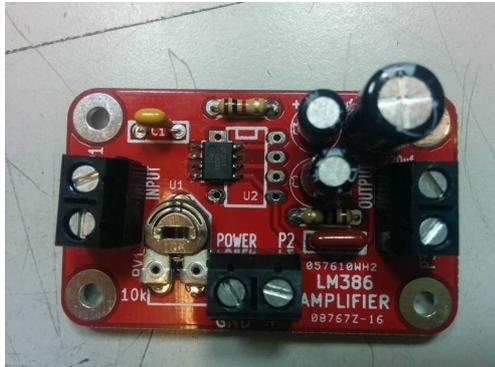


Mini Mono Amplifier Kit

Date:	25/03/15	Version:	1.0	By:	Matt Little
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This is a small 1W (max) mono amplifier kit based upon the LM386 IC.

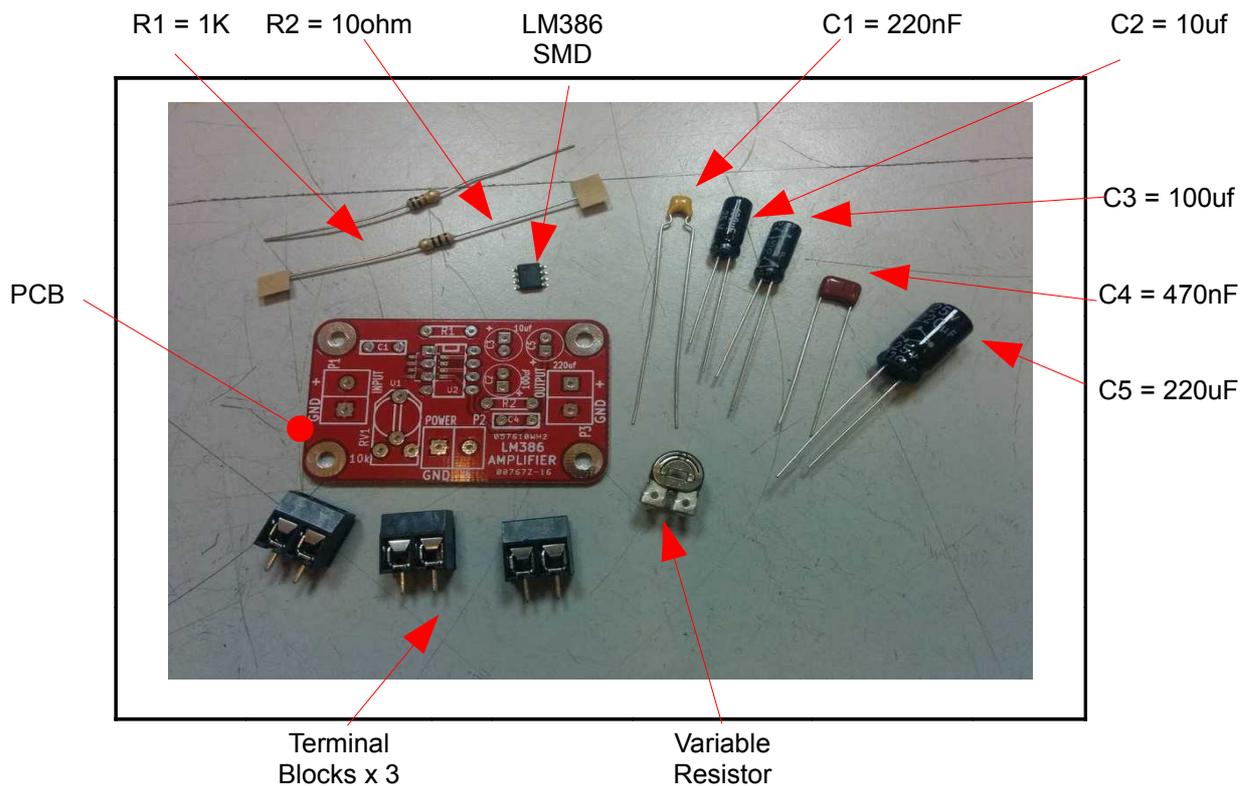
Datasheet: www.ti.com/lit/ds/symlink/lm386.pdf

It can amplify sound sources, such as MP3 players and phones. It can also be used to amplify sounds and beeps from a microcontroller.

It can be supplied by 4-12V DC and has a quiescent current of 4mA.

Note: This kit does NOT come with a speaker – use any small 4 or 8 ohm speaker up to 1W

Parts included:



Parts list:

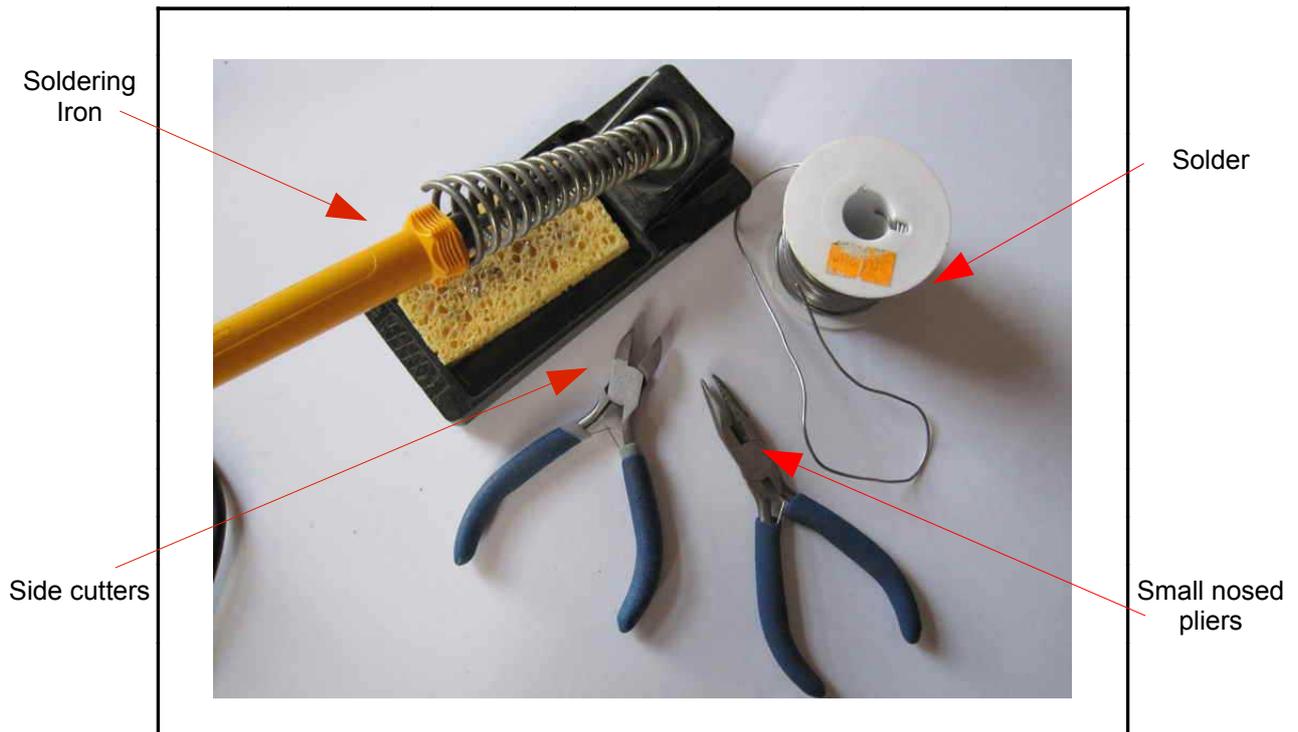
Reference	Description	Reference	Description
PCB	Circuit board	P1	Input 2 way terminal block
C1	22nF	P2	Power 2 way terminal block
C2	100uF	P3	Output 2 way terminal block

C3	10uF	R1	1k
C4	470nF	R2	10ohm
C5	220uF	RV1	10K
		U1/U2	LM386 (SMD or Through-hole)

You will also need (not supplied):

- A Speaker – 1W 8ohm will work well
- A Jack Plug – for the input

Tools required:



Instructions:

Step: 1 Solder the LM386 Surface Mount IC

Lets start with probably the most difficult soldering step. Its best to do this first, or the other components get in the way.

Adding flux to the pads helps this stage.

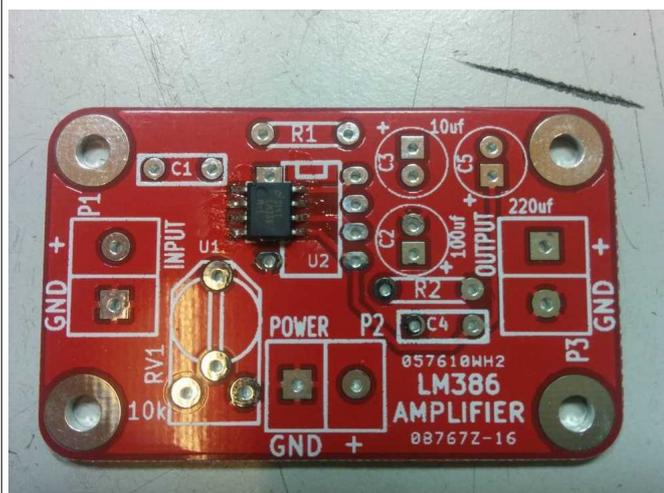
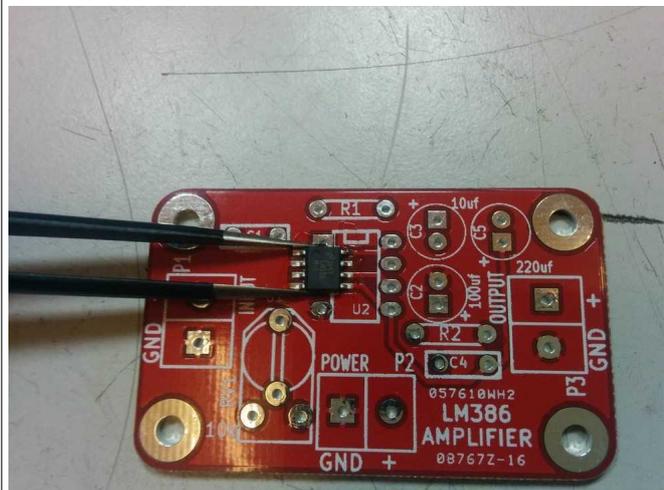
Holding the IC with a pair of tweezers align over the solder pads.

Ensure the correct orientation – the dot on the IC will be at the end with the notch on the PCB (towards R1).

Solder one pin on the corner of the IC. Ensure that the IC lines up with all the other pads. If you need to adjust it then heat the solder on the soldered pin and correct the IC.

Once it is aligned then you can solder the whole row of pins, starting with the other side to the already soldered pin.

You may need to remove any excess solder using some solder wick.

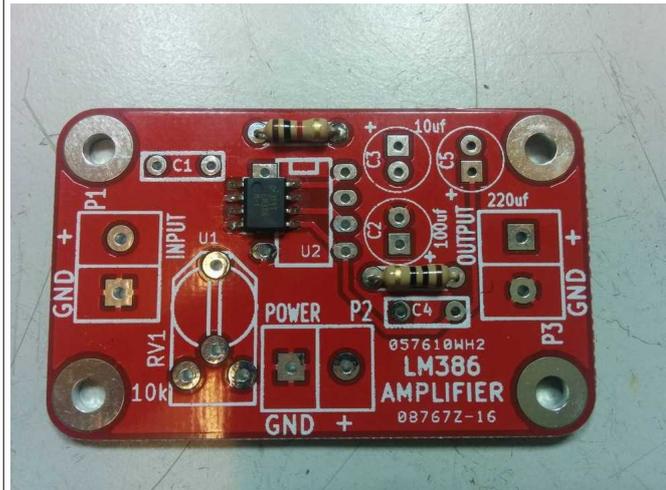


Step: 2 Solder the resistors

Identify all the resistors. You will have:

Quantity	Value	Part Reference
1	1k	R1
2	10	R2

Use the identify chart at the end of these instructions or a multimeter.
Solder into the relevant places.
Their orientation does not matter.



Step: 3 Solder the capacitors



Capacitors C1 and C4 can be installed in either direction.

Check the orientation on capacitors C2,C3,C5.

The white line on the side signifies negative side.

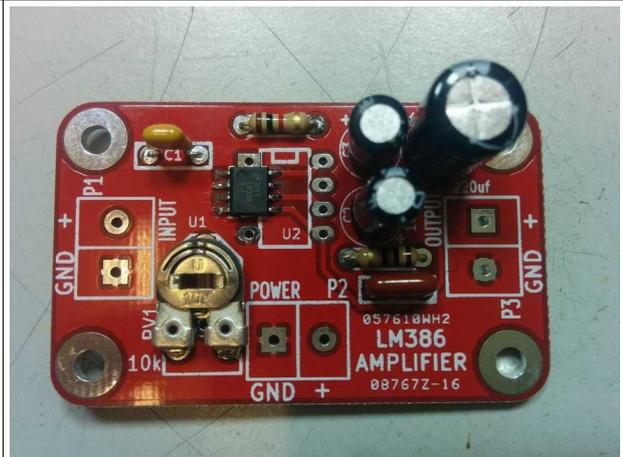
The round pad on the PCB signifies negative. The longer lead signifies positive. The square pad on the PCB is positive.

Identify and then solder in the capacitors.

Value	Ref	Photo
220nF	C1	
100uF	C2	
10uF	C3	
470nF	C4	
220uF	C5	

Step: 4 Solder the variable resistor

If required, three wires can be used to connect to a larger potentiometer – this is the volume control.

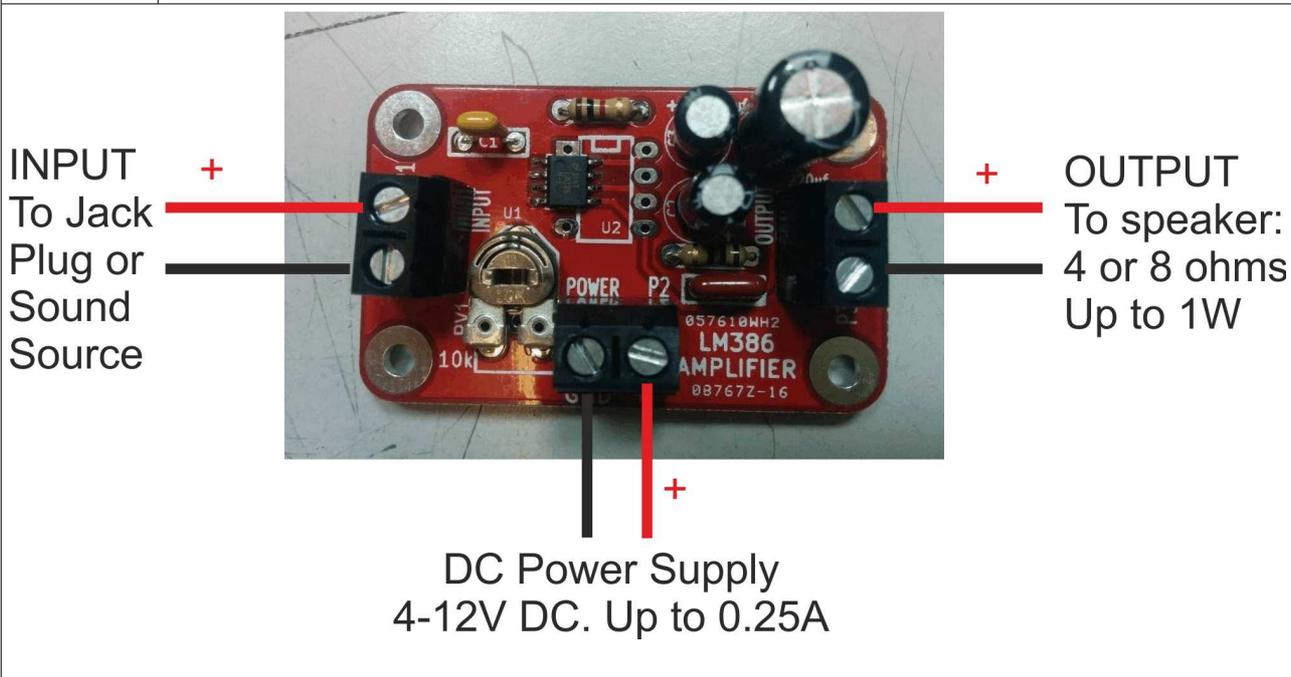


Step: 5 Solder the terminal blocks



There are three 2-way terminal blocks. These have the connections pointing away from the PCB, as we need to be able to connect wires in to them.

Step: 6 Wire it up and enjoy sounds!



Step: 15 Build is finished!

Have a nice cup of tea.



Contact details:

This kit has been designed and produced by:

Renewable Energy Innovation.

info@re-innovation.co.uk

www.re-innovation.co.uk

Hopkinson Gallery

21 Station Street

Nottingham

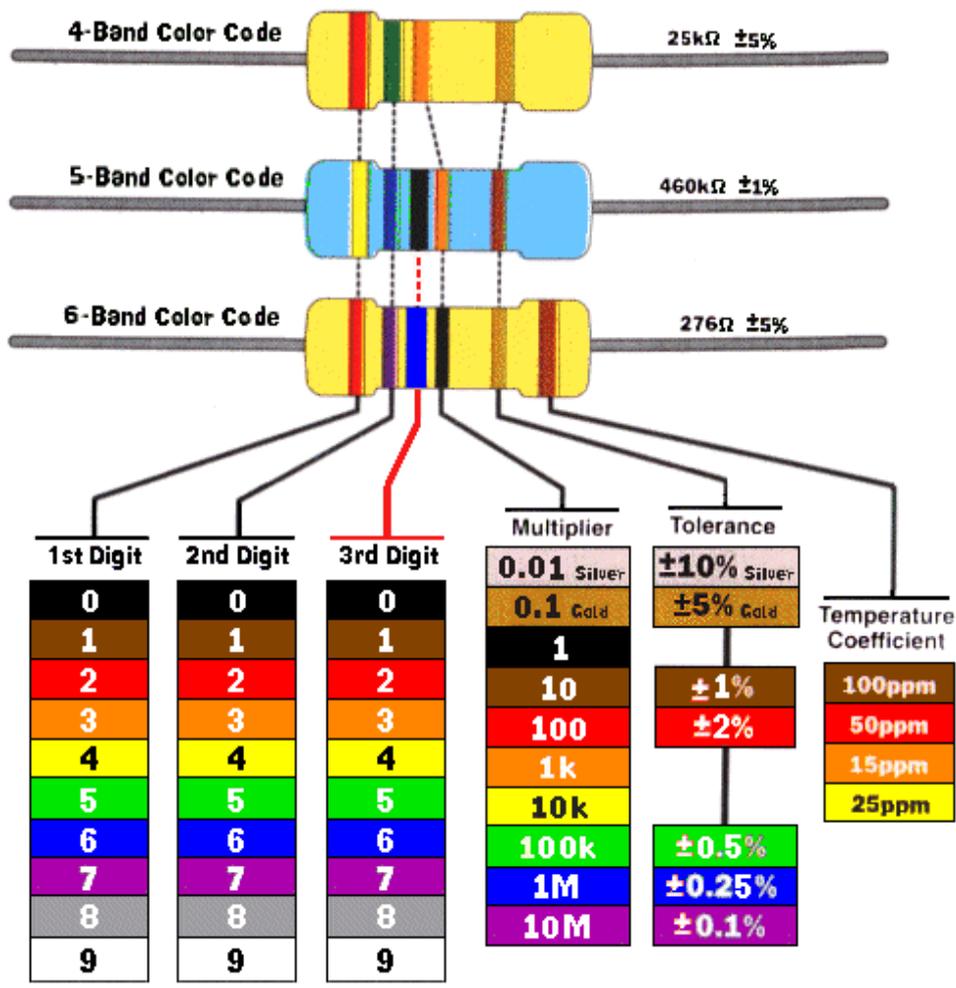
NG7 6PD

We would like you to be happy with this kit. If you are not happy for any reason then please contact us and we can help to sort it out. Please email info@re-innovation.co.uk with any questions or comments.
 If any parts are missing from your kit then please email info@re-innovation.co.uk with details, including where the kit was purchased.

More technical information can be found via www.re-innovation.co.uk.

Useful Information:

Resistor colour codes:



Circuit schematic:

