

SPEAKER PROTECTION (STEREO)
CODE 650 (LEVEL 2)

This speaker protector circuit is the circuit that can connect to OCL stereo amplifier since TR output is directly connected with speaker. Whenever the circuit is deficient, direct current will damage the speaker.

Specification:

- Supply voltage : 12 VDC
- Consumption : 60mA.max
- Dimension : 3.24 x 1.84 inches.

How it works:

TR2 and TR3 are not working when first giving power supply because the base of TR2 has no voltage. C2 will be changed through VR1 and R4. When C2 changing for 1.4 volt for 1-5 seconds, TR2 and TR3 are working by adjusting VR1. When firstly switching on the amplifier, there is a sound from speaker. C2 will delay time as mentioned above by having relay as connector. Whenever TR2 and TR3 are working, relay is working too and LED displays. Whenever over 4 volts direct voltage at input either left or right, TR1 will immediately work while the collector of TR1 is shorted to ground. It is making the base of TR2 has no voltage so TR1 and TR2 are not working, relay then will cut off speaker from amplifier and LED will not display.

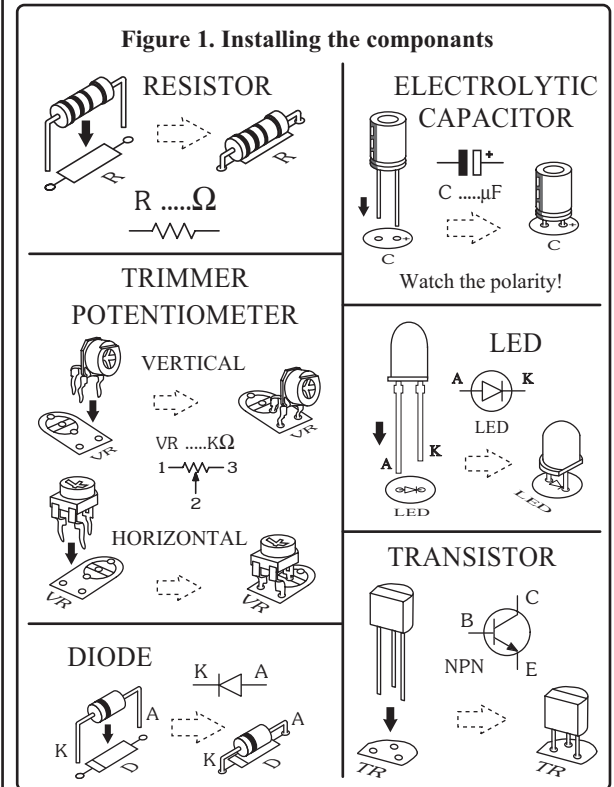
PCB assembly:

Shown in Figure 3 is the assembled PCB. Starting with the lowest height components first, taking care not to short any tracks or touch the edge connector with solder. Some tracks run under components, and care should be taken not to short out these tracks. If the pins will not enter the holes with ease, use a small drill to slightly enlarge the opening. All components with axial leads should be carefully bent to fit the position on the PCB and then soldered into place. Make sure that the electrolytic capacitors are inserted the correct way around. Some components are particularly sensitive to heat (ie: Transistors, IC's, diodes etc.) extra care must be taken to only apply the iron for as little time as possible, using a pair of pliers to grip the leads will help

conduct heat away. Trim components leads with wire cutters to prevent excess lengths causing a short circuit. Now check that you really did mount them all the right way round!

Testing:

Giving 12 volts power supply to the circuit. Connecting position pole at +12V, negative at G. 1-5 seconds later, LED displays and relay works according to variable resistor adjustment. Connecting +12V to L, LED will stop display as well as relay stop working. Taking +12V at L off, wait for LED to display, when LED displays. Connecting +12V to R, LED will stop display and relay stop working, take +12V at R off.



Troubleshooting:

The most problem like the fault soldering. Check all the soldering joint suspicious. If you discover the short track or the short soldering joint, re-solder at that point and check other the soldering joint. Check the position of all component on the PCB. See that there are no components missing or inserted in the wrong places. Make sure that all the polarised components have been soldered the right way round.

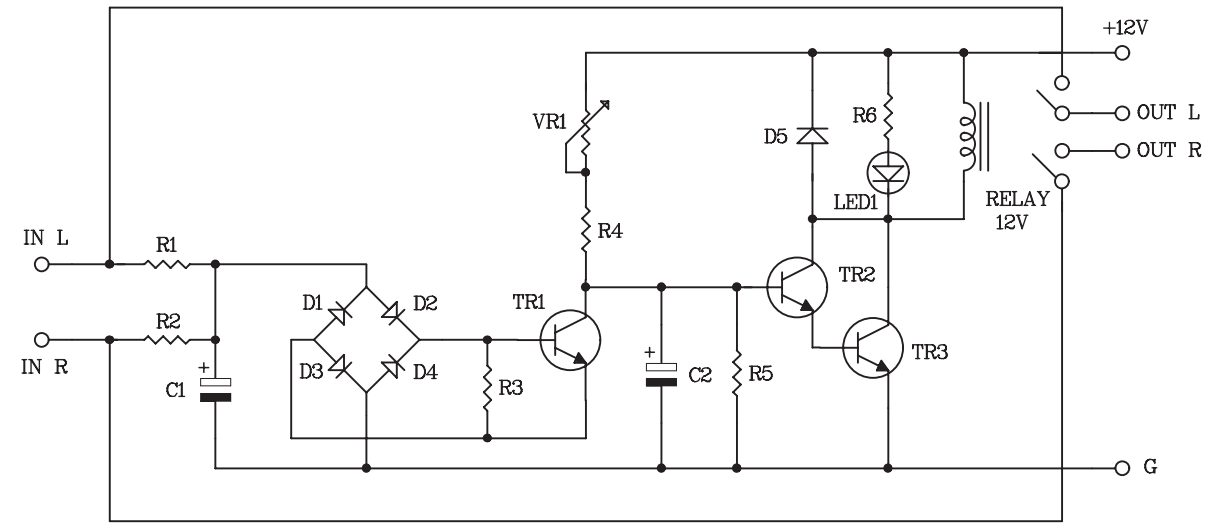


Figure 2. The speaker protection (stereo) circuit

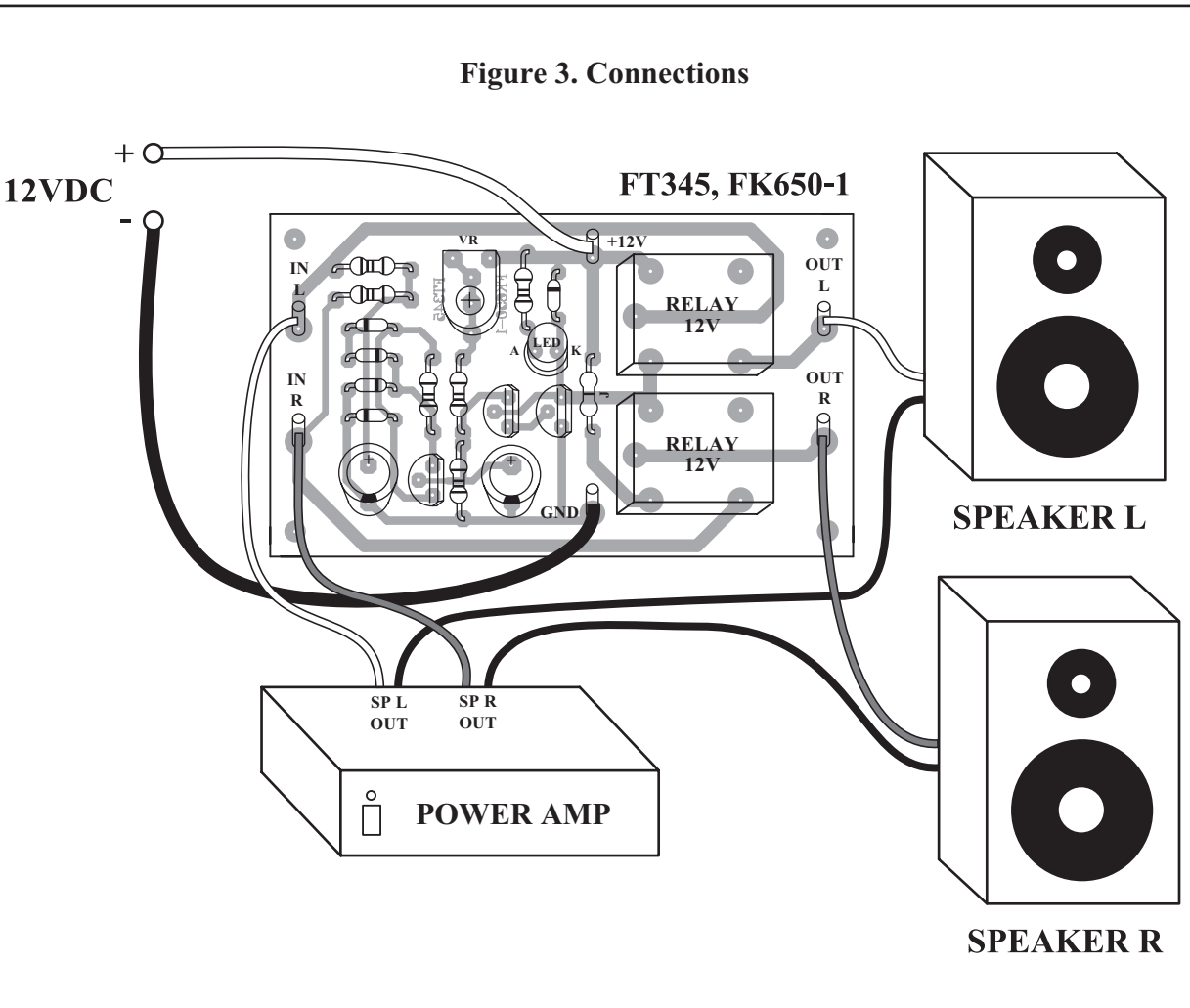


Figure 3. Connections