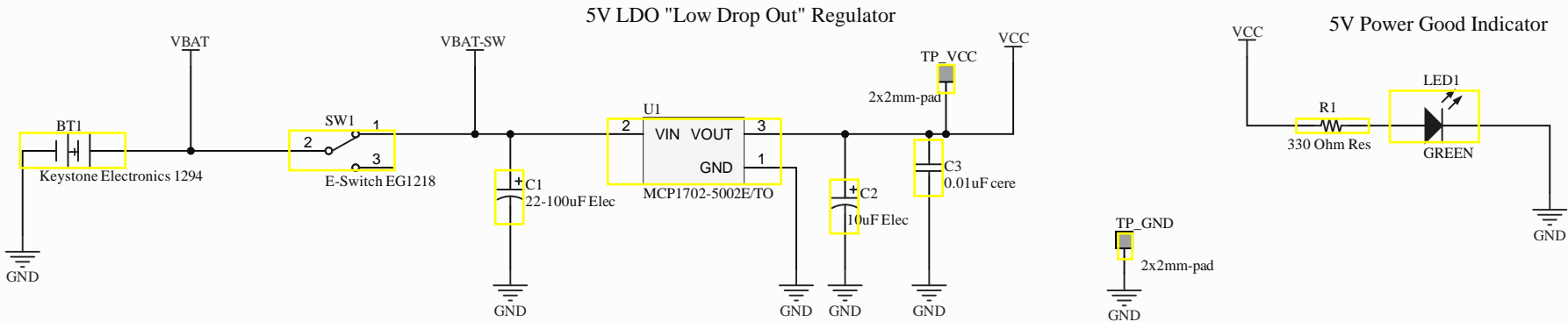


555 Based Mini-Organ with 12-Note Diatonic Scale

Battery Power Input 9V (Li-Ion Recommend)



555 Timer NOTES:

Timer running in ASTABLE mode with RA fixed and RB is gated in via momentary switches. This allows a single resistor to change the frequency of the timer.

However, there is a shortcoming/side effect. Both RA and RB (and C) are part of the timer frequency, but RA and RB both are ALSO part of the duty cycle! However, as we have selected RA, the duty cycle is approximately 50% and deviates only a few percent from the lowest frequency note to the highest. This is acceptable for this crude design, but might not work for something where you need very accurate duty cycle, etc. Point is, be aware, and consider everything in your designs.

The governing formulas for frequency and duty cycle can be found in the data sheet of course, but I like copying to my schematic, so I don't have to hunt them down. This is a good habit to get into, use TEXT to add formulas, etc. to your designs and "comment" or "annotate" as you would SOFTWARE!!!

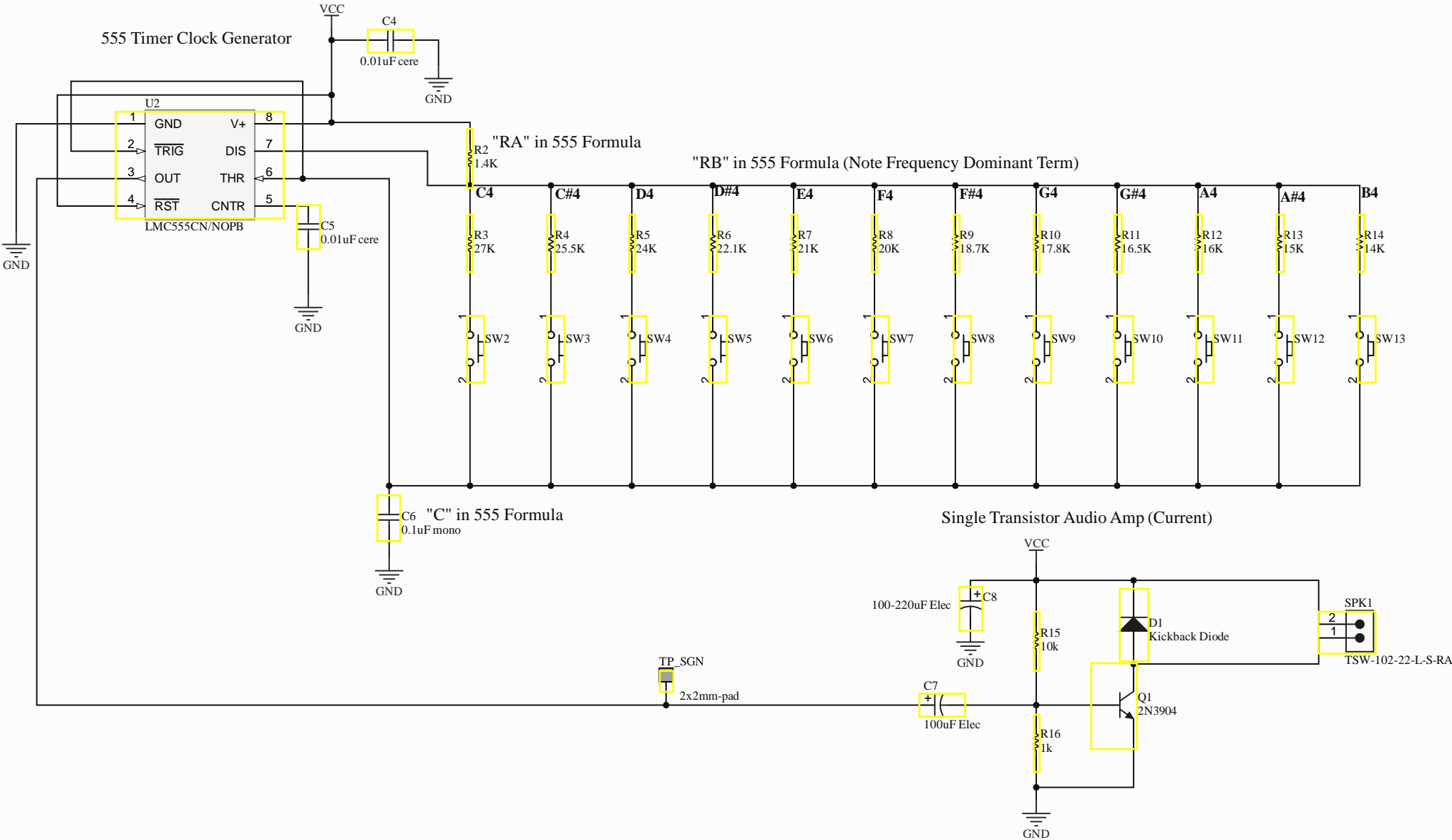
Given, RA, RB, and C:

$$T = 0.693 * (RA + 2 * RB) * C$$

$$F = 1 / T = 1.44 / (RA + 2 * RB) * C$$

$$D = (RA + RB) / (RA + 2 * RB)$$

555 Timer Clock Generator



Single Transistor Audio Amp (Current)

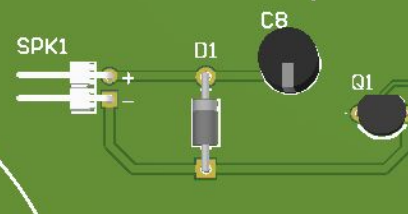
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File:	555_Timer_Organ_Schematic.SchDoc	Drawn By:

555 Timer Organ

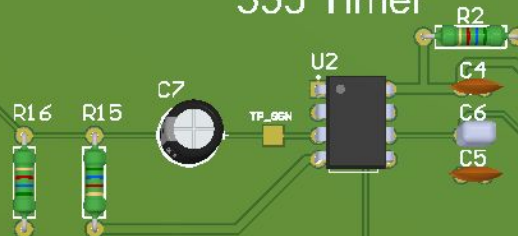
Mustafa ORHON

Speaker 4-8 ohm

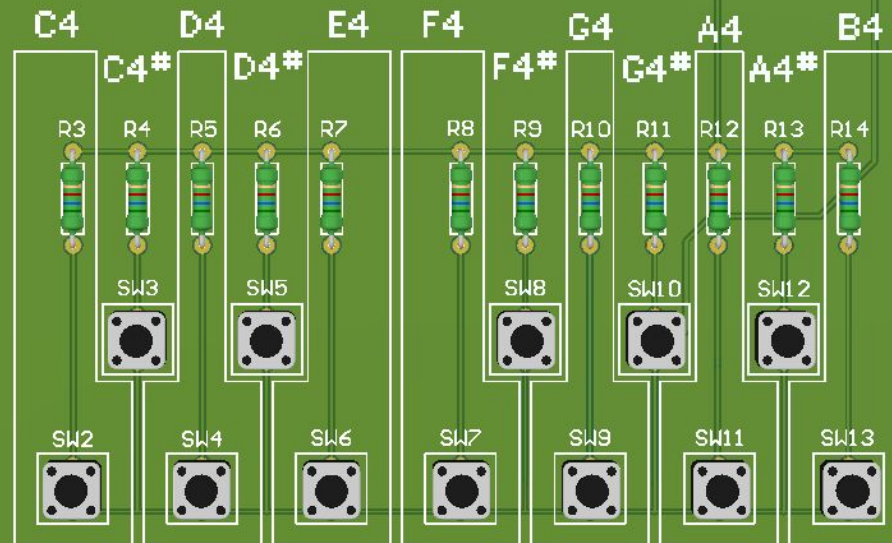
Audio Amplifier



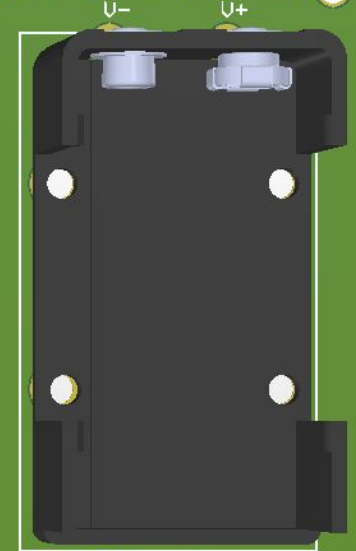
555 Timer



C4 Diatonic Keyboard



9V BATTERY



5V Regulator

