

FLASHING CHRISTMAS TREE
CODE 140 **LEVEL 1**

This flashing christmas tree circuit is flashing circuit at used to decorate 16 blinking LEDs, which alternately light on.

Technical specifications:

- power supply: 9-12VDC.
- consumption: 40-70mA max.
- PCB dimensions : 2.60 x 4.17 inch.

How to works:

Astable multi-vibrator (TR1 and TR2, TR3 and TR4) is configured as frequency generator. TR1 and TR2, TR3 and TR4 will alternately blinking one by one. If TR1 or TR3 works, LED1 to LED4 and LED9 to LED12 will light on. But if TR2 and TR4 works, LED5 to LED8 and LED13 to LED16 will light on. Speed of LED blinking is depending on R3, R4, C1 and C2. VR10K is used to adjust the speed of LED blinking. R 500Ω is voltage drop for each LED.

PCB assembly:

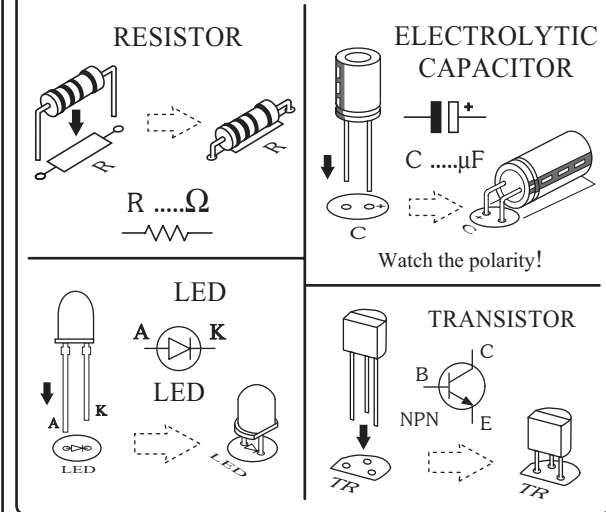
Shown in Figure 3 is the assembled PCB. Starting with the lowest height components first, taking care not to short any tracks or touch the edge connector with solder. Some tracks run under components, and care should be taken not to short out these tracks. All components with axial leads should be carefully bent to fit the position on the PCB and then soldered into place. Make sure that the electrolytic capacitors are inserted the correct way around. The LED has a flat spot on the body which lines up with the line on the overlay. Now check that you really did mount them all the right way round!

Testing:

Connect 9-volt battery to circuit. With the positive pole is connected to "+" point and the negative pole is

connected to "-" point. All LEDs will alternately light on. If you want to increase or decrease of blinking LEDs can be adjusted by altering the values of capacitor C1, C2, C3 and C4. Increasing the capacitance will slow blinking. Decreasing the capacitance will quick blinking.

Figure 1. Installing the components



Troubleshooting:

The most problem like the fault soldering. Check all the soldering joint suspicious. If you discover the short track or the short soldering joint, re-solder at that point and check other the soldering joint. Check the position of all component on the PCB. See that there are no components missing or inserted in the wrong places. Make sure that all the polarised components have been soldered the right way round.

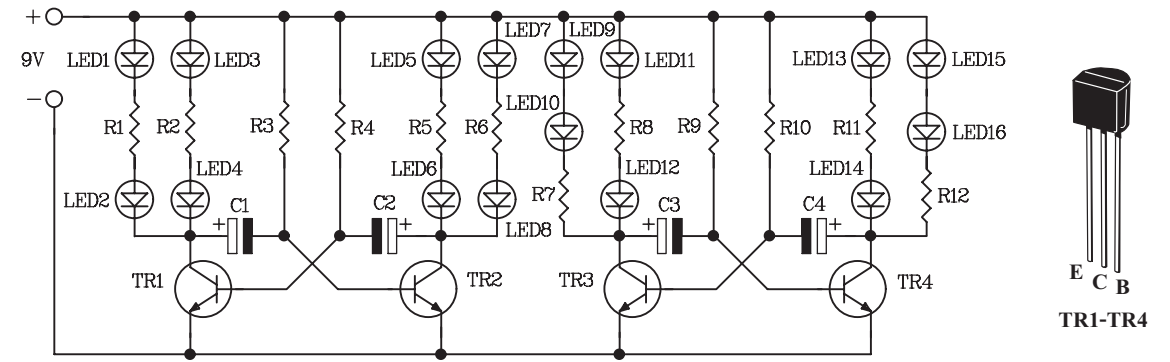


Figure 2. Flashing christmas tree circuit

FK140-1

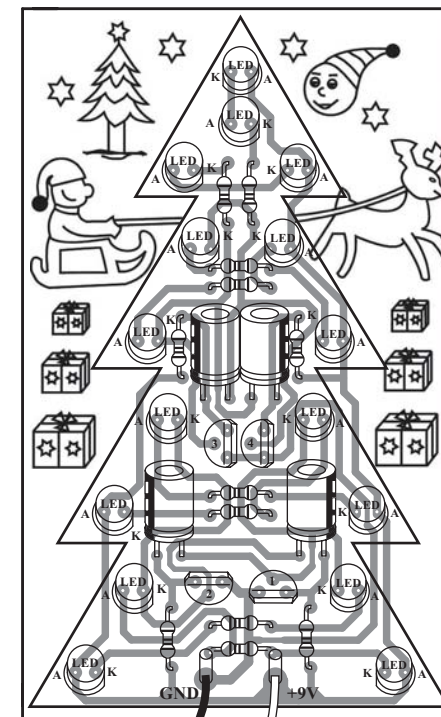
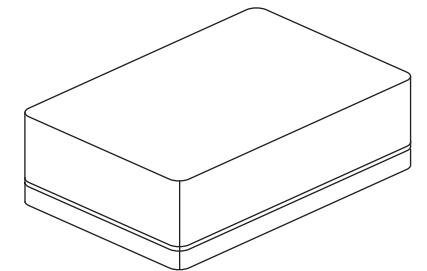


Figure 3. Connections



NOTE:

FUTURE BOX FB04 is suitable for this kit.

NEW KIT SET

| CODE FK | DESCRIPTION | POWER |
|---------|--|-------|
| 271 | LIGHT ACTIVATE ALARM (COCK VOICE) WITH SPEAKER | 3VDC |
| 272 | SPACE GUN 3 TONE WITH SPEAKER | 9VDC |