SK25 Assembly guide

Safety warning

The kits are main powered and use potentially lethal voltages. Under no circumstance should someone undertake the realisation of a kit unless he has full knowledge about safely handling main powered devices.

Please read the "DIY guide" before beginning.
Print or open the following documents :

- SK25 Schematics
- SK25 Components layout
- SK25 Parts list

Follow this guide from item number 1 till the end, in this order. The assembly order is based on components height, from low to high profile, in order to ease the soldering process : The component you are soldering is always taller than the previously assembled ones and it is pressing nicely against the work area foam.

SK25 Assembly guide

1. Soldering

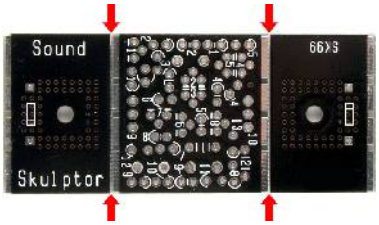
All the PCB holes are metallized. It means the connection between the top and bottom pads is already done. The parts must be soldered only from the bottom side (unless differently stated).

Use only small diameter solder, 0.5 or 0.7 mm, 1mm maximum. Use the minimum possible amount of solder. Bad joints are almost always caused by too much solder.

Here are two excellent introduction to soldering videos:
http://www.eevblog.com/2011/06/19/eevblog-180-soldering-tutorial-part-1-tools/
http://www.eevblog.com/2011/07/02/eevblog-183-soldering-tutorial-part-2/

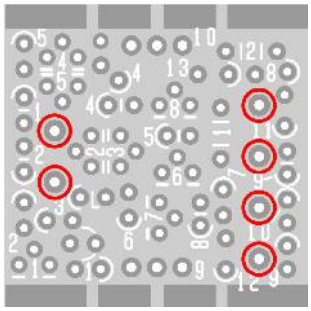
2. PCB split

Split the PCB into 3 parts along the lines shown by the red arrows.



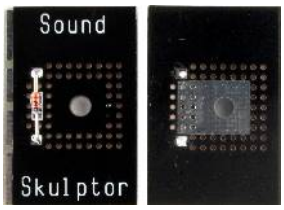
3. Pins

Insert and solder the 6 golden pins. The pins are inserted from below the PCB.
The best solution to keep the pins perfectly perpendicular is to use the final host PCB (like the MP512, MP599) as a guide: Insert the 6 pins into the 1mm sockets of the receiving PCB, position the DOA PCB over the pins and solder.
It is a good idea to protect the golden pins with some wire insulating sleeve before doing other component soldering.

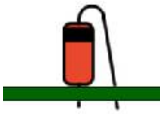


SK25 Assembly guide

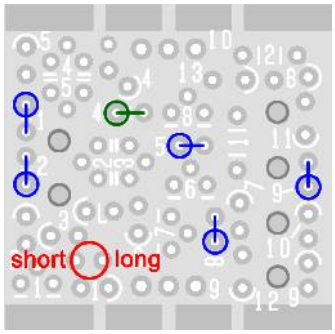
4. Diodes D5 & D6



Add D5 and D6 on the 2 heatsink PCB's.
When soldering, be careful not putting any solder on the power transistor plane.
Warning: Make sure to respect the direction of the diodes which is marked by a ring on the component and a double line on the PCB marking.



5. Other diodes



These diodes are mounted vertically, cathode (black ring) up.

Add D1, D2, D7, D8, D9: 1N4148, blue on the picture.

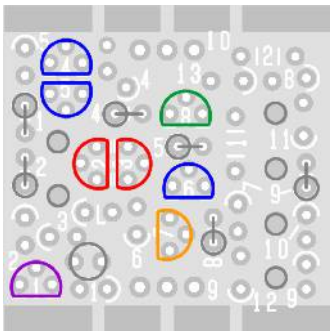
Add D4: zener 5.1V, green on the picture.

Warning : Make sure to respect the direction of the diodes. D7, D8, D9 are mis-labeled on the PCB, follow the layout document.

6. LED

Add the red LED D3, red on the picture.
Warning : Make sure to respect the long lead/short lead direction of the diode.

7. Transistors



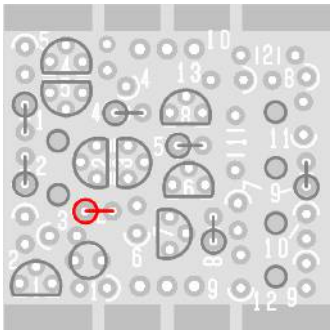
Add Q1 : BC560C (purple)
Add Q2, Q3: 2SA970 (red)
Add Q4, Q5, Q6: BC550C (blue)
Add Q7: BC556C (orange)
Add Q8: BC546C (green)

Press firmly the transistors against the PCB in order to keep the profile low.

SK25 Assembly guide

8. Inductor

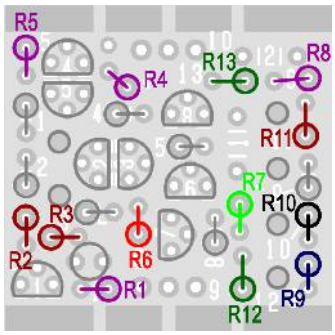
Add L1 (red).
Bend sharply one of the leads against the body of L1 for a vertical insertion.



9. Resistors

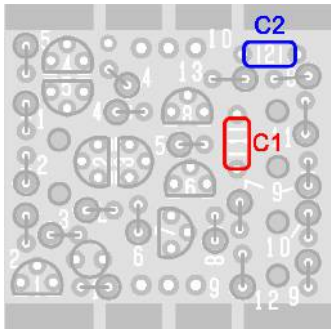
Bend sharply one of the leads against the body the resistor for a vertical insertion.
Add R1 to R13.

Warning : It is very important to check the resistors value with a DMM because the colour code can be ambiguous. For example 1K (brown-black-black-brown-brown) can be confused with 110R (brown-brown-black-black-brown).



10. Capacitors

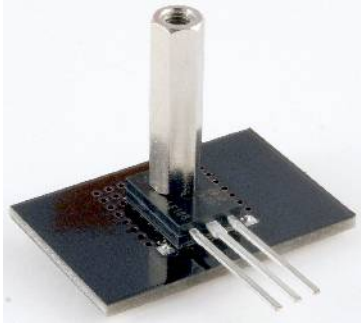
Add C1 and C2.



11. Q9 & Q10 assembly

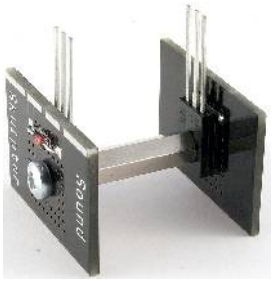
Attach Q9 (BD139) to the heatsink PCB marked "Sound Skulptor" with a M3x12 mm screw and a M3x20 mm spacer. The transistor is placed on the side with no writing.

Tighten softly, by hand for now.



SK25 Assembly guide

12. Q9 & Q10 assembly



Similarly, attach Q10 (BD140) to the heatsink PCB marked "SK25" with a M3x12 mm screw and screw it into the other side of the spacer. The transistor is placed on the side with no writing.

Tighten softly, by hand for now.

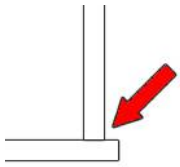
13. Q9 & Q10 assembly

Insert the 2 power transistor leads into the main PCB. The word "Sound" is on the input side (2 golden pins). The word "Skulptor" is on the output side (4 golden pins).

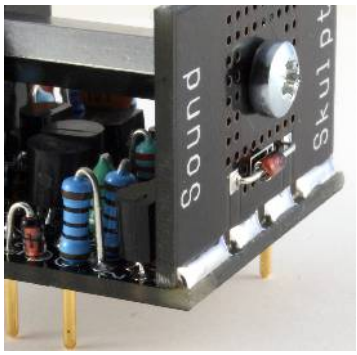
Turn upside down, press on a flat table, adjust the position, making sure that the heatsinks are parallel to the main PCB edge then solder the transistor pins. Cut the leads sharp.

Keeping the DOA pressed against the table, tighten the 2 screws with a screwdriver.

14. Q9 & Q10 assembly



Solder the 4 pads on both heatsinks. These solders improve the mechanical stiffness of the DOA and make the electrical connection of diodes D5 & D6.



15. D5 & D6 thermal contact

Press the body of D5 and D6 against the heatsink and put a drop of instant glue between the diode and the heatsink. This will ensure a permanent thermal contact between the two.

16. Congratulations!

Your SK25 is ready for test.