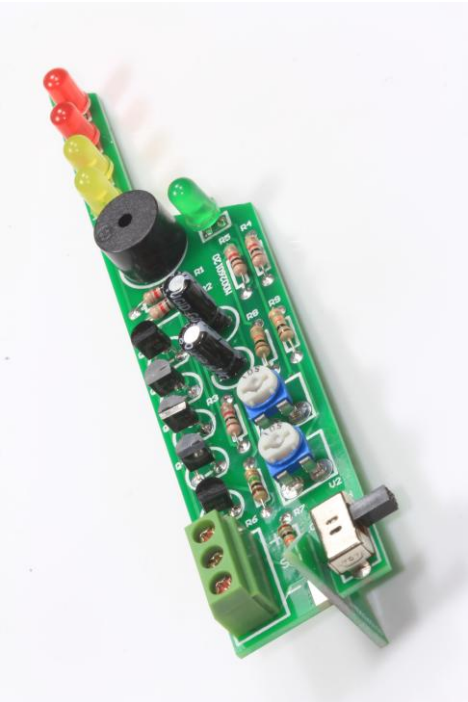


WARNING VIBRATING LED AND BUZZER WITH INDEPENDENT TRIGGERING SIGNAL

PRODUCT CODE: M00270075

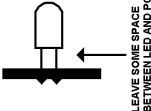
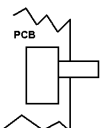
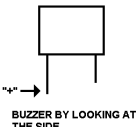


FEATURE:

- Warning LED and buzzer without using any IC on building the vibration circuit.
- Supply voltage of power source and triggering voltage of signal could work independently.
- There is a leg for the kit so that the kit could stand upright.
- Assembly is needed.

READ BEFORE INSTALLATION:

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

 FIGURE 1	 FIGURE 2	 TRANSISTOR BY LOOKING AT THE TOP FIGURE 3
TOP VIEW  FIGURE 4	 FIGURE 5	SCREW AT THE TOP  FIGURE 6
 FIGURE 7		

INSTALLATION:

Just install the component to the PCB M00260120 according to below table.

ITEM	SYMBOL ON PCB	DESCRIPTION	OUTLOOK	DIRECTION ON INSTALLATION? AND OTHER
1	R1	RESISTOR, 1K ohms	BROWN, BLACK, RED	NO
2	R2	RESISTOR, 1K ohms	BROWN, BLACK, RED	NO
3	R3	RESISTOR, 1K ohms	BROWN, BLACK, RED	NO
4	R4	RESISTOR, 1K ohms	BROWN, BLACK, RED	NO
5	R5	RESISTOR, 1K ohms	BROWN, BLACK, RED	NO
6	R6	RESISTOR, 1M ohms	BROWN, BLACK, GREEN	NO
7	R7	RESISTOR, 10K ohms	BROWN, BLACK, ORANGE	NO
8	R8	RESISTOR, 10K ohms	BROWN, BLACK, ORANGE	NO
9	R9	RESISTOR, 10K ohms	BROWN, BLACK, ORANGE	NO
10	Q1	TRANSISTOR, 9014, NPN	FIGURE 3	YES
11	Q2	TRANSISTOR, 9014, NPN	FIGURE 3	YES
12	Q3	TRANSISTOR, 9014, NPN	FIGURE 3	YES
13	Q4	TRANSISTOR, 9014, NPN	FIGURE 3	YES
14	Q5	TRANSISTOR, 9014, NPN	FIGURE 3	YES
15	L1	LED	RED	YES, FIGURE 1, FIGURE 2, NOTE 1
16	L2	LED	RED	YES, FIGURE 1, FIGURE 2, NOTE 1
17	L3	LED	YELLOW	YES, FIGURE 1, FIGURE 2, NOTE 1
18	L4	LED	YELLOW	YES, FIGURE 1, FIGURE 2, NOTE 1
19	L5	LED	GREEN	YES, FIGURE 1, FIGURE 2, NOTE 1
20	C1	CAPACITOR, 1uF	MARK WITH 1uF OR SAME MEANING OF VALUE	NOTE 1
21	C2	CAPACITOR, 1uF	MARK WITH 1uF OR SAME MEANING OF VALUE	NOTE 1
22	V1	VARIABLE RESISTOR, 1M ohms	FIGURE 4	YES
23	V2	VARIABLE RESISTOR, 1M ohms	FIGURE 4	YES
24	S1	INPUT FOR POWER AND TRIGGERING SIGNAL	FIGURE 6	NOTE 2
25	SWITCH	SLIDE SWITCH	SIX LEGS, FIGURE 5	YES, FIGURE 5
26	BZ	BUZZER	FIGURE 7	YES, NOTE 1
27	/	LEG	PCB IN OUTLOOK	NOTE 3

- NOTE 1: On component, longer leg is “+”.
- NOTE 2: Metal terminal is facing outside the PCB.
- NOTE 3: You could solder the both PCB together. There are soldering pads on the bottom on both PCB.

HOW TO PLAY?

From Figure 9, when the power source (5V to 9V) plugs into “+” and “-” of “S1” and DC signal from “EQUIPMENT SENDING OUT TRIGGERING SIGNAL” (Maybe 2V to 30V and the ground of signal source is also connecting to “-” of “S1”) feeds into S of “S1”, “L1, L2”and “L3, L4” would flash. If you turn on the buzzer by switching on “SWITCH”, the buzzer would beep. The rate of flashing and beeping could be control by turning “V1” and “V2”. By using this logic, this could be used as warning LED and buzzer by connecting this to any external circuit.

CIRCUIT EXPLANATION:

In fact, this is a classic vibration circuit because this circuit do not use any IC to make the vibration. The circuit connect in this way because the triggering voltage of signal could be different to supply voltage of power source. For example, the vibration circuit is running at 9V from supply voltage of power source but the triggering voltage of signal maybe 25V. When signal turn on “Q5”, then all transistor “Q3”, “Q4” and “Q2” could touch the ground. The vibration or beeping could take place. Also separate the power source and signal could control the vibration rate independently. This mean even the triggering voltage is 4V, 6V, 29V or any voltage....., the vibration rate is the same if there is no change on supply voltage.

There are two figures to show you the circuit detail. Figure 8 is a raw circuit diagram. The logic of this circuit is little difficult to be understood for most people. As a result, we draw Figure 9 to show you the detail.

I just use Figure 9 to explain the circuit. When power is provided to “S1” and triggering signal is feed into S of “S1”, either “C1” or “C2” would have more “+” and “-” charges on this. You may think left-hand side and right-hand side of circuit is almost symmetric. Both should contain same amount and type of charge on both “C1” and “C2” when power is initial feeding to the circuit. But the reality is that all the components would have little difference on value even the marking on value are the same. “C1” maybe the actual value is 1.00001uF and “C2” is 0.9999uF. This is the same on resistor, transistor..... This little difference makes the vibration could start to vibrate. I assume now the circuit is already on stable vibration status. Now the first half of vibration is taking place at left-hand side. The arrow on Figure 9 is the “+” charge where to flow when this first half take place. The charge is just to flow from “L3” and “L4”. “L3” and “L4” light on. Then push the “+” charge from left-hand side of “C1”. Finally, the “+” charge on right-hand

The function of “R5” and “L5” is just to show the player that the equipment is on working status.

[illegible]

FIGURE 8

EQUIPMENT SENDING OUT TRIGGERING SIGNAL

SIGNAL

"-" OF EQUIPMENT

POWER SOURCE

S1

R3

R4

R8

R9

L3

L4

C1

C2

Q4

Q5

R7

V2

FIGURE 9

FIGURE 9