L-01 8-bit LED register

Features

The L-01 8-bit LED register module is based on the 74HC273 IC, which contains 8 positive-edge triggered D-type flip-flops. This module breaks out all pins of the 74HC273 IC and adds LEDs on the output of the register.

The LEDs make this module especially suitable for digital logic experiments, as they can show the content stored in the register to monitor the data.

A pull-up resistor (R9) is added to make prevent the 74HC273 IC from resetting the register. Asynchronous reset can still be achieved by shorting the CLR pin to ground.

The module has a working Voltage range of 2 to 6 Volts, for more information please refer to the datasheet of the 74HC273 IC.

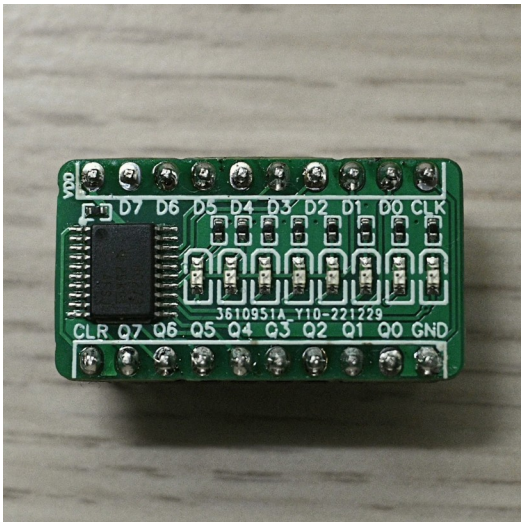

Figure 1: The assembled module.

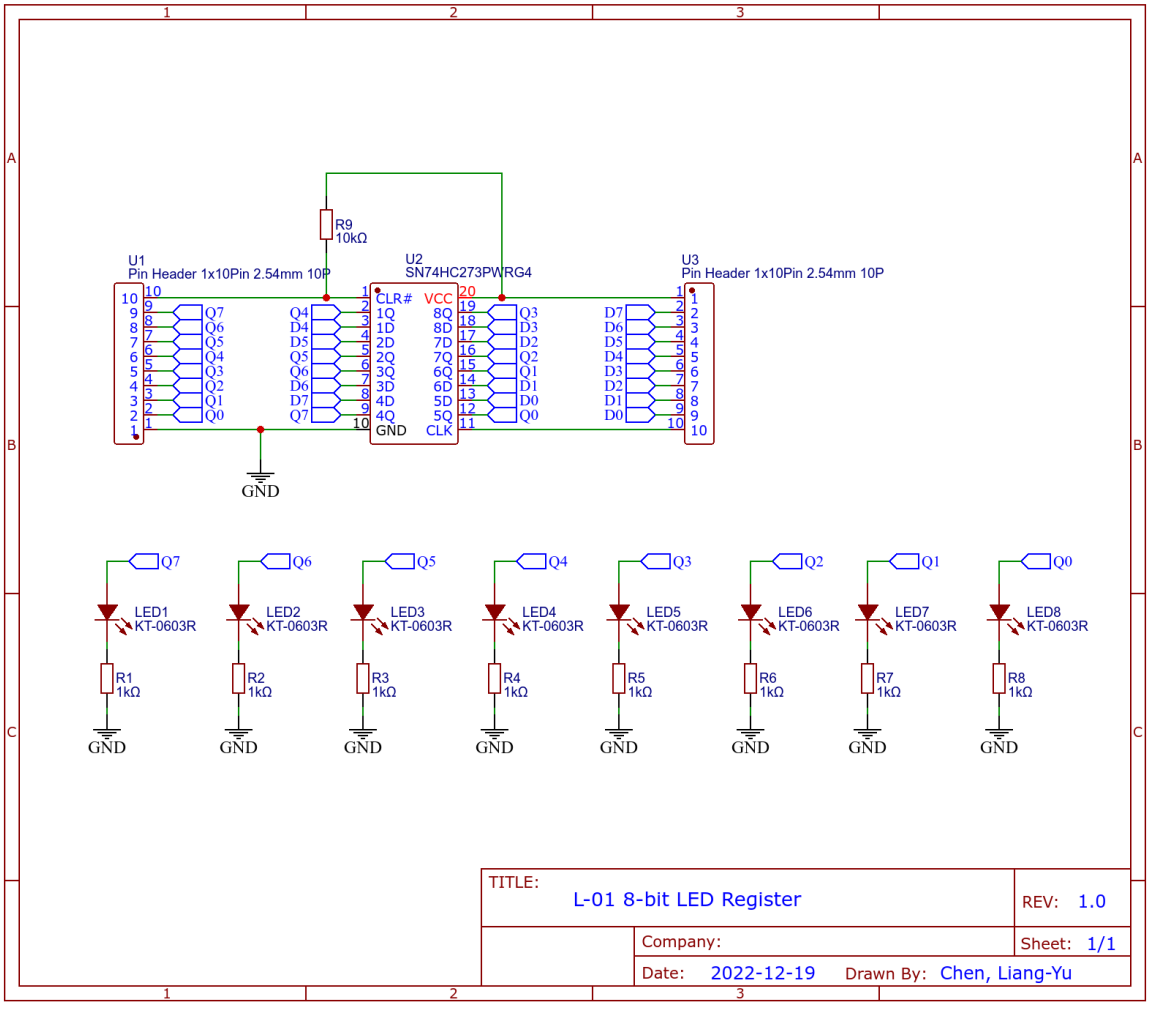

Figure 2: The circuit diagram of the module.

Pin Configuration and Functions

The module has 20 pins, same as the 74HC273 IC; however, the pins are rearranged and the footprint is larger (than DIP-20). The power and controlling pins (VDD, GND, CLK, CLR) are placed in the same position, at the four corners of the module. However, the input (Dx) and output (Qx) of the flip-flops are rearranged to the two sides of the module.

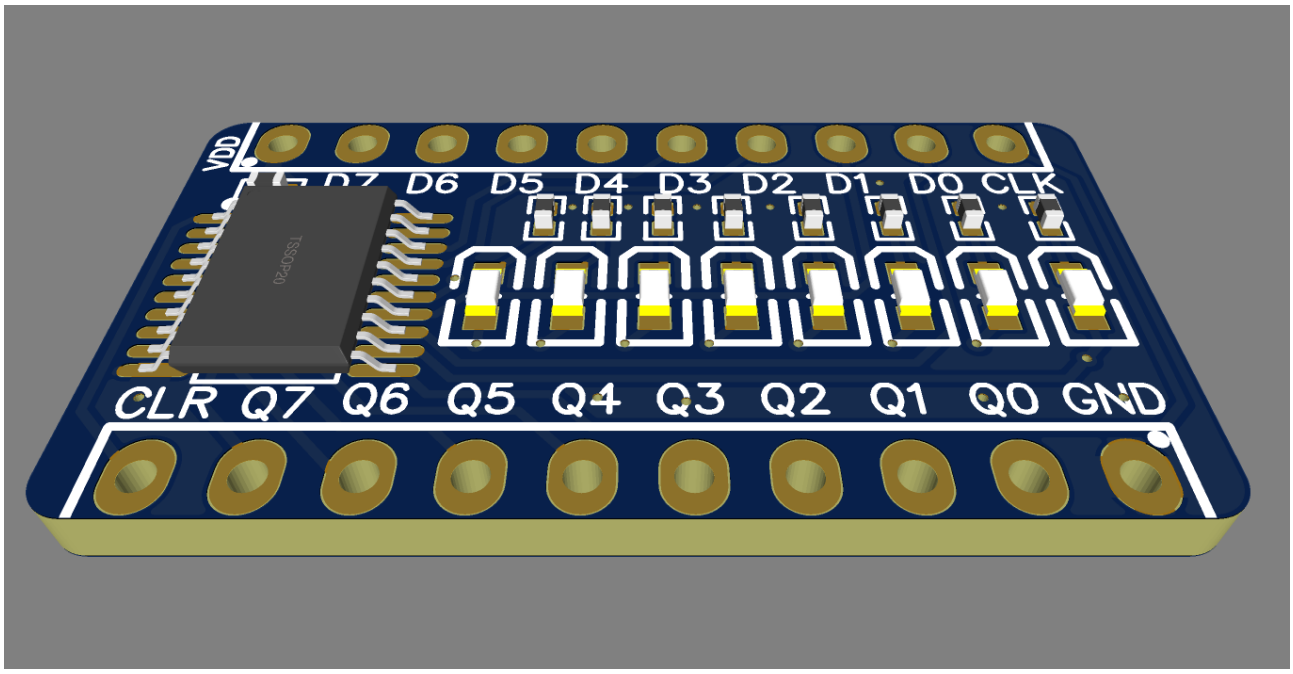

Figure 3: 3D render of the module PCB.

As shown in figure 3, all 8 data inputs are put on the far side of the module and the 8 outputs are put on the near side of the module. Each input/output pair is put on the same straight line to make wiring more intuitive. Please be aware that the numbering of the inputs/outputs is different to that on the 74HC273 IC, the inputs, outputs and LEDs are number 0 to 7 from the right hand side. Additional information about the pins are listed in the table below.

Pin name	Description
VDD	Voltage supply
GND	Ground
CLK	Clock input, triggered by a positive-edge.
CLR	Asynchronous reset triggered by negative-edge, pulled high by the module.
Dx	Data input, floating by default.
Qx	Data output

Notes

1. Do not leave data input floating, or the data output and LED status will be unpredictable.
2. The arrangement and numbering of the data pins are different to those on the 74HC273 IC.