

Breath Light [EELKBL] by TRONIC.LK

The Breath Light circuit is another simple electronic circuit which is based on LM358 IC. The name was given to this circuit due to the turning on and off LEDs slowly which symbolises human breathing. The LM358 IC we use here consists of two independent, high gain, internal frequency compensated operational amplifiers.

Working Principle

Step 1: At this time, C1 is equivalent to a short circuit, and the output of U1A is equal to the voltage of the third pin of U1A

Step 2: This voltage is sent to U1B below. The following positive feedback circuit causes the following U1B output to be high; the high-level voltage is +VCC.

Step 3: When the U1B output is VCC voltage, the voltage difference is generated across the capacitor C1. The output of the U1B below is charged by the R8 adjustable potentiometer, R7, R6, and C1; when charging C1, the current flowing through Q1, the LED light is also on. As time increases, the charging current on C1 gradually decreases, and the corresponding LED is also darkened by the same

Step 4: When the C1 charge is full, C1 is equivalent to an open circuit. At this time, the upper U1A becomes a comparator. Because the input voltage of pin 2 is greater than the input voltage of pin 3, the output of pin 1 of U1A becomes low voltage 0V

Step 5: When the 1 pin is 0V, the following UB is used for the forward and reverse, and the U1B output below becomes the low voltage 0V

Step 6: C1 discharges through the potentiometer and U1B below

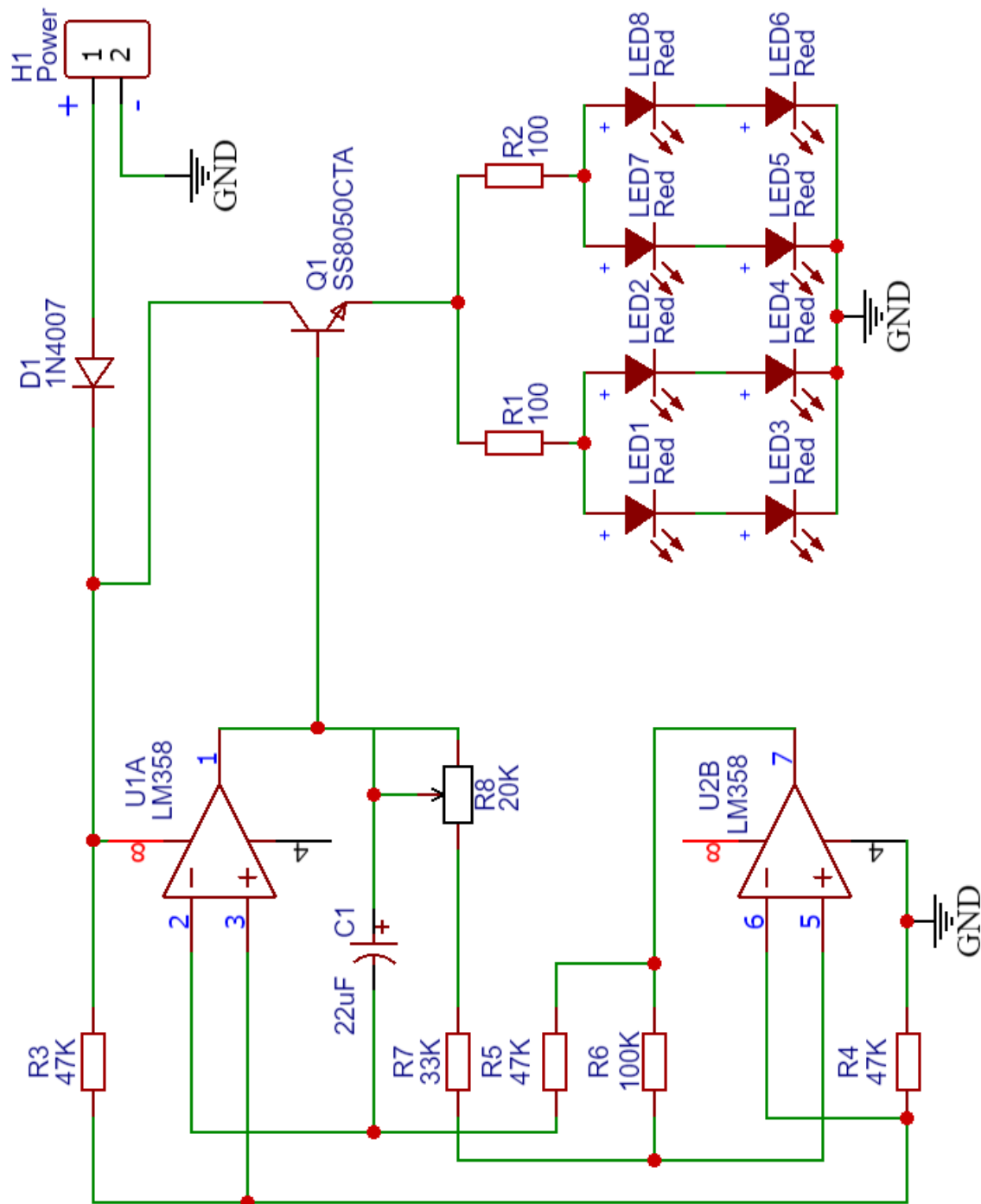
Step 7: When the voltage of C1 is discharged and the voltage of pin 2 is less than 0.5VCC, the voltage of the above U1A starts to rise with the discharge voltage of C1

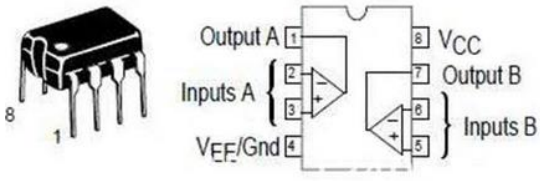
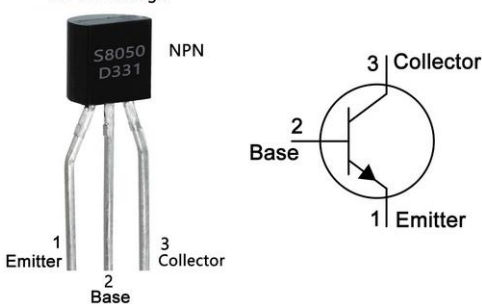
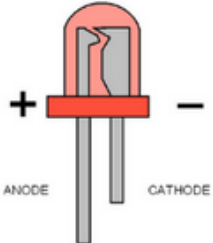
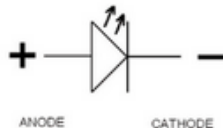
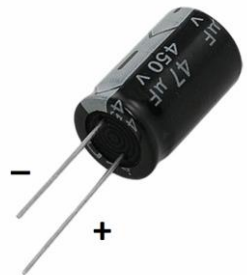
Step 8: When the voltage of pin 1 of LM3586 rises, after the positive feedback of U1B below, the output of the following U1B is again reduced to the voltage of VCC

Step 9: The voltage of U1B below becomes VCC voltage, which is to repeat the "third step" and the action behind it

ITEM CODE	VALUE	DESIGNATOR	QUANTITY	IMAGE
CA0063	22uF	C1	1	
DI0002	1N4007	D1	1	
TA0443	Header	H1	1	
LE0027	LED 5mm Red	LED 1, 2, 3, 4, 5, 6, 7, 8	8	
DI0063	C8050	Q1	1	
RP0023	100 Ohms	R1, R2	2	
RP0055	47K	R3, R4, R5	3	
RP0059	100K	R6	1	
RP0053	33K	R7	1	
RE0090	10K V/R	R8	1	
IC0022	LM358P	U1	1	
HE0014	8 pin IC Base	U1	1	

Supply Voltage: 9V



PIN DESCRIPTION OF SPECIAL COMPONENTS	
LM358N 	TO-92 Package 
 	
 	

COMPONENTS & FINAL ASSEMBLY

LED Breathe Light

