FUTURE KIT

HIGH QUALITY ELECTRONIC KITS

FUTURE KIT

POWER AMP. OCL 50+50W R1%

CODE 661 **LEVEL 3**

This circuit is the main amplifier which using a circuit the end stage is always set to class AB.

Specification:

- Power supply : +35VDC and -35VDC max. / more then 5A.
- Frequency response : 10 to 100 KHz (± 1dB)
- Input sensitivity : 1Vrms. - Input impedance : 15KΩ
- Output power : 50Wrms class AB @ 4 or 8Ω
- Total harmonic distortion : 0.02%
- Dimension : 4.50 x 1.78 inches.

How it works:

TR1 and TR2 are connected to be a differential ampere. TR3 function as the pre-drive. TR8 and TR9 work as the drive. TR10 and TR11 are output amplifier. TR4 is rectifier. TR5 and TR1 set the bias value to generate indolent current. TR6 and TR7 protect TR10 and TR11 from overcurrent. The whole circuit except the input is direct coupling. The input signal is transmitted through C1 to TR1 to be amplified controlling by TR2. The amplified rate is R10 divided with R5. The signal will be transmitted through the collector of TR1 to TR3. After that it is transmitted to TR8 and TR10 to amplify the plus input. TR9 and TR11 amplify the minus input. The amplified signal is transmitted throughout the speaker.

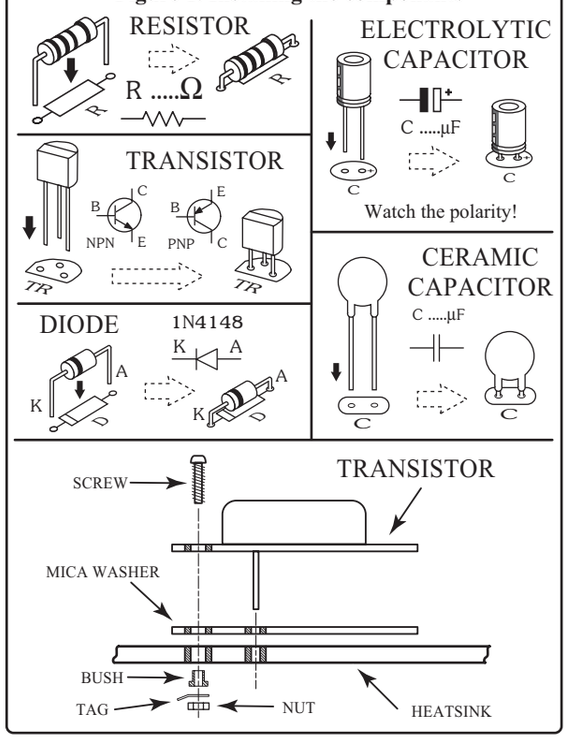
PCB assembly:

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:

Test the two sections separately. The circuit applies an adapter to convert 24-0-24 to be DC 35-0-35. At first adjust the volume to the middle and short the input to the ground. Connect the power supply into the circuit. If there is smell of burning, stop current distribution immediately. Measure the voltage at "SP" point that should not be more than 0.5 volt. Supposing there is no smell, connect the speaker to "SP" point and connect the INPUT point with signal input. After that adjust the volume and listen to the sound. For adjustment of indolent current, stop distribution the voltage and remove the speaker. Connect the input point to the ground. Remove the collector of TR 2N3055 and then measure the voltage by connecting the voltmeter's anode terminal at +35V and the cathode terminal at the collector of TR. Connect the power supply to the circuit. Adjust the current at VR1 to be 25-30mA. After that remove the power supply and then connect it again. The circuit applies a parallel adapter of 5A and a super tone control stereo. The two tone sections can charge the current from the amplified set that consists of +15V, G, -15V.

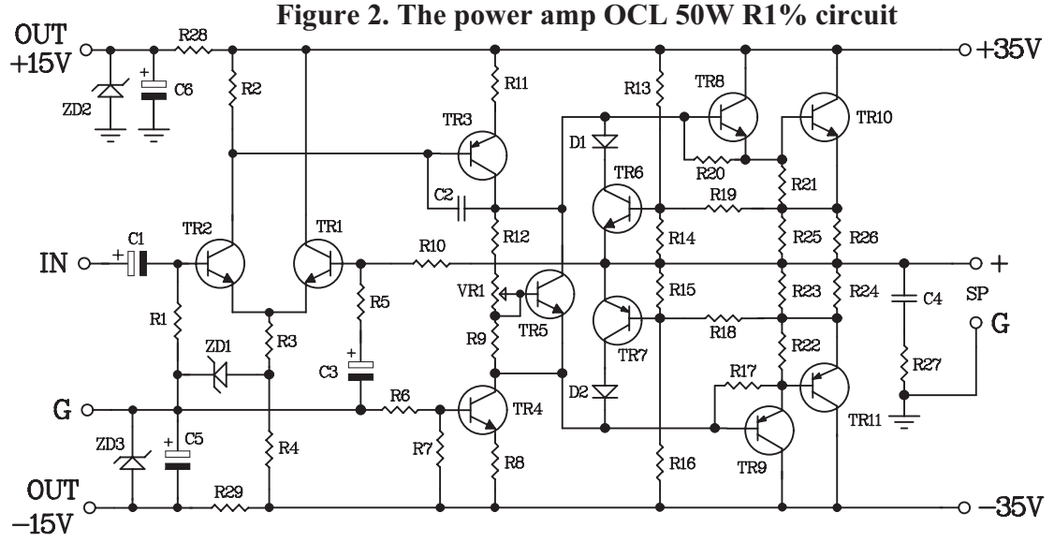
Figure 1. Installing the componants



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 power amp OCL 50W R1% circuit



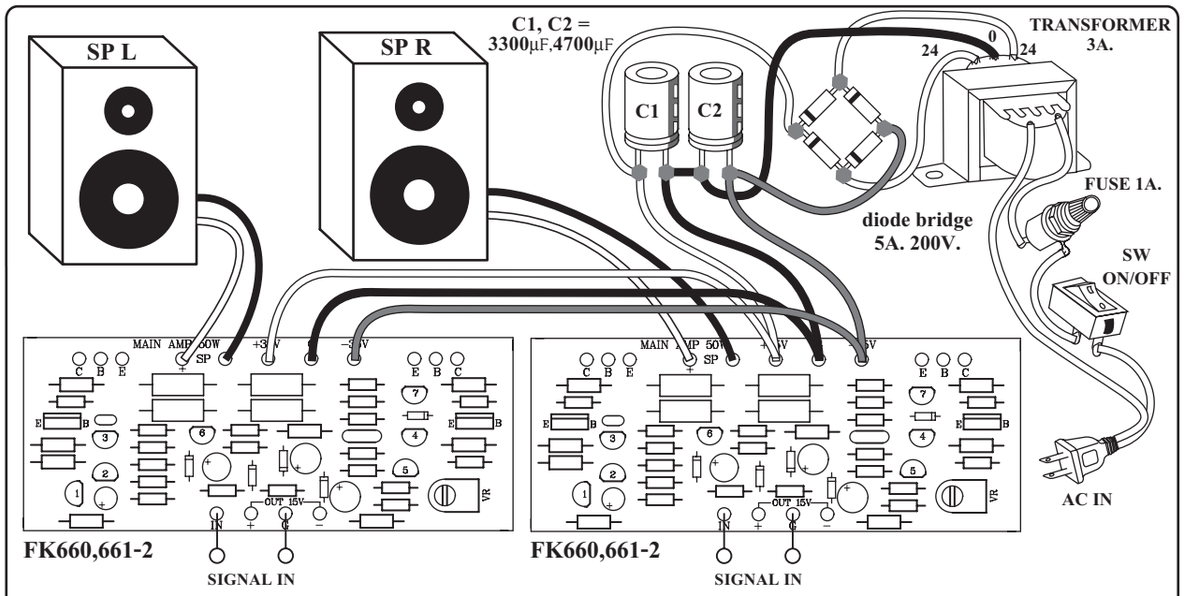


Figure 3. Connections