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**Project S.A.I.C**

**Hancis Bogdan**

**Group 2331**

**Semigroup 1**

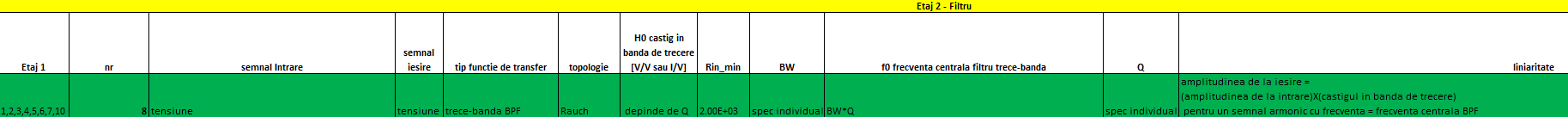
**Cuprins :**

1. **Specificatii individuale. Specificatii generale.**
2. **Etaj 1 – Amplifier**
3. **Etaj 2 – Filters**
4. **Etaj 3 – PGA**
5. **Etaj 4 – Rectifier**
6. **Block Diagram**
7. **Specificatii individuale :**



**Specificatii generale :**



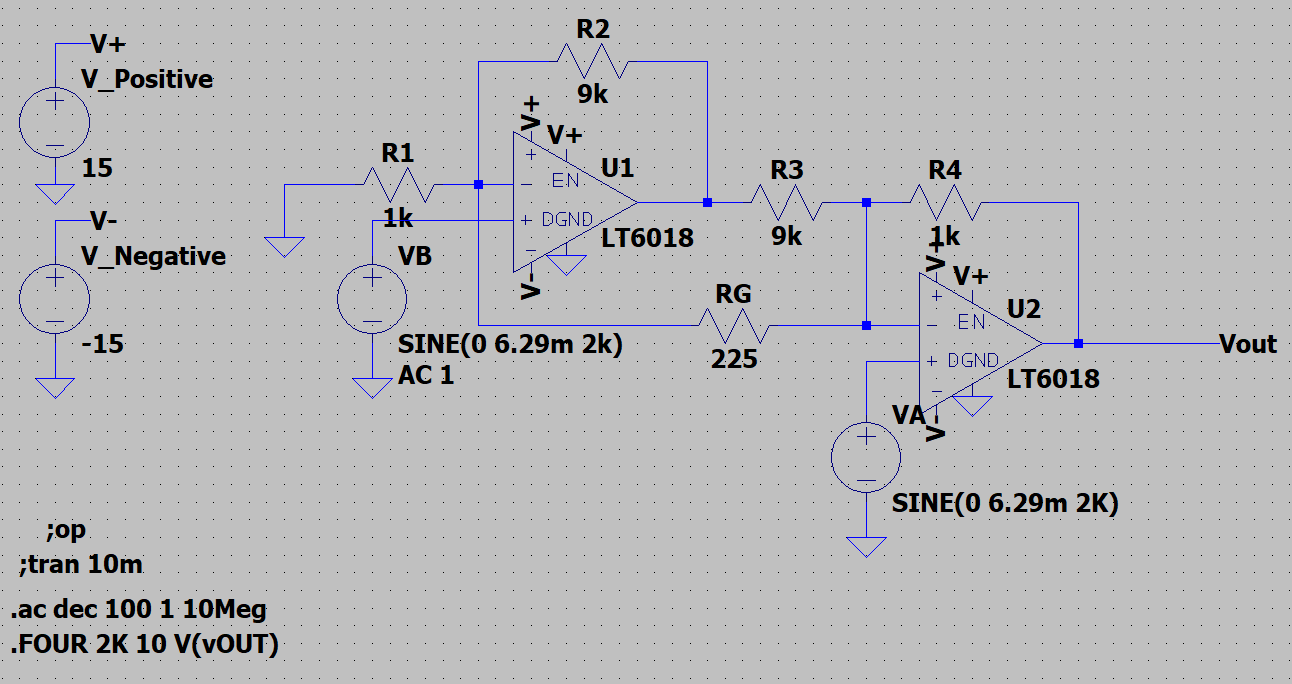






|  |  |  |
| --- | --- | --- |
| **Tip Amplificator Operational AO** | | |
|  | LT6018 | +/-15V |

**2. Etaj 1 - Amplifier**

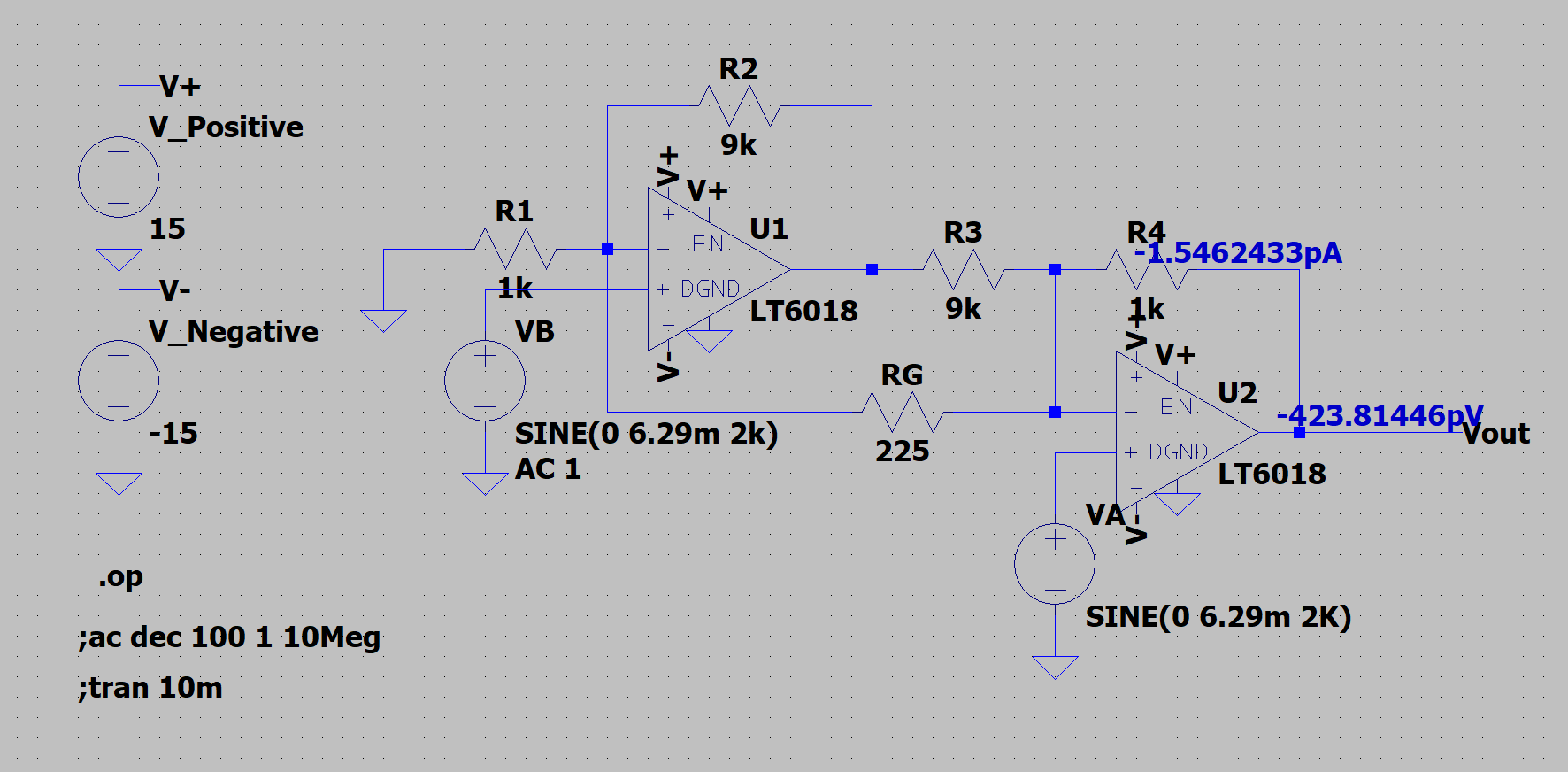
O imagine care conține text, captură de ecran, număr, Font

Descriere generată automat

**Original circuit :** O imagine care conține captură de ecran, text, software, Software multimedia

Descriere generată automat

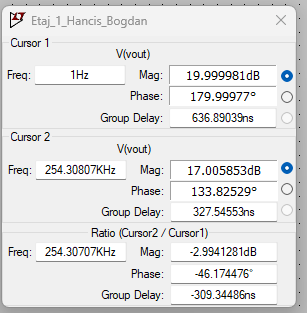
**->compensarea**



BandWidth:

O imagine care conține captură de ecran, linie, Interval, Software de grafică

Descriere generată automat



🡪**PSRR=20dB-aps**

**🡪CMRR**

O imagine care conține captură de ecran, linie, Color

Descriere generată automat

O imagine care conține text, diagramă, linie, Interval

Descriere generată automat

O imagine care conține text, Font, captură de ecran, linie

Descriere generată automat

**🡪Slew-Rate**

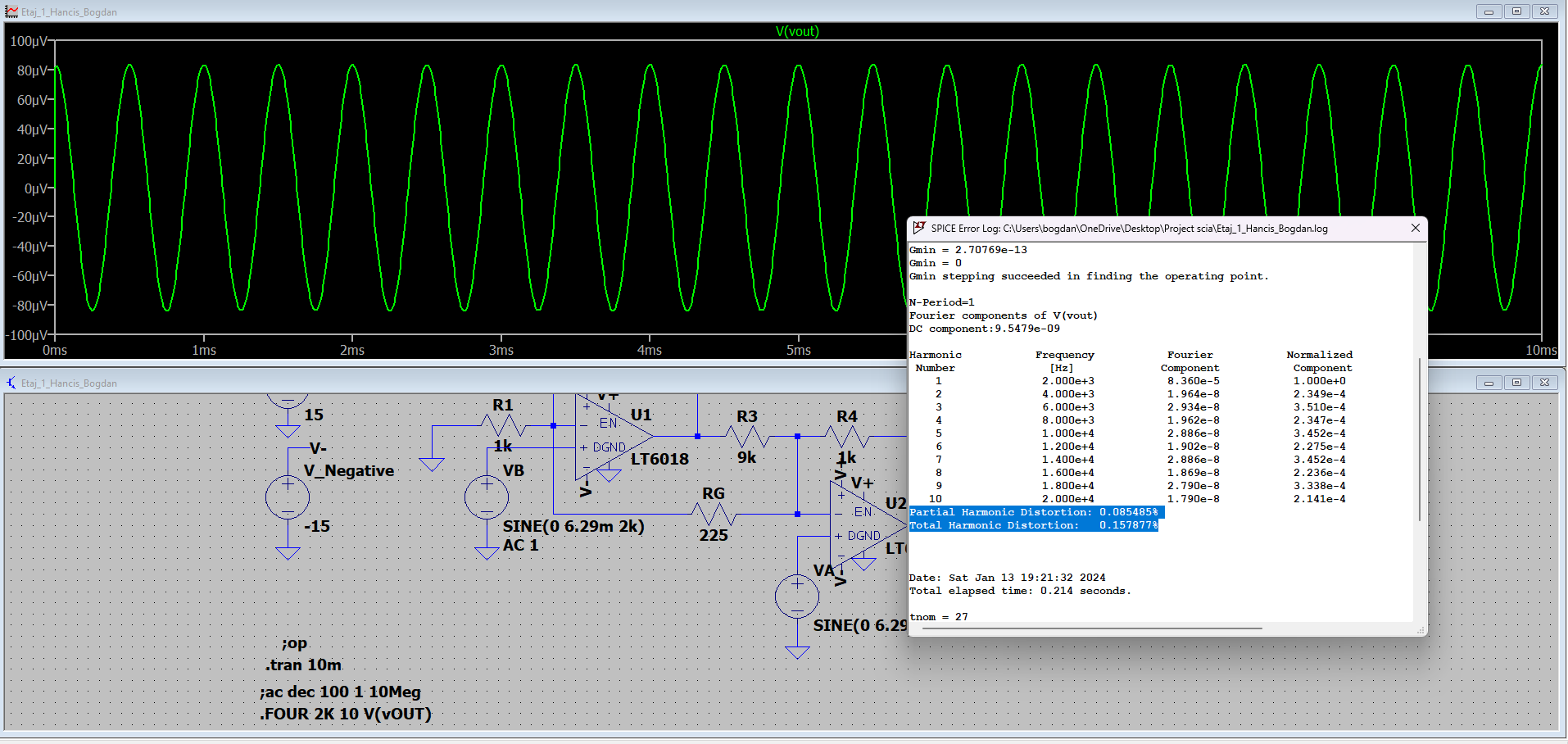
O imagine care conține text, captură de ecran, Interval, linie

Descriere generată automat

For this circuit from “Etaj 1” we need to add a Voltage Source as Pulse , with specific parameters .

Vert/Horz = 0.01286 V/us

* **THD < 1%**



1. **Etaj 2 - Filter**

**🡪Parameters** :

C= C1=C2= 1nF

Q=1.41

BW= 2kHz

F0= BW \*Q = > F0 = 2,82 kHz

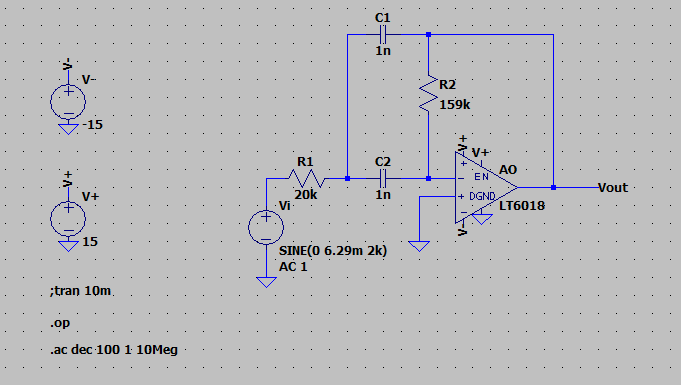
= 2 \* π \* F0 => = 17709,6 rad/s

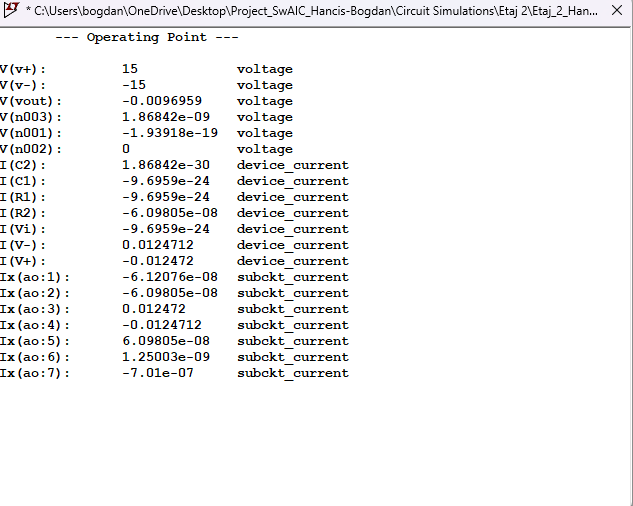
< 2 \* => < -3,97

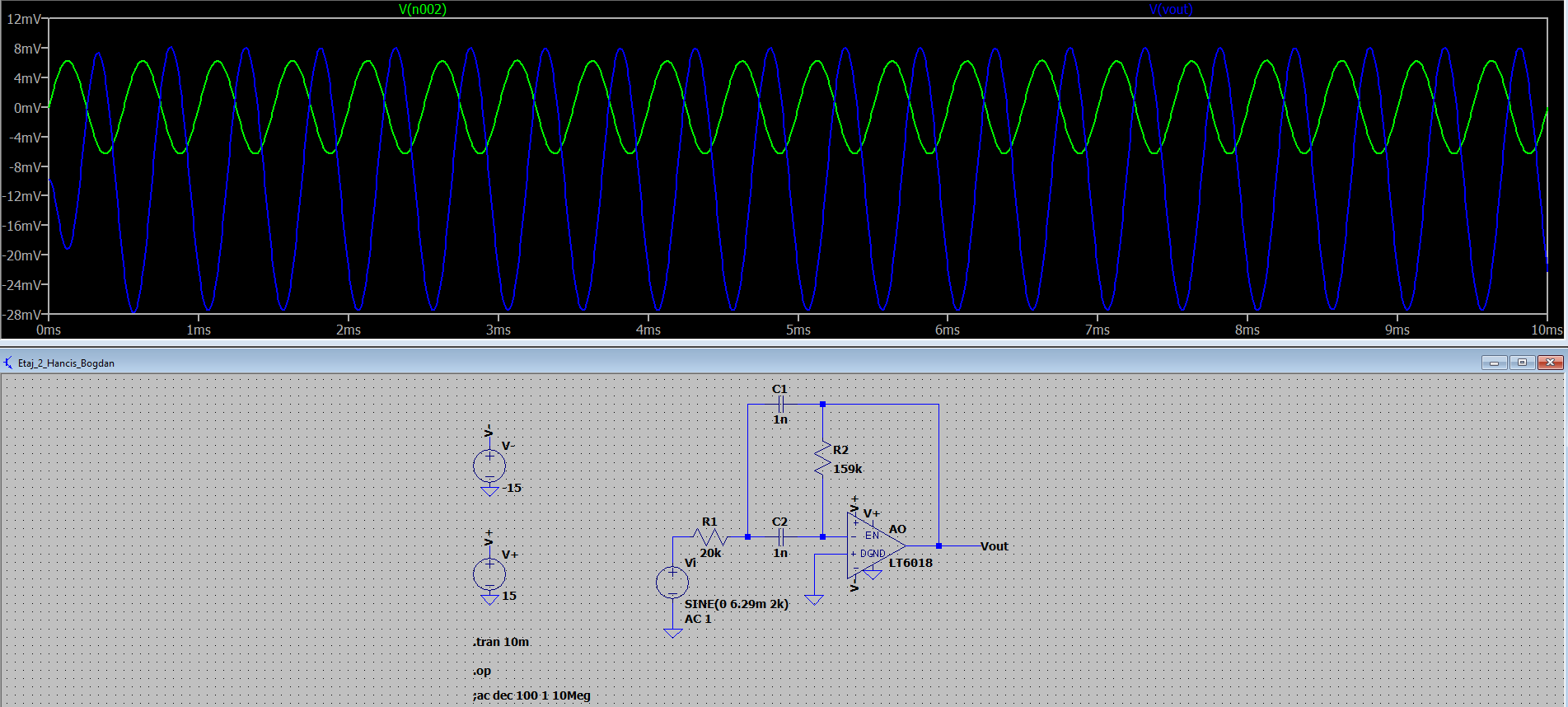
= => R1 = 20k

R2 = => R2 = 159k

**🡪 Original circuit**







O imagine care conține text, captură de ecran, software, Software multimedia

Descriere generată automat

O imagine care conține text, captură de ecran, software, Software de grafică

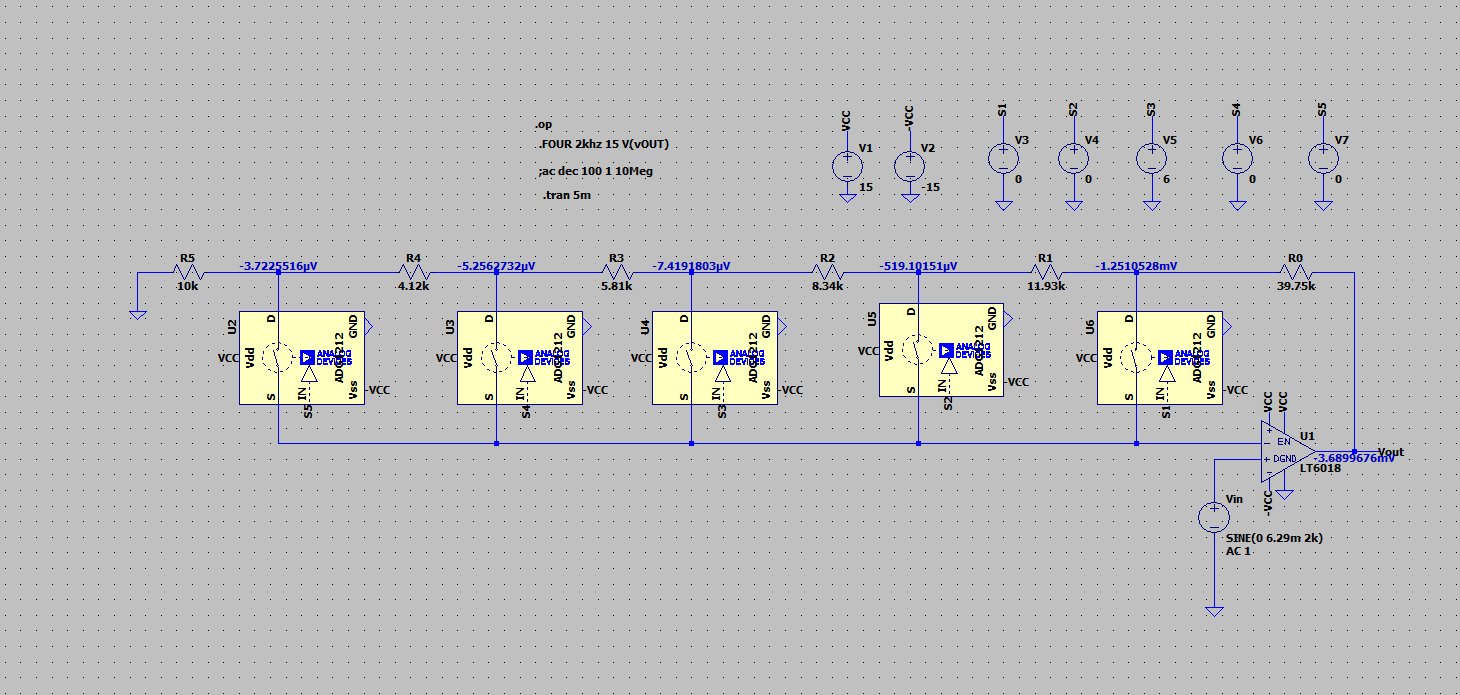
Descriere generată automat

🡪**castig in banda de trecere = specs**O imagine care conține text, captură de ecran, software, Software de grafică

Descriere generată automat

1. **Etaj 3 - PGA**

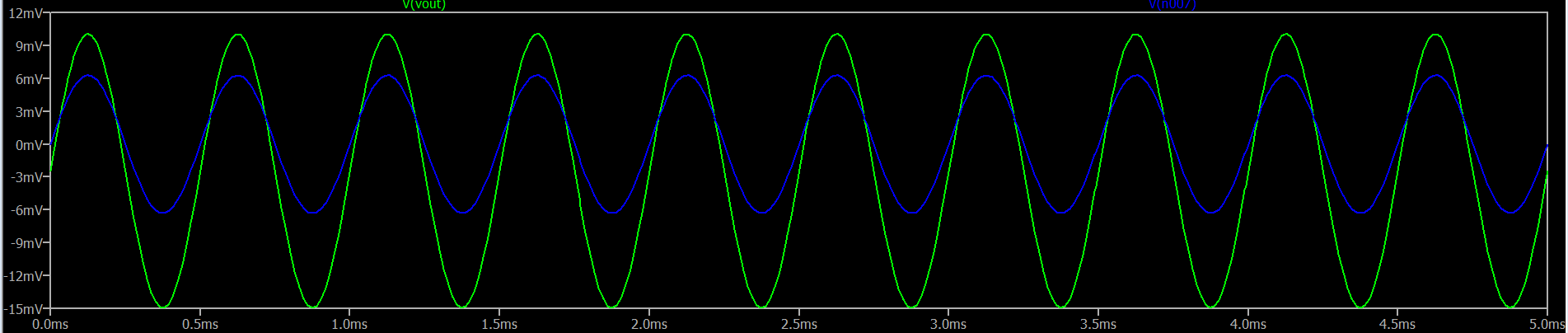
We have different cases :



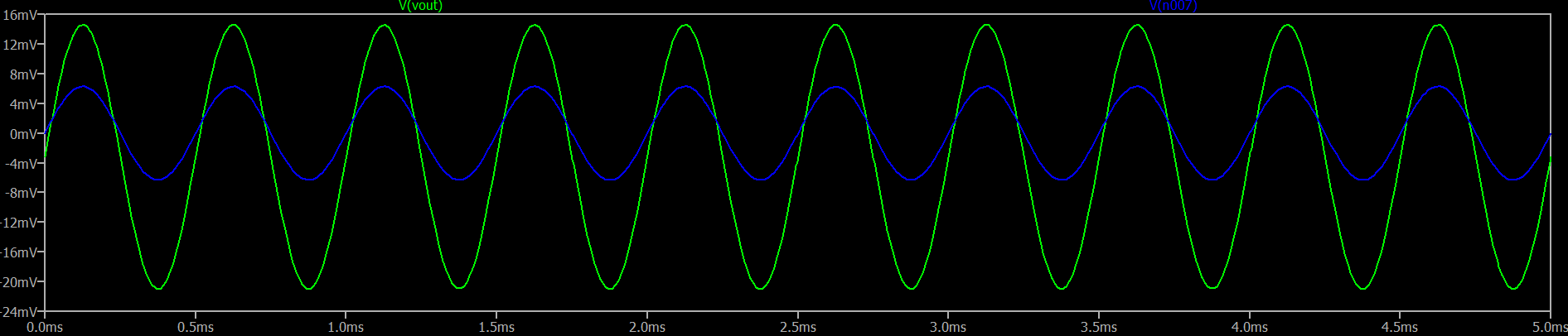
**O imagine care conține text, captură de ecran, afișaj, număr

Descriere generată automat**

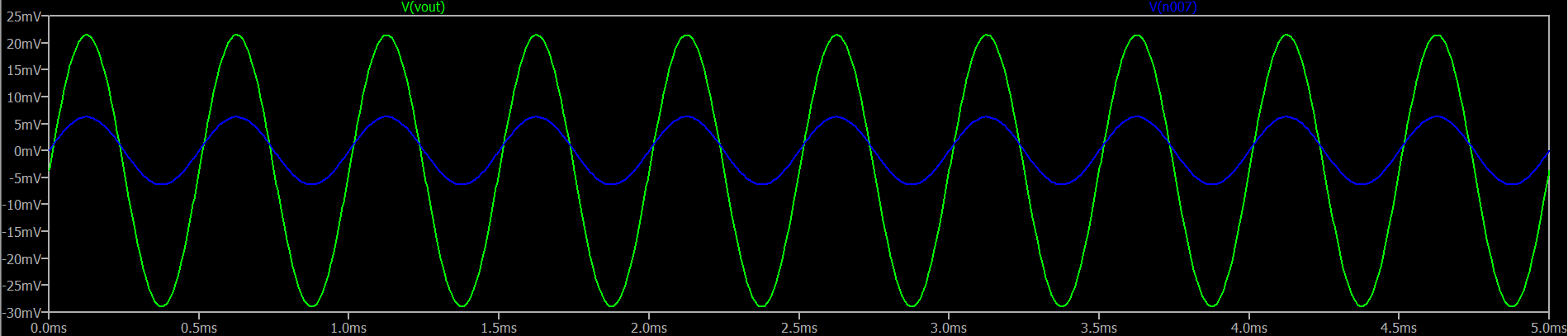
First switch open :



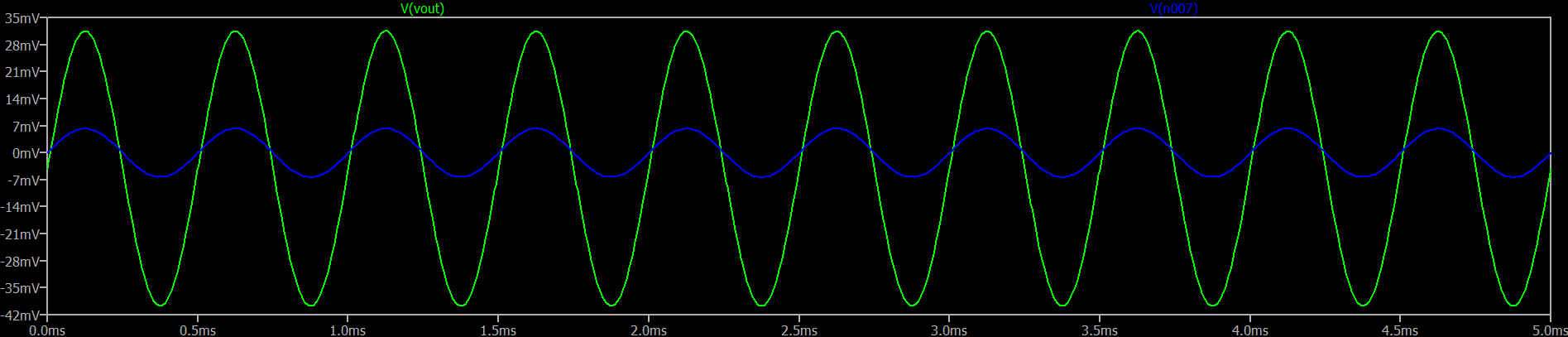
Second switch :



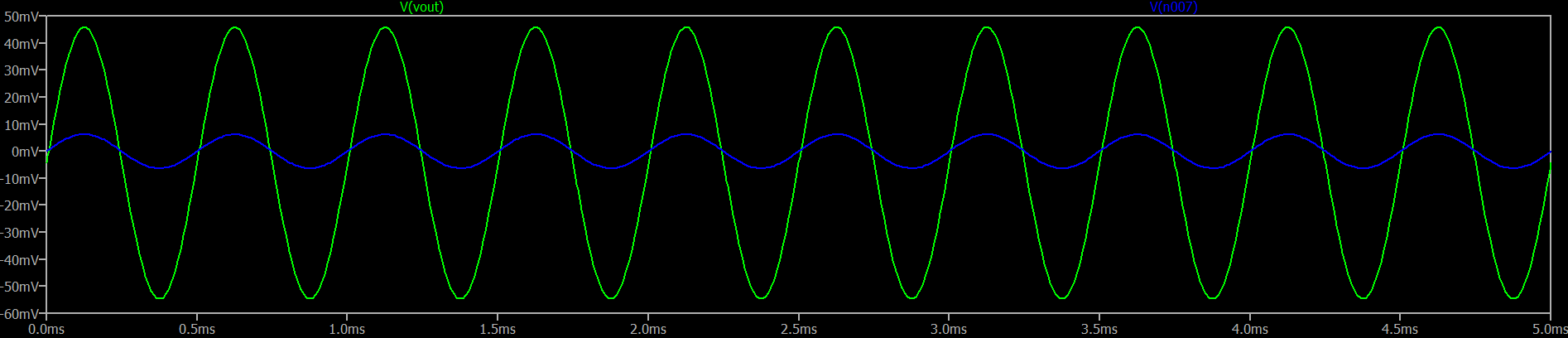
Third Switch :

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Fourth Switch :



Fifth Switch :



O imagine care conține captură de ecran, Software multimedia, Software de grafică, software

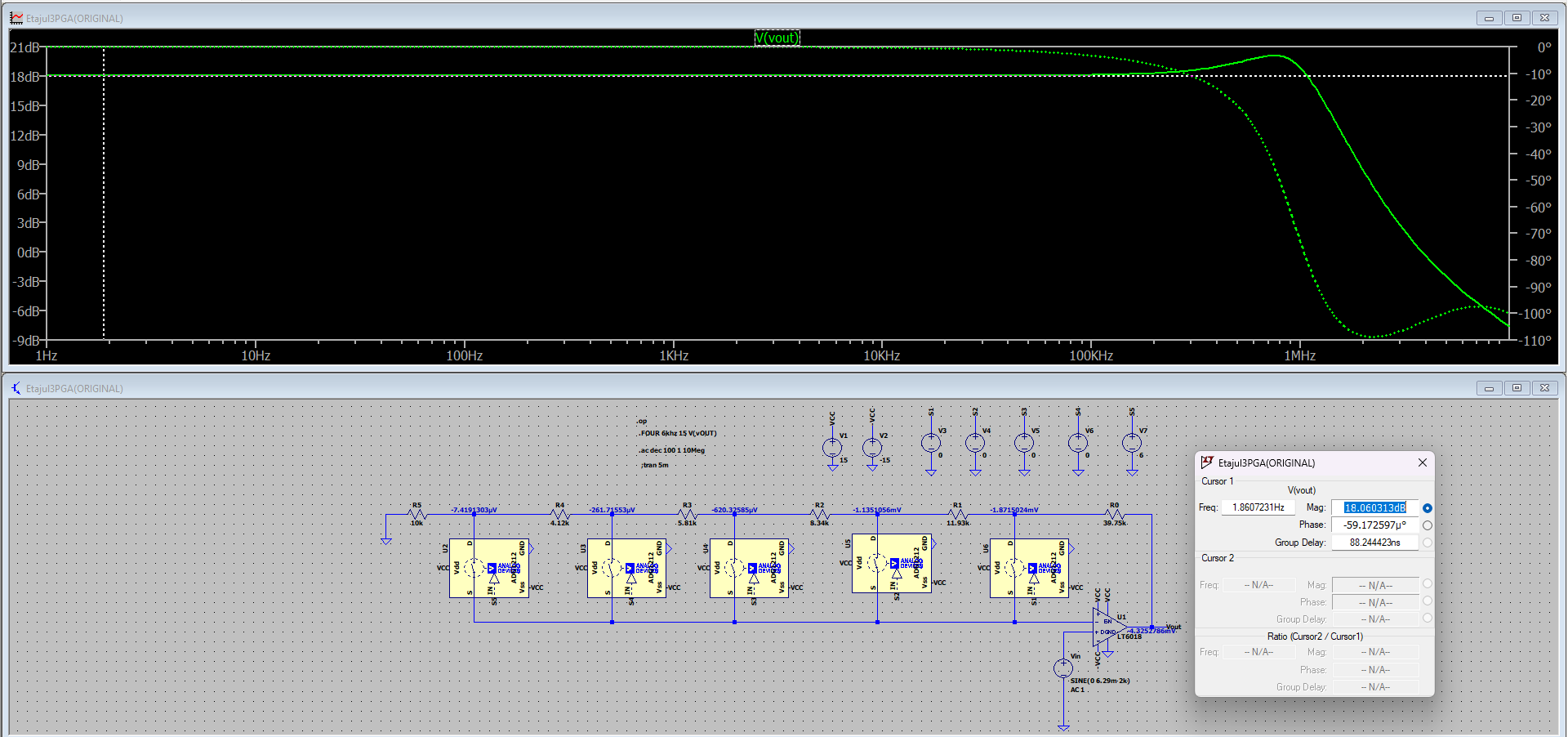
Descriere generată automat

O imagine care conține captură de ecran, linie

Descriere generată automat

O imagine care conține captură de ecran, linie

Descriere generată automat



* **Bandwidth**

O imagine care conține text, captură de ecran, afișaj, software

Descriere generată automat

O imagine care conține text, captură de ecran, afișaj, software

Descriere generată automat

O imagine care conține text, captură de ecran, software, Software multimedia

Descriere generată automat

O imagine care conține text, captură de ecran, software, Software multimedia

Descriere generată automat  
O imagine care conține text, captură de ecran, afișaj, software

Descriere generată automat

**🡪 Switch max**

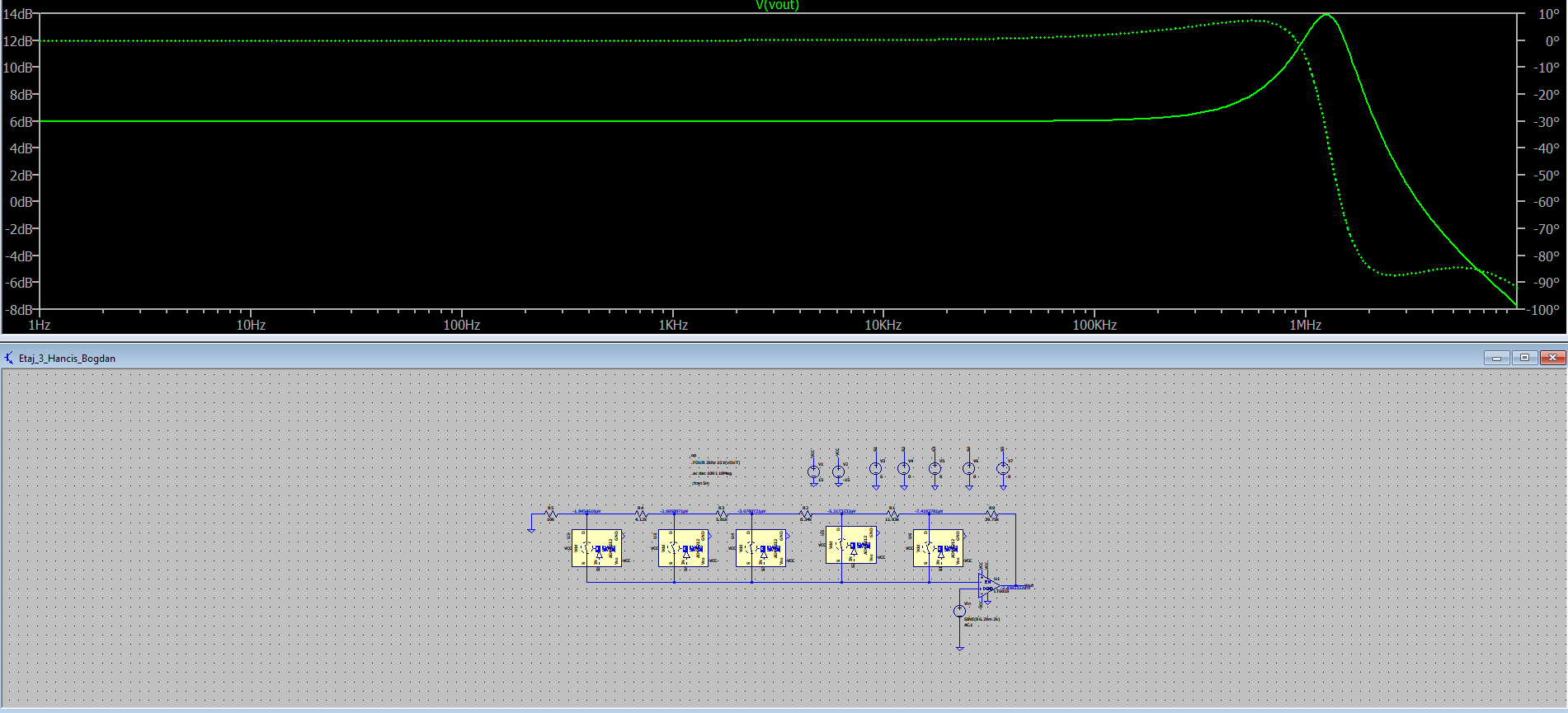
O imagine care conține text, captură de ecran, afișaj, software

Descriere generată automat

O imagine care conține text, afișaj, captură de ecran, calculator

Descriere generată automat

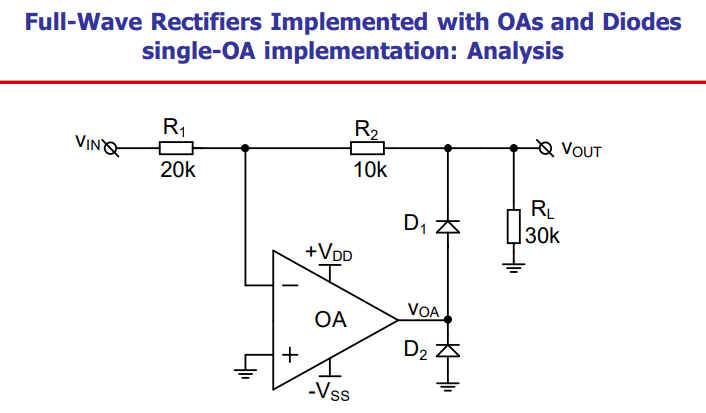
**🡪Switch min**

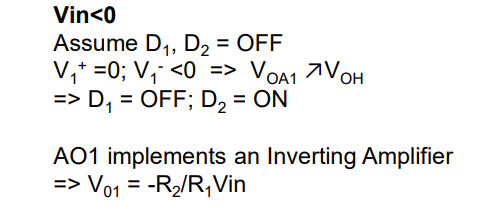
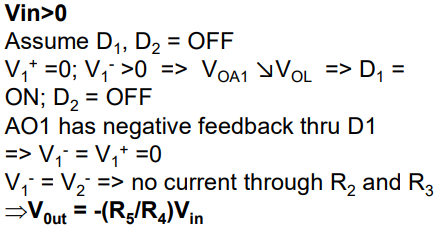


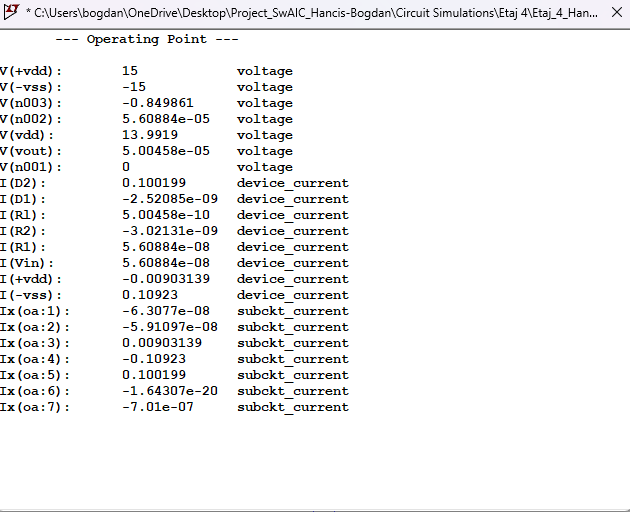
O imagine care conține captură de ecran, afișaj, software, Software multimedia

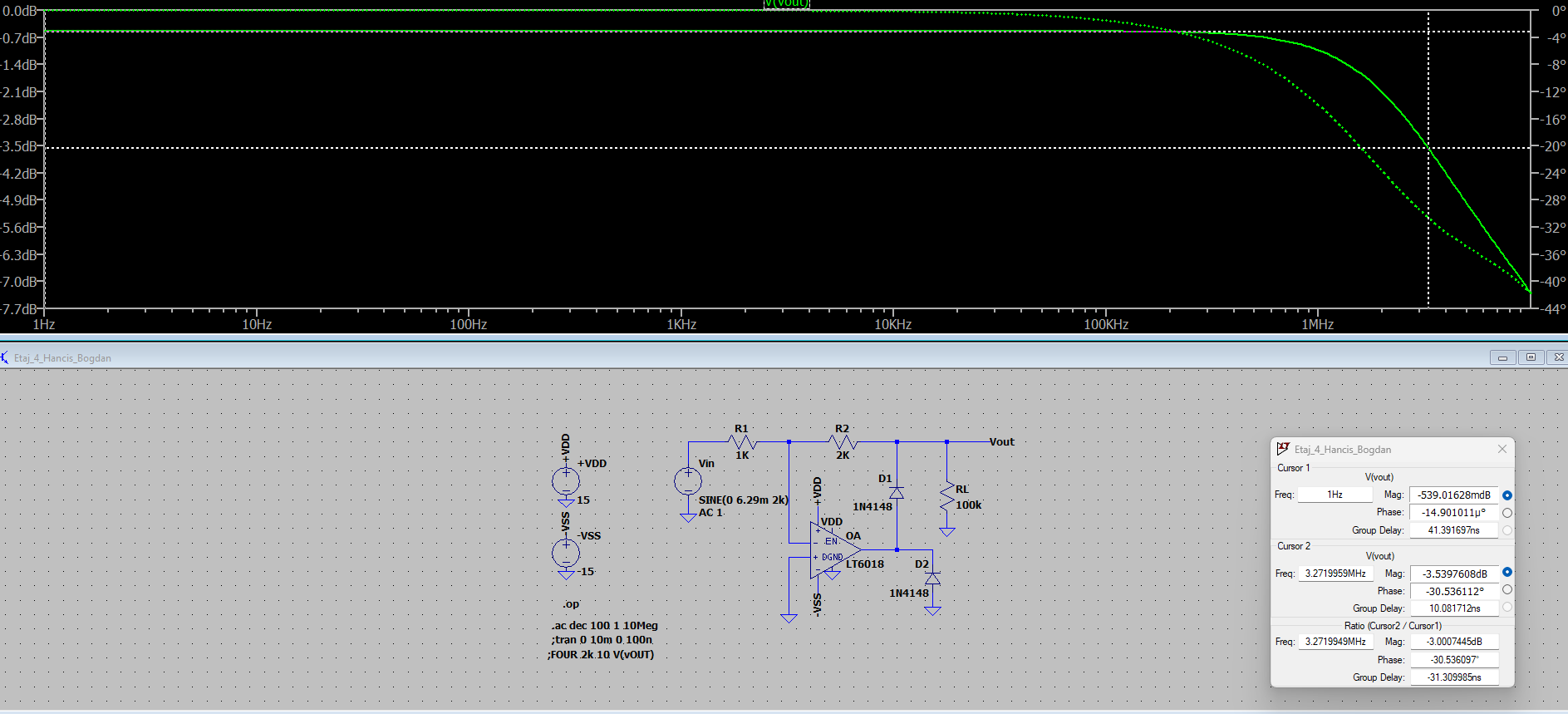
Descriere generată automat

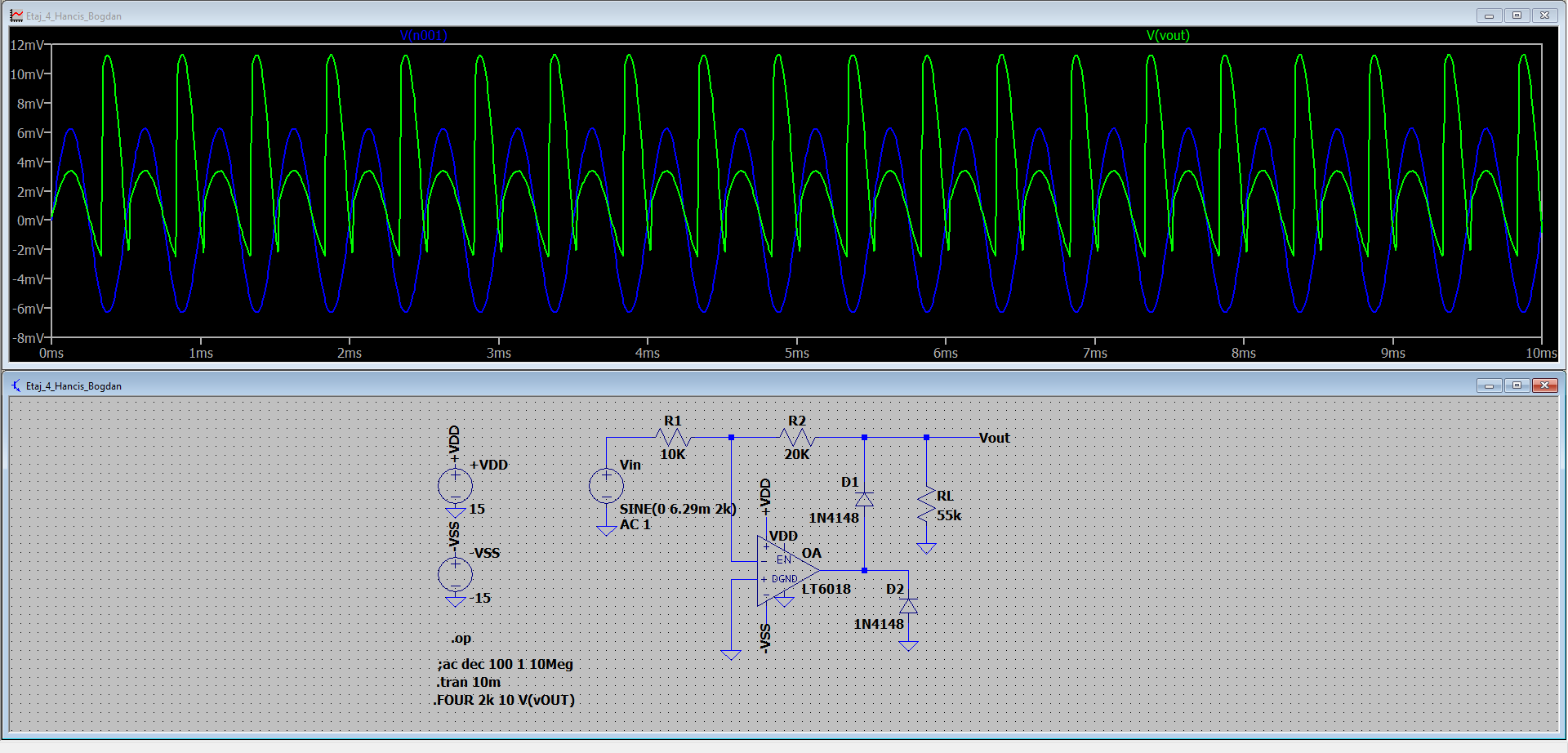
1. **Etaj 4 - Rectifier**

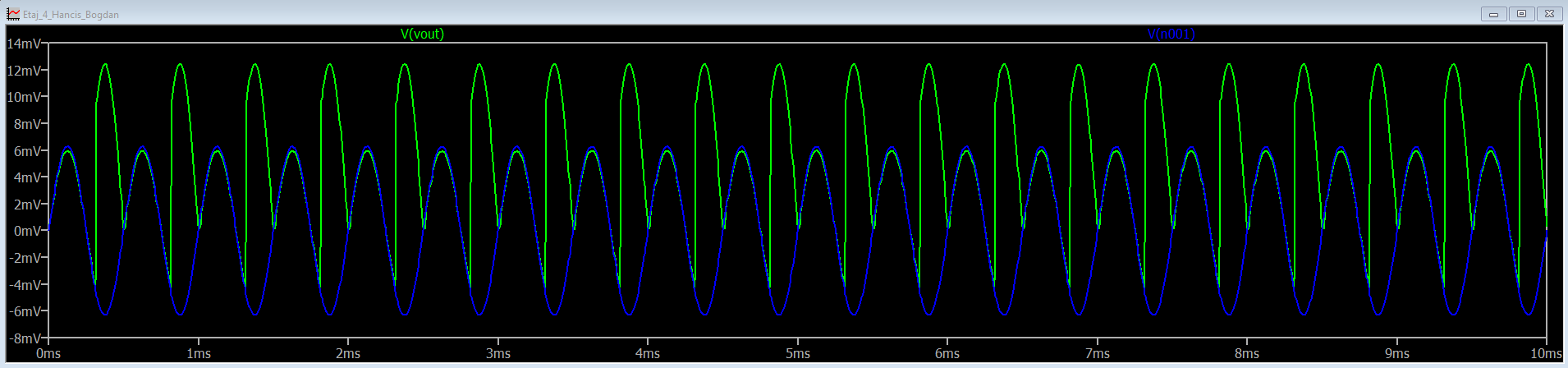


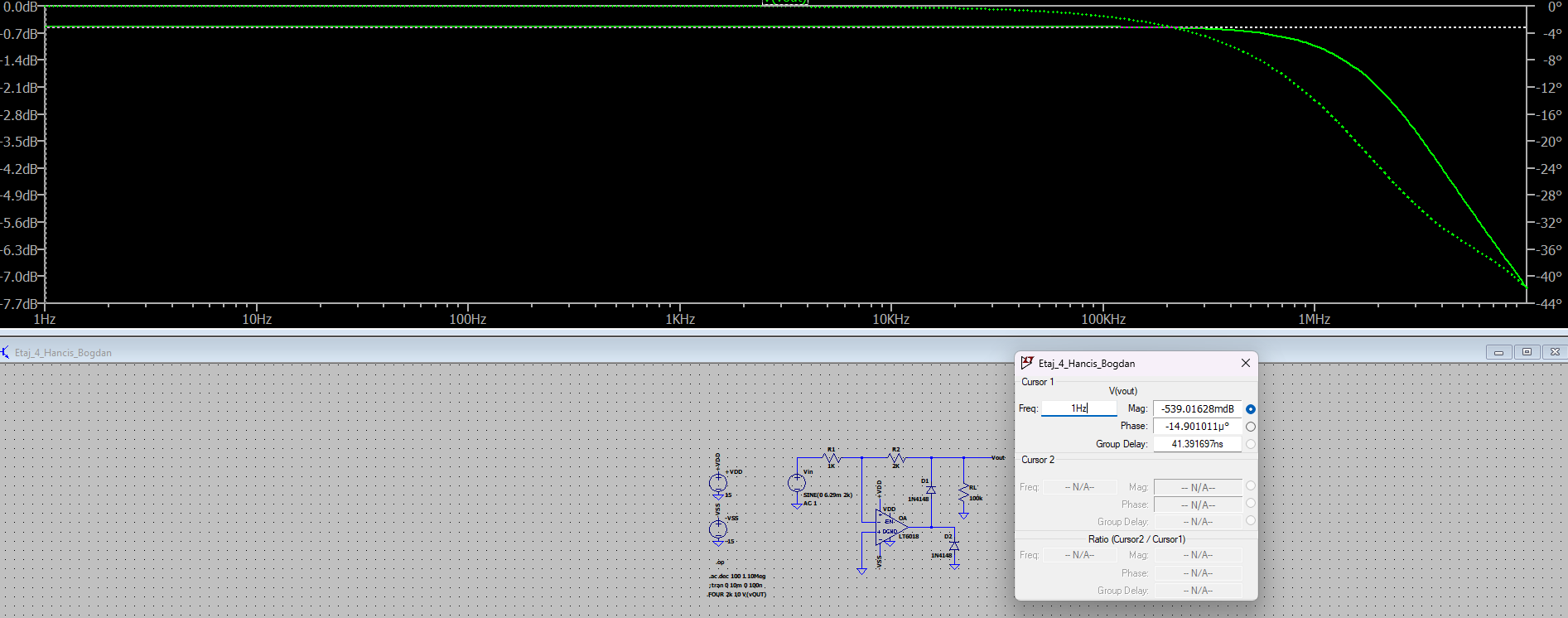


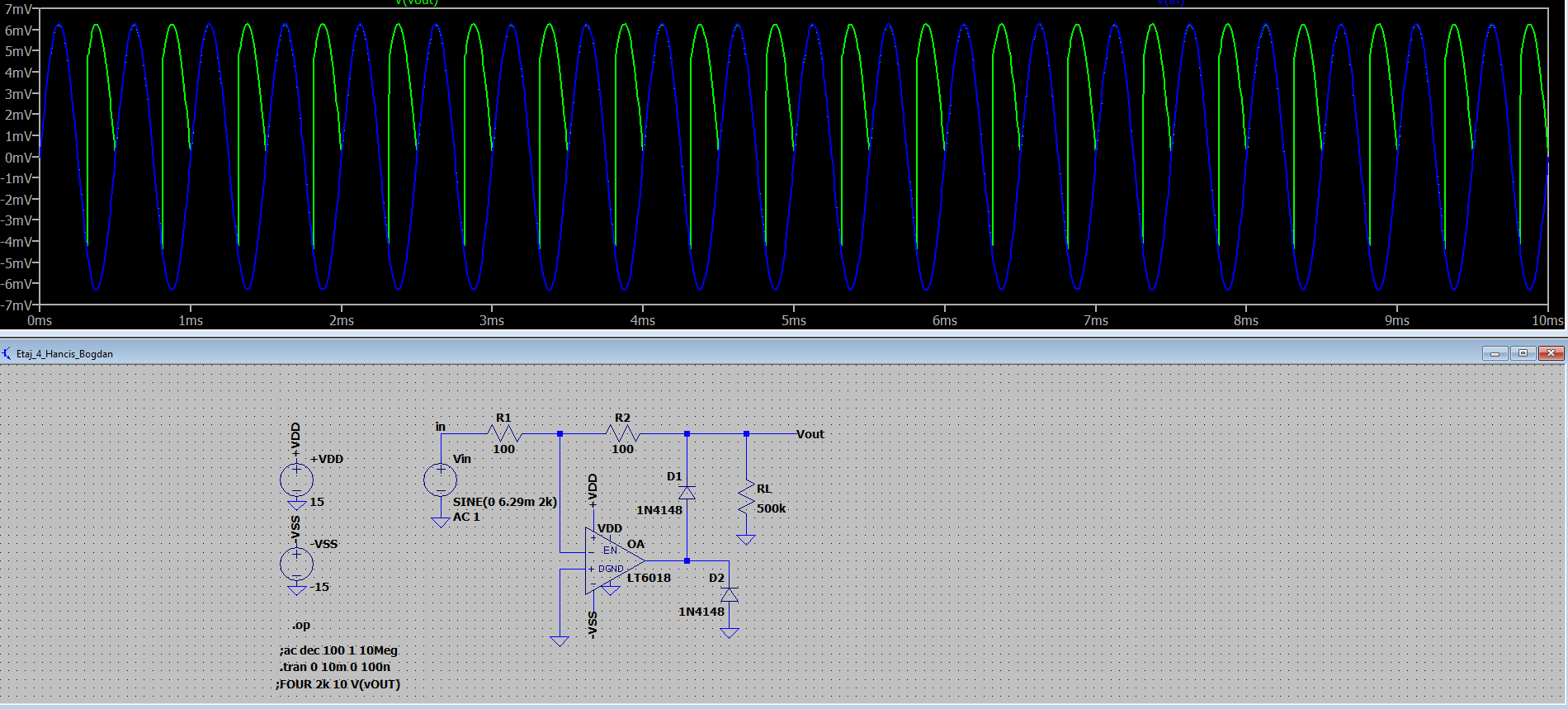












Vout = Vin > 0

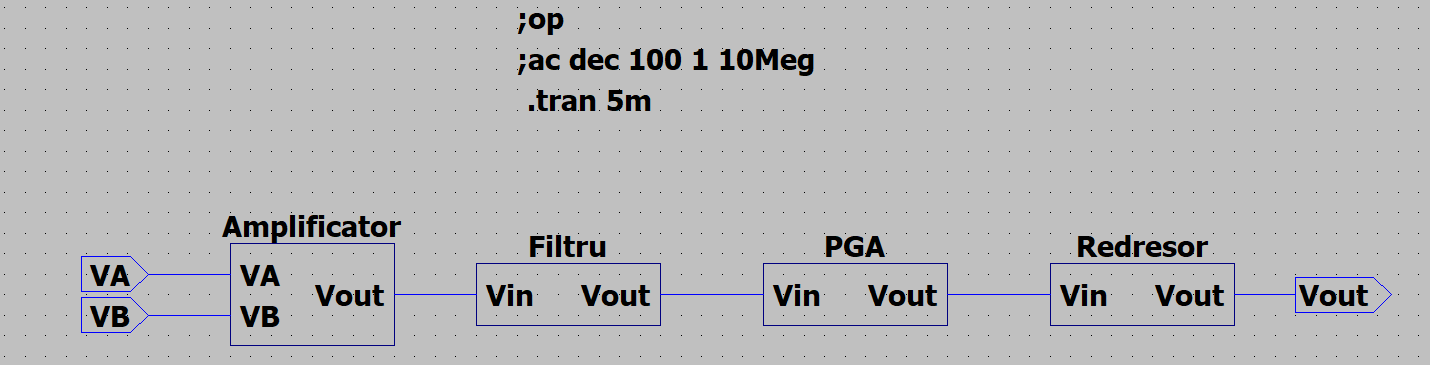
-2Vin = Vin < 0

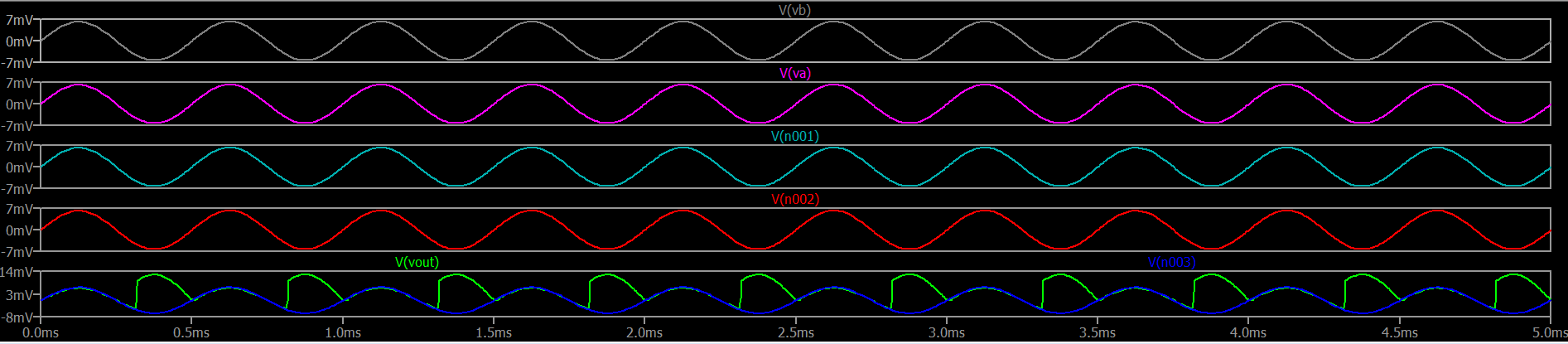
🡺 Vout = R1/R1+R2 \* Vin

R2 << R1

1. **Block diagram :**

In this section , we will show a block diagram containing all circuits we used :





1. **Bibliography :**

* [2022-23\_SwAIC4\_MNeag\_ContinuousTimeFilters.pdf](https://didatec.sharepoint.com/:b:/r/sites/SAIC2324_eng/Class%20Materials/LectureNotes/2022-23_SwAIC4_MNeag_ContinuousTimeFilters.pdf?csf=1&web=1&e=bgzb46)
* [2022-23\_SwAIC6\_MNeag\_InstrumentAmplifiers.pdf](https://didatec.sharepoint.com/:b:/r/sites/SAIC2324_eng/Class%20Materials/LectureNotes/2022-23_SwAIC6_MNeag_InstrumentAmplifiers.pdf?csf=1&web=1&e=FxgFVJ)
* [2022-23\_SwAIC7\_MNeag\_NonlinearCircuitsWithOpAmps.pdf](https://didatec.sharepoint.com/:b:/r/sites/SAIC2324_eng/Class%20Materials/LectureNotes/2022-23_SwAIC7_MNeag_NonlinearCircuitsWithOpAmps.pdf?csf=1&web=1&e=vvKmZW)
* [2022-23\_SwAIC9\_MNeag\_SignalGenerators.pdf](https://didatec.sharepoint.com/:b:/r/sites/SAIC2324_eng/Class%20Materials/LectureNotes/2022-23_SwAIC9_MNeag_SignalGenerators.pdf?csf=1&web=1&e=liJMOd)