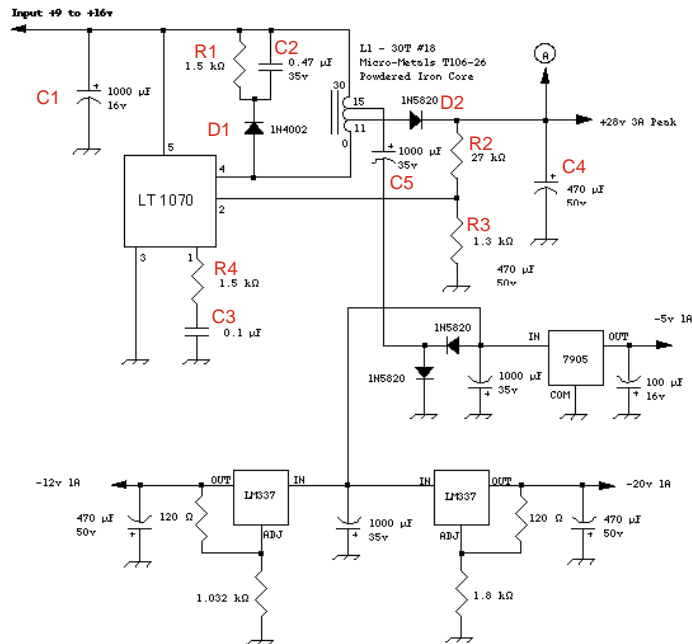
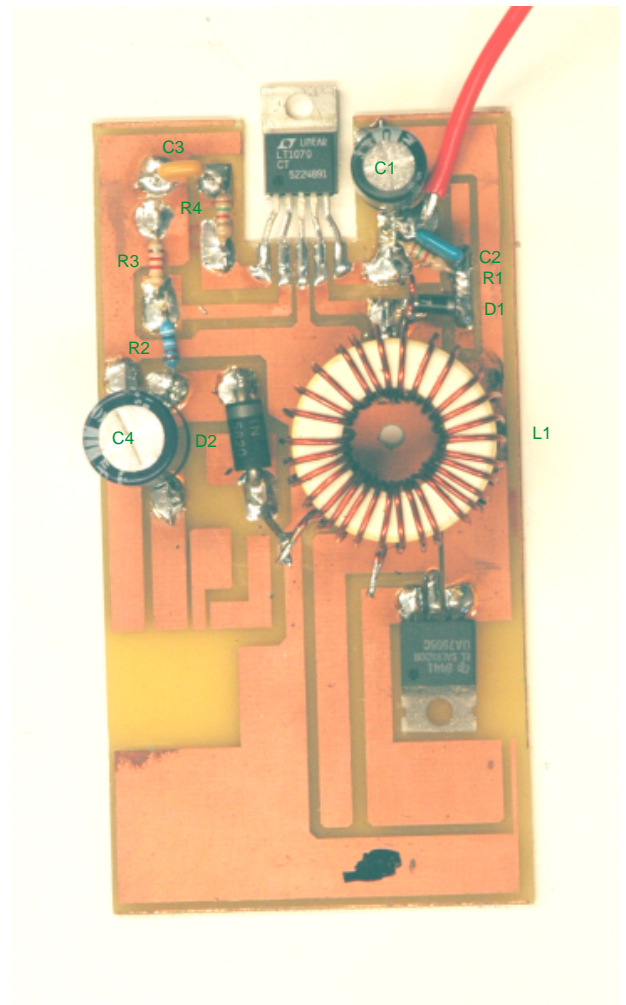
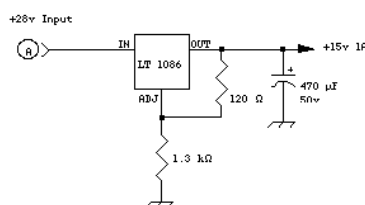


COPPER FOIL SIDE



WA6CGR - 4/8/95  
DC/DC Converter  
Input = +9 to +16v  
Outputs:  
+28v @ 2A  
+15v @ 1A  
-5v @ .5A  
-12v @ .5A



## Notes on LT1070/1268/1270 switching power supply circuit by WA6CGR:

1. The previous page shows the circuit pattern, pattern with parts overlay, schematic with parts labeled and a photo of one of my boards. The WA6CGR webpage lists the toroid as wound with 30 turns of # 18 wire, but it is a tight fit with #18. I've wound several with # 20 wire. Unless you need 5 amps out of the supply, you can use # 20 on the T-106-26 toroid with no problems. I have also built a few versions of this circuit with # 22 and # 24 wire wound on smaller cores (T-68-26 and T-50-26 cores). My boards are 2 X 4 inches.

2. I did not include the circuitry for the negative voltage supplies on my board. I still haven't determined the best parts placement for these circuits but it probably involves chopping up the copper strip shown as a connection for the 15-turn tap point on my circuit layout..

3. The formula for output voltage based on values of R2 and R3 is:

$$V_{out} = 1.244[1+(R2/R3)]$$

or

$$R2 = R3[(V_{out}/1.244)-1]$$

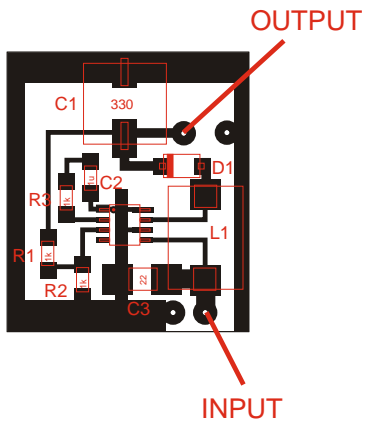
4. Although the LT1268 and LT1270 operate at higher frequencies and could use smaller inductors, I have used these devices in the same circuit with the same inductor as used with the LT1070 with no problems. You could calculate the optimum inductor values using the formulas found in the Linear Tech Application Note AN-19 available at their website <http://www.linear.com>

5. This circuit and the ones on the following pages are BOOST supply circuits. You cannot use them to produce output voltages lower than the input voltage. The above application note and the data sheets for the LT1070 and LT1072 show circuits for voltage buck supplies.

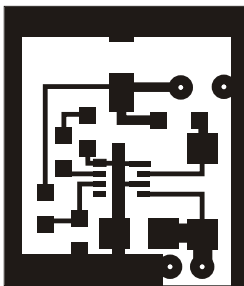
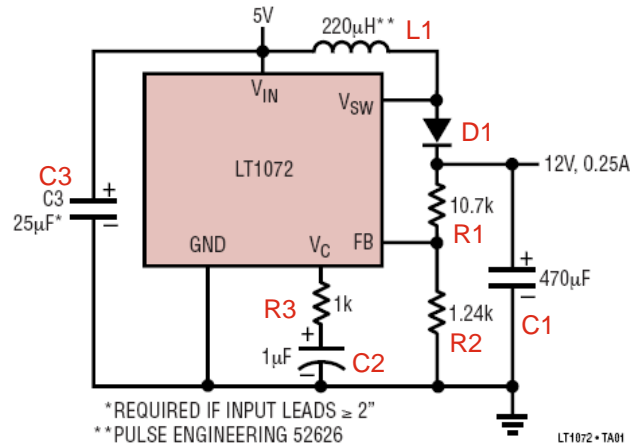
Zack W9SZ

w9sz@prairienet.org

LT1072 switching supply circuit version 1 (uses LT1072CS-8 8-SOIC IC).

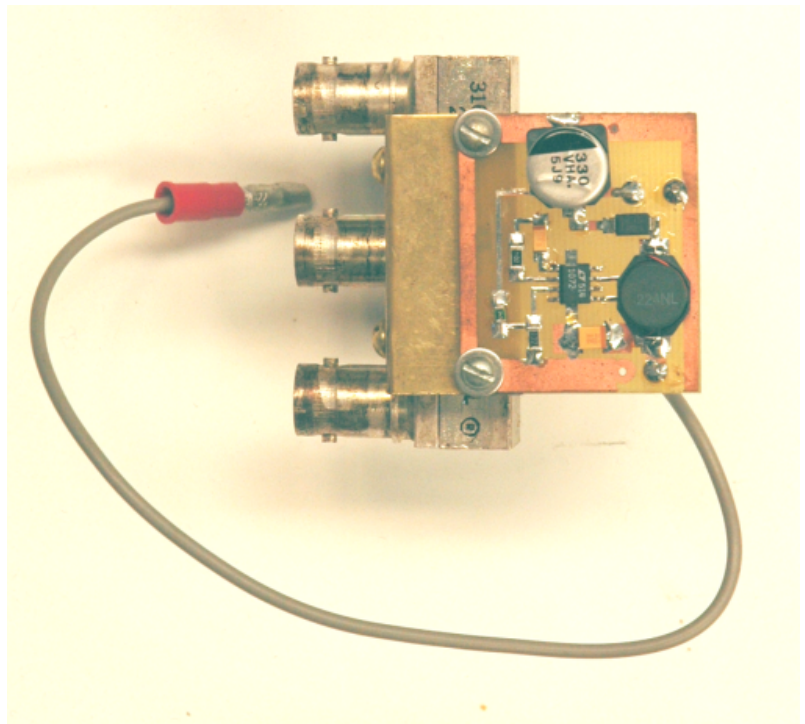


### Boost Converter (5V to 12V)



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1.0 inch



Notes on LT1072 switching power supply circuit:

1. The previous page shows the circuit pattern, pattern with parts overlay, schematic with parts labeled and a photo of one of my boards.

2. The formula for output voltage based on values of R1 and R2 is:

$$V_{out} = 1.244[1+(R1/R2)]$$

or

$$R1 = R2[(V_{out}/1.244)-1]$$

3. These are the parts I used:

C1 - 330 uF, Digi-Key part number PCE4245CT-ND

C2 - any 1 uF capacitor in a 1206 or "A" case

C3 - 22 uF in a "B" case

L1 - Digi-key part number 553-1069-1-ND.

D1 - Digi-Key part number RS1J-FDICT-ND. Any fast switching diode in an SMA case such as Digi-Key part number ES2DA-FDICT-ND should also work.

R1 - standard chip resistor in 1206 case.

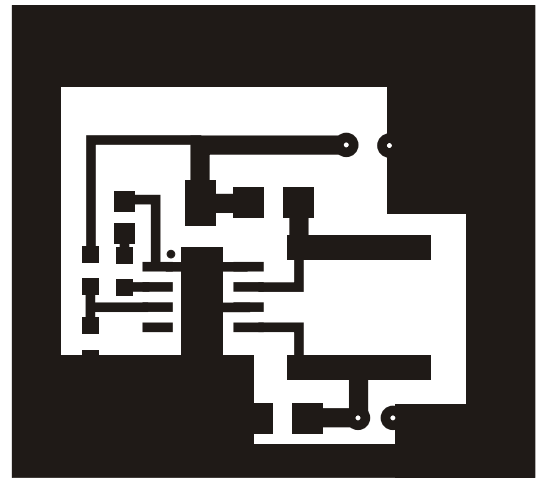
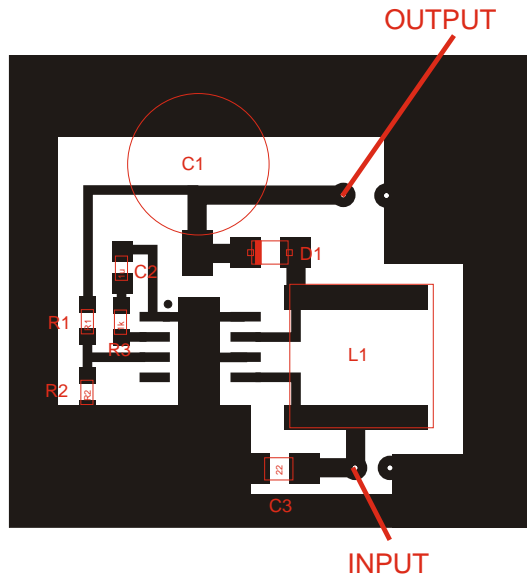
R2 - standard chip resistor in 1206 case.

R3 - standard chip resistor in 1206 case.

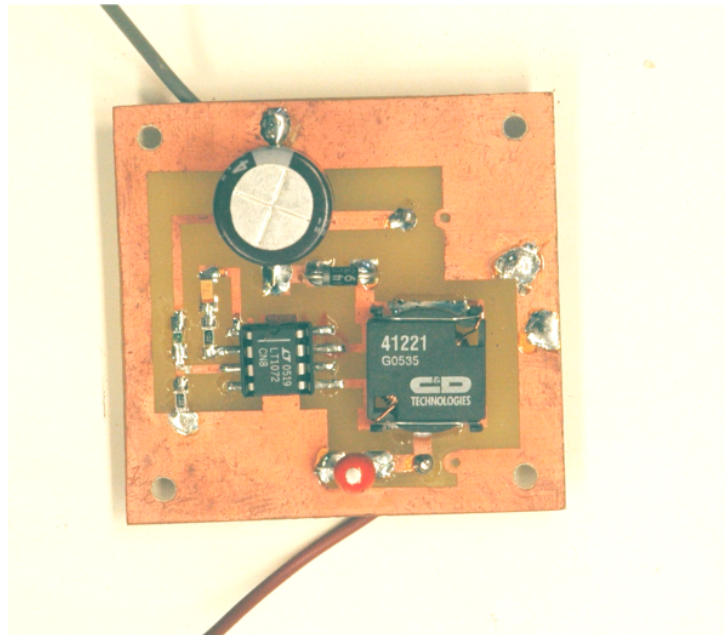
In the photo of the board on the BNC relay on the previous page, R1 is 24 k ohms and R2 is 1200 ohms to produce an output voltage of 26 volts.



LT1072 switching supply circuit version 2 (uses LT1072CN-8 8-DIP IC). Circuit is the same as version 1.



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Parts I used:

C1 - junkbox 470 uF electrolytic

C2 - any 1 uF capacitor in a 1206 or "A" case

C3 - 22 uF tantalum electrolytic

L1 - Mouser part number 580-41221.

D1 - I used a 1N4936. I bent the leads down and under the diode to solder to the board.

R1 - standard chip resistor in 1206 case.

R2 - standard chip resistor in 1206 case.

R3 - standard chip resistor in 1206 case.

Note I surface-mounted an 8-pin DIP socket for the LT1072CN8 by bending the leads straight out from the body and soldering them to the board.