SOUND ACTIVATED "I LOVE YOU"

PRODUCT CODE: M00270042

DESCRIPTION: This is a tool for dating girl. When you are clapping your hand or shouting out, the LED would show up "I L U".

READ BEFORE INSTALLATION:

- Put the component on the side of screen printing and solder on the back of PCB without printing.
- Placing direction of component.

1. On component, longer leg is "+".
2. On PCB marking, square pad as Figure 1 is always "+".
3. For diode, please install as Figure 2.
4. For Voltage Regulator, please place the component as Figure 5.

- Do not put the LED to very bottom, just install as Figure 3.
- For any IC, finding out which leg is first leg (FIGURE 4) is important. Also, solder the socket (chair) to the PCB and the IC sit on the top.
- For 9V Battery Adaptor, Red is B+ and Black is B-. Also, please tie a knot after the red and black wire has passed the neighbors hole before soldering. This is similar to Figure 6.

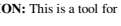

FIGURE 1

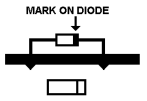

FIGURE 2

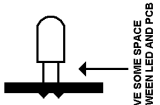

FIGURE 3

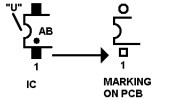

FIGURE 4

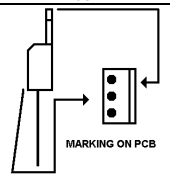

FIGURE 5

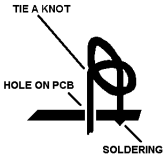

FIGURE 6

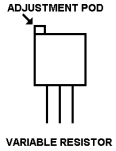

FIGURE 7

FIGURE 8

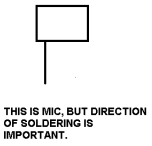

FIGURE 9

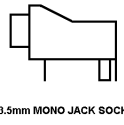

FIGURE 10

CIRCUIT EXPLANATION:
Please read the below together with the circuit diagram in Figure 11.

- The function of D1 is to prevent reverse power supply.
- Part 1 is the receiver. This contains a microphone to detect the amount of sound.
- Part 2 is an amplifying circuit, this amplify the sound coming from part 1.
- Part 3 is to collect the output from part 2. If the output of pin 1 of VR is higher, the current in R5 is higher.
- In part 4, this is to act as a toggle switch to switch on and off all the LED.
  1. Collector of Q3 would become low when Q3 is biased due to the current flowing R5.
  2. U1A is a Flip Flop. A Flip Flop is normally uses as storing state information. But now we use Flip Flop as toggle switch. When you check with the truth table of IC 4013, you would see the output Q would change state (High to Low or Low to High) when the CLK change from low to high.
  3. Now we go back to point 1. If there is no sound, the collector of Q3 is on high due to the too less current to flow resistor R5. When sound goes to the microphone, collector of Q3 would suddenly become low. But after the sound disappeared, collector of Q3 goes back to high again. This changing state from low to high is the trigger point for U1A (Please look at point 2).
- Part 5 is the visual output from the result of Part 4. The LED is arranged as "I L U".
- Part 6 is the voltage regulating circuit such that the whole circuit is working at 5V.

INSTALLATION:
Just install the component to the PCB M00260069 according to below table.

ITEM	SYMBOL ON PCB	DESCRIPTION	OUTLOOK	DIRECTION IS IMPORTANT?
1	R1	RESISTOR, 4.7K ohms	YELLOW, VIOLET, RED	NO
2	R2	RESISTOR, 100K ohms	BROWN, BLACK, YELLOW	NO
3	R3	RESISTOR, 100K ohms	BROWN, BLACK, YELLOW	NO
4	R4	RESISTOR, 1K ohms	BROWN, BLACK, RED	NO
5	R5	RESISTOR, 10K ohms	BROWN, BLACK, ORANGE	NO
6	R6	RESISTOR, 10K ohms	BROWN, BLACK, ORANGE	NO
7	R7	RESISTOR, 100K ohms	BROWN, BLACK, YELLOW	NO
8	R8	RESISTOR, 10K ohms	BROWN, BLACK, ORANGE	NO
9	R9	RESISTOR, 330 ohms	ORANGE, ORANGE BROWN	NO
10	R10	RESISTOR, 330 ohms	ORANGE, ORANGE BROWN	NO
11	R11	RESISTOR, 330 ohms	ORANGE, ORANGE BROWN	NO
12	R12	RESISTOR, 330 ohms	ORANGE, ORANGE BROWN	NO
13	R13	RESISTOR, 330 ohms	ORANGE, ORANGE BROWN	NO
14	R14	RESISTOR, 10K ohms	BROWN, BLACK, ORANGE	NO
15	R15	RESISTOR, 330 ohms	ORANGE, ORANGE BROWN	NO
16	R16	RESISTOR, 330 ohms	ORANGE, ORANGE BROWN	NO
17	R17	RESISTOR, 330 ohms	ORANGE, ORANGE BROWN	NO
18	R18	RESISTOR, 330 ohms	ORANGE, ORANGE BROWN	NO
19	R19	RESISTOR, 330 ohms	ORANGE, ORANGE BROWN	NO
20	R20	RESISTOR, 10K ohms	BROWN, BLACK, ORANGE	NO
21	R21	RESISTOR, 330 ohms	ORANGE, ORANGE BROWN	NO
22	R22	RESISTOR, 330 ohms	ORANGE, ORANGE BROWN	NO
23	R23	RESISTOR, 330 ohms	ORANGE, ORANGE BROWN	NO
24	R24	RESISTOR, 330 ohms	ORANGE, ORANGE BROWN	NO
25	R25	RESISTOR, 330 ohms	ORANGE, ORANGE BROWN	NO
26	D1	DIODE, IN4001	FIGURE 2	FIGURE 2
27	L1	LED	ONE LONG LEG AND ONE SHORT LEG	YES
28	L2	LED	ONE LONG LEG AND ONE SHORT LEG	YES
29	L3	LED	ONE LONG LEG AND ONE SHORT LEG	YES
30	L4	LED	ONE LONG LEG AND ONE SHORT LEG	YES
31	L5	LED	ONE LONG LEG AND ONE SHORT LEG	YES
32	L6	LED	ONE LONG LEG AND ONE SHORT LEG	YES
33	L7	LED	ONE LONG LEG AND ONE SHORT LEG	YES
34	L8	LED	ONE LONG LEG AND ONE SHORT LEG	YES
35	L9	LED	ONE LONG LEG AND ONE SHORT LEG	YES
36	L10	LED	ONE LONG LEG AND ONE SHORT LEG	YES
37	L11	LED	ONE LONG LEG AND ONE SHORT LEG	YES
38	L12	LED	ONE LONG LEG AND ONE SHORT LEG	YES
39	L13	LED	ONE LONG LEG AND ONE SHORT LEG	YES
40	L14	LED	ONE LONG LEG AND ONE SHORT LEG	YES
41	L15	LED	ONE LONG LEG AND ONE SHORT LEG	YES
42	Q1	TRANSISTOR, NPN	FIGURE 8	YES
43	Q2	TRANSISTOR, NPN	FIGURE 8	YES
44	Q3	TRANSISTOR, NPN	FIGURE 8	YES
45	Q4	TRANSISTOR, NPN	FIGURE 8	YES
46	Q5	TRANSISTOR, NPN	FIGURE 8	YES
47	Q6	TRANSISTOR, NPN	FIGURE 8	YES
48	C1	CAPACITOR, 1uF	MARK WITH 1uF OR SAME MEANING OF VALUE	YES
49	C2	CAPACITOR, 10uF	MARK WITH 10uF OR SAME MEANING OF VALUE	YES
50	C3	CAPACITOR, 10uF	MARK WITH 10uF OR SAME MEANING OF VALUE	YES
51	C4	CAPACITOR, 0.33uF	MARK WITH 0.33uF OR SAME MEANING OF VALUE	YES
52	C5	CAPACITOR, 10*10E3pF	MARK WITH 103 OR SAME MEANING OF VALUE	NO
53	C6	CAPACITOR, 10*10E3pF	MARK WITH 103 OR SAME MEANING OF VALUE	NO
54	C7	CAPACITOR, 0.1uF	MARK WITH 0.1uF OR SAME MEANING OF VALUE	YES
55	U1	DIP 14 SOCKET	14 LEGS	NO
56	VR	VARIABLE RESISTOR, 1M ohms	FIGURE 7	NO
57	VRE	VOLTAGE REGULATOR, LM7805	FIGURE 5	FIGURE 5
58	MICROPHONE	MICROPHONE	TWO LEGS, FIGURE 9	YES
59	DCJACK	3.5mm MONO JACK SOCKET	FIGURE 10	YES
60	B+, B-	9v BATTERY ADAPTOR	RED WIRE, BLACK WIRE	YES
61	ON THE TOP OF ITEM 55	IC, 4013	14 LEGS	YES

- After you have installed all the component in above, now we need to turn this to working condition. Because the user may not have an oscilloscope, we would use the stupid method to adjust this equipment.
  1. Turn the item 56, VR, to either clockwise or anti-clockwise direction until you heard some the sound of "clip clip". The "clip clip" mean you have turn the VR to the max or min of its resistance value.
  2. Turn maybe 1/2 cycle of VR in opposite direction.
  3. Clapping you hand and check if the LED change its state (From all "OFF" to all "ON" or from all "ON" to all "OFF") or not.
  4. Go back to step 2 and 3 until you can activate the LED by clapping your hand. You can see this step as the sensitivity adjustment of this equipment.
- After installation, you can use external DC adaptor as power sources. You can use our product M00270013 or other similar adaptor.

CIRCUIT DIAGRAM:

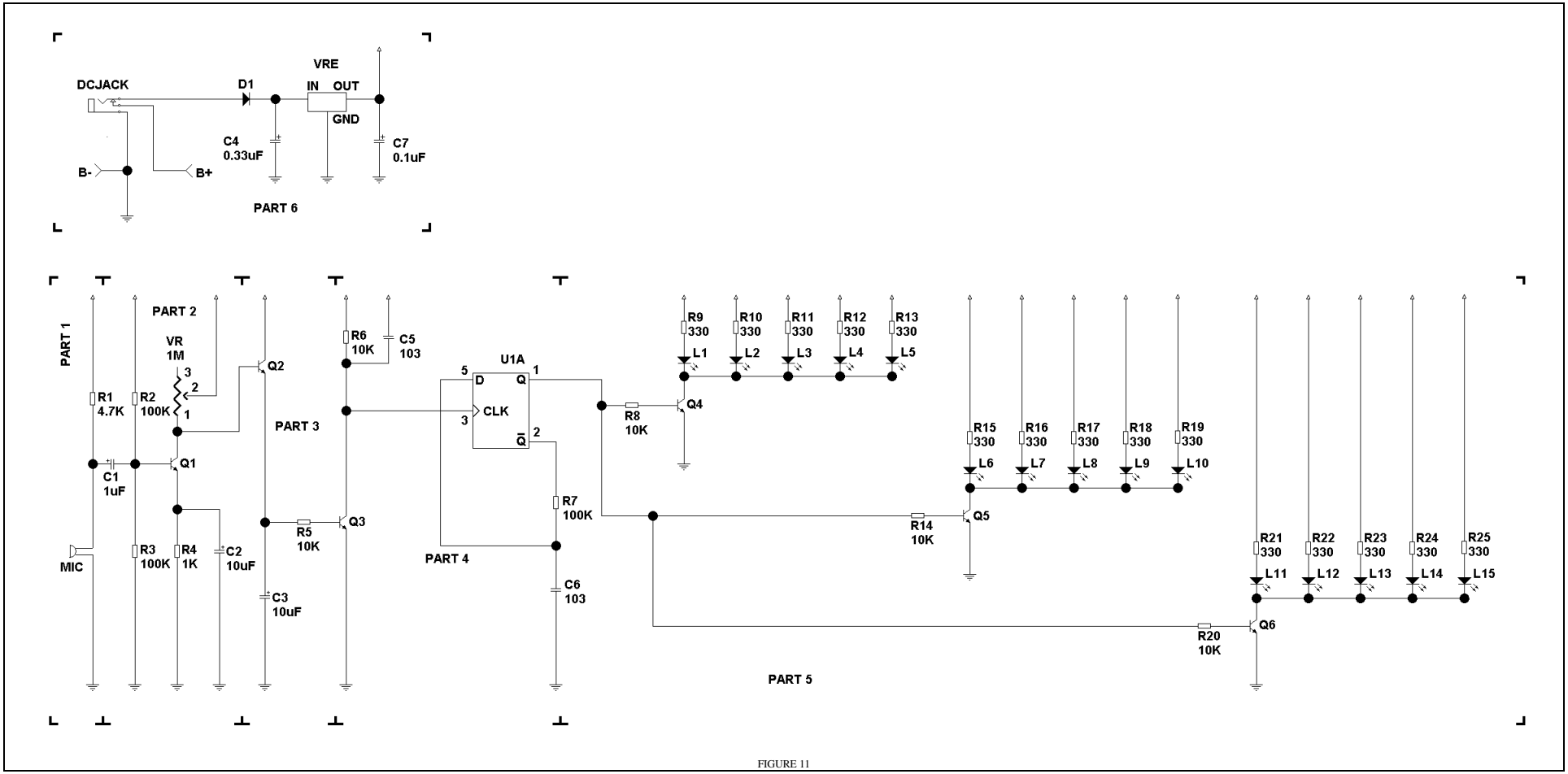

FIGURE 11