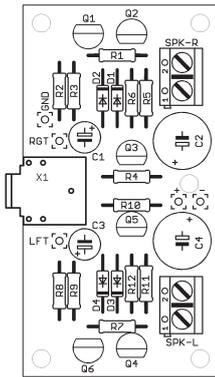




Low Power Audio Amplifier Kit

Code: 211-199



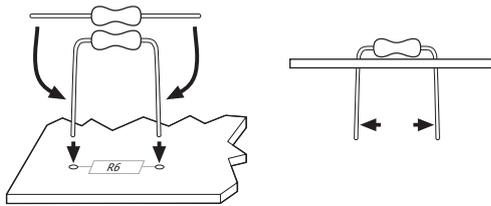
Resistors

To select the correct value, check the colour code in the table below. Use a multimeter to check the resistance if you are unsure (be careful when checking resistors more than a few kilohms, as the resistance of your skin could alter the reading).

Black	0	0	Black x1	Silver ±10%
Brown	1	1	Brown x10	Gold ±5%
Red	2	2	Red x100	
Orange	3	3	Orange x1000	
Yellow	4	4	Yellow x10,000	
Green	5	5	Green x100,000	
Blue	6	6	Blue x1,000,000	
Violet	7	7	Example:	
Grey	8	8	blue, grey, brown, gold	
White	9	9	= 680R ±5%	

Inserting components:

Axial components (like resistors and diodes) need to have their legs bent by 90 degrees. Insert component legs through the holes indicated by the legend on the circuit board. Be careful not to use too much force on fragile components. Bend legs slightly apart to keep component in place when turning over the circuit board for solder

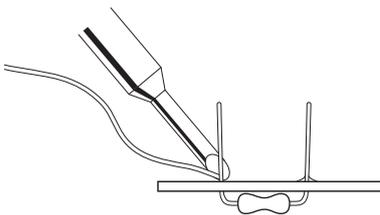


Qty	Value	Part Name
2	1.5 kΩ	R2, R8
4	2.2 Ω	R5, R6, R11, R12
2	5.6 kΩ	R1, R7
2	22 Ω	R3, R9
2	470 Ω	R4, R10

Soldering

Use a soldering iron not more than 40W power and ensure the tip is clean. Apply a small amount of solder to tin the tip. Use the soldering iron to heat up both the component leg and pad for about one second.

While keeping the soldering iron in place touch the end of the solder to the leg and iron, as the solder melts move the solder in ensuring it flows over the pad and component leg making a smooth joint.



Allow the solder to cool for a few seconds then snip off the excess component leg just above the solder joint. Periodically clean the tip on a damp sponge. Re-tin the tip before powering off your soldering iron.



Watch out for 'dry' joints, where the solder has not adhered properly to the leg or to the pad.

Diodes

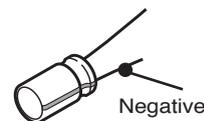
Diodes need to be inserted the correct way around. One end of the diode will have a stripe around the case, match this end to the stripe show on the circuit board.



Qty	Value	Part Name
4	1N4148	D1, D2, D3, D4

Capacitors

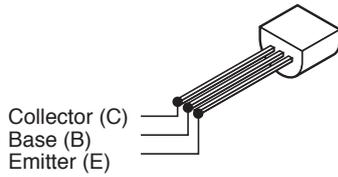
Electrolytic capacitors must be inserted the correct way round. The longer leg is positive and should be inserted into the hole marked with a + symbol on the circuit board. The shorter negative leg is usually marked with a stripe containing - symbols on that side of the capacitor.



Qty	Value	Part Name
2	2.2 μF	C1, C3
2	1000 μF	C2, C4

Transistors

To identify the correct transistor, match the code in the device column in the parts list to the text printed on the transistor casing. e.g. BC548. Ensure the flat side of the transistor matches up with the marking on the circuit board.



Qty	Value	Part Name
4	BC548B	Q1, Q3, Q5, Q6
2	BC558B	Q2, Q4

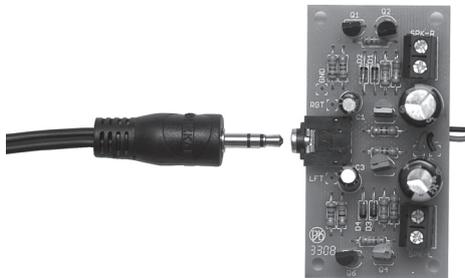
Connectors

When soldering the terminal blocks, ensure that the access hole for the speaker wire faces outwards from the circuit board. When soldering the battery connector leads, make sure the red wire goes to the pad marked with a + sign and the black wire to the pad marked with a - sign. Both leads can be looped through the hole next to the pads to prevent the wires breaking loose.

Qty	Value	Part Name
1	Stereo Jack	X1
2	Terminal block	SPK-L, SPK-R
1	PP3 Connector	+, -

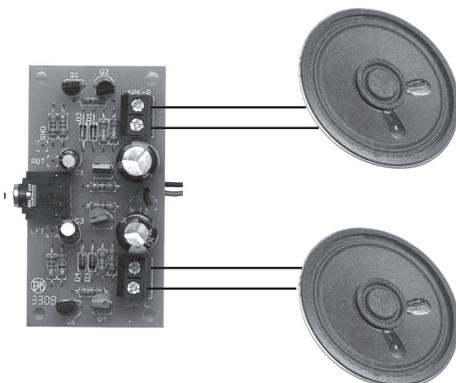
Input

3.5mm jack socket (stereo). To connect to an audio source (for example, an MP3 player), use a 3.5mm Stereo Jack to 3.5mm Stereo Jack cable.



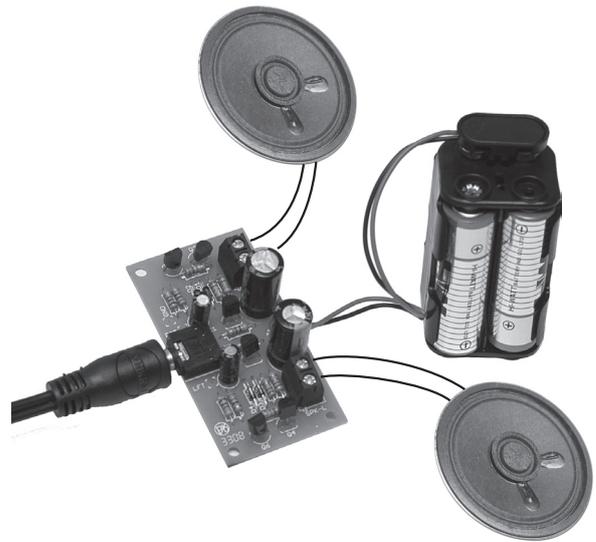
Output

Pair of two-way screw terminals for left and right speakers. Wire a 4Ω or 8Ω speaker to each terminal block. Both left and right speakers should be the same type.



Power Supply

Connect 6V to 12V via the PP3 connector. For example, a 9V PP3 battery, or a 4xAA battery box with PP3 connection.



Optional – Bypassing the Jack Connector

It is possible to bypass the jack connector and wire the input signal directly to the board. Three pads are available so a direct connection can be made:

GND	Ground
LFT	Left audio channel
RGT	Right audio channel

IMPORTANT NOTE: Under normal use, when no plug is inserted, the jack socket internally connects both left and right input channels to ground. This is a standard technique that prevents pick-up of unwanted noise. If the socket is to be bypassed two tracks must be cut so the inputs are not shorted to ground (see diagram). To prevent any damage to equipment, discontinuity should be verified with a multimeter (or other suitable device) before any connection to the amplifier is made.

