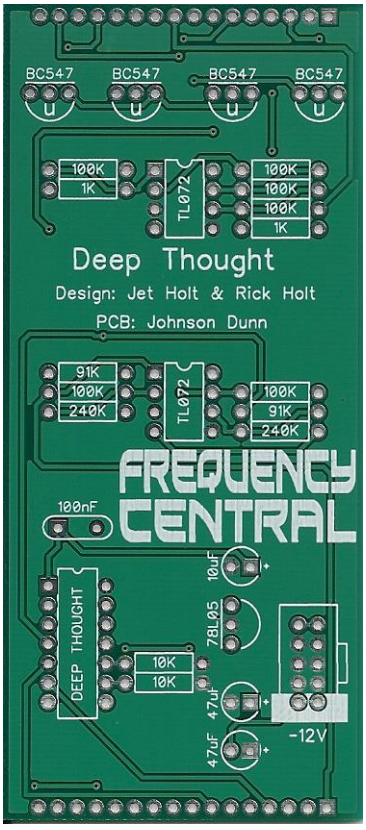
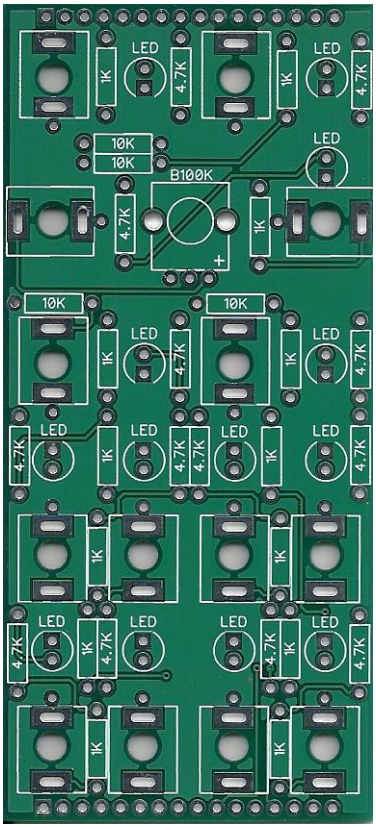
# FREQUENCY CENTRAL

Build documentation for:

# DEEP THOUGHT

Boolean Logic module featuring code by Jetroid




Deep Thought is a Boolean logic module with two distinct sections. The upper section features 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. The lower section features simultaneous outputs of NOT A, NOT B, AND, NAND, OR, NOR, XOR and XNOR.

**Key to PCB screen print:**

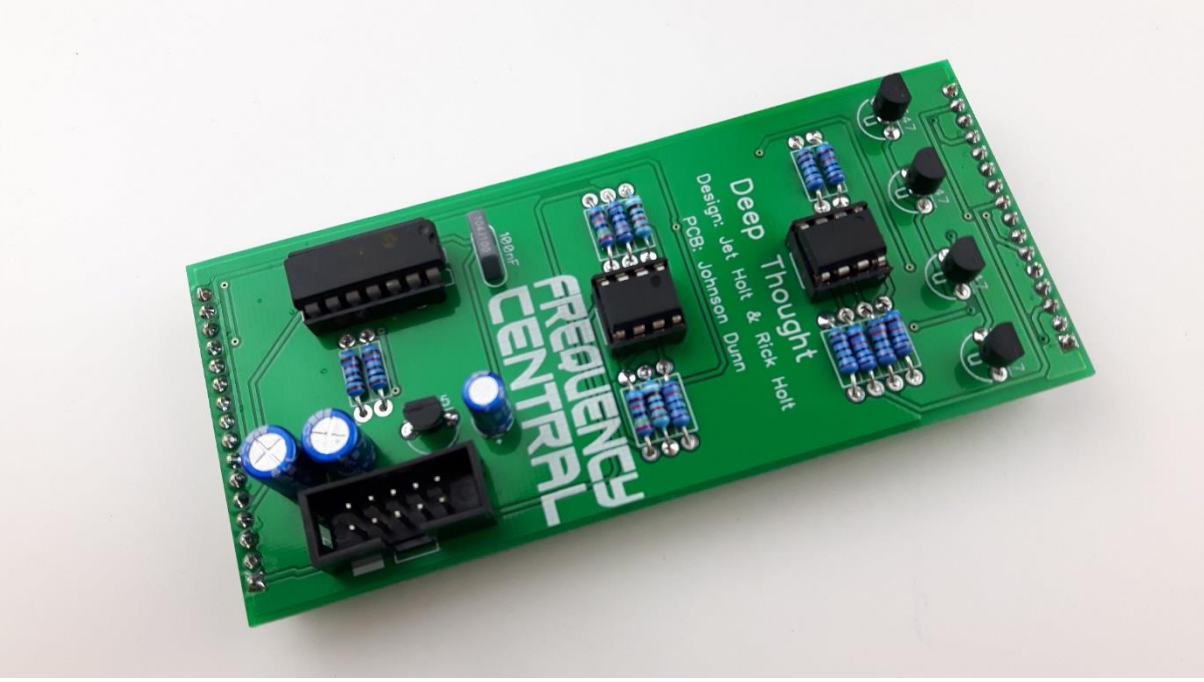
**n:** This signifies NPN BC547 transistors. Note the correct pinout as shown by the half circles.

The PCB shows the correct orientation for BC547. Other similar transistor types can be used, but please observe the correct pinout.

Please observe the correct polarity of the electrolytic capacitors.

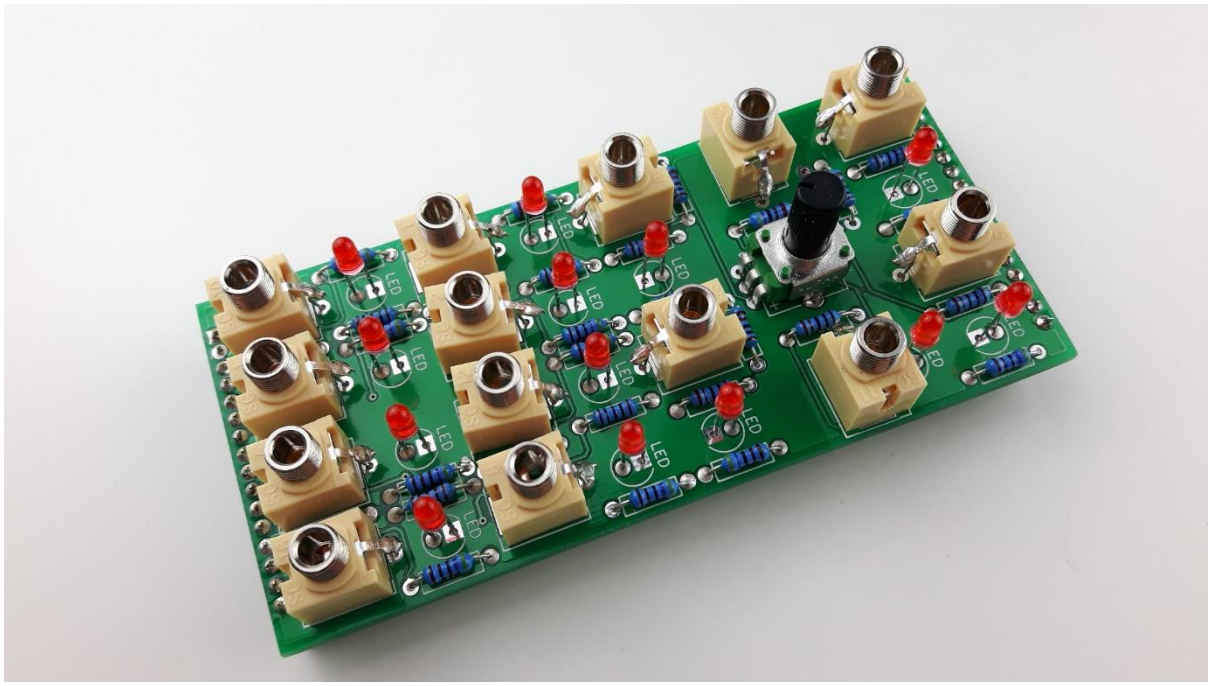
**Bill of Materials**

| | | | |
|---|---|---|---|
| 1K x 15<br>4K7 x 13<br>10K x 6<br>91K x 2<br>100K x 6<br>240K x 2<br>All resistors ¼ watt metal film. | 100nF<br>10uF x 1<br>47uF x 2 | Deep Thought PIC<br><br>TL072 x 2<br>BC547 x 4<br>78L05<br>3mm red LED x 13<br><br>8 pin IC socket x 2<br>14 pin IC socket x 1 | Alpha 9mm B100K x 1<br><br>3.5mm socket x 13<br><br>Male header<br>(cut to size)<br><br>Female header<br>(cut to size)<br><br>Power header<br>(cut to size)<br><br>Knob x 1 |




**Main PCB assembly**

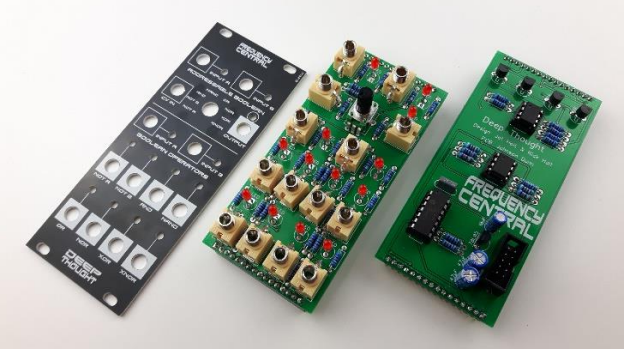
1. Solder all resistors
2. Solder all three IC sockets
3. Solder the 100nF capacitor
4. Solder all four transistors and 78L05 – watch the polarity!
5. Solder the power header.
6. Solder all electrolytic capacitors
7. Cut male headers to size and solder them into place. Make sure that they stick out of the bottom of the PCB.



**Pots ‘n’ sockets PCB**

1. Place all sockets on the PCB, making sure the ground tabs line up with the PCB’s ground pads – be careful here as there are four different orientations - then place the panel over them. This will assure that the sockets are correctly positioned. Flip the whole lot over and solder the sockets into place.
2. Use cut off resistor legs to connect the sockets’ ground tabs line up with the PCB’s ground pads.
3. Solder the potentiometer in place
4. Cut female headers to size and solder them into place. Make sure that they stick out of the bottom of the PCB.
5. Put all thirteen LEDs through their pads – be careful here as there are two different orientations. Present the panel to the PCB, flip the whole lot over, make sure the LEDs stick though the holes in the panel, solder in place.

There’s no calibration to do! **But – make sure that you plug the main PCB into the pots ‘n’ sockets PCB the right way around!**

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