FREQUENCY CENTRAL
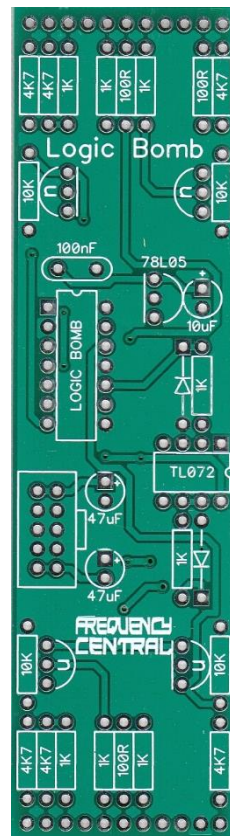
Build documentation for:

LOGIC BOMB

Boolean logic module featuring code by Jetroid

Main PCB	**Control PCB**

Logic Bomb is a Boolean logic module with two independent but identical sections. Both sections feature addressable Boolean logic, with any one of NOT A, NOT B, AND, NAND, OR, NOR, XOR and XNOR being chosen either via knob or via CV input. When addressed via CV, the knobs become attenuators. CV range is 0V to 5V.

Key to PCB screen print:
n: This signifies NPN BC547 transistors. Note the correct pinout as shown by the half circles.

Please observe the correct polarity for all ICs, voltage regulators, diodes and electrolytic capacitors.
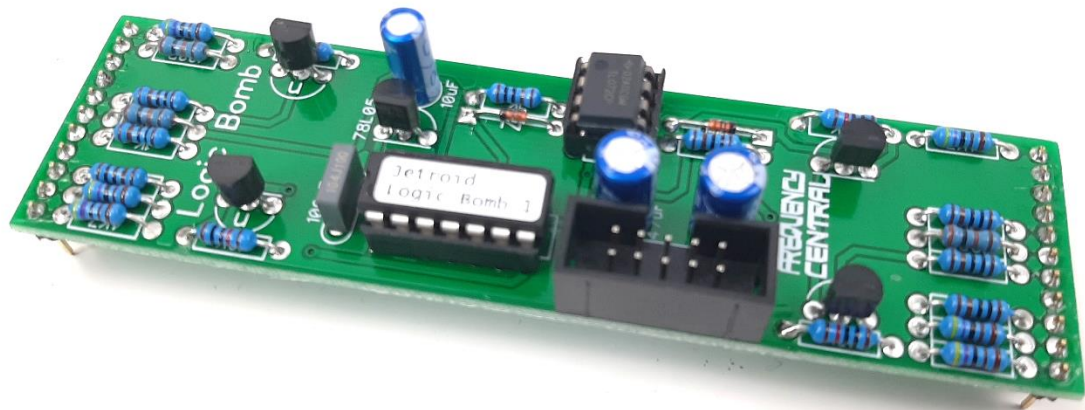
Bill of Materials

You will notice that all of the components listed below are also hyperlinks to where I buy each specific part from. You can also use the hyperlinks to find out more about what each component looks like. If you want to know even more, Google is your friend.

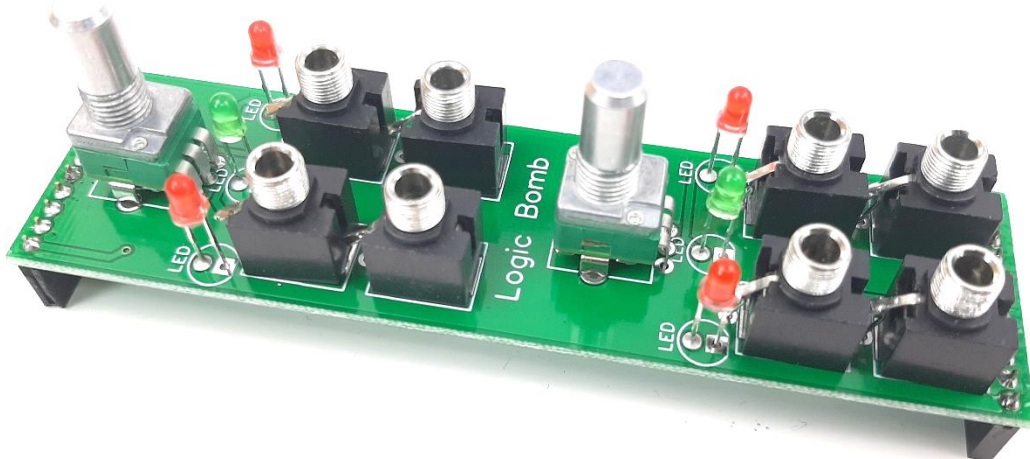| 100R x 3
1K x 8
4K7 x 6
10K x 4

All resistors ¼ watt metal film. | 100nF x 1
10uF x 1
47uF x 2 | **LOGIC BOMB PIC x 1**

TL072 x 1

BC547 x 4

1N4148 x 2

78L05 x 1

3mm red LED x 4

3mm green LED x 2

8 pin IC socket x 1

14 pin IC socket x 1 | B100K x 2 metal shaft

3.5mm socket x 8

Male header x 1 (cut to size)
Female header x 1 (cut to size)
Power header x 1

Knobs x 2 |

Main PCB assembly

1. Solder the diodes and all resistors
2. Solder the IC socket
3. Solder the non elecrolytic capacitor
4. Solder the 78L05 and BC547s– watch the polarities!
5. Solder the box power header. Make sure the notch lines up with the screenprint legend. If in doubt, have a look at a power cable, and make sure when inserted into the header the red stripe lines up with the -12V screenprint.
6. Solder all electrolytic capacitors
7. Cut male headers to size and solder them into place. Make sure that they stick out of the bottom of the PCB.

Control PCB assembly

1. Solder the 2 x metal shaft pots.
2. Solder the 8 x sockets. Use the panel to ensure these line up nicely. You can use cut off resistor legs to make the ground connections.
3. Cut female headers to size and solder them into place. Make sure that they stick out of the bottom of the PCB.
4. Solder the 6 x LEDs. Use the panel to ensure that these line up nicely

Bolt the metal shaft pots and the sockets to the panel using their nuts and washers. Pop the knobs on the pots and the caps on the sliders. Looks nice huh?

Calibration

1. There is nothing to calibrate on this module – cool!
2. It now would be logical to power up the module and patch.

Troubleshooting

Not all DIY builds work first time. The vast majority of build issues are down to soldering inconsistencies. This is far more likely than a bad IC, for example. The first step of successful troubleshooting should always be to reflow all soldering to eliminate any dry joints (bad connections) or solder bridges (short circuits). This is also an opportunity to closely inspect your work – you might find some unsoldered pads, or an IC not inserted into its socket, for example. Next steps are to double check all resistor values are correct, and to check polarities of all diodes, transistors, ICs and electrolytic capacitors. This is not an exhaustive troubleshooting guide, but should address 95% of build issues.

RDH 08/10/20

http://www.frequencycentral.co.uk/