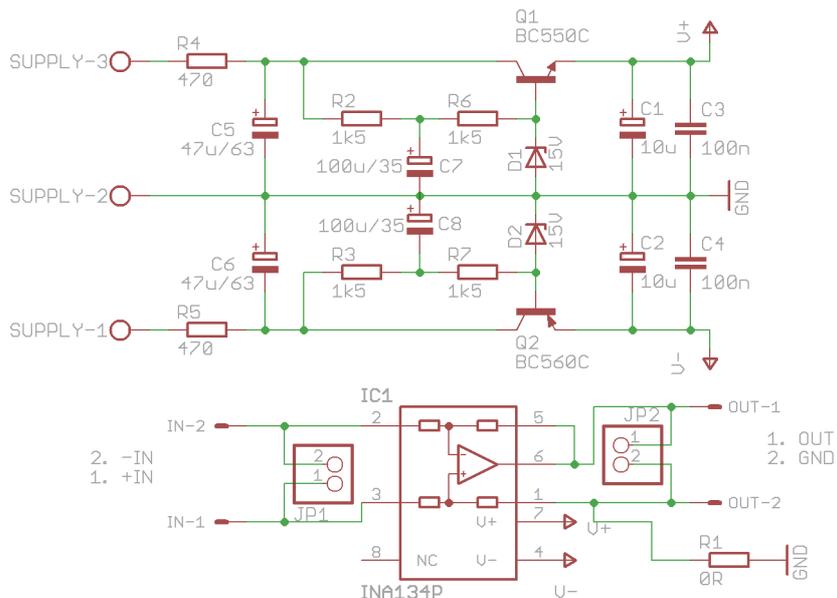
### Connections

- Maximum supply voltage is about 55V. For higher voltage, R4/R5 and C5/C6 value, voltage and power rating have to be increased
- With a balanced input, connect the hot wire to IN1 and cold wire to IN2, the ground wire needs to be connected to the chassis.
- With a single-ended input, connect the signal wire to IN1 and the gnd wire to IN2.
- Resistor R1 can be used in various ways depending on your application:
  - with a wire bridge, the OUT signal ground can be connected to SUPPLY gnd
  - omit it to connect OUT signal ground to SUPPLY gnd at another place in your application
  - a non-zero value (e.g. 10ohm) can be used, which is desired by some users

### Testing

- Do not connect the INA134 and input/output signals yet
- Double check that all components are mounted correctly before connecting the supply
- Connect a bench supply to SUPPLY and increase the voltage to 20V
- Check the voltage of IC1 pin7 is about 14.3V and pin4 is about -14.3V
- Further increase the supply voltage and check that the IC voltages remain about the same
- Remove the bench supply, connect the opamp and your BalancedReceiver is ready to go!

Schematic



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