

Using selected matched transistor pair as LM394 replacement

For use a selected pair of transistors for make the Expo converter stage at the Step Brother VCO we will need to start with the selection process.

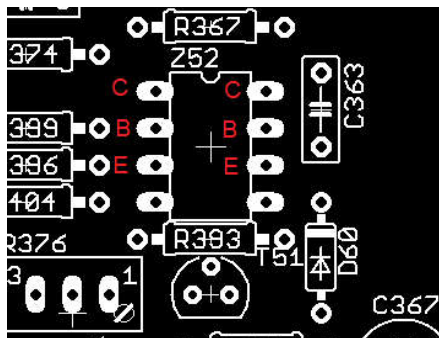
You should use one tester option for choose a suitable matched pair.

If you don't know how, here is a pair of links for read about the matching process:

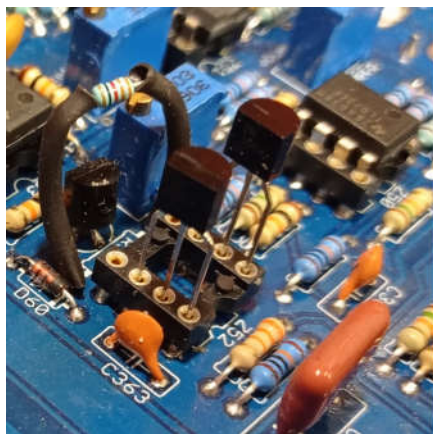
<http://analoguerealities.com/projects/transistor-matching/>

https://www.dragonflyalley.com/synth/images/TransistorMatching/ianFritz-transmat0011_144.pdf

Once selected a suitable pair of transistor will need to adapt to the LM394 socket pinout.



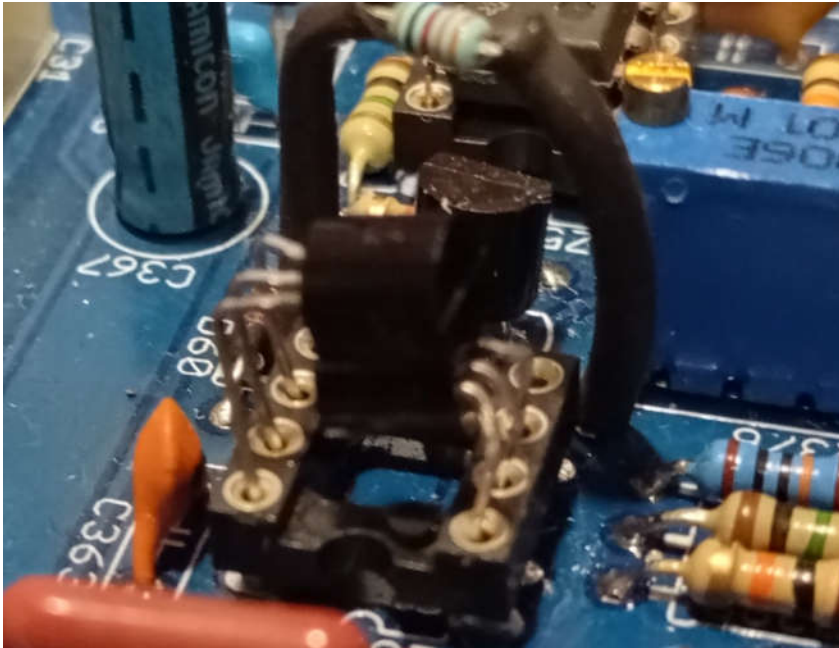
We are gonna use a pair of matched 2N3904 taking care of the pinout code. You can use a pair of BC547 just swaping the direction (3904 is EBC and 547 is CBE)



For make a thermal couple we must join the two capsules in that way and glue it.



Next step is bend the legs in that way to match the socket footprint.



And finally you can put the tempco on top of the transistor pair and use thermal grease to fill the empty space between two surfaces. You can use a plastic tie for keep it fixed in position. For prevent shorts with transistor legs use heatshrink at the tempco legs.