**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 \( f = \frac{1}{1.4 \times R \times C_1} \). Initially, with voltage on Output (pin3) high, \( C_1 \) charges towards \( 2/3 \) \( V^+ \). When \( C_1 \) voltage reaches that threshold level, the output driver on pin3 switches Output State and the Output Voltage is switched to a low level, discharging \( C_1 \) towards ground. When voltage on \( C_1 \) 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 \( C_1 \) 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 \( C_1 \). \( C_1 \) usually have a range from \( 10,000 \mu F \) down to 0. When \( C_1 \) is at 0 value, the timer circuit will oscillate without an external \( C_1 \), in which case the internal parasitic capacitor \( C_{1int} \) inside the 555 timer takes over.

**Recommended Components**

**ALD555, ALD1502, \( \frac{1}{2} \) ALD2502, \( \frac{1}{4} \) ALD4501**

**Other Related Circuit Ideas**

- Schematic no. osc_42001.0 Astable Mode Operation (Free Running Oscillator)
- Schematic no. osc_42002.0 RC Oscillation Circuit