

TWO STEP DISCO LIGHT 18 LED

CODE 178

LEVEL 1

A two step disco light circuit that used for light decoration. Blinking manner can be self-adjusted by connecting to the jumper. Moreover, blinking speed can also be adjusted starting from a very slow to faster speed.

Technical specifications:

- Power supply: 9-12VDC.
- Consumption: 42mA max. @ 9VDC.
- Adjust blinking speed with trimmer potentiometer.
- PCB dimensions : 2.33 x 2.69 in.

How to work:

The circuit is composed of two main parts, oscillator and decade counter. The oscillator consists of TR5 and TR4 that being connected in the form of multi-vibrator frequency circuit and its generated frequency will be adjusted by VR1 and supplied to the decade IC. And when IC starts counting, it will send out the voltage to the base of TR1 to TR3 for bias, one at a time. When reaching pin 11 of IC1, the discharged voltage will be sent for resetting IC1 to start working.

Circuit assembling:

External connecting and fitting of components are shown in figure 3. It is recommended to assemble the circuit starting with a less height component i.e. diodes, resistor, electrolite capacitors and transistors etc. Be careful while assembling and check for the matching of PCB poles and components before soldering as shown in Figure 1. 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 confidence. Better using a lead sucker or a lead wire absorber in case of misplacing component to protect PCB damage.

Testing:

Connect the power supply 9-12 volts to the circuit. And then jump JP1, Jp2 and JP3 to the following positions for testing.

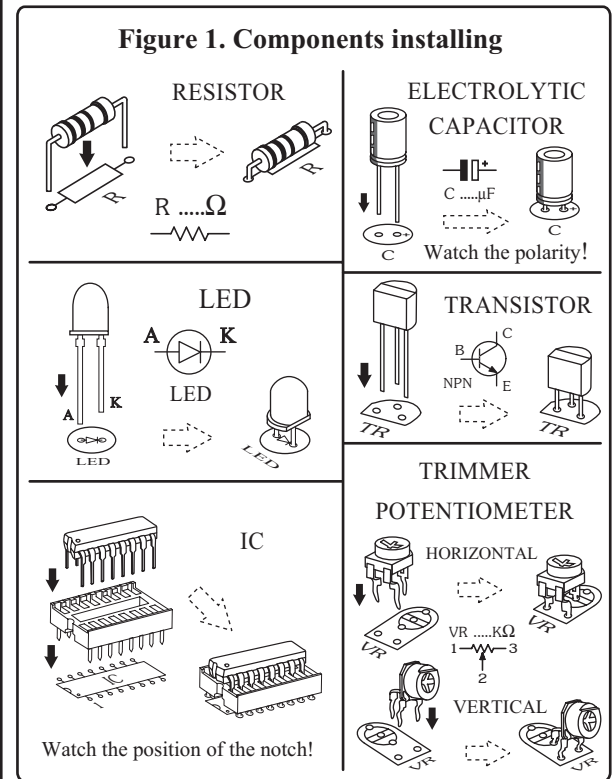
1. Jump all JPs to position 1 or position 2 or position 3. All LEDs will blink in harmony.

2. Jump JP1 and JP3 to position 1 and JP2 to position 2. LEDs in group 1 and group 3 will blink first and then group 2.

3. Jump JP1 to position 1, JP2 to position 2 and JP3 to position 3. LEDs will blink in order, starting from group 1, group 2 and group 3, respectively.

4. Jump JP1 and JP3 to position 3 and JP2 to position 2. LEDs in group 2 will blink first and then group 1 and group 3.

The above outcomes show that LEDs will blink in order, starting from the first connected position then the second one and so on. The VR1 100K will act as a blinking speed controller for any required slow or fast speed. Those results will show that the circuit is workable.



Troubleshooting:

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

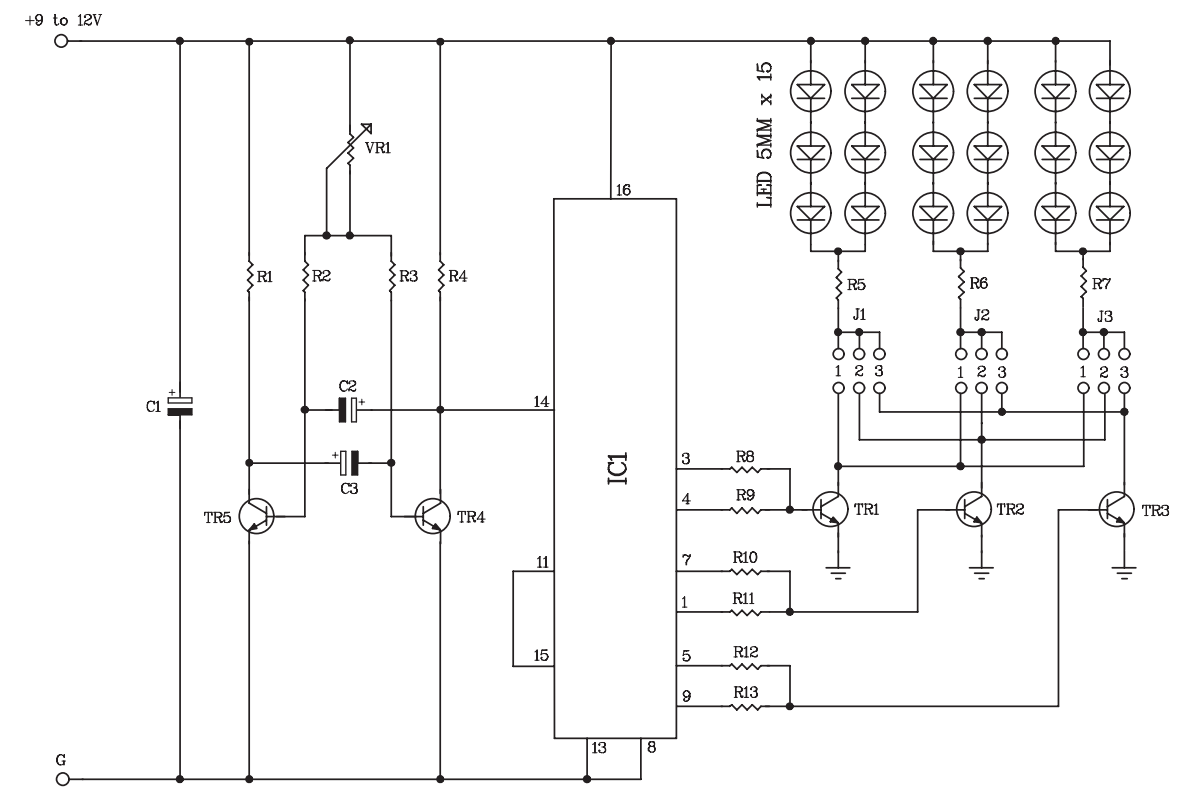
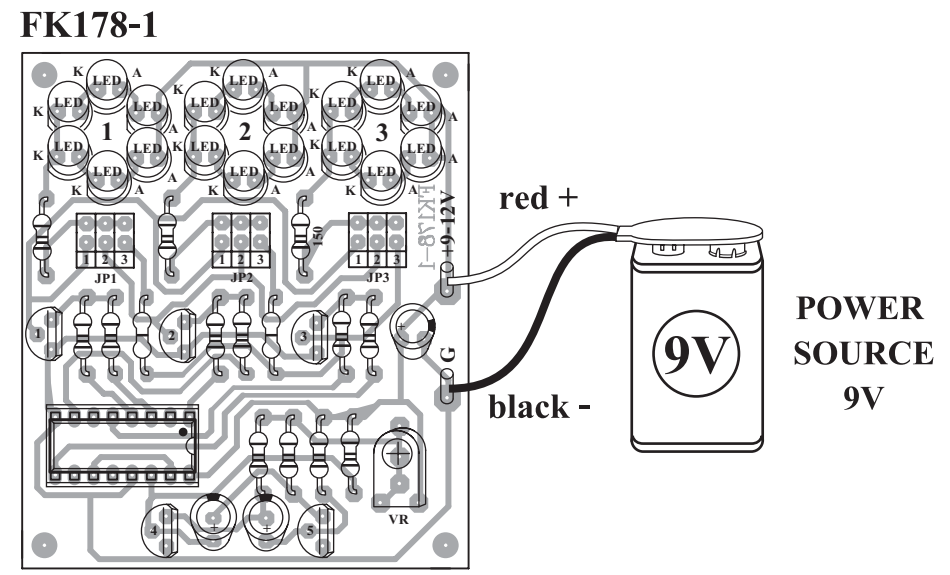


Figure 2. Two step disco light 18 LED circuit

Figure 3. Circuit assembling



NOTE: FUTURE BOX FB03 is suitable for this kit.