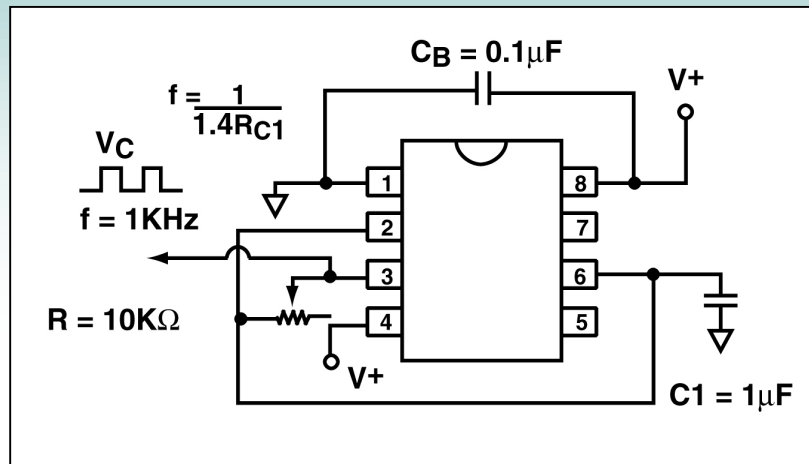




ALD555 Oscillation Circuit



Description

This is a basic oscillator circuit using a 555 type of timer. Initially circuit is configured as an astable multivibrator, with the oscillation frequency given by $f = 1 / (1.4 \times R \times C1)$. Initially, with voltage on Output (pin3) high, C1 charges towards $2/3 V+$. When C1 voltage reaches that threshold level, the output driver on pin3 switches Output State and the Output Voltage is switched to a low level, discharging C1 towards ground. When voltage on C1 is discharged to $1/3 V+$, it triggers the comparator inside pin2, which then switches state of the Output State again towards a high and starts the C1 charging cycle again. Hence through the charging and discharging cycles, an oscillator circuit is implemented. Using CMOS versions of 555 timer circuits, a very wide frequency range at very low level of voltage spikes and power dissipation can be achieved. Selection of the value of R is limited by the input leakage specifications of the timer at pin2 and pin6. R resistor value is also limited by the leakage current at the capacitor C1. C1 usually have a range from 10,000μF down to 0. When C1 is at 0 value, the timer circuit will oscillate without an external C1, in which case the internal parasitic capacitor C1int inside the 555 timer takes over.

Recommended Components

ALD555, ALD1502, 1/2 ALD2502, 1/4 ALD4501

Other Related Circuit Ideas

Schematic no. osc_42001.0 Astable Mode Operation (Free Running Oscillator)

Schematic no. osc_42002.0 RC Oscillation Circuit