

SATURN'S RING FLASHER 31 LED

CODE 162

LEVEL 1

This circuit is the chasing light circuit. The shape is like the saturn. This circuit is consist of 31 LEDs. Idea as light-shows for model construction etc.

Technical specifications:

- power supply : 9-12VDC.
- consumption : 67mA max.@ 9VDC.
- display : 31 LED's (each 3 mm., 17 green LED's and 14 red LED's)
- dimensions of PCB : 2.28 x 2.66 inches

How to works:

TR1, TR2 and TR3 are configured as a frequency generator. With the both transistor is working together and the rest of the transistor is not working.

Step1 : when TR1 and TR2 are working, LED7 to LED17 are light on and TR3 is not working, causing LED1 to LED6 is light off.

Step2 : When TR2 and TR3 are working, LED1 to LED12 are light on and TR1 is not working, causing LED13 to LED17 is light off.

Step3 : When TR1 and TR3 are working, LED1 to LED6 and LED13 to LED17 are light on and TR2 is not working, causing LED7 to LED12 is light off.

This frequency is depending on C1, R9, C2, R13, C3 and R17. For LED18 to LED31 is light on continuously.

PCB assembly:

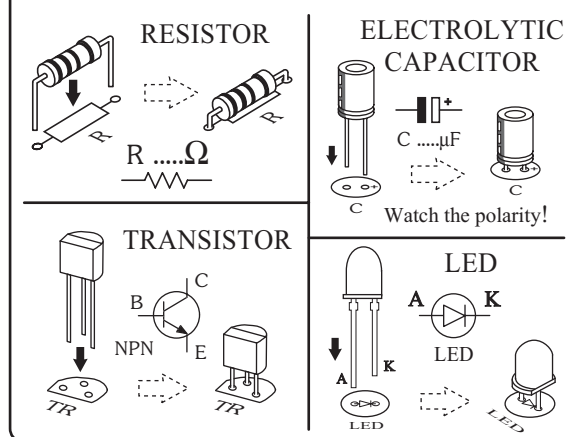
Shown in Figure 3 is the assembled PCB. Starting with the lowest height components first, taking care not to short any tracks or touch the edge connector with solder. Some tracks run under components, and care should be taken not to short out these tracks. If the pins will not enter the holes with ease, use a small drill to slightly enlarge the opening. 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. Some components are particularly sensitive to heat (ie: Transistors, IC's, diodes etc.) extra care must be taken to only apply the iron for as little time as

possible, using a pair of pliers to grip the leads will help conduct heat away. Trim components leads with wire cutters to prevent excess lengths causing a short circuit. Now check that you really did mount them all the right way round!

Testing:

This kit has an operating voltage range of 9-12 VDC. Connect the power supply to the circuit. All green LED's is blinking to the same the ring of saturn. If you want to change the speed of LED can be increased or decreased the value of capacitor C1, C2 and C3.

Figure 1. Installing the components



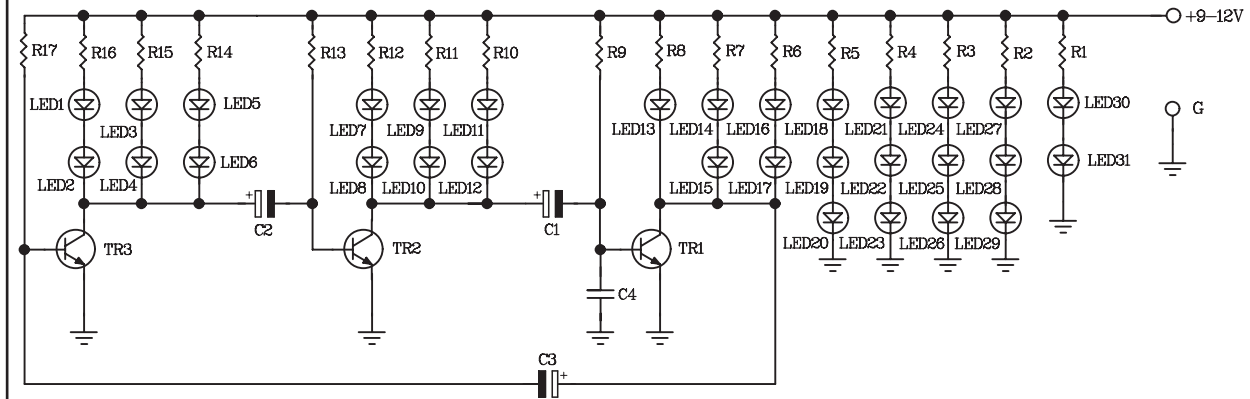
Troubleshooting:

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.

Saturn statistics

- Distance from the sun : 1,426,725,400 km.
- Rotational period : 0.44401 day (10.2 hours)
- Orbital period : 29.42351935 years
- Diameter : 120,536 km. (74,898 Miles)
- Mass : 95 times more than earth
- Volume : 755 times more than earth
- Average Temperature : -184°C (-300°F)
- Moons : 30 companions
- Atmospheric composition: Hydrogen 97%, Helium 3%, Methane 0.05%

Figure 2. The saturn's ring flasher circuit



FK162-2

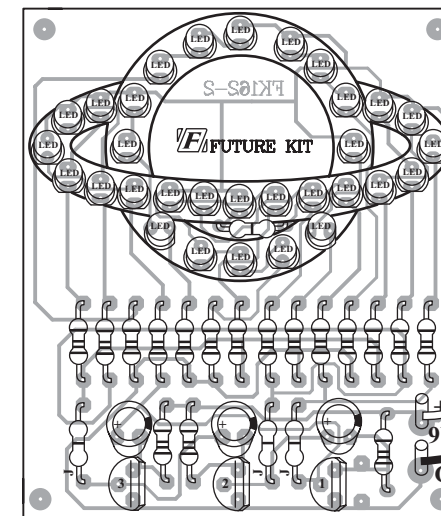
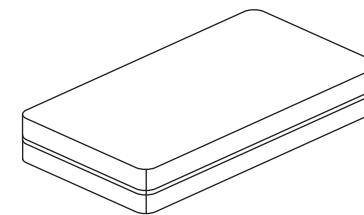


Figure 3. Connections

Saturn is used Red LED's
Ring is used Green LED's

POWER SOURCE
9V



NOTE:

FUTURE BOX FB17 is suitable for this kit.

NEW KIT SET

CODE FK	DESCRIPTION	POWER
167	FIREFLY LIGHT (NIGHT ACTIVATE)	3VDC.
275	THREE TRAIN SOUNDS (IC DIGITAL)	3VDC.
276	OWL VOICE (IC DIGITAL)	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.