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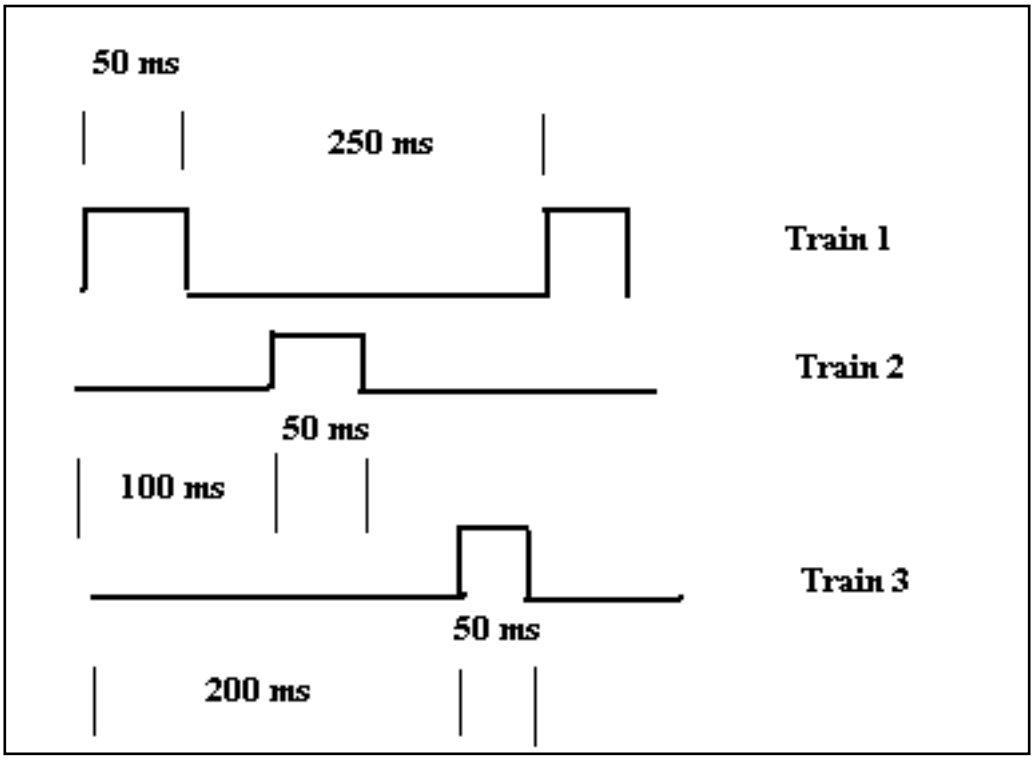
2.



Design:

An astable Multivibrator is used to produce a waveform with an on time on 250 microseconds and off time of 50 microseconds.

U1- Astable

Assume C1=100uF

T2=50 usec=ln(2)*Rb*C Rb / R2=721.5k

T1=250 usec=ln(2)*(Ra+Rb)*C Ra / R1=2.89k

The output of the astable multivibrator triggers a monostable multivibrator to produce a waveform with an on time on 50 microseconds and off time of 250 microseconds.

U2- Monostable (Generates Train 1)

Assume C16=10 uF

T=50 msec=ln(3)*Ra*C Ra / R5=4.545k

The output of the monostable multivibrator triggers a monostable multivibrator to produce a waveform with an on time on 50 microseconds and off time of 250 microseconds.

U3 - Monostable

Assume C6=10uF

T=50 usec=ln(3)*Ra*C

Ra / R7=4.545k

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The output of the monostable multivibrator triggers a monostable multivibrator to produce a waveform with an on time on 50 microseconds and off time of 250 microseconds.

U4 - Monostable (Generates Train 2)

Assume C3=10uF

T=50 usec=ln(3)*Ra*C

Ra / R3=4.545k

The output of the monostable multivibrator triggers a monostable multivibrator to produce a waveform with an on time on 50 microseconds and off time of 250 microseconds.

U5 - Monostable

Assume C10=10uF

T=250 usec=ln(3)*Ra*C

Ra / R6=4.545k

The output of the monostable multivibrator triggers a monostable multivibrator to produce a waveform with an on time on 50 microseconds and off time of 250 microseconds.

U6 - Monostable (Generates Train 3)

Assume C13=10uF

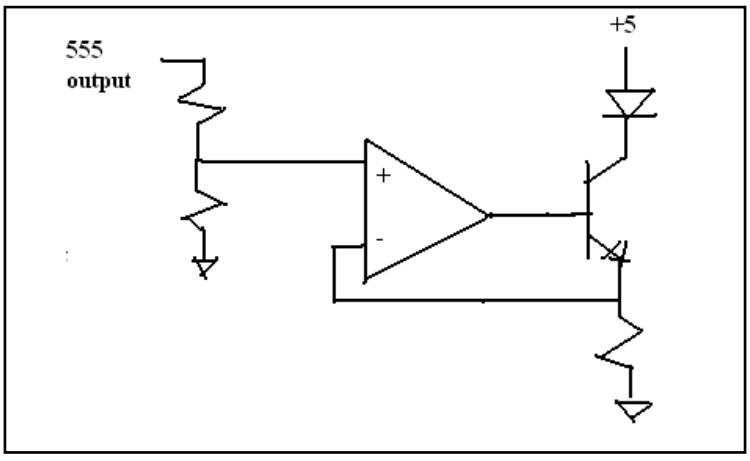
T=50 usec=ln(3)*Ra*C

Ra / R10=4.545k

Connecting C2 C4 C7 C5 C11 C14 all equals 10nF and connected to pin 5 of 555 timer to block DC.

Working:

With the connection of 555 timers in series we are able to generate the three trains of impulse with an on duration of 50 milliseconds. With the following arrangement shown below we can generate constant current to drive the LED



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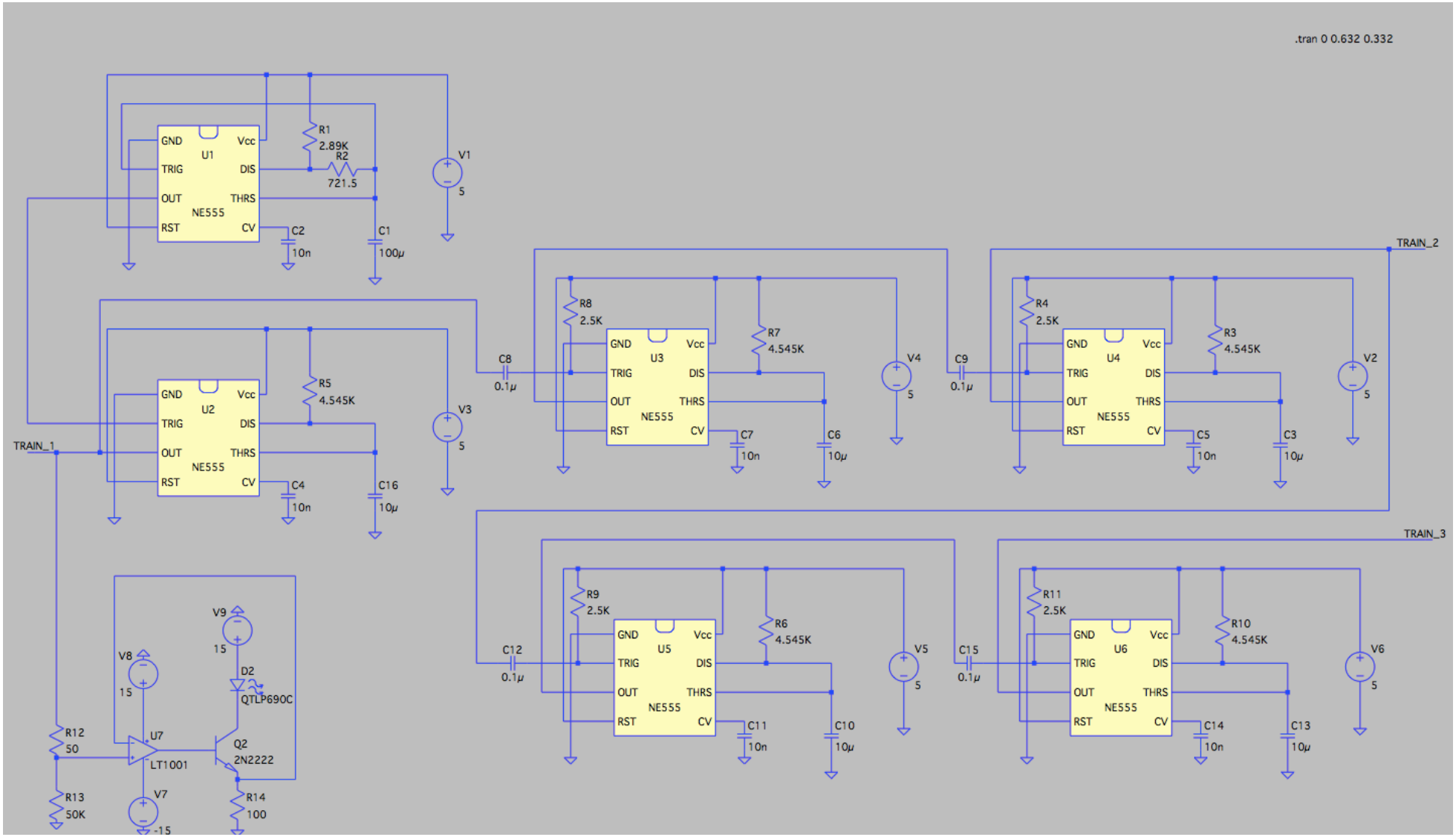
LTSPICE SIMULATION- DESIGN



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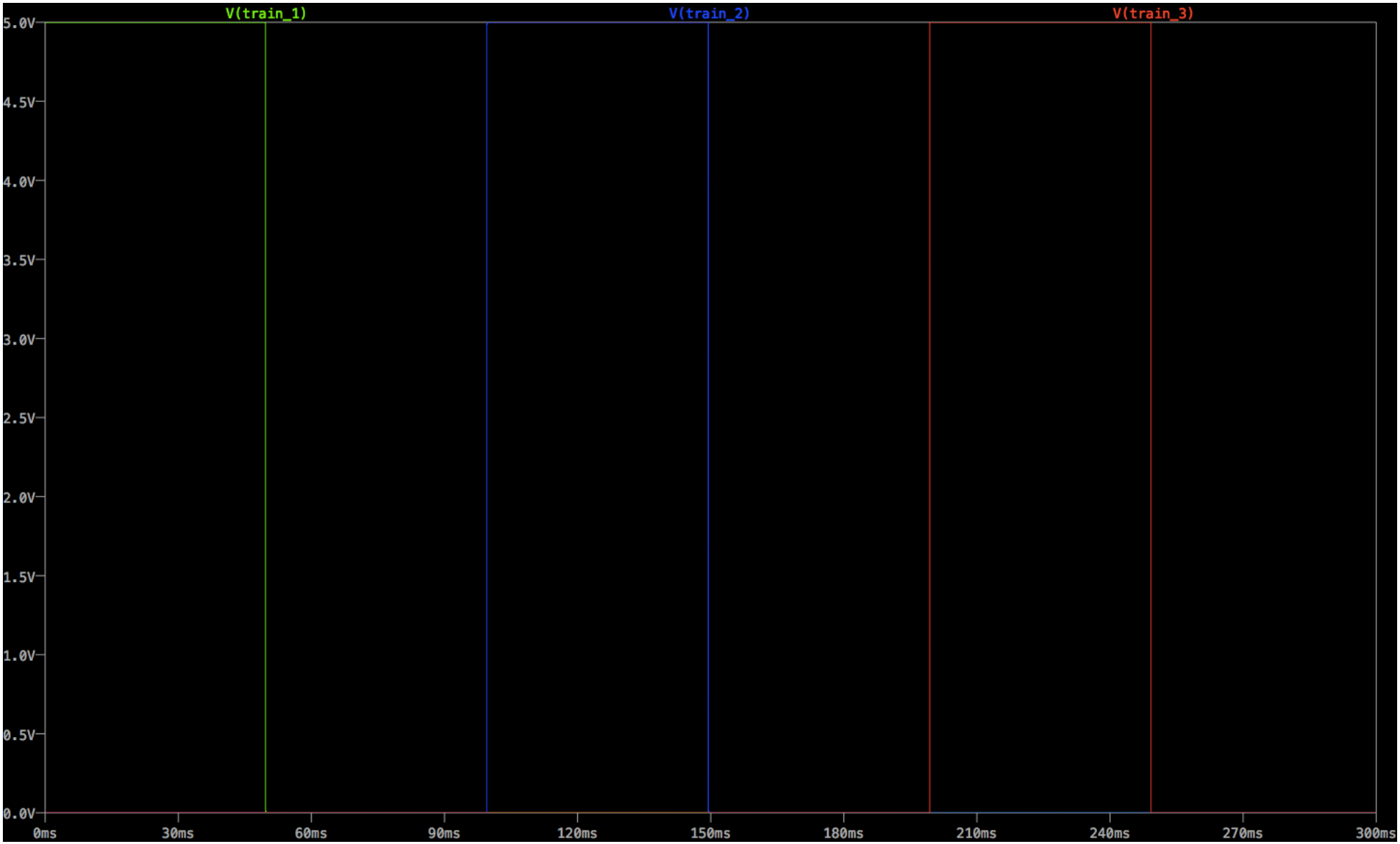
LTSPICE SIMULATION- OUTPUT



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LTSPICE SIMULATION OUTPUT