

QUASAR KIT 3138 - TWO LED FLASHER

This kit wires the popular 555 IC as an astable, free-running multivibrator. In other words it is wired as a square wave oscillator. It has a double ended output connection in which one LED is OFF when the other is ON, and vice versa.

For an animation of what happens in this kit go to

http://www.williamson-labs.com/480_555.htm

Note the animated charging and discharging of the capacitor. Note which resistors are involved with the charging and with the discharging. Watch which LED's are on in what part of the cycle. A few minutes watching this animation and making it go faster will give an excellent understanding of how this circuit works.

The capacitor C2 charges exponentially through resistors R1, R2 and the resistance of the trimpot. When C2 has charged to about $\frac{2}{3} V_{CC}$ it stops charging and it discharges to about $\frac{1}{3} V_{CC}$ through R2 and the trimpot resistance via pin 7.

There are links on this site to download the 555 Data Sheet and a lot of other relevant information.

For another excellent website devoted to the 555 see

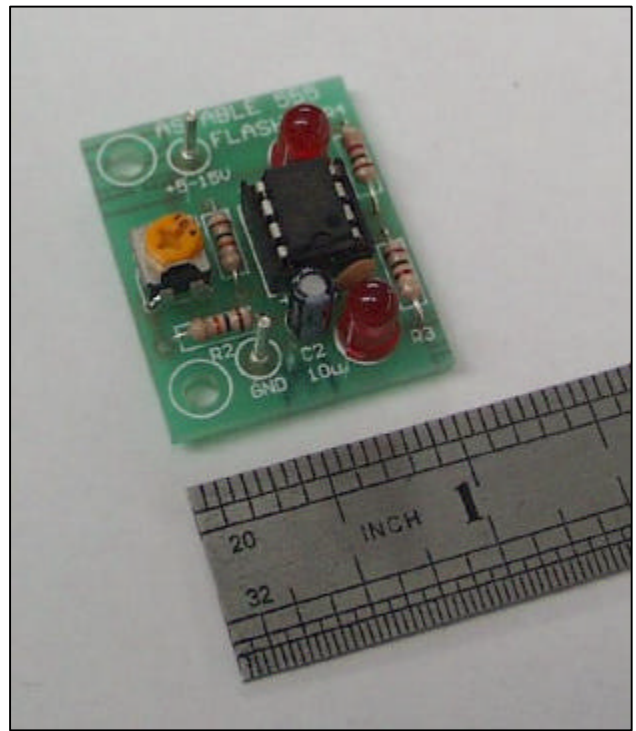
<http://www.uoguelph.ca/~antoon/gadgets/555/555.html>

In the following website

http://ourworld.compuserve.com/homepages/Bill_Bowden/555.htm

you can enter values for R1, R2 and C and see what flash rates they would give.

Assembly. It is best to add the lowest height components – the resistors – first. Read the color code to make sure they are the right ones in the right places. The ecap and the LEDs must be put in the right way around. The two pins make it easy to attach alligator clips to the board. You do not have to use them if you do not want to.



Finally, connect a battery or power supply between 5V and 15V DC to the pins. The LEDs should start to flash off and on.

COMPONENTS

| | | |
|----------------------------------|---------|---|
| Resistors 5%, carbon film, 1/4W: | | |
| 820R grey red brown | R3 R4 | 2 |
| 1K brown black red | R1 R2 | 2 |
| Koa trimpot 100K 104 | Trimpot | 1 |
| ceramic capacitor 10n 103 | C1 | 1 |
| electrolytic capacitor 10uF | C2 | 1 |
| 5mm red LED | L1 L2 | 2 |
| LM/NE555 | IC1 | 1 |
| 8 pin IC socket | | 1 |
| 3138 PCB | | 1 |

