

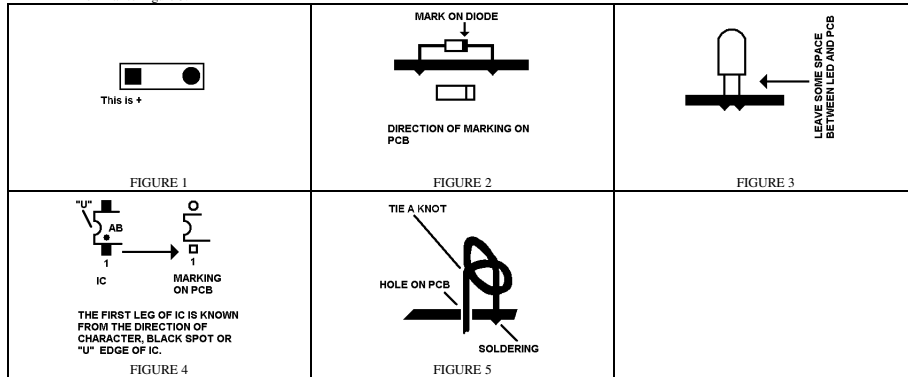
E FIELD SENSOR

PRODUCT CODE: M00270017

DESCRIPTION: This is a low cost E Field Sensor by detecting the E field on electromagnetic wave (Example: Working as Non-Contact AC outlet Voltage Detector).

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.
- 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 5.

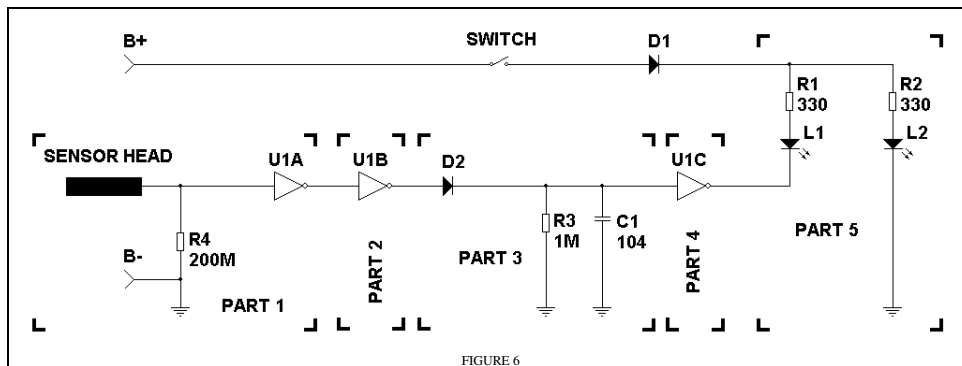


CIRCUIT EXPLANATION:

Please read the below together with the circuit diagram in Figure 6.

- The function of D1 is to prevent reverse power supply.
- Part 1 is the sensor part. IC, 4069 is made of CMOS inside the circuit. CMOS is very sensitivity to E Field. Even IC, 4069 is, in fact, inverters (6 inverters per IC, 4069). But we can use the characteristic of that IC on this propose.
- Part 2 work as an inverter. The U1B is just to invert any signal coming from part 1.
- Part 3 work as smoothing circuit. This mean any AC signal would change to DC signal in this part.
- Part 4 work as a buffer but inverting the signal. Buffer mean the U1C would isolate the entire signal before this.
- In part 5, L1 would light up when detecting an E field. L2 is just to indicate the equipment is on when light on.

CIRCUIT DIAGRAM:



INSTALLATION:

Just install the component to the PCB M00260033 according to below table.

ITEM	SYMBOL ON PCB	DESCRIPTION	OUTLOOK	DIRECTION IS IMPORTANT?
1	R1	RESISTOR, 330ohms	ORANGE, ORANGE BROWN	NO
2	R2	RESISTOR, 330ohms	ORANGE, ORANGE BROWN	NO
3	R3	RESISTOR, 1M ohms	BROWN, BLACK, GREEN	NO
4	R4	RESISTOR, 200M ohms	RED, BLACK, VIOLET	NO
5	D1	DIODE, IN4001	FIGURE 2 (MOSTLY BLACK)	FIGURE 2
6	D2	DIODE, IN4148	FIGURE 2 (MOSTLY TRANSPARENT RED)	FIGURE 2
7	U1	DIP 14 SOCKET	14 LEGS	NO
8	L1	LED	RED	YES
9	L2	LED	GREEN	YES
10	C1	CAPACITOR, 100nF	MARK WITH 104 OR SAME MEANING OF VALUE	NO
11	SWITCH	SLIDE SWITCH	SIX LEGS	NO
12	B+, B-	9V BATTERY ADAPTOR	RED WIRE, BLACK WIRE	YES
13	ON THE TOP OF ITEM 7	IC, 4069	14 LEGS	FIGURE 4