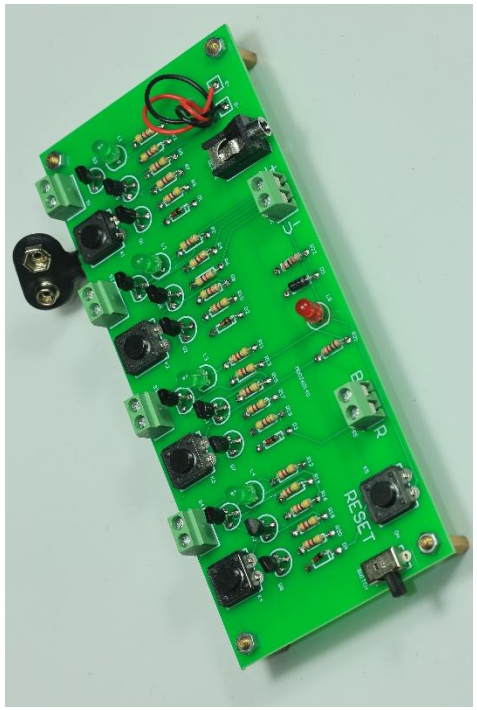
SWITCHES FOR QUICK ANSWER GAME

PRODUCT CODE: M00270085

FEATURE:

- 4 switches for four players
- This kit is allowed to extendable for more player.
- On and Off switch is provided.
- Assembly is needed.



READ BEFORE INSTALLATION:

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

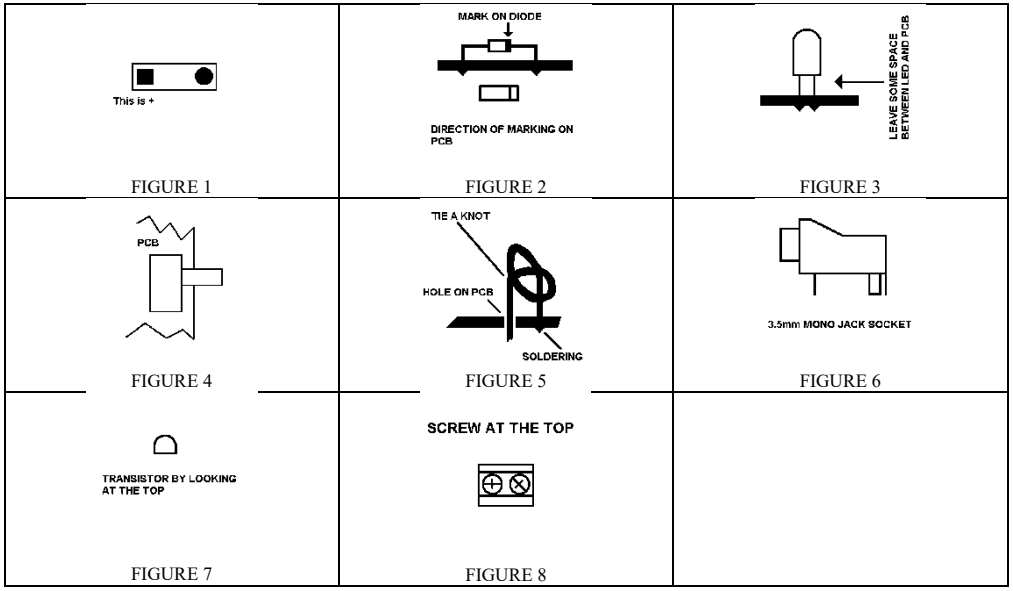


FIGURE 1 | FIGURE 2 | FIGURE 3

FIGURE 4 | FIGURE 5 | FIGURE 6

FIGURE 7 | FIGURE 8

INSTALLATION:

Just install the component to the PCB M00260140 according to below table.

ITEM	DESCRIPTION	SYMBOL ON PCB	OUTLOOK	DIRECTION ON INSTALLATION? AND OTHER
1 TO 20	RESISTOR, 4.7K ohms	R1 TO R20	YELLOW, VIOLET, RED	NO
21 TO 22	RESISTOR 1K ohms	R21 TO R22	BROWN, BLACK, RED	NO
23 TO 26	DIODE, IN4148	D1 TO D4	FIGURE 2 (MOSTLY TRANSPARAENT RED)	FIGURE 2
27	DIODE, IN4001	D5	FIGURE 2 (MOSTLY BLACK)	FIGURE 2
28 TO 31	LED	L1 TO L4	GREEN	YES, FIGURE 1, FIGURE 3, NOTE 1
32	LED	L5	RED	YES, FIGURE 1, FIGURE 3, NOTE 1
33 TO 38	INPUT OR OUTPUT FOR ANY PROPOSE	S1 TO S6	FIGURE 8	NOTE 4
39 TO 46	TRANSISTOR, 9014, NPN	Q1, Q2, Q5, Q6. Q7, Q8, Q11, Q12	FIGURE 7	YES
47 TO 50	TRANSISTOR, 9015, PNP	Q3, Q4, Q9, Q10	FIGURE 7	YES
51	3.5mm MONO JACK SOCKET	DCJACK	FIGURE 6	YES
52	9V BATTERY ADAPTOR	B+ B-	RED WIRE, BLACK WIRE	YES, NOTE 2
53	SLIDE SWITCH	SWITCH	SIX LEGS	YES, FIGURE 4
54 TO 58	PUSH BUTTON SWITCH	K1 TO K5	FOUR LEGS	NO
59 TO 62	HEX CAP SCREW AND IS THE LEG OF PIANO	/	LONG METAL	NOTE 3
63 TO 66	HEX NUTS, ON TOP OF ITEM 59 TO 62	/	/	NOTE 3

- NOTE 1: On component, longer leg is "+".
- NOTE 2: 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.
- NOTE 3: Put item 59 to 62 to the four holes of PCB. This is the leg of kits. Then screw item 63 to 66 on the top of this.
- NOTE 4: Metal terminal is facing outside the PCB.

HOW TO PLAY?

The Voltage of 9V plugs into the "B+, B-" or "DCJACK". Then turn on the "SWITCH" to "ON" status. Actually, this is the four switches for quick answer game. I assume there are four players A to D. If player A hit "S1" first and let "L1" light on, player B to D is not possible to let their LED light on even he/she hit their button. This condition could be released to original condition when the host hit "RESET".
On the other hand, this kit is possible to extendable for more player. Just connect as below.
When there are two kits Kit1 and Kit2 and try to let 8 players to play this game.

1. On "S6" of both kits, connect V+ of Kit1 to V+ of Kit2 and V- of Kit1 to V- of Kit2.
2. On "S5" of both kits, connect B of Kit1 to B of Kit2 and R of Kit1 to R of Kit2.

On the other hand, this kit is possible to let the player to connect an external push button. For example, "S1" could connect an external push button as Figure 9 to replace the function of "K1". Then the player does not need to sit too close to play the game.

CIRCUIT DESCRIPTION:

The core of this kit are four sets of transistor latch circuit. I just use the set with K1, R1, R3, R5, S1…… to explain the circuit.
Now look at Figure 10. When player hit "K1", this turns on "Q1". After "Q1" is on "ON" status. The current would flow as arrow. The condition is that "Q1" and "Q3" would protect each other to let both transistors are always at alive status.
At the same time, this would also turn on "Q5". Current would flow from collector or "Q5" to ground. Collector of "Q5" is connected to "B". From Figure 9, you could find "VCC" is connected to "R21", then "B". Current flow from "VCC" to "R21", "B" and finally collector of "Q5" would let "B" is also close to ground.
From Figure 9, because at the top of 4 sets of switches are also collect to "B". The result is that the function of four switch "K1", "K2", "K3" and "K4" are also becoming close to ground and disabled. At the same time, because the life of "Q1" and "Q3" now are protecting each other. "L1" now is still at "ON" status.
From figure 9, the kit would return to original status when "RESET" is pushed. The reason is that this force the base of "Q1" connected to ground. The function of "D1" is to prevent other three sets of transistor latch circuit would be turn on when "K1" is pushed.

CIRCUIT DIAGRAM:

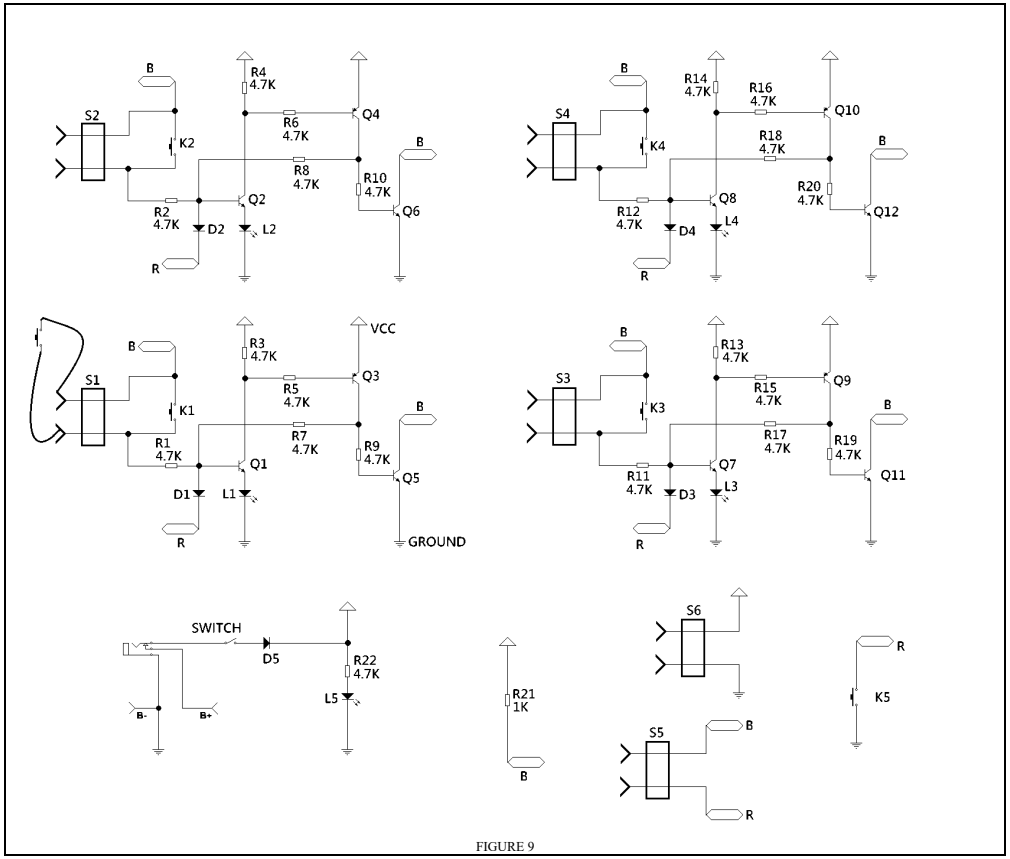


FIGURE 9

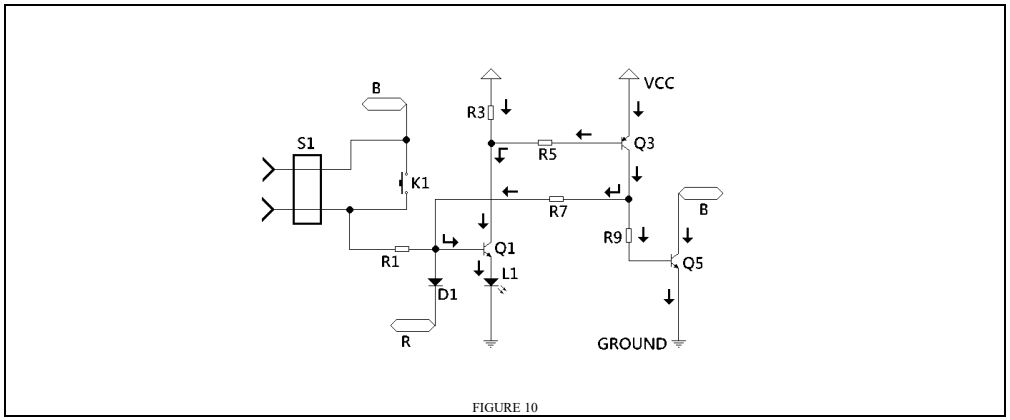


FIGURE 10