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(54) RELAXATION OSCILLATOR THAT SAMPLES VOLTAGE DIFFERENCE BETWEEN VOLTAGES GENERATED BY RESISTOR-CAPACITOR CHARGING AND DISCHARGING FOR CONTROLLING **OUTPUT CLOCK FREQUENCY OF** CONTROLLABLE OSCILLATOR AND ASSOCIATED RELAXATION OSCILLATION **METHOD**

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(57)ABSTRACT

A relaxation oscillator includes a resistor-capacitor (RC) circuit, an integration capacitor, a sampling circuit, and a controllable oscillator. The RC circuit performs an RC charging operation to set a first voltage, performs an RC discharging operation to set a second voltage, and performs a reset operation to reset the first voltage to a first reference voltage and reset the second voltage to a second reference voltage. The sampling circuit performs a charge delivery operation to sample a voltage difference between the first voltage and the second voltage, and transfers the voltage difference to the integration capacitor. The controllable oscillator generates an output clock in response to a control input provided by the integration capacitor.

