

Voltage Converter 12 V (step up) to 15-24 V Model GSK-820

This DC voltage booster circuit enables a 12 V DC source to be converted (stepped up) to a higher DC output voltage.

Technical Specifications

- Power source: 12 VDC, more than 10 A
- Output voltages: 15 V, 18 V, 19 V, 20 V, 22 V, 24 V (selectable)
- Output current: max. 3 A
- LED operational indicator
- Power source polarity protected
- PCB dimensions: 3.36 x 2.56 inches

Operating Principles

Power source is checked for polarity before circuit will work. LED's will turn on when polarity is correct and circuit is working. Output voltage is set through a series of four jumpers (J1 – J4), J1 “18 V”, J2 “20 V”, J3 “22 V”, J4 “24 V.”

PCB Assembly

Please refer to Figures 2 for aid in component placement. It is recommended to start with lower components i.e. diodes, resistors, electrolytic capacitors, and transistors. Be careful to check polarity with Figure 3 before soldering. If a problem is detected, it is best to use a desoldering pump or desoldering braids to remove component. This will minimize potential damage to the printed circuit board.

Testing

Connect 12 VDC power source with more than 10 A to circuit, LED1 and LED2 will light. Remove jumpers J1 through J4 and measure voltage output “OUT” meter should read 15 V. Output voltage is managed by connecting a jumper wire to obtain desired result. The next test requires jumping positions 1 through 4 and taking readings to measure output voltage. Jumper J1, output voltage should read 18 V, remove jumper and jumper J2, voltage should read 20 V, follow this procedure through J4 to ensure voltage output is correct. Voltage can be adjusted at VR1.

Recommendation

When using this circuit, it is recommended to insert a 15-20 A fuse at the “12 V” position to protect against input power surge. Also, insert a 3 A fuse in the “OUT” position. If the circuit is to be used over an extended period of time, it is recommended that a DC cooling fan be installed.

Troubleshooting

The main cause of problems will come from misplaced components or faulty soldering. Utilize Figures 1, 2 and 3 to ensure proper placement, polarity and then check solder points for connectivity.

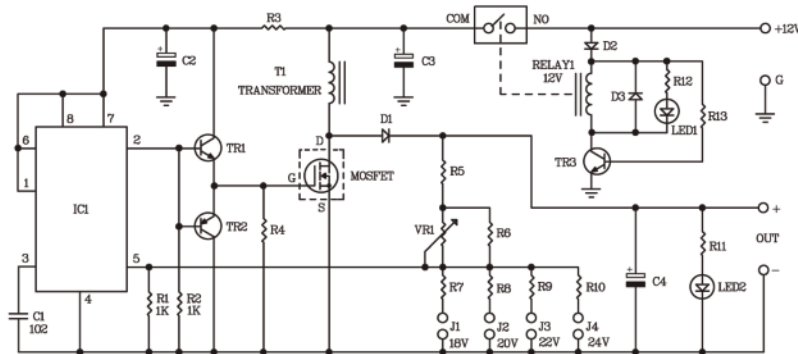


Figure 1 Voltage Booster 12 V to 15-24 V Circuit

Figure 2 Connecting Circuits

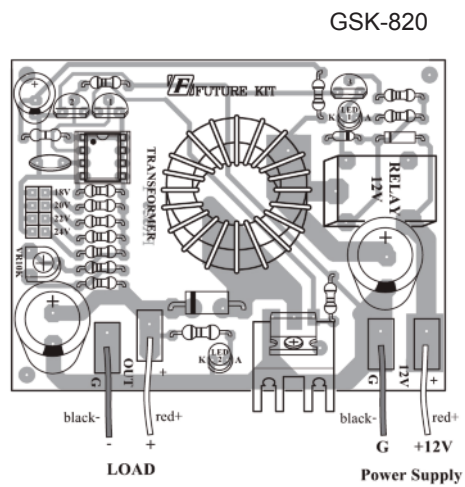


Figure 3 Installing components

