

SINGLE SUPPLY FUNCTION GENERATOR

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The circuit has both square-wave and triangle-wave output. The left section is similar in function to a comparator circuit that uses positive feedback for hysteresis. The inverting input is biased at one-half the V_{cc} voltage by resistor R4 and R5. The output is fed back to the non-inverting input of the first stage to control the frequency.

The amplitude of the square wave is the output swing of the first stage, which is 8V peak-to-peak. The second stage is basically an op amp integrator. The resistor R3 is the input element and capacitor C1 is the feedback element. The ratio $R1/R2$ sets the amplitude of the triangle wave, as referenced to the square-wave output. For both waveforms, the frequency of oscillation can be determined by the equation:
 $f_o = 1/4R3C1 * R2/R1$ The output frequency is approximately 50 Hz with the given components.