

OPITEC

1 1 0 . 0 5 1 FLASHING LIGHTS

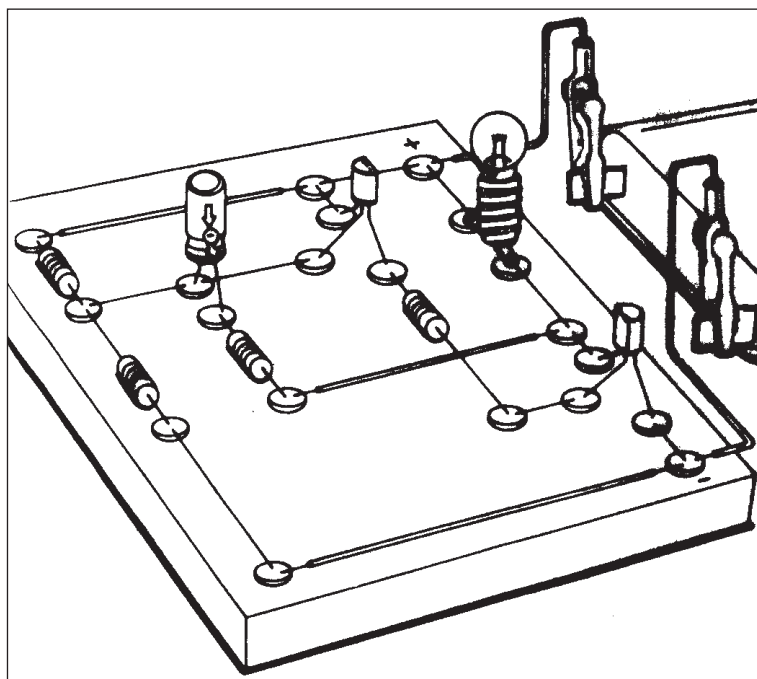
Please Note

Due to the manufacturing process of the bulb holders, the inner contact tab may stand a little proud.

We recommend pressing the contact tab down with a small screwdriver, before inserting the bulb.

Contents

1x Insulated wire	1 m
1x Capacitor	2,2 μ F
1x Transistor	BC 548 or BC 547
1x Transistor	BC 558/557 C
2x Resistor	1,8 k Ω
1x Resistor	100 k Ω
1x Resistor	560 k Ω
1x Bulb holder	E 10
1x Bulb	3,8 V / 0,07 A



Necessary Tools

Soldering Iron 30 W
Multicore solder
Wire strippers
Wire snips

Please Note

The OPITEC range of projects is not intended as play toys for young children.

They are teaching aids for young people learning the skills of Craft, Design and Technology. These projects should only be undertaken and tested with the guidance of a fully qualified adult. The finished projects are not suitable to give to children under 3 years old. Some parts can be swallowed. Danger of suffocation!

General Notes


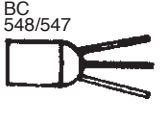
To construct this circuit we recommend using the following methods.


1. Mounting the components on plaster board (N° 873.017) using drawing pin heads to solder the components on (the pins are easily inserted by hand).
2. Mounting the components on stripe type circuit board (N° 241.067).
3. Mounting on copper coated circuit board (N° 241.207 / 241171).



FUNCTION DESCRIPTION


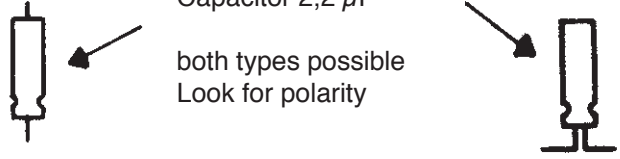
After connecting to a 4,5 volt power source a current flows from the base of the BC 308 into the 560 k Ω resistor. Thereby a current flows via the 1,8 k Ω resistor in the base of BC 548 which will be switched on. The capacitor is also charged. The larger base current which flows turns the transistors on harder, and the lamp lights. When the capacitor is charged the base current from the BC 548/547 is too little, and the lamp goes out. The voltage rises at the collector to 4,5 V.





The capacitor remains momentarily charged and the voltage at the base of the BC 558 climbs. The capacitor then discharges via the 680 k Ω resistor. The voltage at the base of the BC 558 then sinks and the sequence starts again.

TRANSISTOR NPN 	Layout of leads E, B und C.  <p>BC 548/547 E = Emitter B = Base C = Collector</p> <p>Bei Transistor are easily damaged if connected incorrectly.</p>
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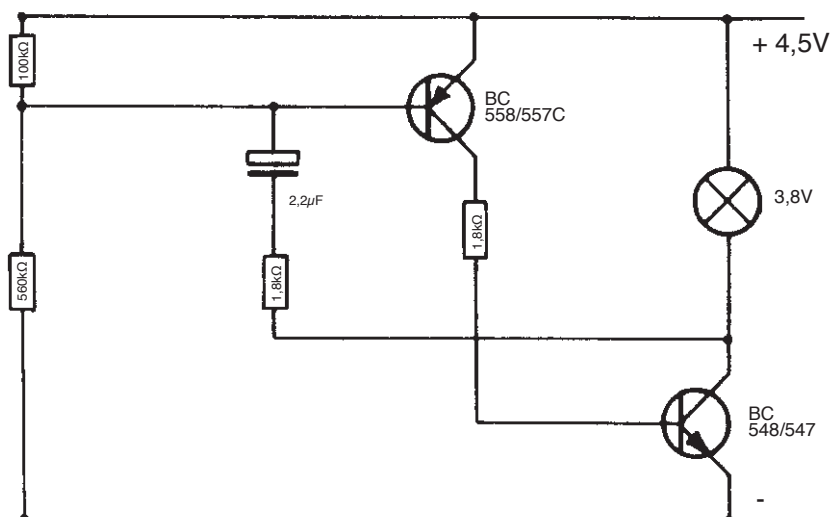
TRANSISTOR PNP 	<p>Shown as BC 558/557 C</p> <p>Emitter arrow is shown pointing inwards. The arrangement of E, B, and C as BC 548.</p>
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RESISTOR 	Determination of resistors  <table border="0"> <tr> <td>1,8 kΩ</td> <td>100 kΩ</td> <td>560b kΩ</td> </tr> <tr> <td>brown</td> <td>brown</td> <td>blue</td> </tr> <tr> <td>grey</td> <td>black</td> <td>grey</td> </tr> <tr> <td>red</td> <td>yellow</td> <td>red</td> </tr> <tr> <td>silver/ gold</td> <td>silver/ gold</td> <td>silver/ gold</td> </tr> </table>	1,8 kΩ	100 kΩ	560b kΩ	brown	brown	blue	grey	black	grey	red	yellow	red	silver/ gold	silver/ gold	silver/ gold
1,8 kΩ	100 kΩ	560b kΩ														
brown	brown	blue														
grey	black	grey														
red	yellow	red														
silver/ gold	silver/ gold	silver/ gold														

CAPACITOR 	<p>Capacitor 2,2 μF</p> <p>both types possible Look for polarity</p> 
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	Bulb 3 - 6 V / 0,07 - 0,1 A
	Wire
	Wire with joint (connection)
	Crossed wires (no connection)

SCHEMATIC DIAGRAM



Connecting strip

