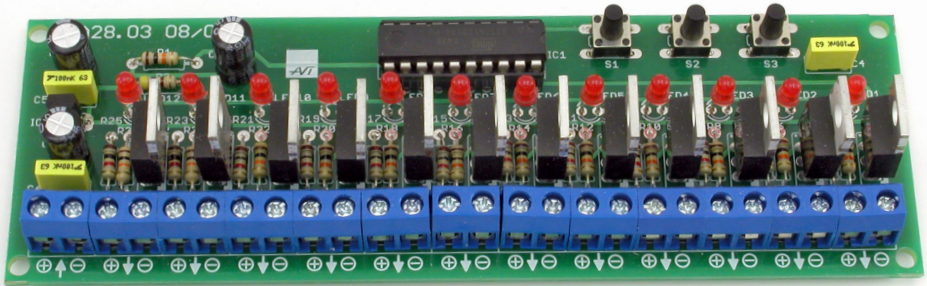




AVT 5695



ASSEMBLY DIFFICULTY


This circuit produces seven, fully user-configurable lighting effects. These include effects reminiscent of a falling light effect or a falling meteorite, an effect known from the Knight Rider film, or a randomly lit spot. You can adjust both the speed of each effect and the length of its streak. Such light sequences can be a wonderful addition to an advertising or even festive lighting composition.

Features

- seven lighting effects
- 3-button control
- speed and streak control
- 12 outputs with 1 A (3 A) load capacity
- power supply: 12 V
- PCB size: 140×45 mm

Circuit description

Schematic diagram of the circuit is shown in Figure 1. Its operation is controlled by a ATTINY2313 microcontroller clocked by an internal clock signal. This circuit must be supplied with 12 VDC lead to the IN connector. The IRF9530-type transistors were used as actuators.

Twelve transistors and LEDs, are controlled directly from the microcontroller ports. The use of a microcontroller in the role of LED driver definitely simplifies the circuit and offers unlimited possibilities in terms of achieving any imaginable lighting effects. The circuit is powered by a safe voltage of 12 V, and its output can be connected directly to 12 V LED bulbs or strips.

Mount the circuit on a printed circuit board, its component layout is shown in Figure 2.

Perform mounting according to general principles, starting with the soldering of the lowest components - the resistors - and ending with the highest components - the buttons and the screw connection. Three buttons S1-S3 are used to operate the device. Pressing the S1 button will change the effect; the LED corresponding to the effect number as stored in the microcontroller is lit for a moment. The S3 button is used to change the effect speed, while the S2 button changes the length of its trail.

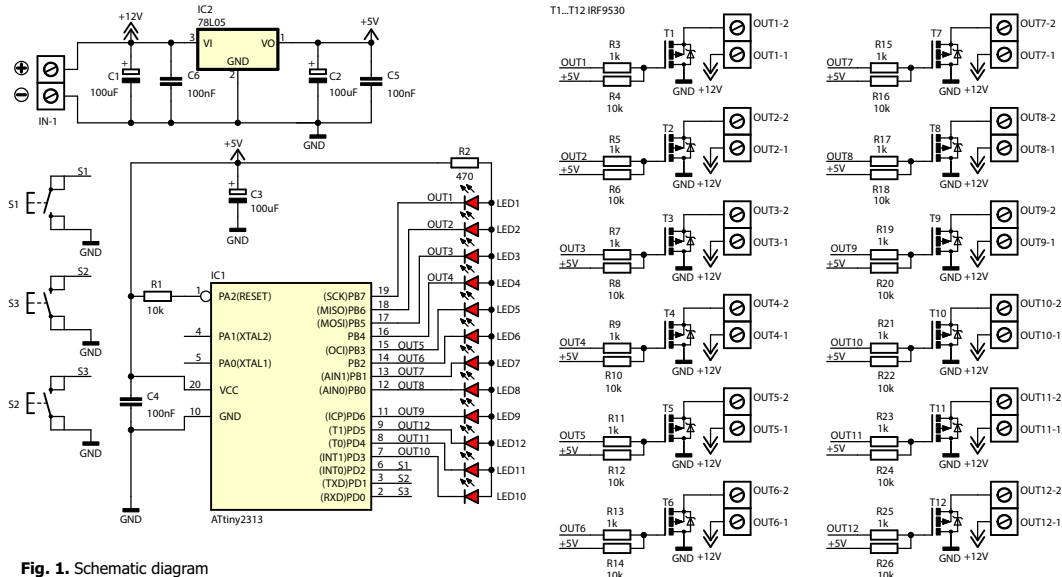


Fig. 1. Schematic diagram

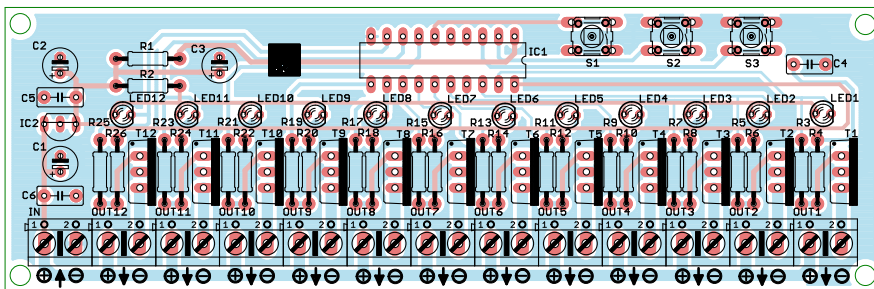


Fig. 2. Mounting diagram

List of components

Resistors:

R1, R4, R6, R8, R10, R12, R14, R16, R18, R20, R22,
R24, R26:.....10 kΩ
R2:470 Ω
R3, R5, R7, R9, R11, R13, R15, R17, R19, R21, R23,
R25:1 kΩ

Capacitors:

C1-C3:.....100µF
C4-C6:.....100nF

Semiconductors:

LED1-LED12:.....LED
IC1:.....ATTINY2313
IC2:.....78L05
T1-T12:IRF9540

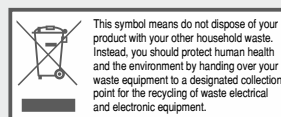
Other:

S1-S3:.....microswitch
IN, OUT1-OUT12:DG301-5.2/2



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