Category: Oscillators **CIRCUIT IDEAS FOR DESIGNERS** Schematic no. osc_42000.0

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 x R x 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.

For full schematic diagram and notes, please register and login at aldinc.com