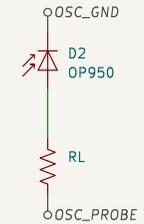


The forward voltage of IR1503 is 1.2 V (at 20 mA). Assuming a supply voltage of 5V, the voltage drop over the battery is $5 - 1.2 = 3.8$ V. Then the required resistor for 30 mA is $R = 3.8 \text{ V} / 30 \text{ mA} = 126.67$ Ohm. Rounding to the nearest common value we get $R = 150$ Ohm.

555 Timer Calculations using:
<https://ohmslawcalculator.com/555-astable-calculator>
 The output should oscillate at 642 Hz with 55.3% duty cycle

555 Timer (IR LED Driver)



When light shines on the OP950, it generates a current. This current, combined with R_L creates a measurable voltage drop. In the next part, we replace this with a transimpedance amplifier.

Switching Test Time

E80 Team 36

Sheet: /
 File: 555.kicad_sch

Title: 555 Timer & IR LED Driver / Sensor

Size: A4 Date: 2024-02-05

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Id: 1/1