

Description: 50 mA NIXIE TUBE POWER SUPPLY

OGI LUMEN provides this heavy lifter high voltage switch mode power supply pre-assembled.

It is currently offered in a 50mA output version, adjustable from 150 to 220 VDC, from a 9 to 16 VDC source. There is sufficient power produced by one **NIXIE TUBE POWER SUPPLY** to drive twelve **NIXIE DUO** boards (twenty-four IN-12A nixie tubes). Our **12 VOLT AC/DC ADAPTER** will easily drive this nixie tube supply.

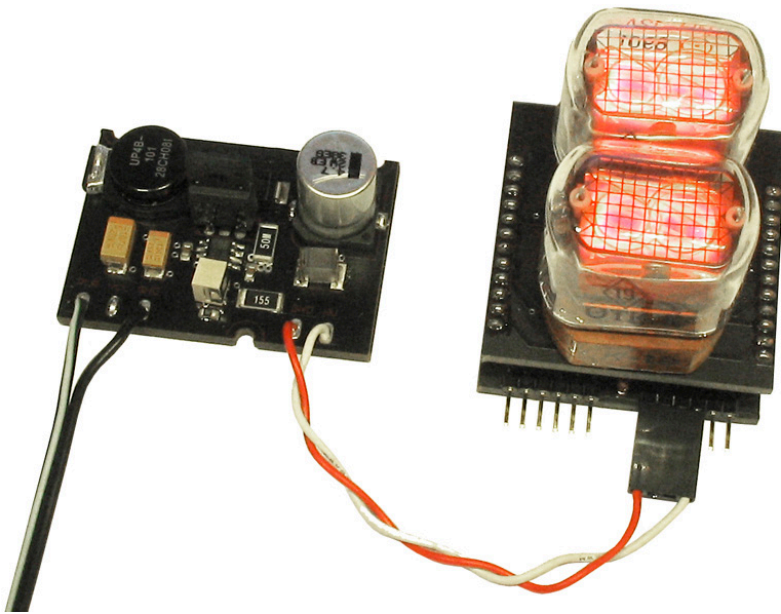
Such a friendly package to get your nixies firing. Extra special thanks to **Nick de Smith**.

Dimensions: 2 x 1.625 x 0.8125 inches (51 x 42 x 21 mm)

Weight: 0.67 oz (19 g)

A typical nixie tube power supply offers 170 to 250 VDC at 10 to 50 mA. A switch-mode power supply is desirable for this application for its small footprint, efficient and, therefore, cool solid state operation. This switch mode supply is a boost converter, for which there is no simple linear equivalent. The schematic below is taken directly from the **MAX1771 datasheet**, however, because of the large voltage jump from input to output, board layout and low ESR type components are critical.

If the input to the *PWR* connection is greater than 16 VDC, use an alternate supply for *Vcc*, i.e. a 12 VDC input via a 7812 regulator.

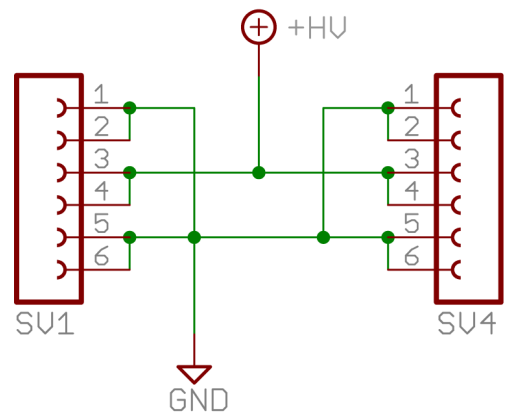
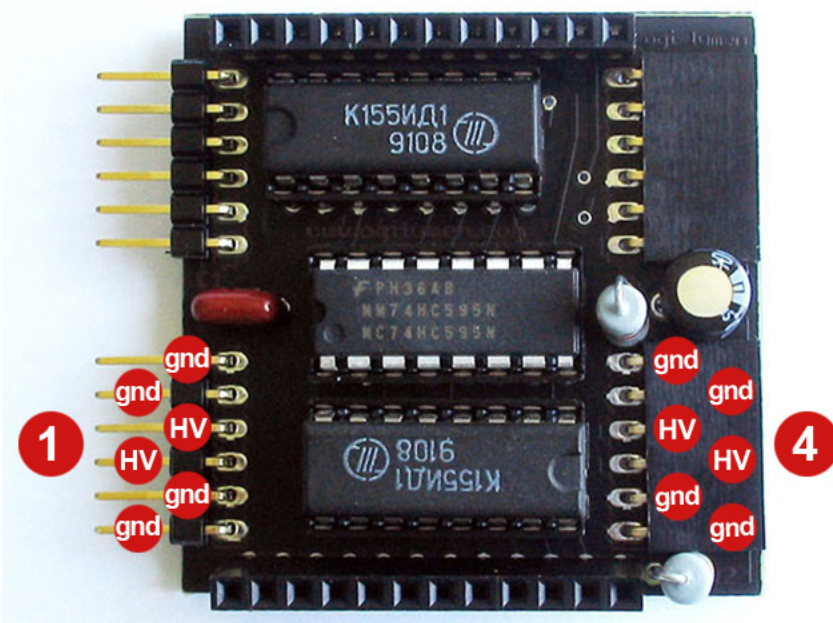


If you are connecting the **NIXIE TUBE POWER SUPPLY** to a **NIXIE DUO**, here is a simple test set-up. Refer to the edge markings on the printed circuit board. For main *PWR* input voltages supplied to the **NIXIE TUBE POWER SUPPLY** that are *lower* than 16 volts DC, you can connect the *PWR* and *Vcc* inputs together. For main *PWR* input voltages supplied to the **NIXIE TUBE POWER SUPPLY** that are *higher* than 16 volts DC, you'll need to insert a regulator (i.e. 7812 – not supplied) to provide 12 volts DC to the *Vcc* input.

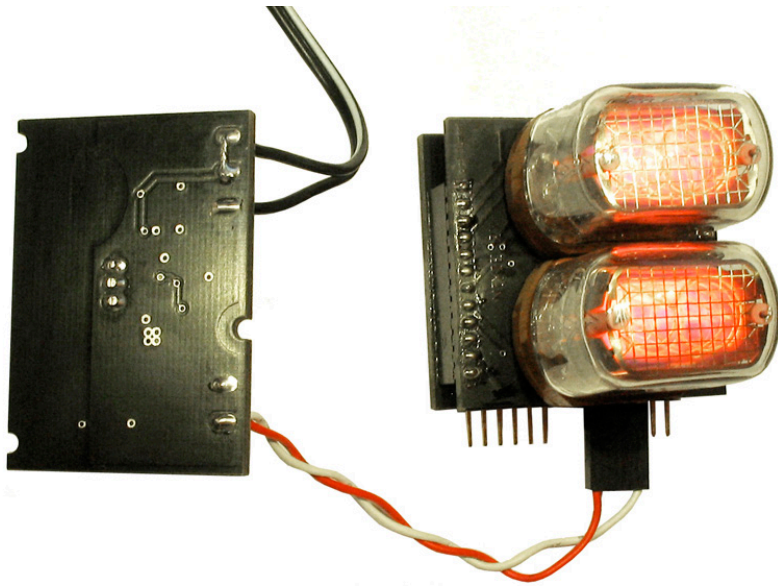
When using the **12 VOLT AC/DC ADAPTER**, for example, the *PWR* input and *Vcc* input should be connected with a short jumper wire.

Note that the positive lead of the **12 VOLT AC/DC ADAPTER** has a white stripe. This positive lead should be inserted into the input marked *PWR*. Attach the negative side of the input power to *GND*. (Note that both *GND* connections on the printed circuit board are common, i.e. they are connected to each other.)

The *HV* and *GND* labels on the **NIXIE TUBE POWER SUPPLY** correspond to *HV* and *gnd* on the **NIXIE DRIVER** board. The photo above shows the red *GND* lead travelling to pin 1 of SV1 (*gnd*), and the white *HV* lead travelling to pin 4 of SV1 (*HV*).



For SV1 and SV4, pins 1, 2, 5, and 6 are all connected to *gnd*. Only pins 3 and 4 carry the high voltage required by the nixie tubes, and to all connected **NIXIE DUO** pairs.

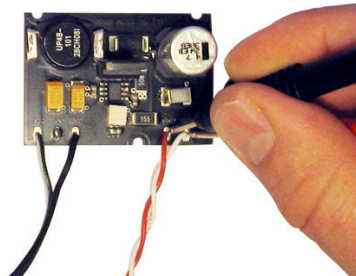


Now that you have power supplied to the **NIXIE DUO** and **NIXIE DRIVER** board, you should see all the elements in both nixie tube digits illuminated. You will notice that you are unable to read any one digit of either of the nixie tubes.

A microcontroller is required to take full advantage of the **NIXIE DRIVER** shift register chain. The **NIXIE DRIVER** permits a microcontroller (**Arduino**, etc.) to address two nixie tube digits, and via this shift register chain, multiple pairs of nixie tube digits.

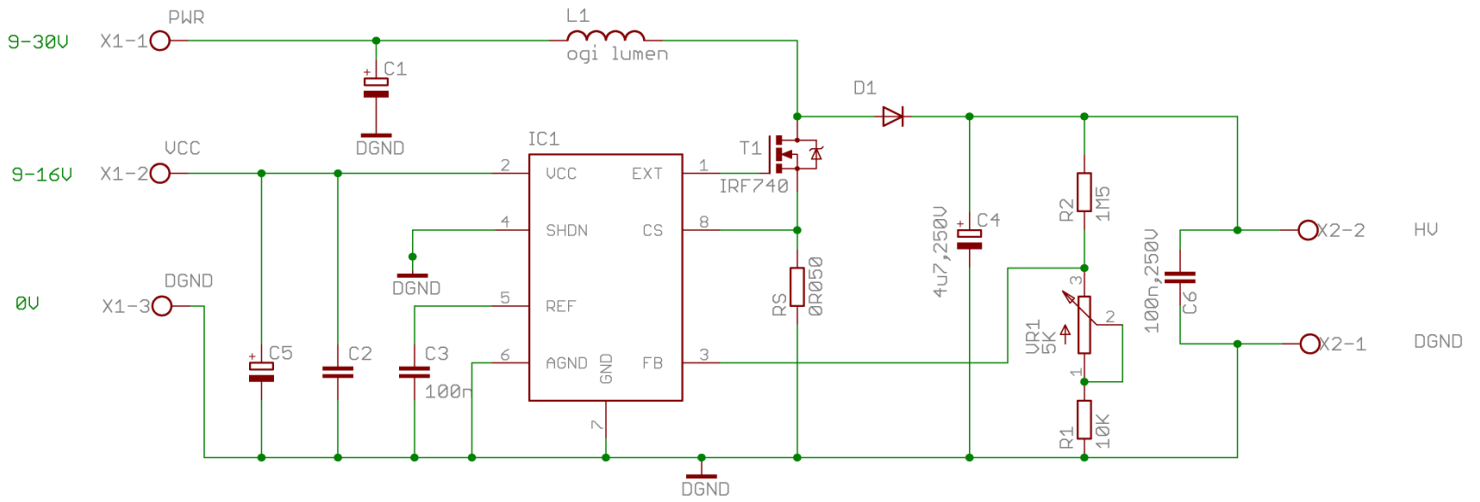
For an example of how the **NIXIE DRIVER** board may be supported by an external microcontroller, see the **NIXIE DRIVER ARDUINO DIECIMILA DEV CODE**. Multiple **NIXIE DRIVER** boards are seen operating together with **NIXIE DUO** boards in the **NIXIE DUO and NIXIE DRIVER MOVIE**.

Depending how brightly you wish your nixie tubes to be illuminated, you can adjust VR1 to generate output between 170 and 250 volts DC.



*Use caution not to touch the powered high voltage output of the **NIXIE TUBE POWER SUPPLY** or the **NIXIE DRIVER** board. There is potentially enough energy present to cause a severe shock.*

Schematic:



Please send any queries or issues regarding product details to OGI LUMEN at: opensource@ogilumen.com

