

KAA03021 15 Watt x 2 Class-D Audio Amplifier Kit
Rev 2.20



This amplifier kit uses Texas Instruments TPA3122D2 stereo audio amplifier IC, it has efficient Class-D operation which requires no heat sink when playing music. The amplifier operates on 10 to 30 Volts DC @ 1 Amp. This latest revision has on-board jumpers for selecting stereo or bridged mono operation.

What's Included in the kit:

- 1 - Quality PC Board
- 1 - TPA3122 Class-D Audio Power Amp IC
- 4 - 470ufd Electrolytic Capacitors
- 1 - 10ufd 35v Electrolytic Capacitor
- 2 - 10ufd 10v Ceramic Capacitors (106)
- 2 - 1ufd 50v Ceramic Capacitors (105)
- 2 - 0.68ufd 50v Ceramic Capacitors (684)
- 2 - 0.22ufd 50v Ceramic Capacitors (224)
- 3 - 0.1ufd 50v Ceramic Capacitors (104)
- 2 - 47k ¼ Watt Resistors (yellow, violet, orange)
- 3 - 4.7k ¼ Watt Resistors (yellow, violet, red)
- 1 - 10k Variable Resistor
- 2 - 22uh Inductors
- 1 - LED
- 1 - LED Spacer
- 3 - 2 Position Terminal Blocks
- 2 - Phono Jacks
- 4 - PCB Standoffs

What you will need:

1. Good quality soldering iron 25 – 40 watt
2. Solder tip cleaning sponge
3. Electronic grade rosin core or no clean solder
4. Diagonal wire cutter

Basic instructions:

Insert parts from top side (component side) of PC board.

Parts should be fully inserted, most parts will touch PC board.

If parts are polarity sensitive, double check your installation.

On some parts you can bend the leads after inserting to help hold them in place.

While soldering apply a small amount of solder to the solder tip to help with heat transfer.

Touch the soldering tip to both the component lead and PC board.

To improve your solder connection apply solder to part/PC board instead of solder tip.

The solder should flow around the component lead and on the PC board.

Avoid adding too much solder or too much heat.

Your solder connection should be shiny and smooth, not balled or grainy looking.

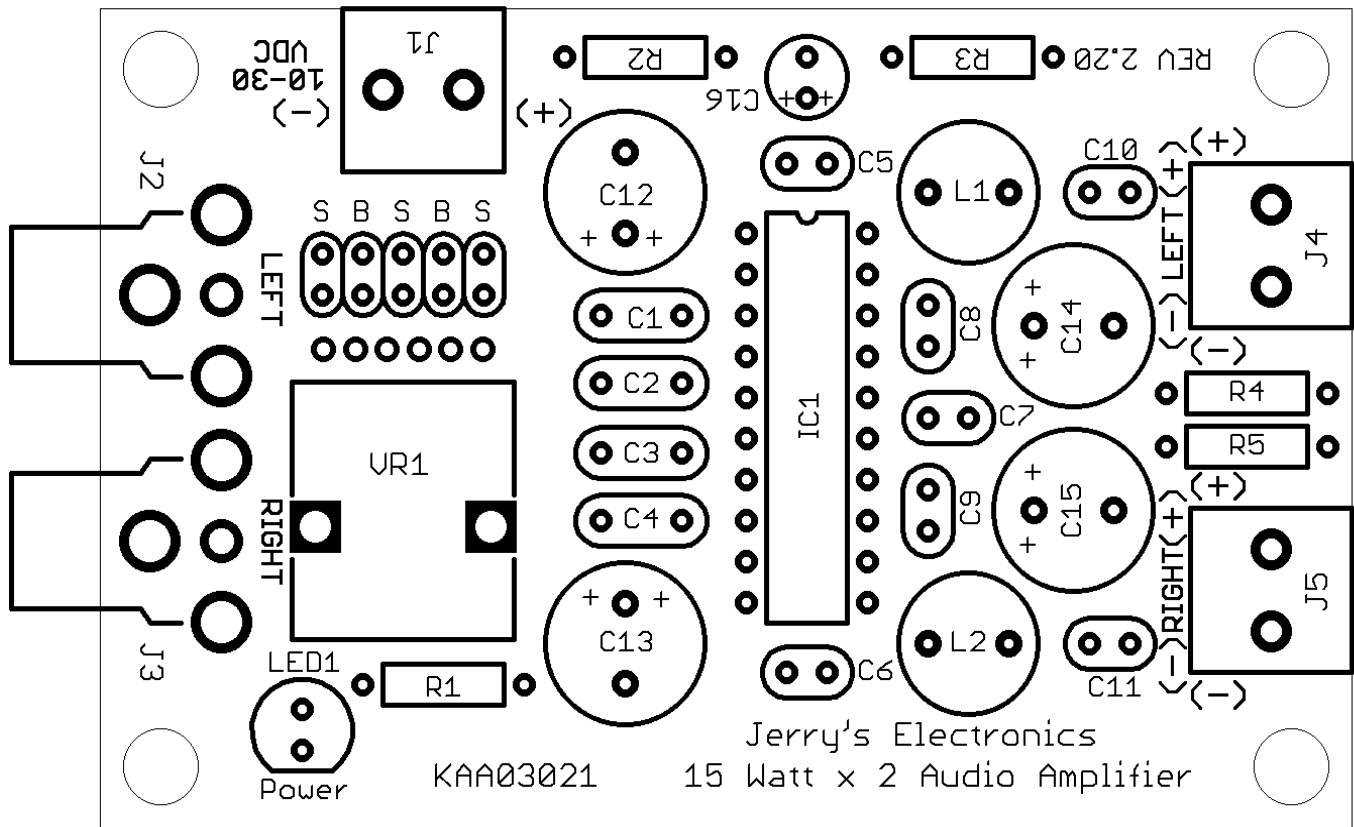
If your solder connection is grainy looking try adding some flux and reheat the joint.

Cold solder connections are the most common beginner mistakes.

Cold solder joints happen when the part lead and/or the PC board are not heated well.

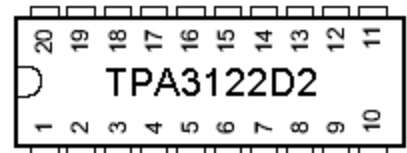
After soldering trim the component leads close to the solder joint.

For addition soldering information visit www.jerryselectronics.com



Stereo Operation Assembly - install parts in the following order:

1. R1,4,5 – 4.7k ¼ Watt Resistor (yellow, violet, red)
2. R2,3 – 47k ¼ Watt Resistor (yellow, violet, orange)
3. S Jumpers – install 3 - S jumpers using wires trimmed from resistors
4. IC1 – TPA3122 Class-D audio power amp ic (observe proper orientation, picture shows pin numbers from topside of ic)
5. C5,6,7 - 0.1ufd 50v Ceramic Capacitor (104)
6. C8,9 – 0.22ufd 50v Ceramic Capacitor (224)
7. C1,2 – 10ufd 10v Ceramic Capacitor (106)
8. C3,4 – 1ufd 50v Ceramic Capacitor (105)
9. C10,11 – 0.68ufd 50v Ceramic Capacitor (684)
10. C16 – 10ufd 35v Electrolytic Capacitor (observe proper polarity)
11. LED1 – LED and spacer, insert LED leads through spacer then through PC board (observe LED polarity) the spacer is used to prevent melting the LED when soldering.
12. J2,3 – Phono Jack
13. L1,2 – 22uh Inductor
14. J1,4,5 – Terminal Block (observe orientation)
15. C12,13,14,15 – 470ufd Electrolytic Capacitor (observe proper polarity)
16. VR1 – 10k Variable Resistor
17. PCB Standoffs



Bridged Operation Assembly: -- Same as stereo assembly except for:

Do not install C14, C15 and S jumpers.

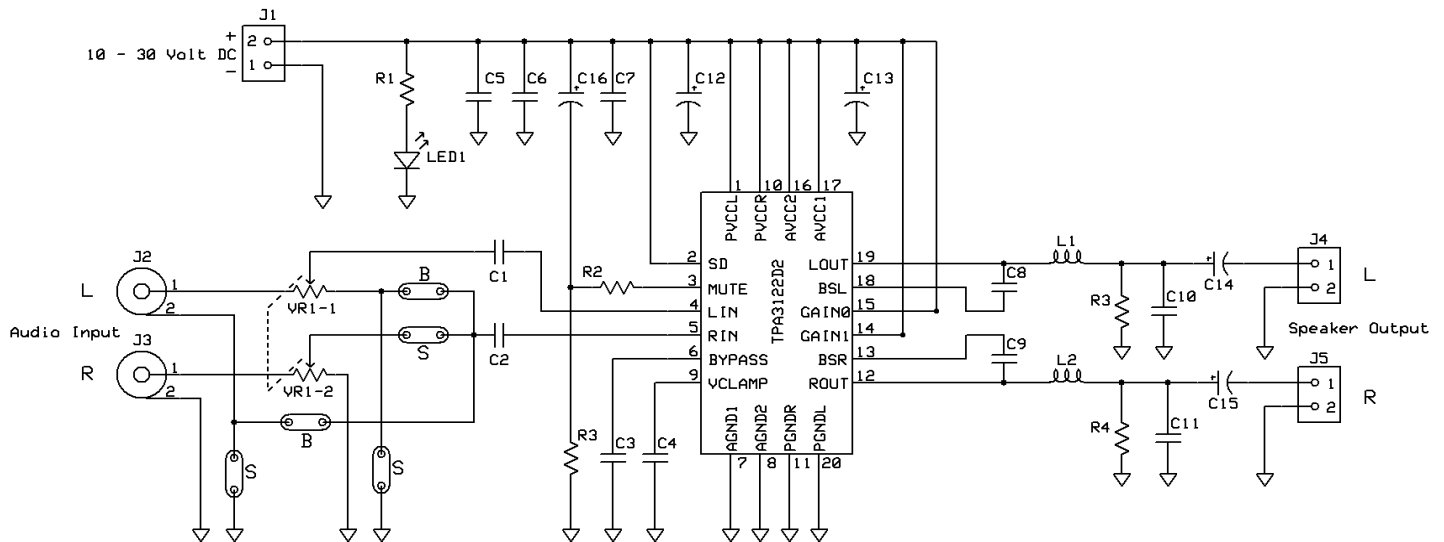
Install 2 - B jumpers, and jumpers in C14 and C15 locations.

Speaker must be connected across Left (+) and Right (+) terminals.

Assembly Tips: - visit jerryselectronics.com for additional tips

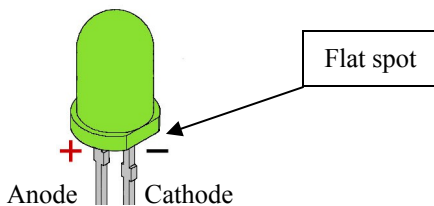
- Clean solder tip with sponge before each solder connection – not after, solder should be balled on end of iron when not using, this increases the soldering tip life.
- It is not recommend to use a IC socket on this kit, actually soldering the IC to the PC board acts like a small heat sink.
- Not everyone has a ESD Protected Area, here are some basic tips to follow:
 - a: Do not assemble kit on a carpeted work surface.
 - b: Do not assemble kit in low humidity environment (<40% RH = increased risk).
 - c: Avoid working/walking in carpeted areas.

Schematic:



Part Identification:

LED's
Flat or notched side indicates
Cathode or negative lead



Aluminum Electrolytic Capacitors



The (-) sign on this white stripe indicates the negative lead, the stripe can be any color.