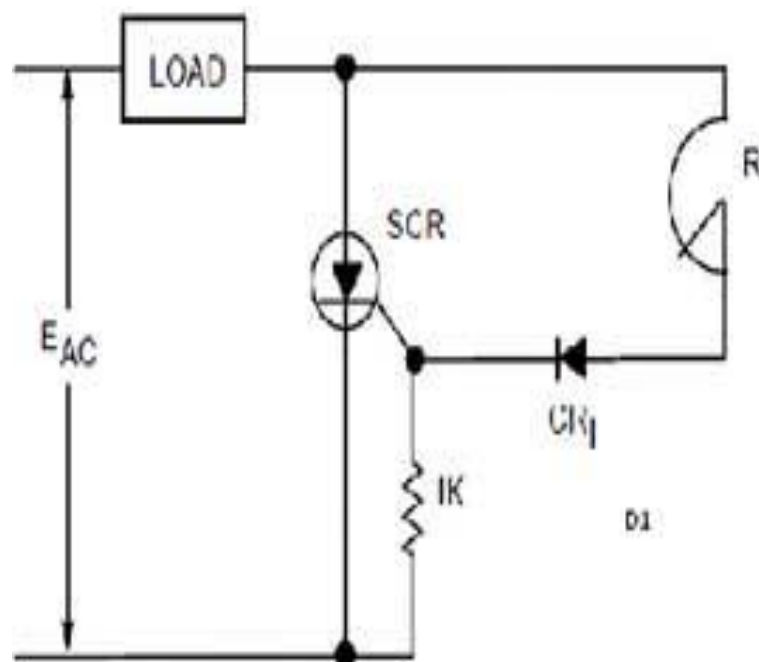


Gate Triggering Circuits

R-Triggering

It includes one fixed resistor, variable resistor, diode, **SCR(Silicon Controlled Rectifier)**, Load resistor. The circuit diagram of an **R Triggering** is shown below (Figure 1). Simple resistor; diode combinations trigger and control **SCRs** over the full 180 electrical degree ranges, performing well at commercial temperatures.

These types of circuits operate most satisfactorily when **SCRs** have fairly strong gate sensitivities. Since in a scheme of this type a resistor must supply all of the gate drive required to turn on the SCR, the less sensitive the gate, the lower the resistance must be, and the greater the power rating.



TYPICAL CIRCUIT VALUES FOR $E_{AC} = 120\text{ V}$

SCR = T106

$R = 1\text{ MEGOHM}$

$CR_1 = \text{IN4003}$

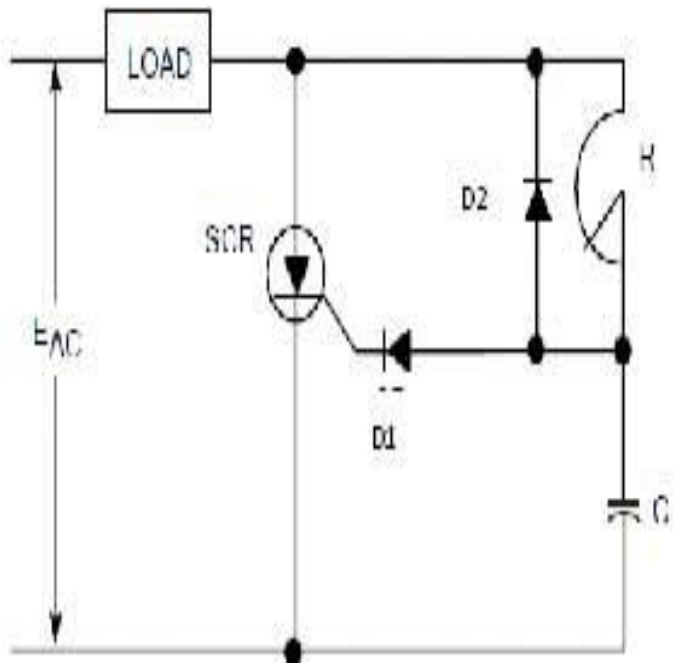
D1 = 004007

- **RC-Triggering**

It includes variable resistor, two diodes, SCR (Silicon Controlled Rectifier), Capacitor, Load resistor.

The circuit diagram of an **RC Triggering** is shown below (Figure 2). Figure 2 shows an R-C-Diode circuit giving full half-cycle control (180 electrical degrees).

On the positive half-cycle of **SCR** anode voltage the capacitor charges to the trigger point of the **SCR** in a time determined by the RC time constant and the rising anode voltage. The top plate of the capacitor charges to the peak of the negative voltage cycle through diode D2 on the negative half-cycle, resetting it for the next charging cycle.



TYPICAL CIRCUIT VALUES FOR $E_{AC} = 120\text{ V}$

D1, D2 = 1N4007

- **UJT-Triggering**

It includes **UJT triggering**, **SCR (Silicon Controlled Rectifier)**, Load resistor. A **unijunction transistor (UJT)** is an electronic semiconductor device that has only one junction. The **UJT** has three terminals: an emitter (E) and two bases (B1 and B2). The base is formed by lightly doped n-type bar of silicon. Two ohmic contacts B1 and B2 are attached at its ends. The emitter is of p-type and it is heavily doped.

The resistance between B1 and B2, when the emitter is open-circuit is called interbase resistance.

