2CJ4 LAB Report
Set 2

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As a future member of the engineering profession, the student is responsible for performing the required work in an honest manner, without plagiarism and cheating. Submitting this work with my name and student number is a statement and understanding that this work is our own and adheres to the Academic Integrity Policy of McMaster University and the Code of Conduct of the Professional Engineers of Ontario.

Part One

1. If the V o = V sat+ at t = 0; the V o would change to V sat- when V in (t) < V th2 . But V th1 < V in < V th2 , so V o would not change and stay V sat+ .
2. If the V o = V sat- at t = 0; the V o would change to V sat+ when V in (t) > V th1 . But V th1 < V in < V th2 , so V o would not change and stay V sat-

Part Two

The V in (t) is 1kHz sine wave with the amplitude of 3V.

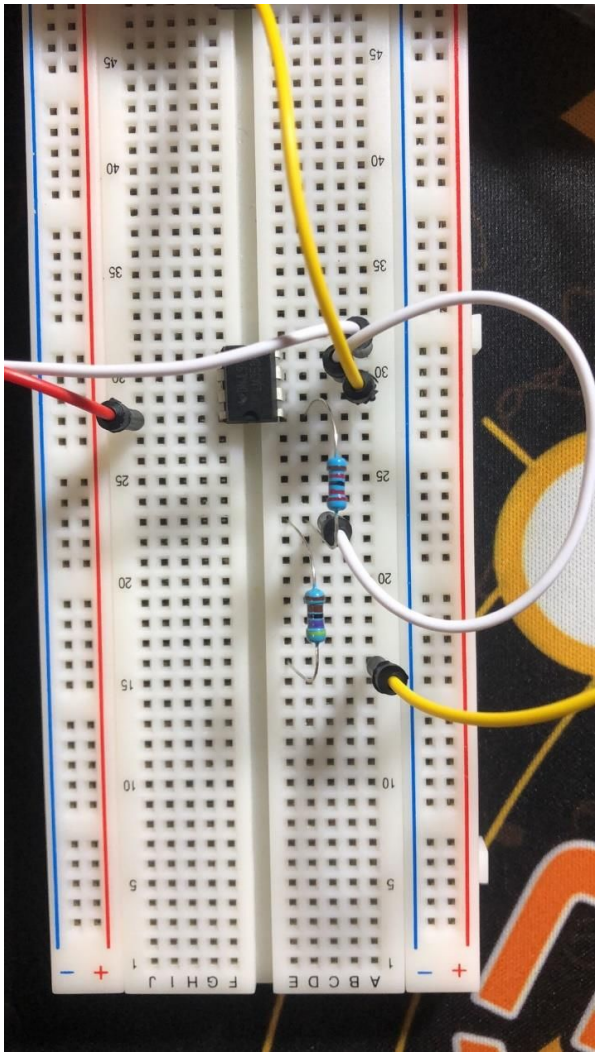
(Vref, R1, R2)	Vth1 (theoretical)	Vth2 (theoretical)	Vgap (theoretical)
0V, 4.7kohm, 4.7kohm	2.5	-2.5	5
0V, 22kohm, 4.7kohm	0.88	-0.88	1.76
2V, 4.7kohm, 4.7kohm	4.5	-0.5	5
2V, 22kohm, 4.7kohm	2.88	-1.12	1.76

Part Three

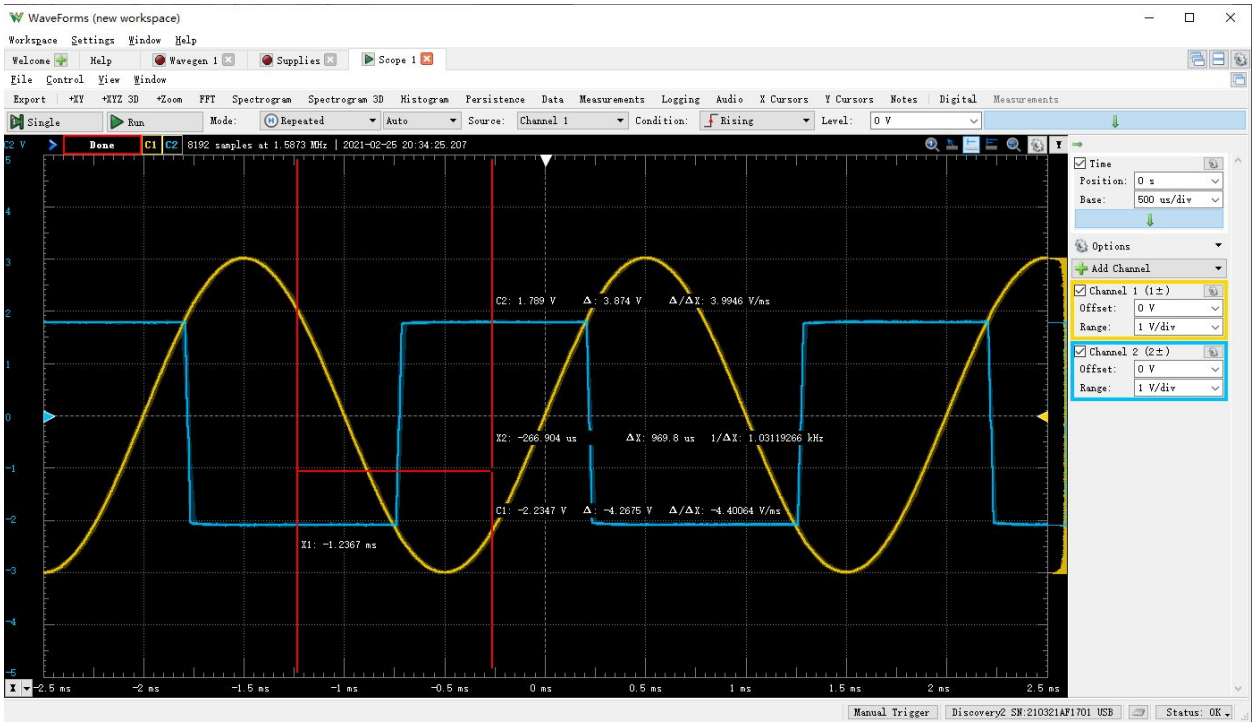
The V in (t) is 1kHz sine wave with the amplitude of 3V.

(Vref, R1, R2)	Vth1 (measured)	Vth2 (measured)	Vgap (measured)
0V, 4.7kohm, 4.7kohm	1.79	-2.09	3.87
0V, 22kohm, 4.7kohm	0.63	-0.73	1.36
2V, 4.7kohm, 4.7kohm	2.73	-1.08	3.81
2V, 22kohm, 4.7kohm	2.28	0.91	1.37

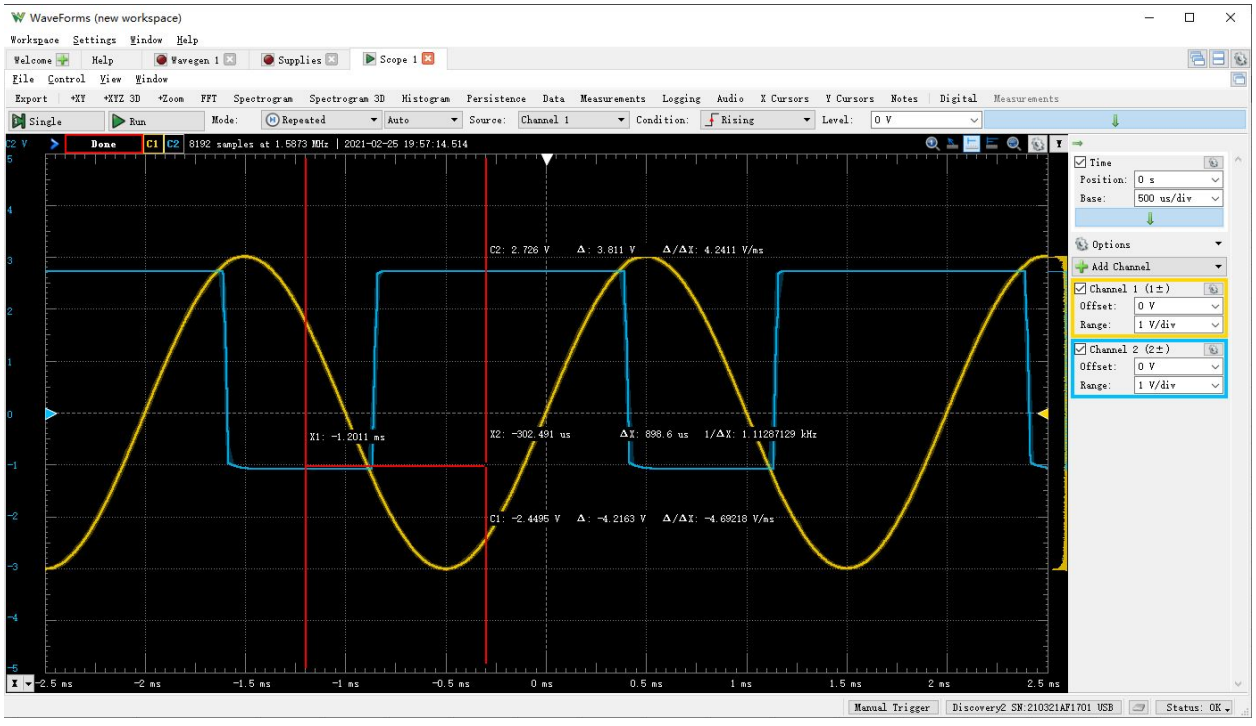
The circuit:



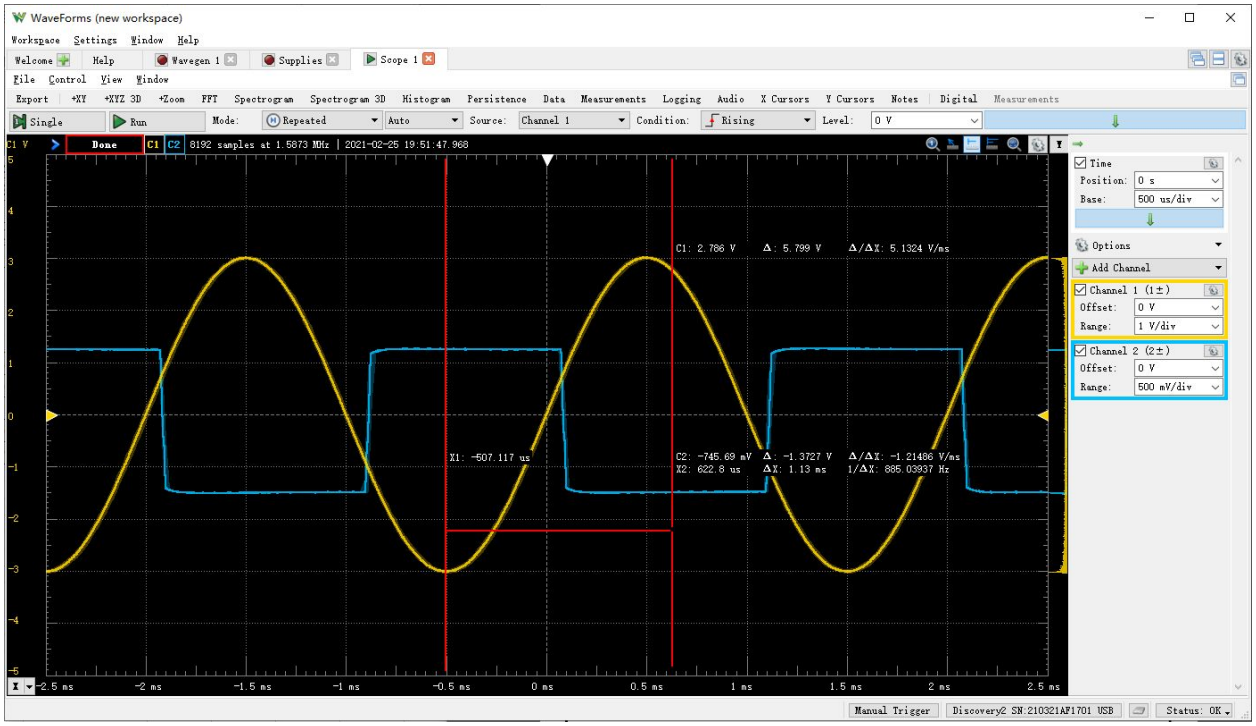
(0V, 4.7kohm, 4.7kohm)



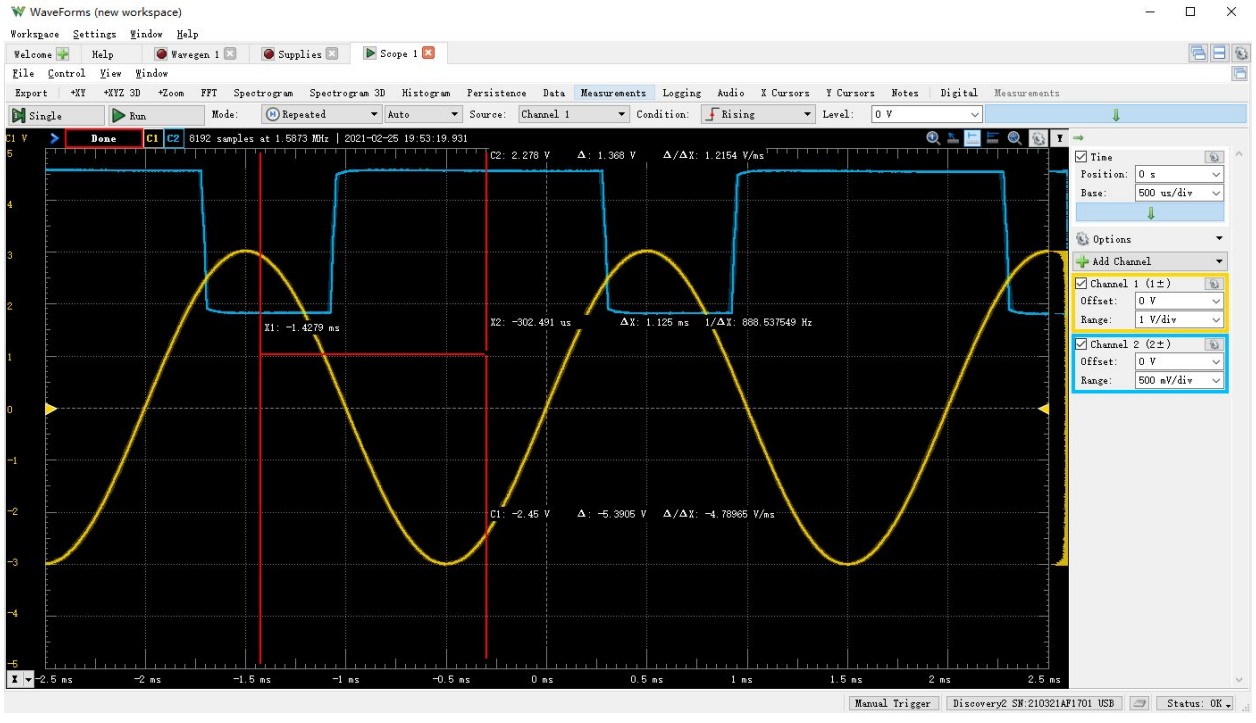
(0V, 22kohm, 4.7kohm)



(2V, 4.7khom, 4.7kohm)



(2V, 22kohm, 4.7kohm)



Part Four

(Vref, R1, R2)	Vth1 (error %)	Vth2 (error %)	Vgap (error %)
0V, 4.7kohm, 4.7kohm	39.66480447	19.61722488	29.19896641
0V, 22kohm, 4.7kohm	39.68253968	20.54794521	29.41176471
2V, 4.7kohm, 4.7kohm	64.83516484	-53.7037037	31.2335958
2V, 22kohm, 4.7kohm	26.31578947	-223.0769231	28.46715328

Part Five

From the measurement it seems that the V gap is not influenced by the V ref .