

FIREFLY LIGHT (NIGHT ACTIVATE)
CODE 167 **LEVEL 1**

The firefly light circuit is flashing circuit which is activated at night. This flashing of light is like firefly light in the nature. The circuit will be working when photo-transistor isn't detecting the light. Ideal as light-shows for model construction etc.

Technical specifications:

- power supply : 3VDC.
- consumption : 0.2mA (standby), 11mA (working)
- light sensor : photo-transistor.
- PCB dimensions : 1.57 x 1.18 inches.

How to works:

Normally, when photo-transistor detects the light, internal resistance of photo-transistor is low, causing TR1 is working with TR1 will discharge C1 to ground. In this time, the circuit and LED1 aren't working. Whenever photo-transistor don't detect the light, internal resistance of photo-transistor is high, causing C1 charge the voltage through R5 until the voltage at the emitter of TR2 more than the base approximate 0.6 volt, TR2, TR3 and LED1 will be working. In this time, C1 is discharge through D1 and TR3 to ground until the voltage at the collector more than the emitter of TR2. TR2, TR3 and LED1 will stop working. And then operation will be like a first time.

PCB assembly:

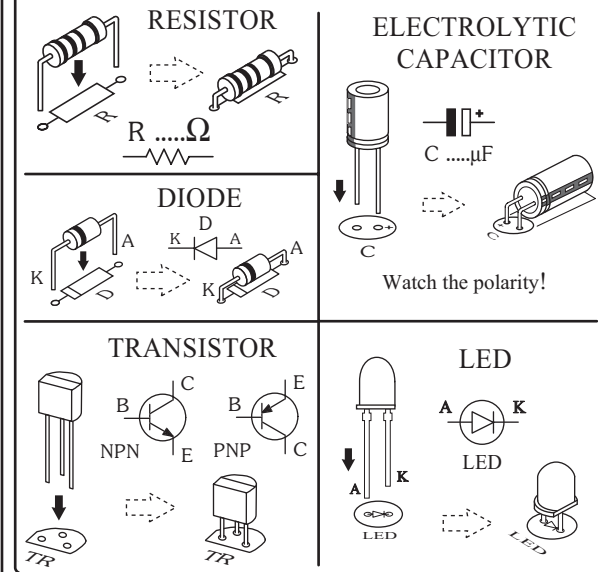
Shown in Figure 3 is the assembled PCB. Starting with the lowest height components first, taking care not to short any tracks or touch the edge connector with solder. Some tracks run under components, and care should be taken not to short out these tracks. All components with axial leads should be carefully 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:

Before Connect a 3-volt battery to circuit, turn photo-transistor to the light. And then Connect a 3-volt battery to circuit. In this time, LED1 isn't blinking. Covering photo-transistor with opaque thing. LED1 will be blinking. If you want LED1 blink fast to decrease the value of C1.

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.

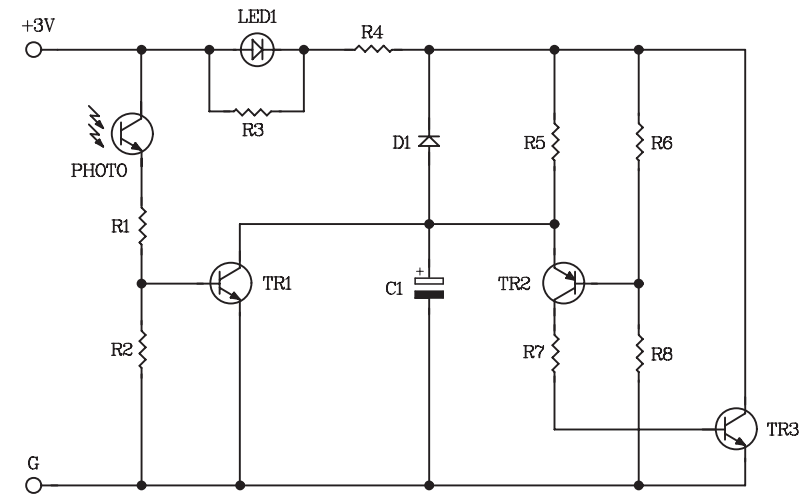


Figure 2. The firefly light (night activate) circuit

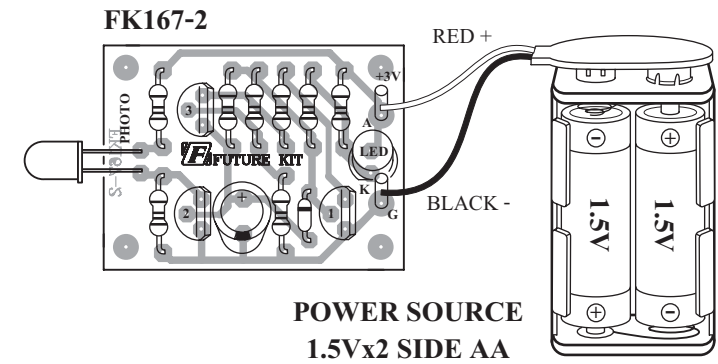
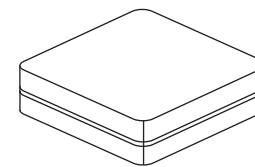


Figure 3. Connections



NOTE:

FUTURE BOX FB01 is suitable for this kit.

NEW KIT SET

CODE FK	DESCRIPTION	POWER
167	FIREFLY LIGHT (NIGHT ACTIVATE)	3VDC
326	DUAL STATION INTERCOM&DOOR BELL (WITH 2 SPEAKER)	6-12VDC
436	UHF REMOTE CONTROL 1 CH.	TX. 9VDC RX. 12VDC
673	MINI POWER AMP 1+1W. STEREO	3-12VDC