

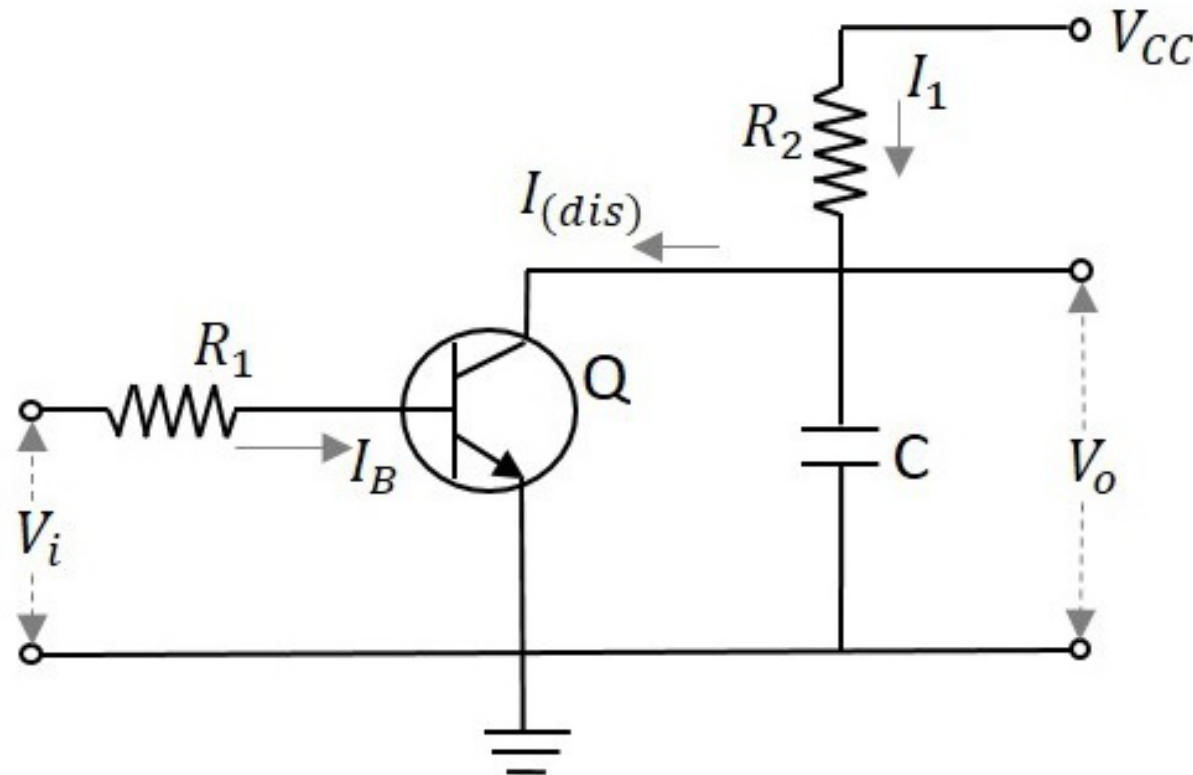
Types of Time Base Generators



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Voltage Time base Generator

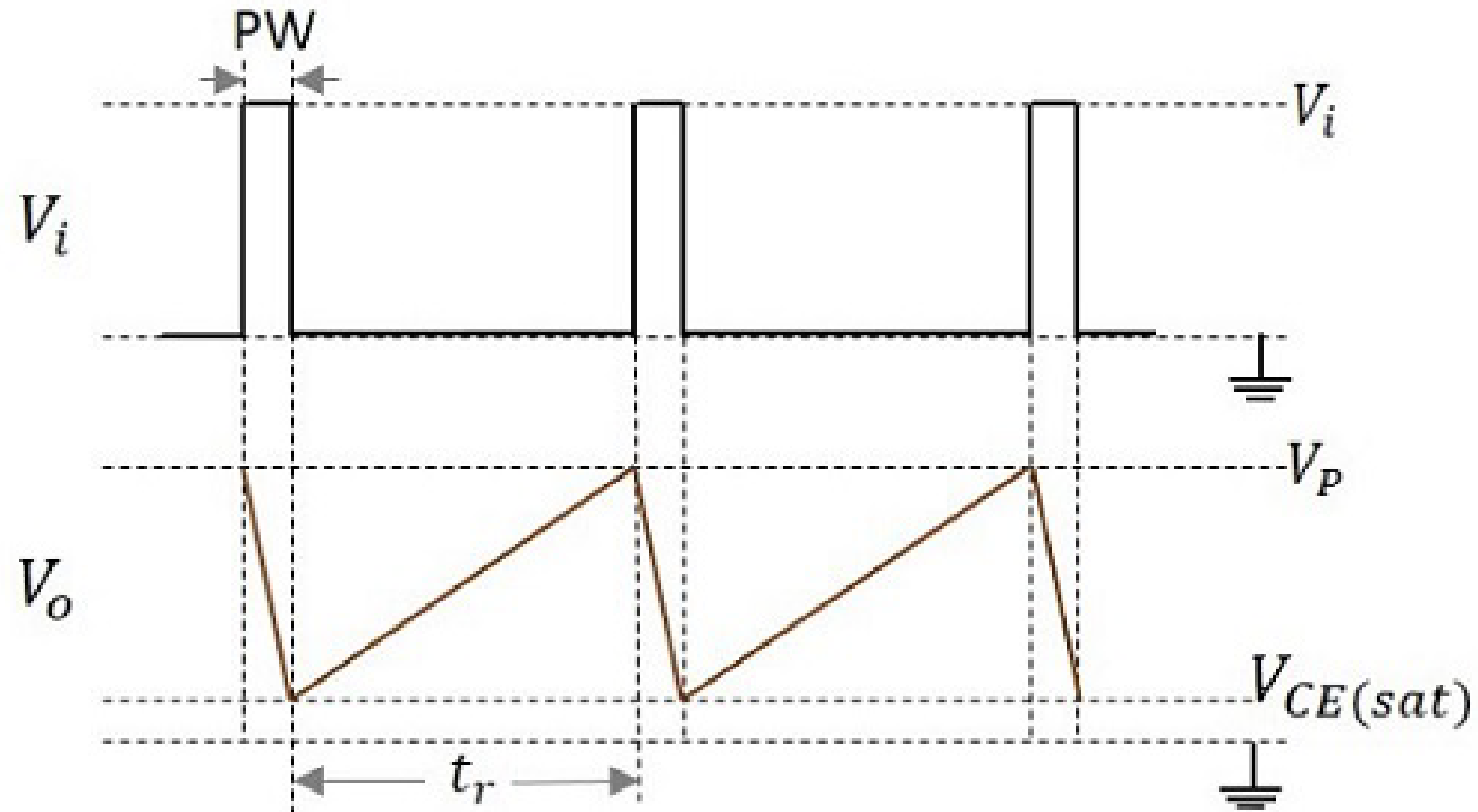
- A time base generator that provides an output voltage waveform that varies linearly with time is called as a Voltage Time base Generator.



A Simple Voltage Time base Generator

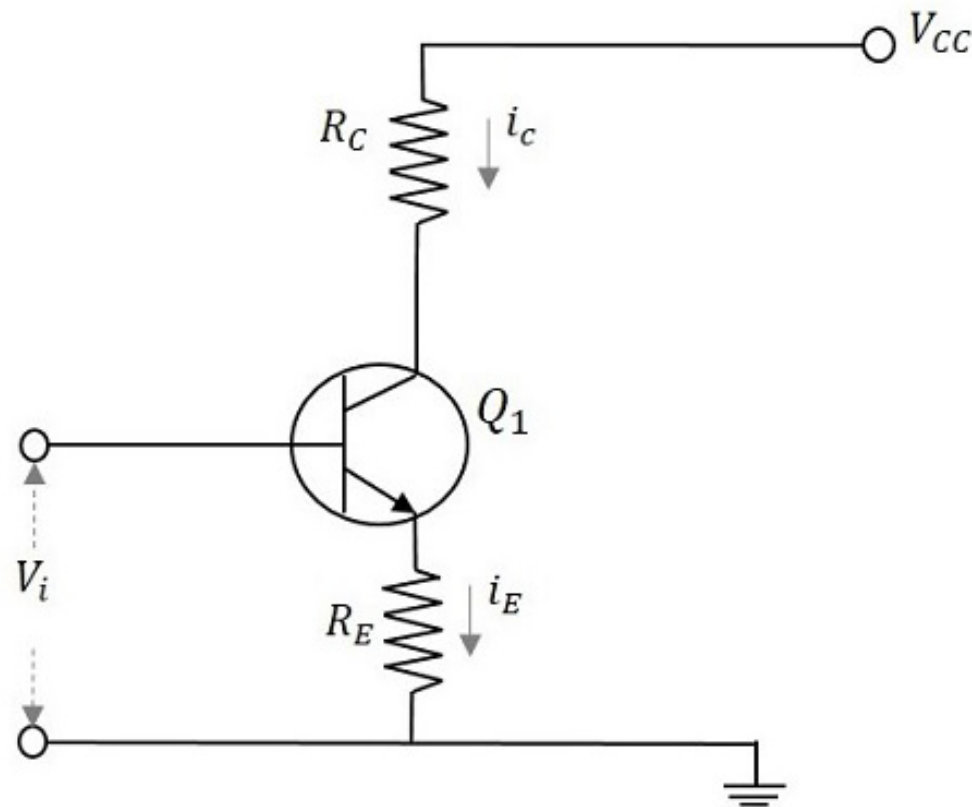
- A basic simple **RC time base generator** or a **Ramp generator** or a **sweep circuit** consists of a **capacitor C** which charges through VCC via a series connected **resistor R2**. It contains a **BJT** whose base is connected through the **resistor R1**. The capacitor **charges** through the **resistor** and **discharges** through the **transistor**.
- By the application of a positive going voltage pulse, the transistor Q turns **ON** to **saturation** and the capacitor rapidly discharges through Q and R1 to VCE (sat). When the input pulse ends, Q switches **OFF** and the capacitor C starts **charging** and continues to **charge** until the next input pulse. This process repeats as shown in the waveform below.

A Simple Voltage Time base Generator



Current Time base Generator

- A time base generator that provides an output current waveform that varies linearly with time is called as a Current Time base Generator.



A Simple Current Time base Generator

- A basic simple RC **time base generator** or a **Ramp generator** or a sweep circuit consists of a **common-base** configuration transistor and **two resistors**, having one in **emitter** and another in **collector**. The VCC is given to the collector of the transistor. The circuit diagram of a basic ramp current generator is as shown here under.
- A **transistor** connected in **common-base** configuration has its **collector current** vary linearly with its **emitter current**. When the emitter current is **held constant**, the collector current also will be **near constant** value, except for very smaller values of collector base voltages.

A Simple Current Time base Generator

