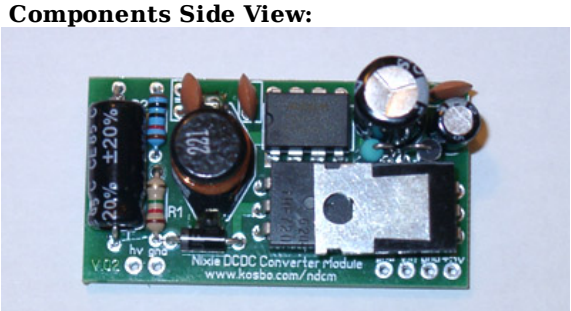
Professionally designed Nixie Tube Power Supply Module V.02

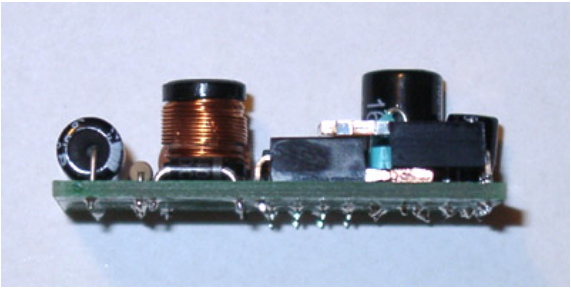
Key features:

- Complete Power Solution for your Nixie Clock
  9-12v input, regulated 5v and 180 or 155v outputs
- High efficiency (~86%) power supply module
  on the small size board
- Proven reliable design, high quality components
- Horizontal or vertical easy integration into your base circuit design
- Use standard 9-12V wall plug Power Supply to power it up
- Regulated High Voltage output means no flickering, constant digit brightness !
- Accurate High Voltage level (+-1%) gives you possibility to use simultaneously two or more modules to power up groups of Nixie Tubes for your projects with big tubes.
- If your Nixie tube needs different High Voltage from stated above, simply adjust one resistor to get new fixed High Voltage!
- It's all power you need for your Nixie Tube Clock or any other project that could require the standard +5v
  and High Voltage
- **NEW hardware Release V.02:**
  smaller size, wrong polarity and over current protection!
- UK stock, quick and low cost delivery
- Flat delivery charge to the UK, Europe, USA or Canada

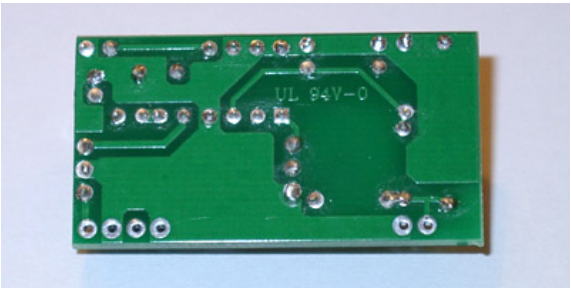
Components Side View:



Side View:



Solder Side View:



Where to buy

- Please buy this module on my WEB site **For Sale** page at **www.kosbo.com/forsale**
- More parts or assembled Clocks are available there as well at **www.kosbo.com/forsale**

Specification

- Input voltage range 8-15v, optimal choice is 9v input, 155v output
  Output voltages:
  Regulated +5v +-1% at max 250mA (at 9v input) for your clock logic
  Regulated +155v +-1% at max 11mA (at 9v input) for your Nixie Tubes.
  or
  Regulated +5v +-1% at max 100mA (at 12v input) for your clock logic
  Regulated +155v at +-1% 21mA (at 12v input) for your Nixie Tubes.
- Just change one resistor (included in this sale) and you will get:

Input voltage range 10-15v, optimal choice is 12v input, 180v output
Output voltages:
Regulated +5v +-1% at max 100mA (at 12v input) for your clock logic
Regulated +180v +-1% at max 15mA (at 12v input) for your Nixie Tubes.

- Guaranteed fixed high voltage output at current range from 0mA to max value*
- Guaranteed fixed 5 volt output at current range from 0mA to max value*

(* for max current values please see text above)

You will get

- Fully assembled and tested Nixie Tube Power Supply Module V.02
- Detailed description and Circuit Diagram

P&P

- **Small delivery charge to post it to the UK, Europe or to the USA, Canada !!!**
- First Class Royal Mail delivery to the UK Customers.
- Your Module will be fully tested and well packed before I dispatched to you.

Dimentions

- PCB board - 23x43x15mm

Communication

- Please feel free to ask me any questions regarding this Module. I'll do my best to respond to you within 12 hours.
- Your ideas or suggestions, improvement are very welcome and will be considered ASAP.

Notice

- Some internal components are under High Voltage, before handling or doing maintenance work, be sure that it's switched off.
- I do not accept any liability may cause during improper or careless use of this Module.
- Due to constant improvement, you power supply module design could be slightly different from the described above,
  but technical parameters and functionality will be the same or better than stated above.

For your information

- **Please do not forget to check my other auctions!**
- **Buy my NIXIE CLOCK - fully assembled, tested and calibrated !**
- Please add me to your favourites list, as more items will come soon.
- Electronics design is my speciality. Please feel free to contact me if you have an idea you want to discuss or
  if you need to develop electronic device.

Extra info for you

- **Module works from 8 to 15V, but 9V is optimal choice. Why?**
  This module contains two regulators, which converts:

a) Input Voltage into 5V DC and
b) Input Voltage into 180/150V DC.
If you use 8V Input Voltage, it's good for linear 5V regulator, as dropped voltage is small, not too much power disrupted and your 5V regulator does not heat up, but high Voltage converter doesn't have enough output current for your Nixie Tubes due to limited input power.
If you use above 12V Input Voltage, it's NOT good for conversion into 5V, as dropped voltage is too high (for 13 V input it's 13-5=8V), too much power disrupted and your 5V linear regulator heats up even your circuit consume low current, even 100mA at 5V output will waste more than 0.8W of your input energy!
But It is reasonably good for your high Voltage converter as it does have enough power to produce more current for more or bigger Nixie Tubes.
I do provide you technical specification on BOTH outputs, so you can clearly see what you will get!
9V is great optimal choice !

- **I would not recommend to use above 12V to power up my or similar module build with linear 5V regulator! It ates an extra energy and heat up the circuit!**
  In 99% cases 9V or12V is good choice and enough power for your Nixie Clock. Please have a look at my Nixie Clock prototype on Picture 1, where 6 IN-14 Nixie Tubes are powered by my Nixie Power Module.
  On the Picture 4 you can see my Nixie Clock on IN-12B tubes, where I used the same Power Supply circuit !!

- If you need to get more current from 5V regulator, **the module design ALLOWS you easily attach heat sink** to the 5V regulator - just simply bend 7805 regulator back into its vertical position and easily fix an heat sink to it.
  Also I would recommend you to do it if you use 12V input at 5V output with current greater than 100mA.
- To reduce the power disruption and to keep your circuit at high efficiency level, **it's easy to use two or more modules** in your project, if for example, you have big Nixie Tubes or when you need to power up more than 6 medium size tubes. Connection diagram example to power up 10 Nixie Tubes with 2 module will be provided to you on your request.

- My recommendation: **do not apply maximum current to your Nixie Tubes**, use value just above middle of available range. For example, IN-14 and IN-12 Nixie tube's max recommended current is 2.5mA, so in my Clock I use 1.5mA per tube. It's optimal choice between good brightness, power consumption and tubes life time. Simple calculation shows that 6 Nixie Tubes will require only 9mA, which my Power Supply Module can easily provide!

- Picture 1 and 2 also shows you how easy to use this module on your solderless bread board when you are just designing your circuit !

- Module has only 6 solder pads to connect your wires or pins, but some pins are duplicated for your extra flexibility in your circuit layout design. So **only 4 solder pads in use, no switches, no extra connectors are required!**

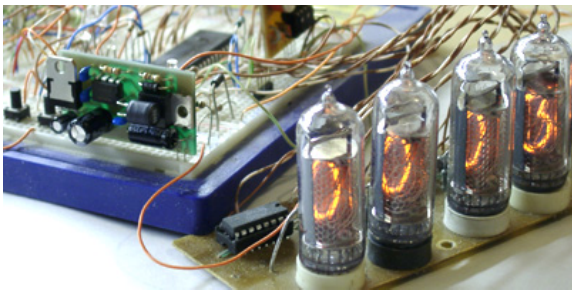
- The Power supply Module Circuit is reliable and very easy to build, **I do provide the Circuit Diagram**, so please feel free to use it in your projects !

- I am proud that my ideas and recommendations are useful and used by my Customers or even by my competitors! Sometimes it's not easy to choose the right solution for your project, so please feel free to ask me.

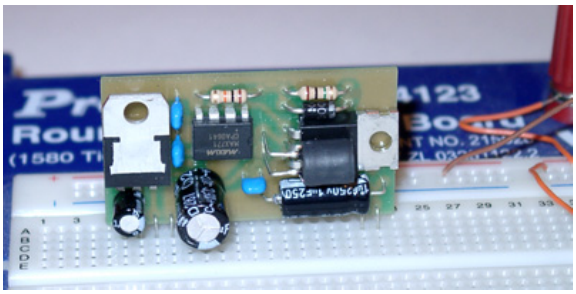
- **Please note, that power module shown on Pictures 1, 2 and 3 is first HW release, but you will get next generation V.02 hardware release, which has exactly the same technical specification, but smaller size and extra improvements - like wrong polarity and over current protections.**

Happy shopping!!

Picture 1 **Picture 2**



Picture 3



Picture 4