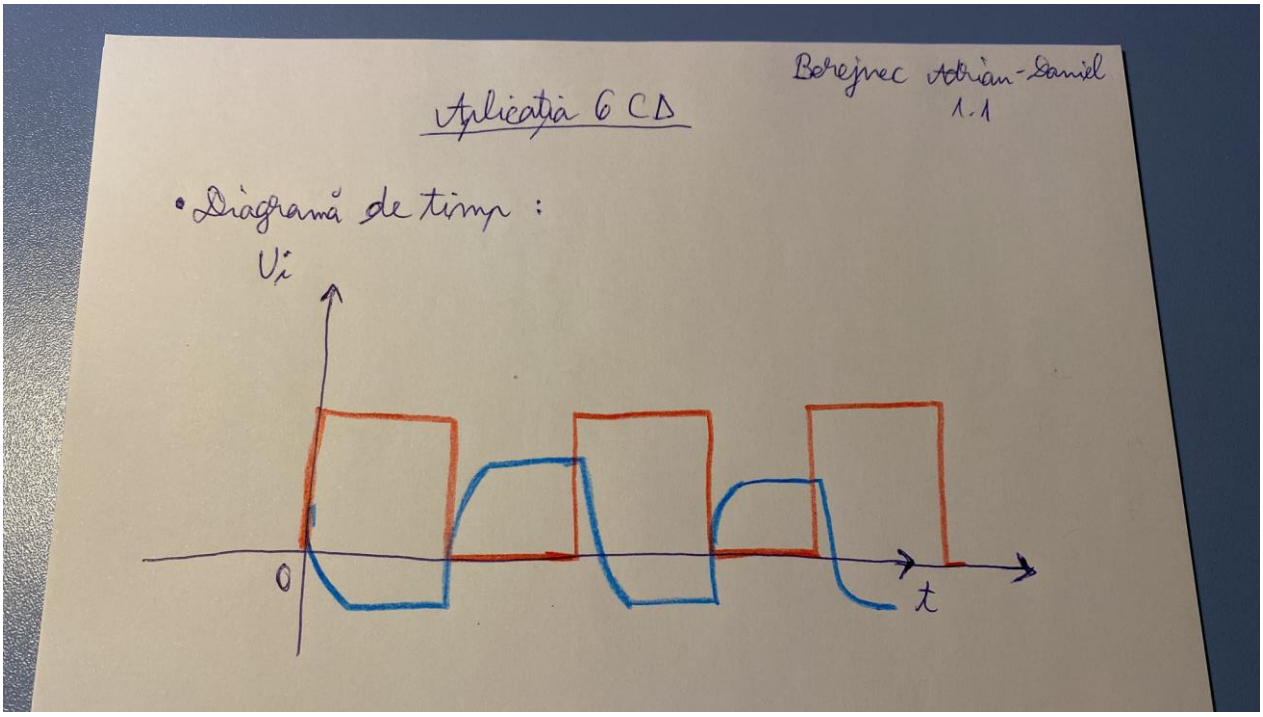
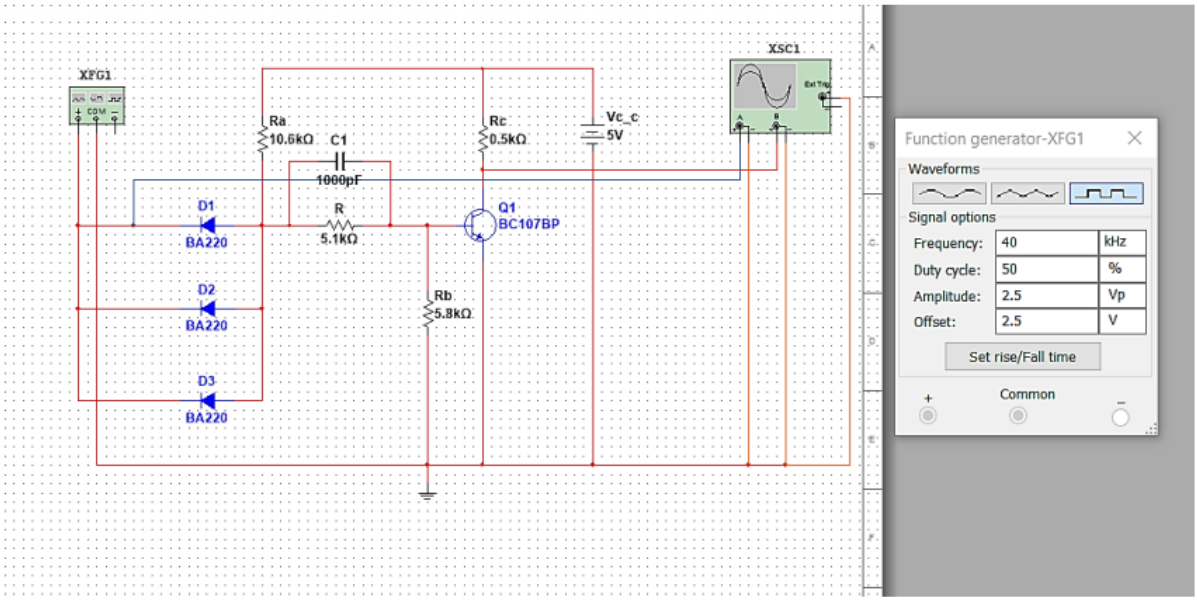
Berejnec Adrian-Daniel 1.1

Aplicatia 6

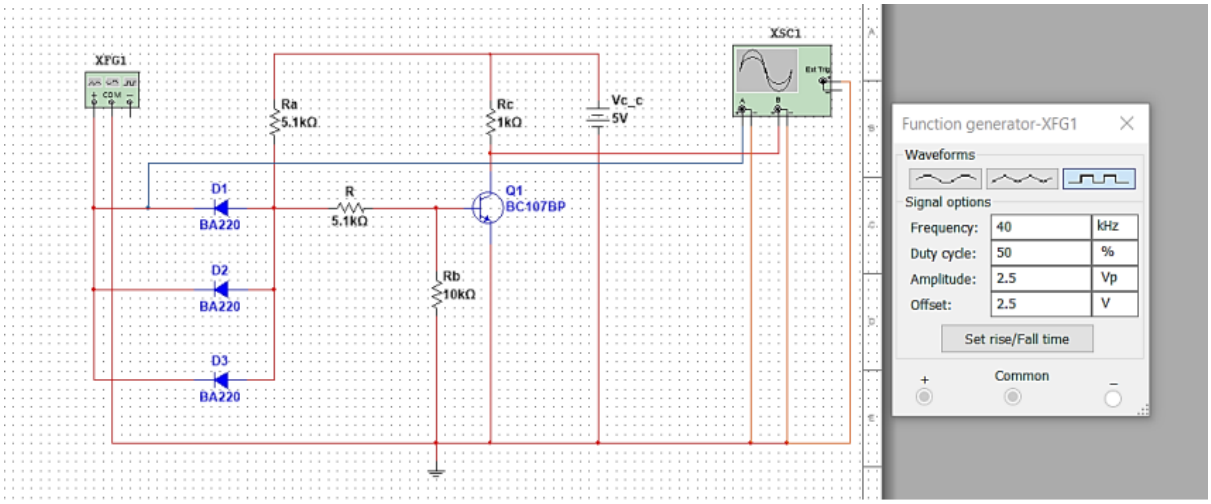
Diagrama de timp realizata de mana :



Circuitul cu capacitate:



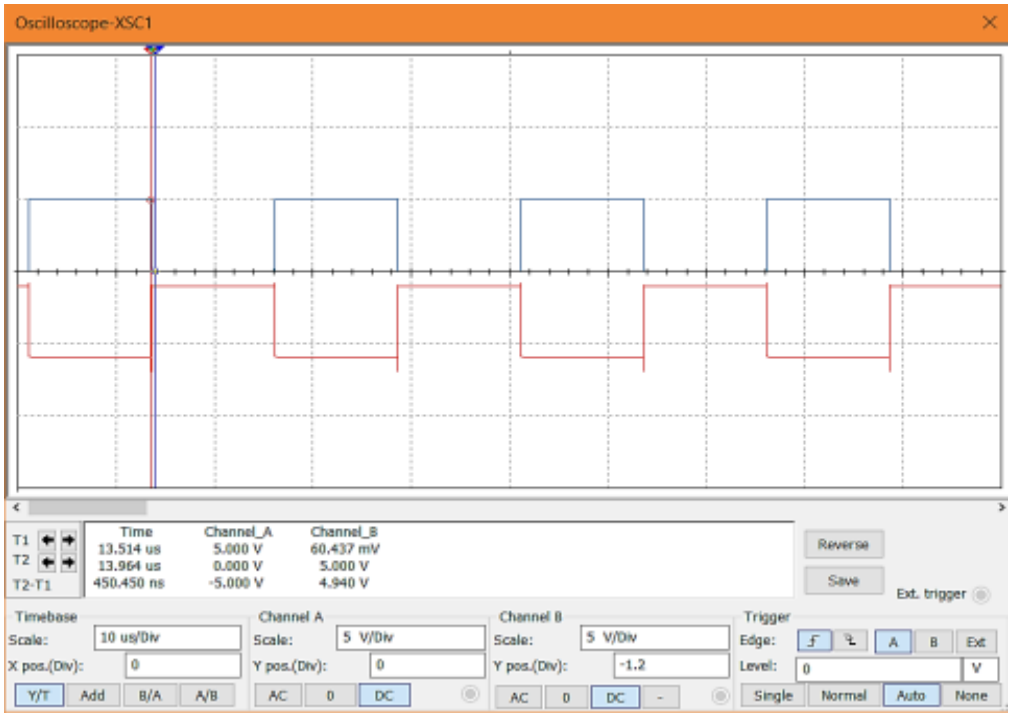
Circuitul fara capacitate:



Tabel masuratori :

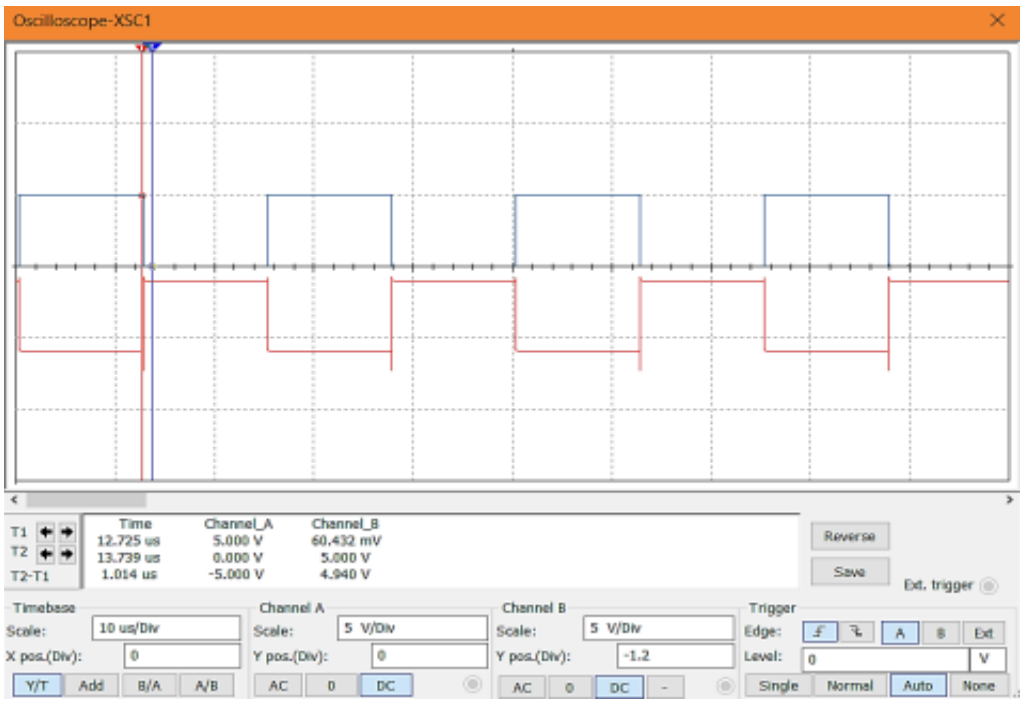
Ra_1 = 5.8k Ohm	Rb_1 = 5.8k Ohm	Rc_1 = 0.5k Ohm	t_{db} = 40.323 ns	t_{bl} = 548.387 ns
		Rc_2 = 0.9k Ohm	t_{db} = 33.065 ns	t_{bl} = 1032 ns
		Rc_3 = 2.7k Ohm	t_{db} = 22.581 ns	t_{bl} = 1000 ns
	Rb_2 = 6.4k Ohm	Rc_1 = 0.5k Ohm	t_{db} = 37.903 ns	t_{bl} = 1000 ns
		Rc_2 = 0.9k Ohm	t_{db} = 35.484 ns	t_{bl} = 1032 ns
		Rc_3 = 2.7k Ohm	t_{db} = 25.484 ns	t_{bl} = 983.871 ns
	Rb_3 = 10k Ohm	Rc_1 = 0.5k Ohm	t_{db} = 31.935 ns	t_{bl} = 1000 ns
		Rc_2 = 0.9k Ohm	t_{db} = 29.032 ns	t_{bl} = 1032 ns
		Rc_3 = 2.7k Ohm	t_{db} = 22.581 ns	t_{bl} = 1048 ns
	Rb_4 = 17.8k Ohm	Rc_1 = 0.5k Ohm	t_{db} = 27.419 ns	t_{bl} = 1032 ns
		Rc_2 = 0.7k Ohm	t_{db} = 20.968 ns	t_{bl} = 1032 ns
		Rc_3 = 2.7k Ohm	t_{db} = 19.355 ns	t_{bl} = 1065 ns
Ra_2 = 4.8k Ohm	Rb_1 = 5.8k Ohm	Rc_1 = 0.5k Ohm	t_{db} = 37.742 ns	t_{bl} = 983.871 ns
		Rc_2 = 0.9k Ohm	t_{db} = 32.258 ns	t_{bl} = 1065 ns
		Rc_3 = 2.7k Ohm	t_{db} = 19.355 ns	t_{bl} = 1056 ns
	Rb_2 = 6.4k Ohm	Rc_1 = 0.5k Ohm	t_{db} = 33.871 ns	t_{bl} = 1048 ns
		Rc_2 = 0.9k Ohm	t_{db} = 27.419 ns	t_{bl} = 1073 ns
		Rc_3 = 2.7k Ohm	t_{db} = 20.968 ns	t_{bl} = 1032 ns
	Rb_3 = 10k Ohm	Rc_1 = 0.5k Ohm	t_{db} = 32.903 ns	t_{bl} = 1048 ns
		Rc_2 = 0.9k Ohm	t_{db} = 23.871 ns	t_{bl} = 1056 ns
		Rc_3 = 2.7k Ohm	t_{db} = 20.645 ns	t_{bl} = 1056 ns
	Rb_4 = 17.8k Ohm	Rc_1 = 0.5k Ohm	t_{db} = 33.871 ns	t_{bl} = 1056 ns
		Rc_2 = 0.9k Ohm	t_{db} = 23.387 ns	t_{bl} = 1073 ns
		Rc_3 = 2.7k Ohm	t_{db} = 20.968 ns	t_{bl} = 1839 ns
Ra_3 = 10.6k Ohm	Rb_1 = 5.8k Ohm	Rc_1 = 0.5k Ohm	t_{db} = 49.194 ns	t_{bl} = 451.613 ns
		Rc_2 = 0.9k Ohm	t_{db} = 37.097 ns	t_{bl} = 503.226 ns
		Rc_3 = 2.7k Ohm	t_{db} = 33.871 ns	t_{bl} = 511.290 ns
	Rb_2 = 6.4k Ohm	Rc_1 = 0.5k Ohm	t_{db} = 50.000 ns	t_{bl} = 509.677 ns
		Rc_2 = 0.9k Ohm	t_{db} = 32.258 ns	t_{bl} = 516.129 ns
		Rc_3 = 2.7k Ohm	t_{db} = 29.032 ns	t_{bl} = 504.839 ns
	Rb_3 = 10k Ohm	Rc_1 = 0.5k Ohm	t_{db} = 40.323 ns	t_{bl} = 511.290 ns
		Rc_2 = 0.9k Ohm	t_{db} = 33.871 ns	t_{bl} = 935.484 ns
		Rc_3 = 2.7k Ohm	t_{db} = 24.194 ns	t_{bl} = 951.613 ns
	Rb_4 = 17.8k Ohm	Rc_1 = 0.5k Ohm	t_{db} = 41.935 ns	t_{bl} = 967.742 ns
		Rc_2 = 0.7k Ohm	t_{db} = 32.258 ns	t_{bl} = 958.065 ns
		Rc_3 = 2.7k Ohm	t_{db} = 22.581 ns	t_{bl} = 964.516 ns

Ra = 10.6k Ohm, Rb = 5.8k Ohm, Rc = 0.5k Ohm, C1 = 100 pF :



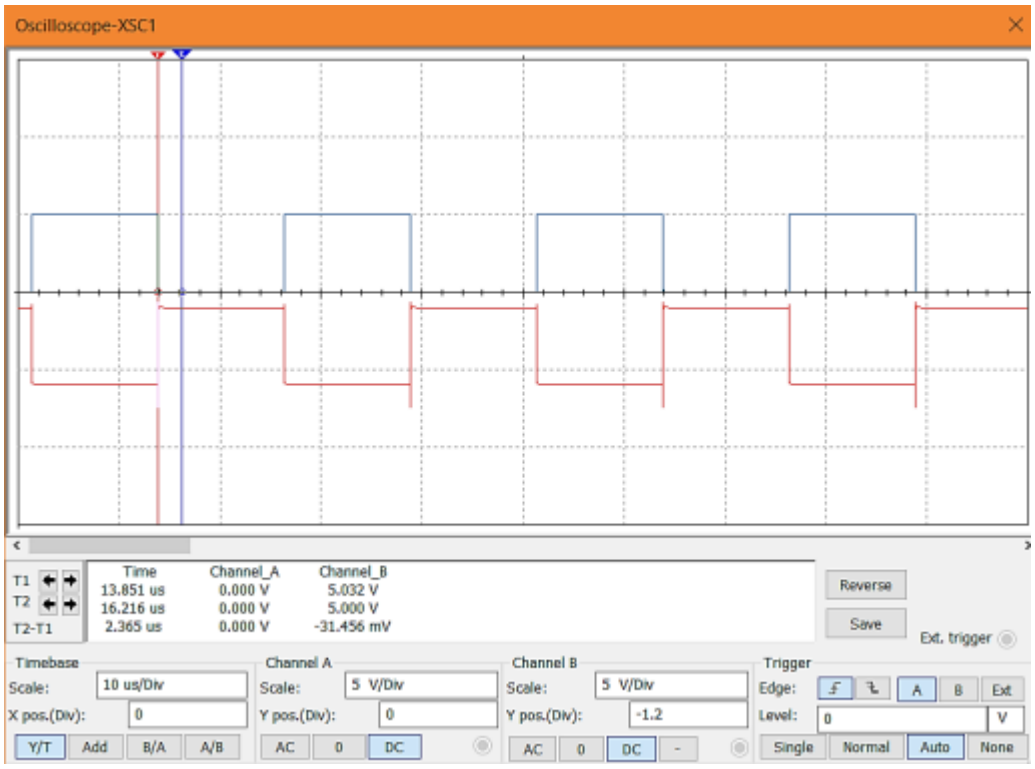
- ⇨ t_{db} = 7.32 ns
- ⇨ t_{bl} = 13.51 ns

Ra = 10.6k Ohm, Rb = 5.8k Ohm, Rc = 0.5k Ohm, C1 = 300 pF :



- ⇨ t_{db} = 5.25 ns
- ⇨ t_{bl} = 14.07 ns

Ra = 10.6k Ohm, Rb = 5.8k Ohm, Rc = 0.5k Ohm, C1 = 1000 pF :



- ⇨ t_{db} = 5.25 ns
- ⇨ t_{bl} = 13.12 ns

Concluzie :

In concluzie, putem spune ca din cauza obtinerii unor timpi de comutare foarte mari, se ajunge la necomutarea portii la frecventa respective.

De asemenea, circuitul realizeaza poarta SI-NU.