

VOLTAGE BOOSTER 12V to 15-24V
CODE 820

LEVEL 2

This DC voltage booster circuit enables a low source DC voltage to be boosted (stepped-up) to a higher output DC voltage. This circuit can also be used for other purposes.

Technical Specifications:

- Power supply : 12VDC. more than 10A.
- Output voltage : 15V, 18V, 19V, 20V, 22V, 24V (selectable)
- Output current : max. 3A.
- LED operate indication.
- Power supply polarity protected.
- PCB dimensions : 3.36 x 2.56 in.

How to Work:

When supply voltage to the circuits (shown in Figure 1), TR3 will check the polarity of power supply. If supply voltage is inverse polarity, TR3 will not work causing the circuit not working. But supply the voltage is correct polarity, TR3 will work and the circuit is working.

When the circuit is working, IC1 is configured as a voltage booster to boost the voltage level. This voltage booster will feed from the drain of MOSFET to point "OUT" through D1. The voltage level at point "OUT", you can set by the jumper J1 to J4.

Circuit Assembling:

External connecting and fitting of components are shown

in Figure 2. It is recommended to assemble the circuit starting with a lower component i.e. diodes, resistor, electrolyte capacitors and transistors etc. Be careful while assembling and check for the matching of PCB poles and components before soldering as shown in Figure 3. Use a max. 40W. solder and soldering lead with a tin and lead ratio of 60/40 together with a joint solution inside. Recheck the assembled circuit for your own assurance. Better using a lead sucker or a lead wire absorber in case of misplacing component to protect PCB from damage. If there is no screen on copper side, you have to solder this area because this area is using the high current.

Testing:

Connect the component following Figure 2. Supply the power supply to the circuit, LED1 and LED2 are lighted on. Remove the jumper J1 to J4 and then measure the voltage at position "OUT". DC voltmeter is showing "15V". Jumping J1, DC voltmeter is showing "18V" and remove J1. Jumping J2, DC voltmeter is showing "20V" and remove J2. Jumping J3, DC voltmeter is showing "22V" and remove J3. Jumping J4, DC voltmeter is showing "24V" and remove J4. In case of DC voltmeter isn't showing other voltage, you can adjust the voltage at VR1.

Using:

- At the position "12V", you have to series connect fuse 15-20A.
- At the position "OUT", you have to series connect fuse 3A.
- If the circuit is used for a long time, you have to install the DC Fan.

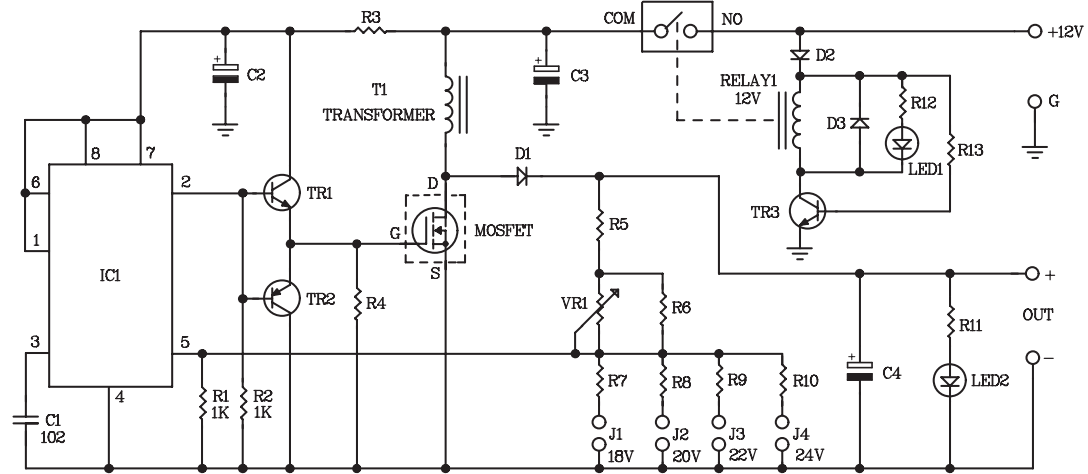


Figure 1. Voltage Booster 12V to 15-24V Circuit

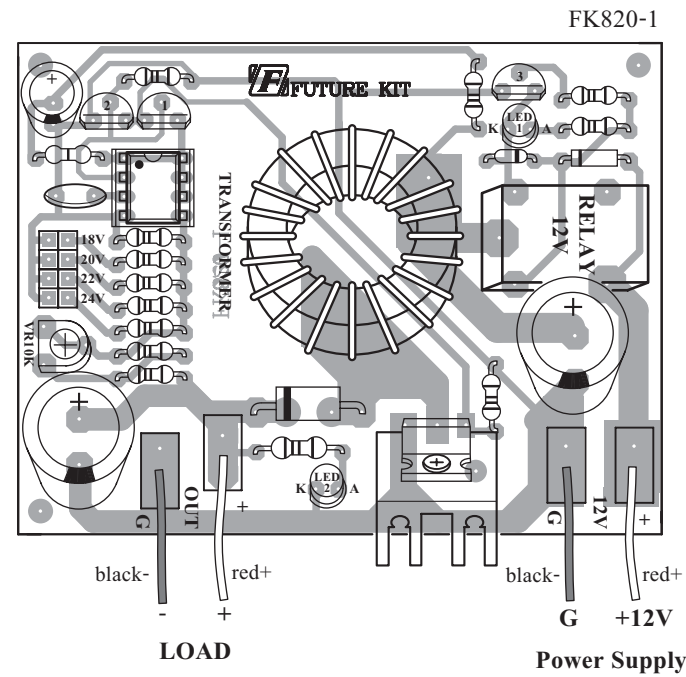
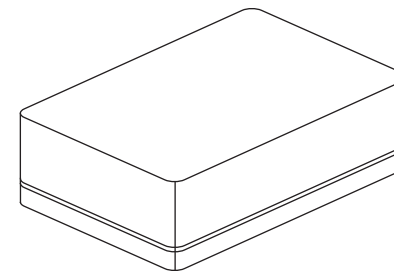


Figure 2. Circuit Assembling

Troubleshooting:

As the circuit has only a few components, the main cause of troubles will come from component misplacing and defaulted soldering. When the circuit does not work, check for the proper component placings and various soldering points.



NOTE:

FUTURE BOX FB04 is suitable for this kit.

Figure 3. Components Installing

