

# Poročilo o laboratorijskih vajah

Ime in Priimek:

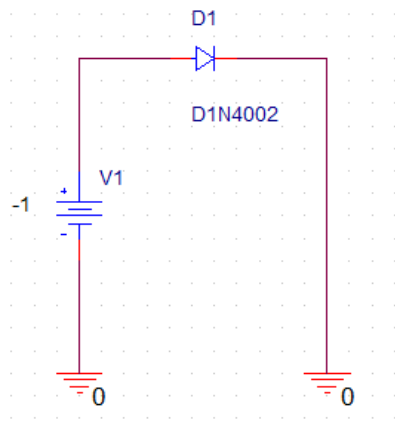
## Komunikacijska elektronika

### Laboratorijske vaje

#### Cikel 1: Diode

#### Vaja 1: Enosmerna karakteristika diode

Shema simulacije:



Parametri simulacije:

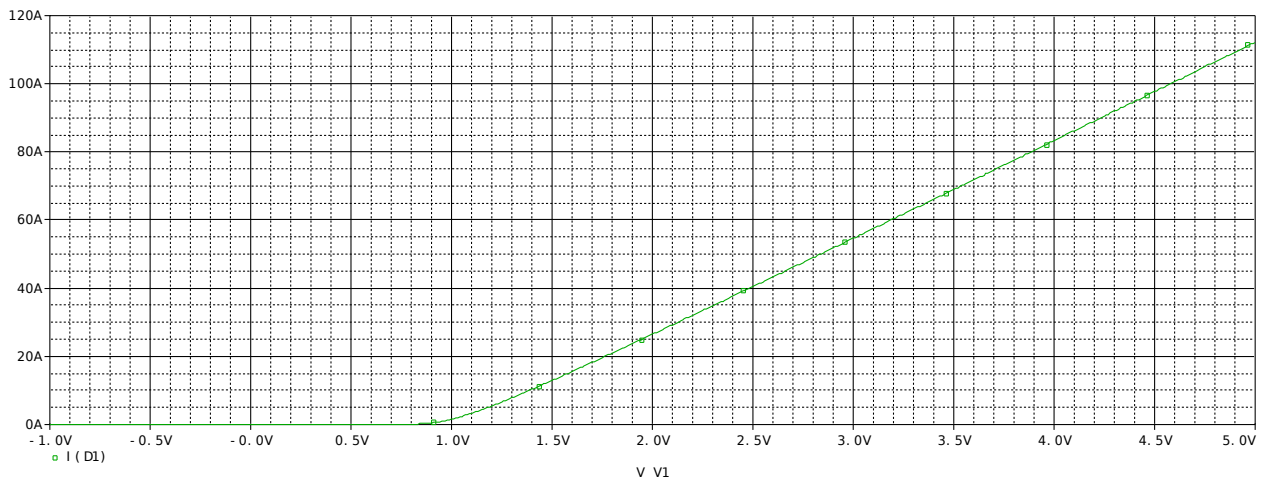
Analysys type: DC Sweep

Voltage source: V1

Sweep type: Linear

- Start value: 5
- End value: -1
- Increment: 0.01

Grafični potek  $I_d=f(V_d)$ :



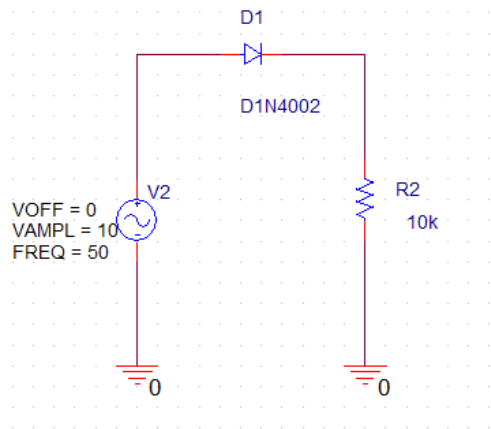
Zaporni tok: 0A

Napetost kolena: 0,7V

Upornost v prevodni smeri:  $R = \frac{U}{I} \approx 0,047 \Omega$

## Vaja 2: Polvalno usmerjanje brez glajenja

Shema simulacije:



Parametri simulacije:

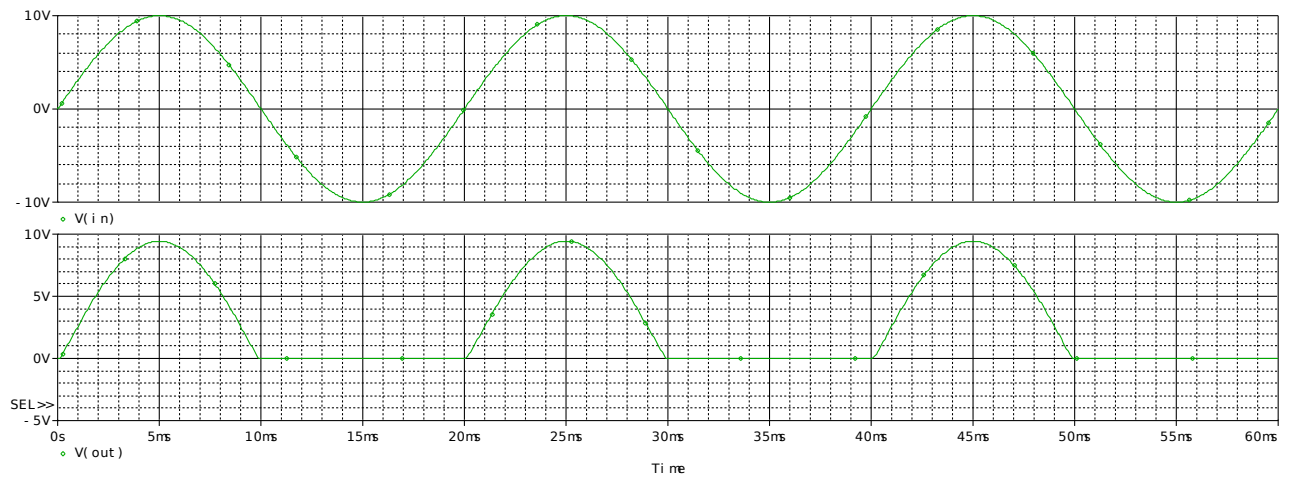
Analysys type: Time Domain (Transient)

Run to time: 60ms

Transient options:

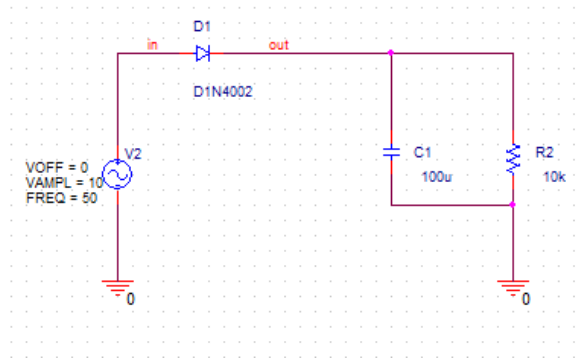
- Maximum step size: 0.06ms

Plot vhodnega in izhodnega signala:



### Vaja 3: Polvalno usmerjanje z glajenjem

Shema simulacije:



Parametri simulacije:

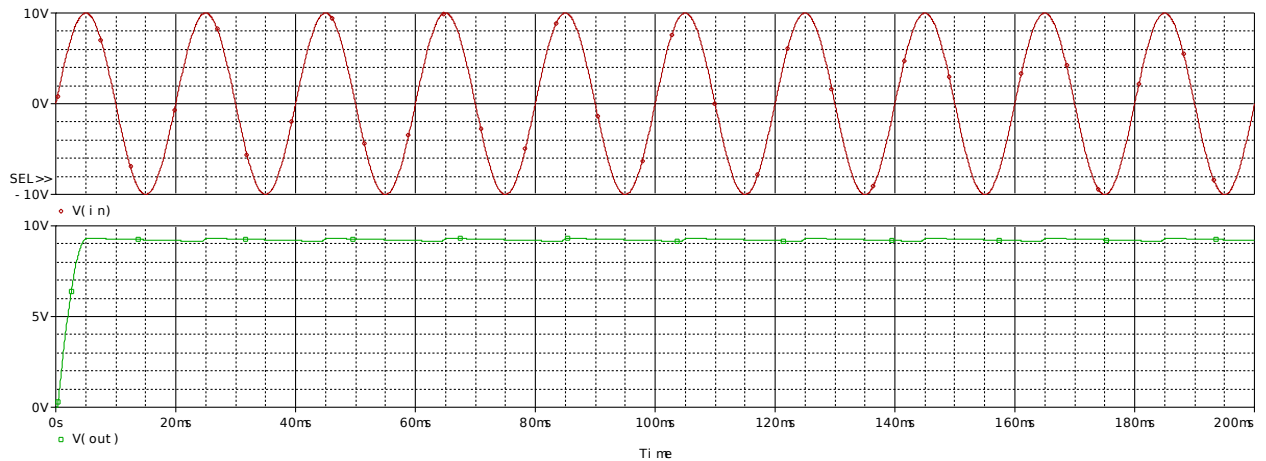
Analysys type: Time Domain (Transient)

Run to time: 200ms

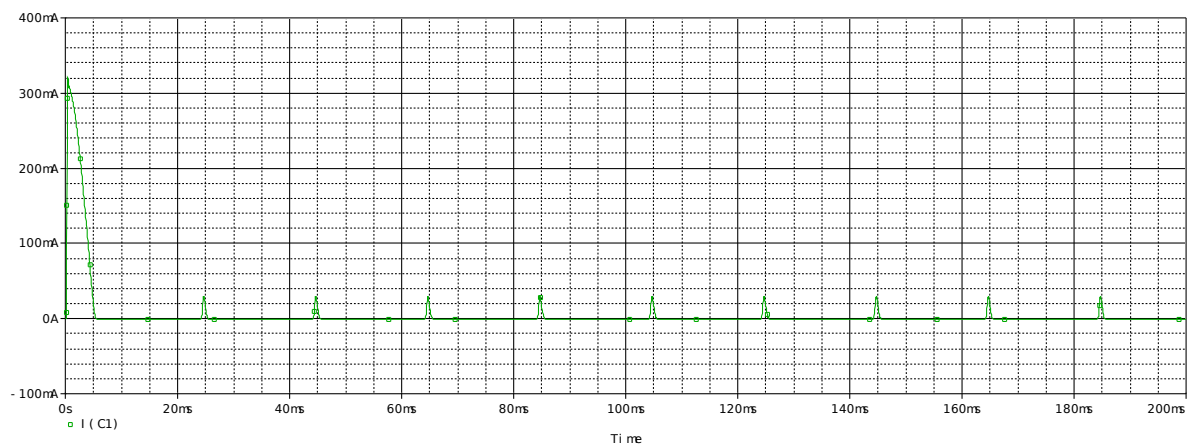
Transient options:

- Maximum step size: 0.06ms

Rezultat vhodnega in izhodnega signala (napetosti):

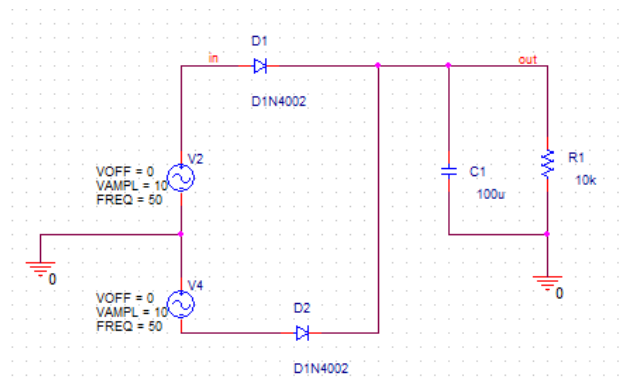


Potek toka v gladilnem kondenzatorju:



## Vaja 4: Polnovalno usmerjanje z glajenjem

Shema simulacije:



Parametri simulacije:

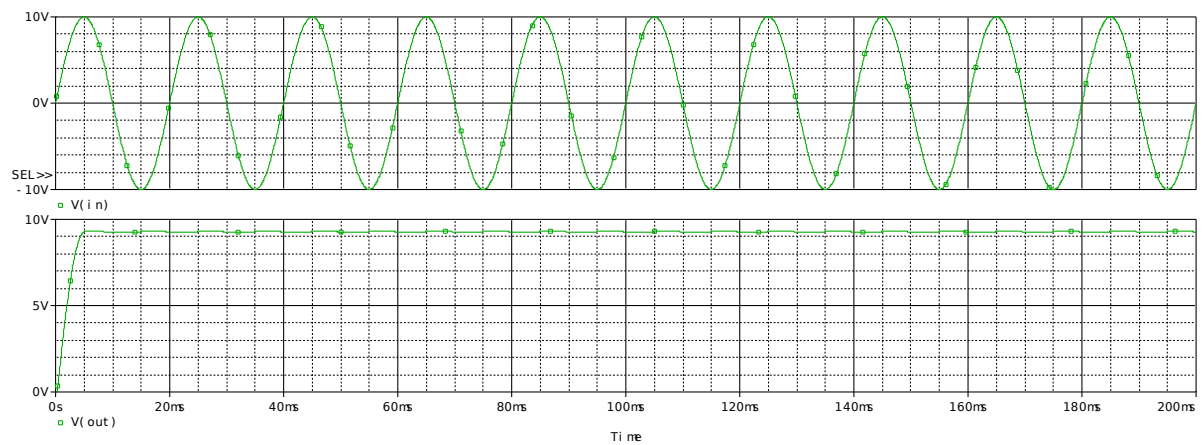
Analisis type: Time Domain (Transient)

Run to time: 200ms

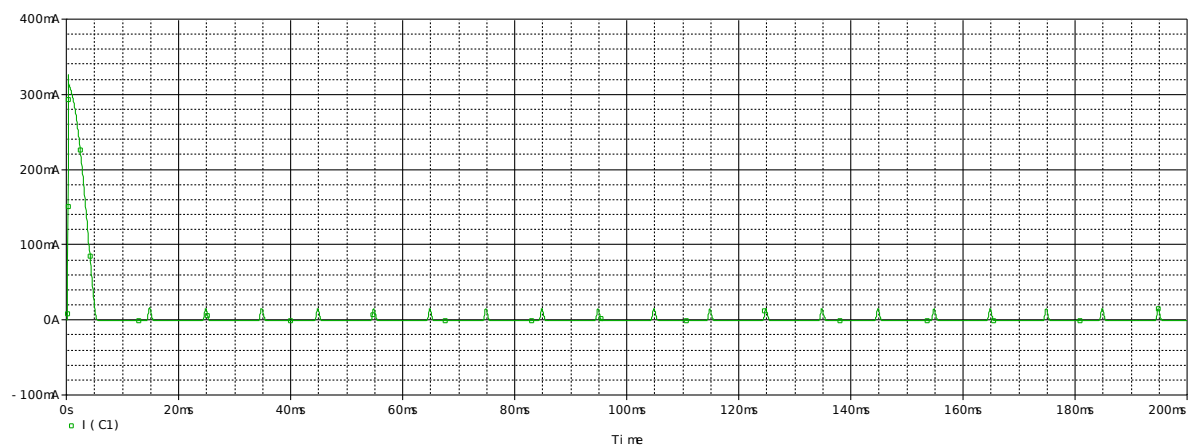
Transient options:

- Maximum step size: 0.06ms

Rezultat vhodnega in izhodnega signala (napetosti):

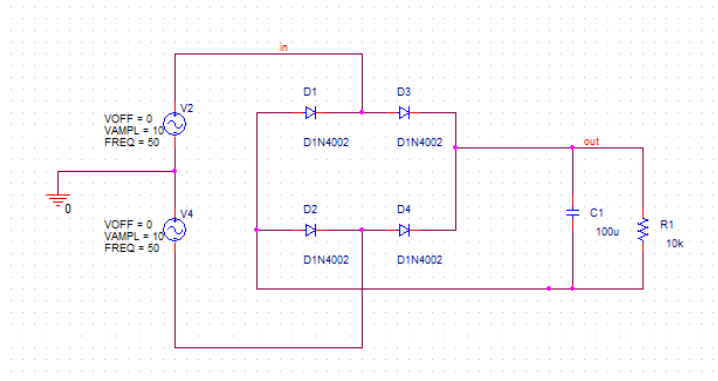


Potek toka v gladilnem kondenzatorju:



## Vaja 5: Polnovalno usmerjanje z Grectzovim mostičem

Shema simulacije:



Parametri simulacije:

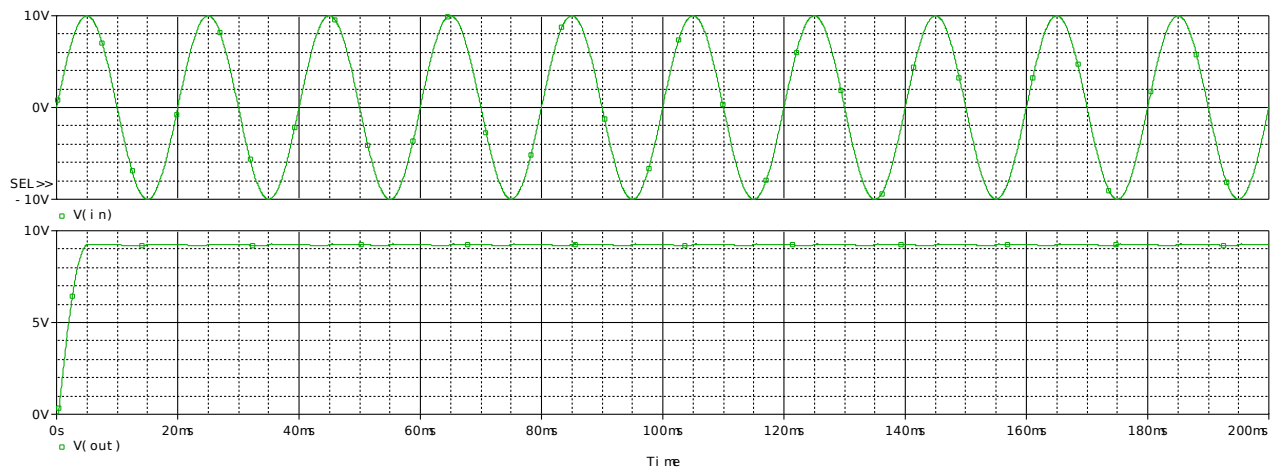
Analysys type: Time Domain  
(Transient)

Run to time: 200ms

Transient options:

- Maximum step size: 0.06ms

Rezultat vhodnega in izhodnega signala (napetosti):



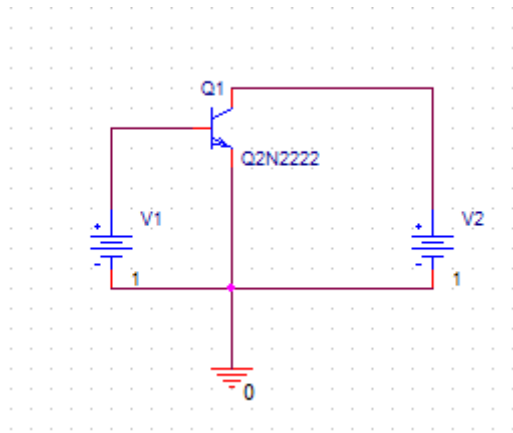
# Komunikacijska elektronika

## Laboratorijske vaje

### Cikel 2: Bipolani in unipolarni tranzistor

#### Vaja 1: Karakteristika bipolarnega tranzistorja

Shema simulacije:

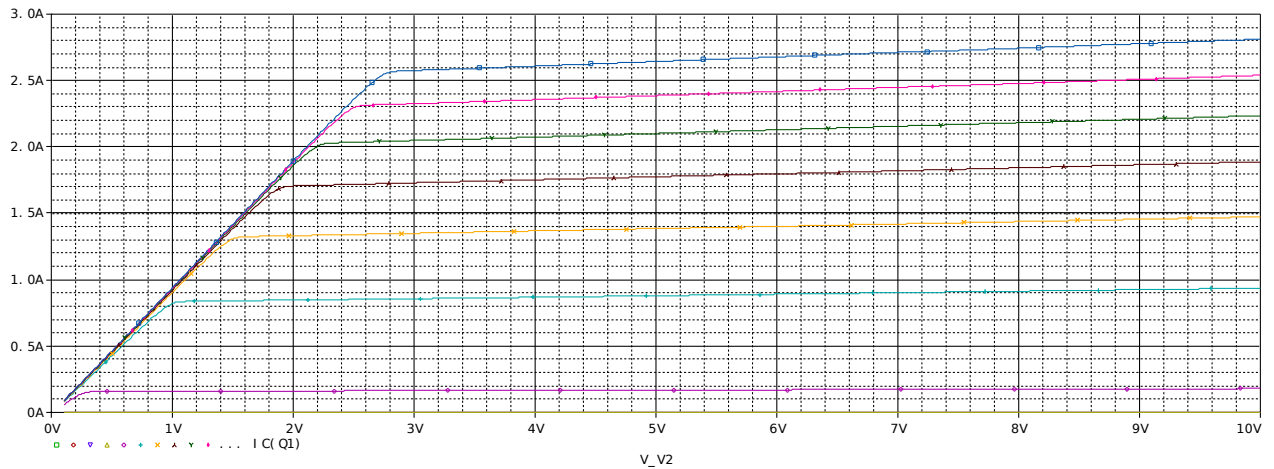


Parametri simulacije:

Analys type: DC Sweep  
Voltage source: V2  
Sweep type: Linear

- Start value: 0.1
- End value: 10
- Increment: 0.01

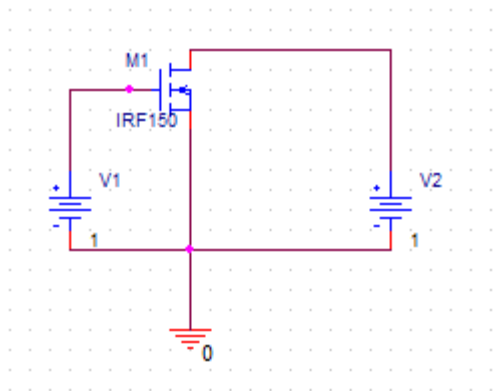
Grafični poteki  $I_c=f(V_{ce})$ :



Področje nasičenja: 0 do 2,8 V  
Aktivno področje: 2,8V proti  $\infty$

## Vaja 2: Karakteristika MOSFET tranzistorja

Shema simulacije:



Parametri simulacije:

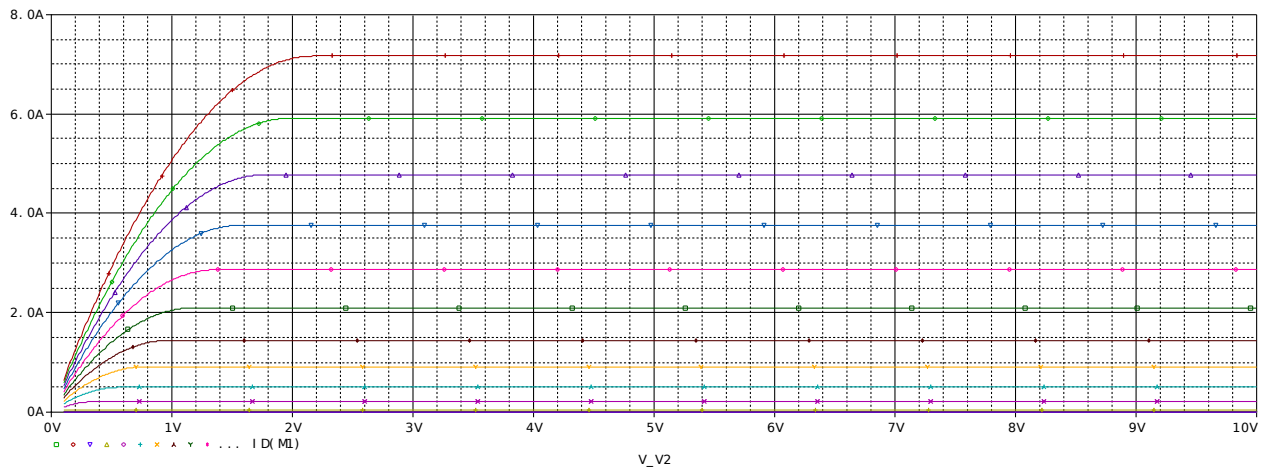
Analysys type: DC Sweep

Voltage source: V2

Sweep type: Linear

- Start value: 0.1
- End value: 10
- Increment: 0.01

Grafični poteki  $I_D=f(V_{DS})$ :

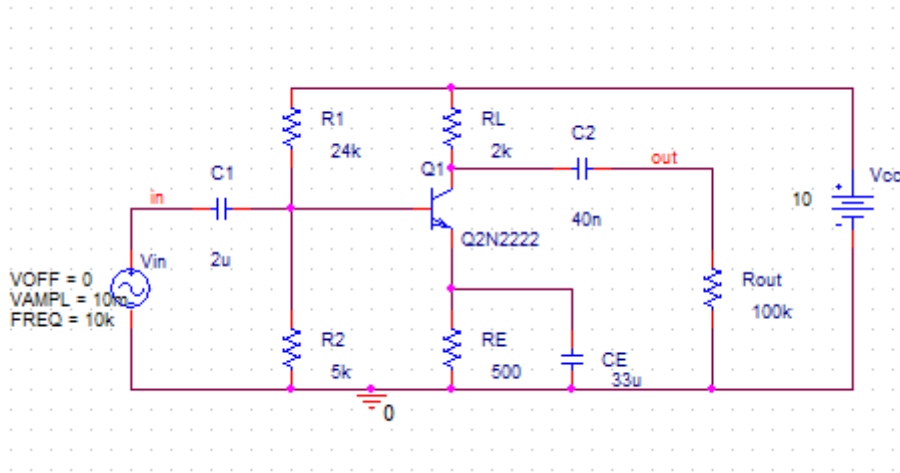


Področje nasičenja: 2,1V proti  $\infty$

Ohmsko področje: 0 do 2,1V

### Vaja 3: Enostaven ojačevalnik z bipolarnim tranzistorjem

Shema simulacije:



Parametri simulacije:

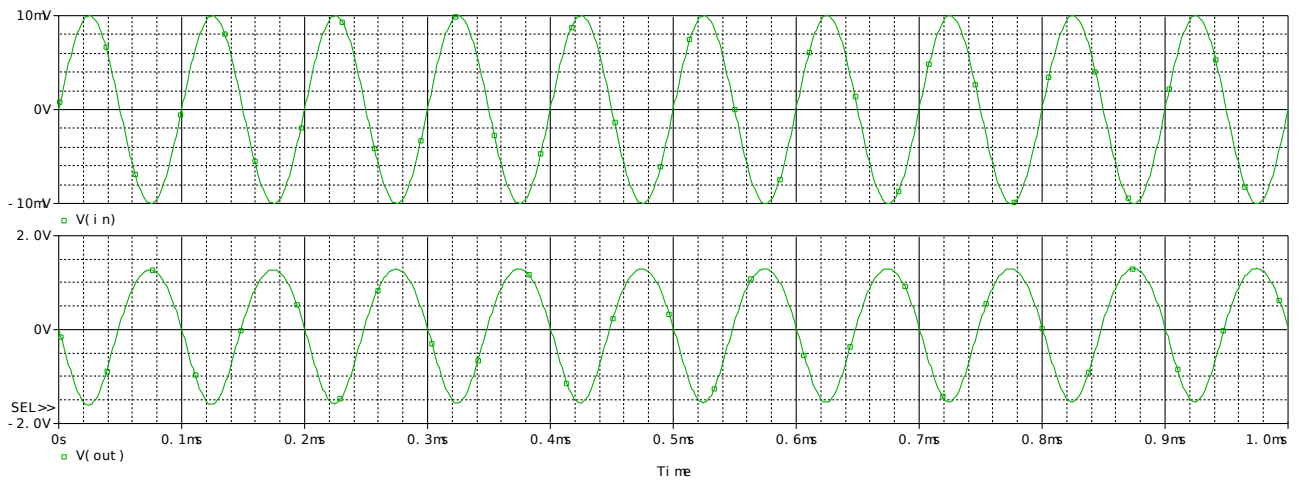
Analysys type: Time Domain (Transient)

Run to time: 1ms

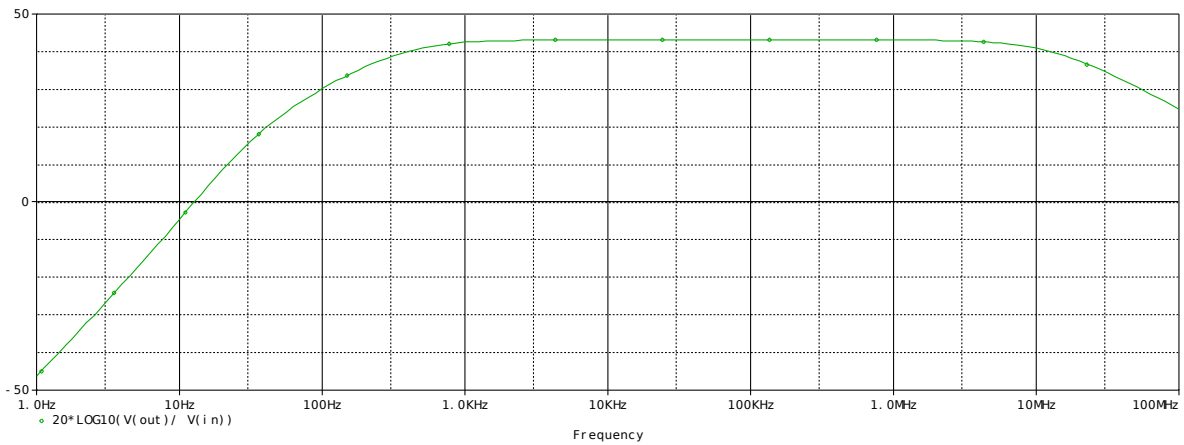
Transient options:

- Maximum step size: 1us

Rezultat vhodnega in izhodnega signala(časovna analiza):



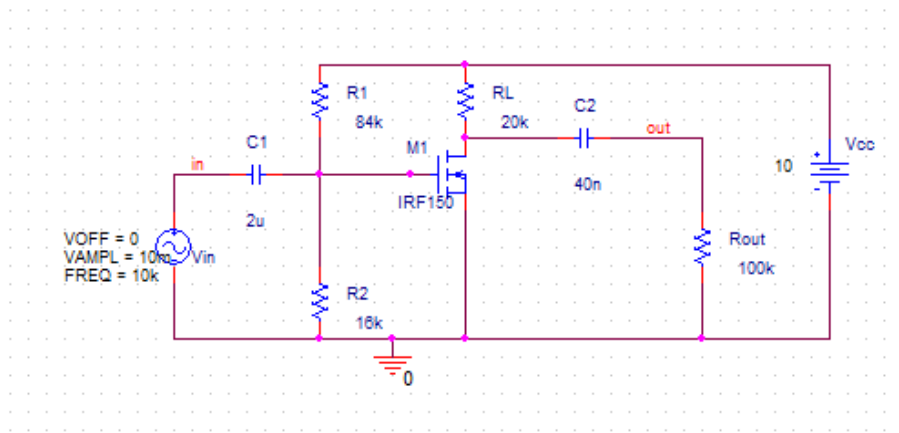
Amplitudni in fazni potek (izmenična analiza):





## Vaja 4: Diferencialna stopnja z MOSFET tranzistorjem

Shema simulacije:



Parametri simulacije:

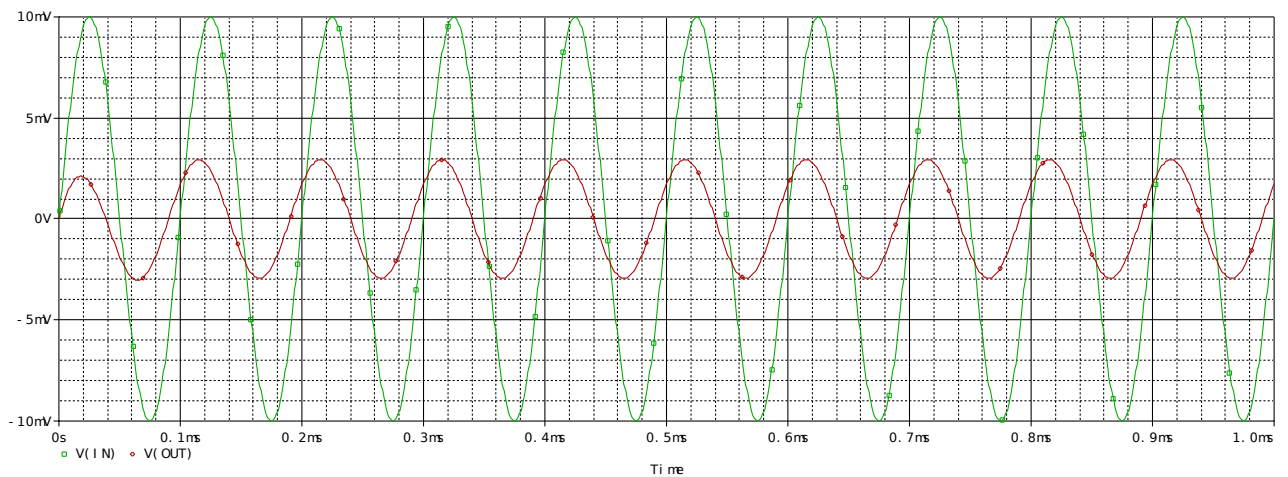
Analysys type: Time Domain (Transient)

Run to time: 1ms

Transient options:

- Maximum step size: 1us

Rezultat vhodnega in izhodnega signala (časovna analiza):



Amplitudni in fazni potek (izmenična analiza):

