

CHARLIEPLEXING 8 X 7 LED PANEL

(ARDUINO COMPATIBLE)
 PRODUCT CODE: M00270051

FEATURE:

- Only 8 pin to control 56 LED.
- Any flashing pattern can be made by writing the Sketch (Arduino program), any brand of Microcontroller or external control circuit.
- Assembly is needed.
- Arduino Sketch example for showing Charlieplexing technique is attached.
- Requires 1 Arduino UNO (not included).



ITEM	SYMBOL ON PCB	DESCRIPTION	OUTLOOK	DIRECTION IS IMPORTANT?
1 TO 56	1 2, 1 3 ... 8 6, 8 7	LED	TRANSPARENT	YES
57 TO 64	R1 TO R8	RESISTOR, 150 ohms	BROWN, GREEN, BROWN	NO
65	1 2 3 4 5 6 7 8	BREAK AWAY MALE HEADERS	8 PINS	FIGURE 2

CIRCUIT DIAGRAM:

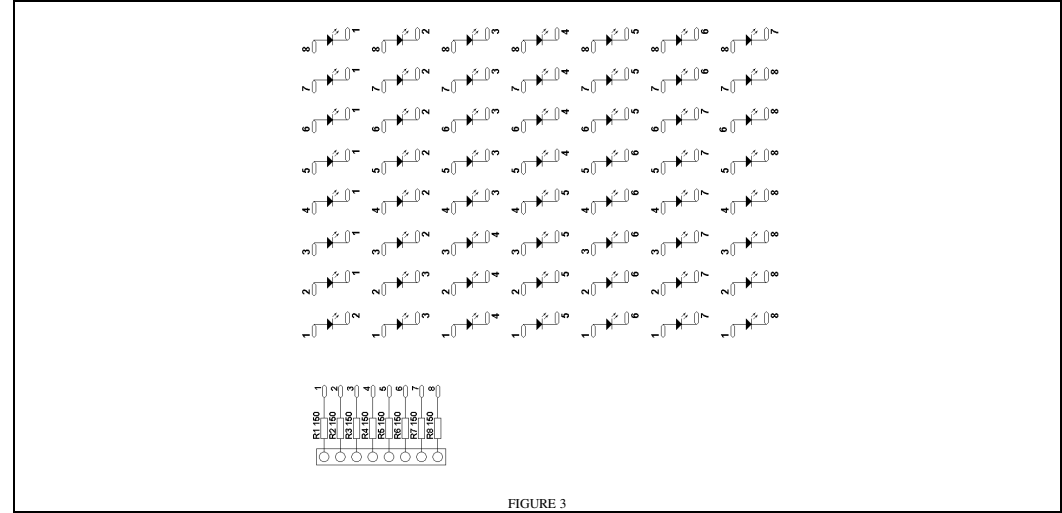
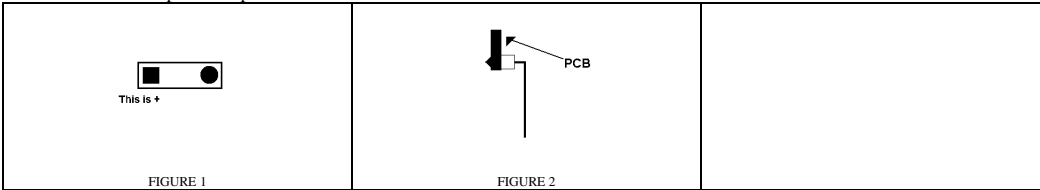


FIGURE 3

READ BEFORE INSTALLATION:

- Put the component on the side of screen printing and solder on the back of PCB without printing.
- On component, longer leg is "+".
- On PCB marking, square pad as Figure 1 is always "+".
- Do not connect this shield into the Arduino when downloading the Sketch.
- Do not use pin 0 and pin 1 of UNO



DESCRIPTION:

The circuit design is based on the Arduino UNO. Of course, this can be used on any brand of Microcontroller or external circuit if the pin location is matched. If this is not matched, just route this yourself. This uses the Charlieplexing technique to control the 56 pieces of LED. The technique is by changing the unwanted pin into high-impedance state. The advantage of this technique is using lesser pin to control same amount of LED. In this example, this use 8 pins to control 56 pieces of LED. If you want to know more detail, you can find the detail in the web. The back of PCB has marked the pin connection on each LED. For example, "1 2" mean pin 1 is connected to pin 2. The actual connection can refer to FIGURE 3. In the Sketch example, this show you how to light on only one LED one by one and all LED at the same time. This can show you the core of Charlieplexing technique. When two extreme cases are ok, this means other pattern is not difficult to be made.

INSTALLATION:

Just install the component to the PCB M00260086 according to below table

SKETCH:

```

/* The below show you how to turn on each LED by using
Charlieplexing Technique. We would use Pin 2 to Pin 9 of UNO. */
void setup() {
}

void loop() {
    lightUpEachLED();
}

void lightUpEachLED() {
    for (int c = 2; c<10; c++) {
        for (int d = 2; d<10; d++) {
            if (c != d) {
                lightUp(c,d);
                delay (500);
            }
        }
    }
}

/* If the soldering is ok and no problem, each LED should light up
one by one. */
/* If you want to light up all the LED at the same time,
just use the below code instead of delay(500) on above line.
delayMicroseconds(200); */
    }
}
    
```

```

/* Choice of LED you want to light up by i and j. */
void lightUp(int i, int j) {
    for (int a = 2; a<10; a++) {
        if ( a != i){
            pinMode(a, INPUT);
        }
    }
    for (int b = 2; b<10; b++) {
        if ( b != j) {
            pinMode(b, INPUT);
        }
    }
    pinMode(i, OUTPUT);
    pinMode(j, OUTPUT);
    digitalWrite(i, HIGH);
    digitalWrite(j, LOW);
}
    
```