

Simulari redresoare de precizie

*redresor monolternanta

R1 0 2 10K

D1 1 2 DM2

.MODEL DM2 D (IS=8.0E-16)

V1 1 0 SIN(0 5 50)

.TRAN 0.2M 100M

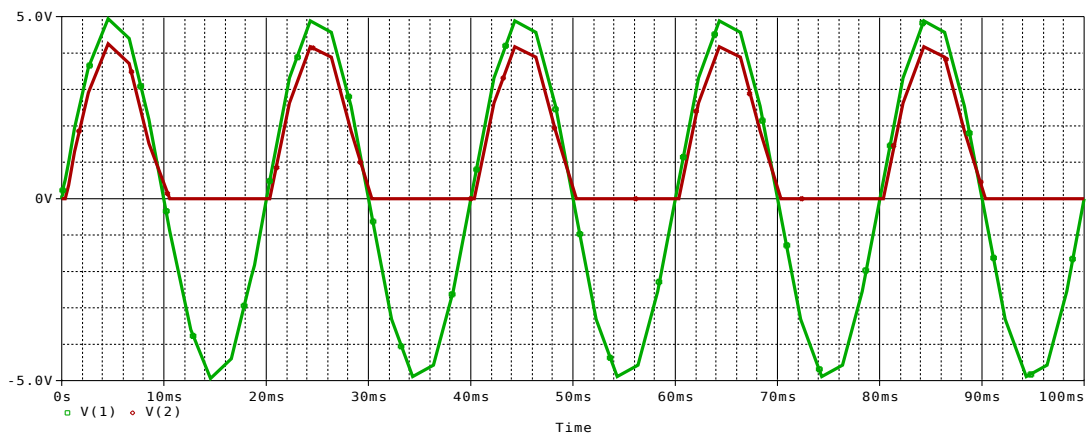
.DC V1 -15 15 0.1

.FOUR 50 V(1) V(2)

.PROBE

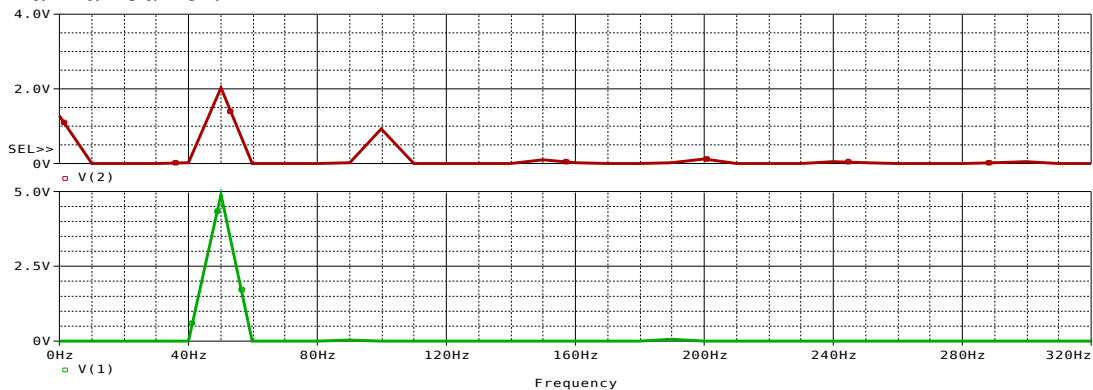
.END

Analiza tranzitorie:

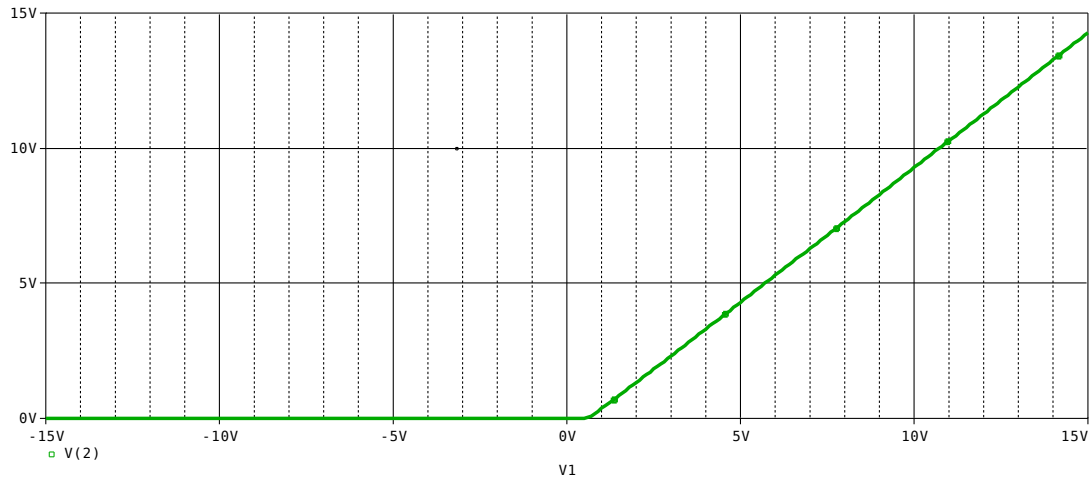


In figura de mai sus sunt reprezentate semnalele unui redresor monofazat. Se observa ca tensiunea de de iesire este mai mica decat cea aplicata la intrare. Acest lucru se datoreaza caderii de tensiune pe dodaa.

Analiza fourier:



Caracteristica de transfer:



*redresor de precizie monolternanta

R5 8 0 1K

D 5 8 DM2

.MODEL DM2 D (IS=8.0E-16)

X1 4 8 6 7 5 UA741

.LIB OPAMP.LIB

VCC 6 0 DC 15V

VEE 0 7 DC 15V

V4 4 0 SIN(0 5 50)

.TRAN 0.2M 100M

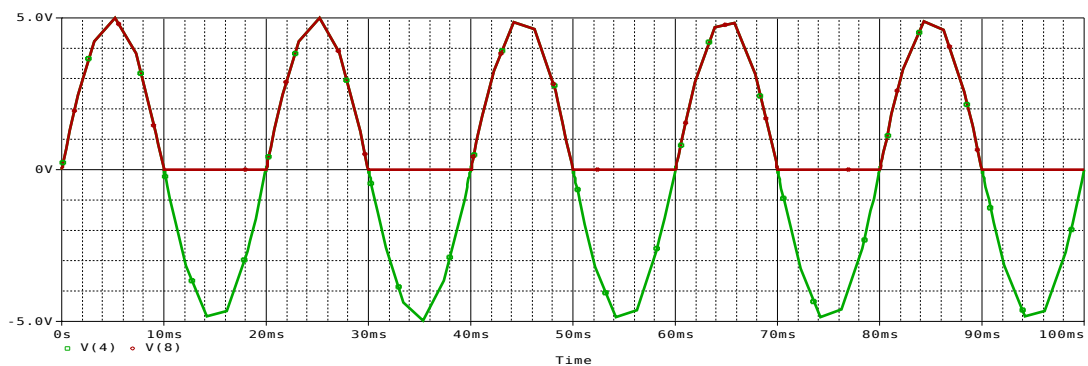
.DC V4 -15 15 0.1

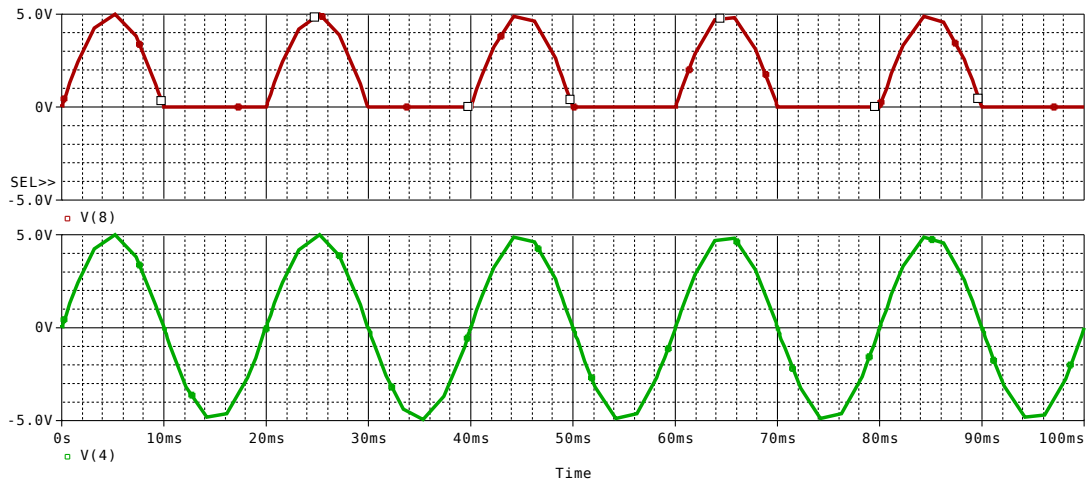
.FOUR 50 V(4) V(8)

.PROBE

.END

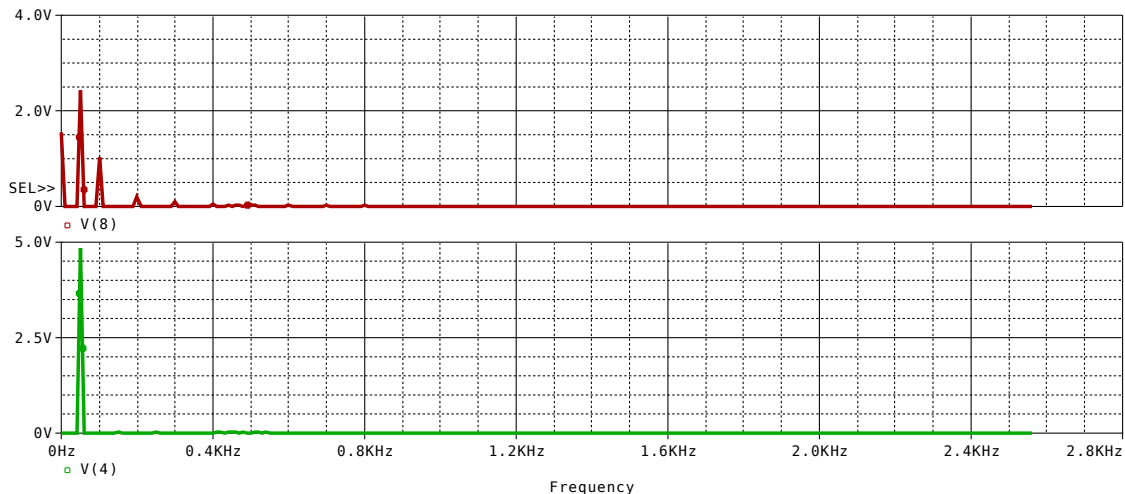
Analiza tranzitorie:





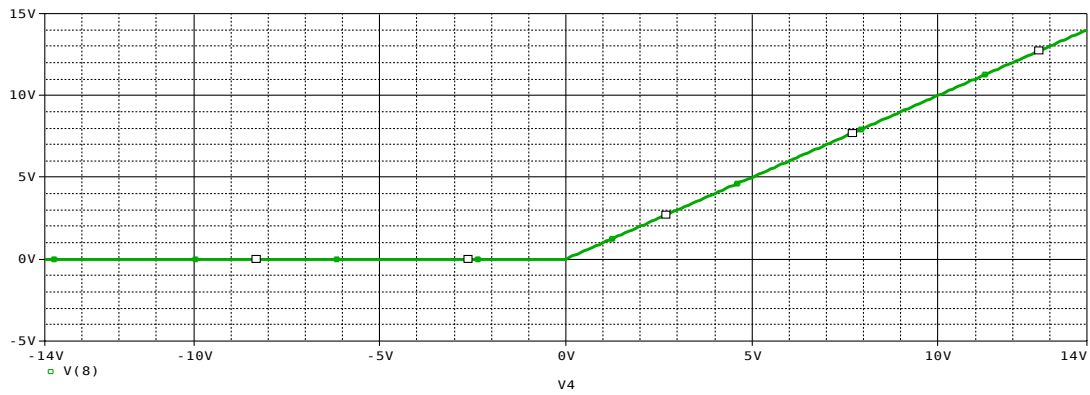
In figura de mai sus este reprezentata tensiunea de intrare si de iesire a unui redresor monofazat de precizie. Se observa ca tensiunea de iesire are aceeasi amplitudine ca a tensiunii de iesire. Acest lucru se datoreaza amplificatorului deoarece acesta se comporta ca o dioda ideala avand cadere zero de tensiune si din aceasta cauza nu mai avem acea mica diferenta de amplitudine a celor doua semnale.

Analiza fourier:



In figura de mai sus este reprezentata analiza fourie a semnalului. In figura in care avem un singur bat (impuls dirac) este reprezentat semnalul de intrare care este sinusoidal. Se observa ca tensiunea de iesire are mai multe impulsuri dirac. Primul bat este component continua=0 la frecventa 0Hz. al doilea bat reprezinta component fundamental cu inaltimea = cu tensiunea semnalului la 50Hz. Al treilea este egal cu 0; la 1kHz iar al patrulea la frecventa de 2kHz.

Caracteristica de transfer:



*redresor de precizie monoltermanta cu ao

*cu inversarea diodei

R5 8 0 1K

D 8 5 DM2

.MODEL DM2 D (IS=8.0E-16)

X1 4 8 6 7 5 UA741

.LIB OPAMP.LIB

VCC 6 0 DC 15V

VEE 0 7 DC 15V

V4 4 0 SIN(0 5 50)

.TRAN 0.2M 100M

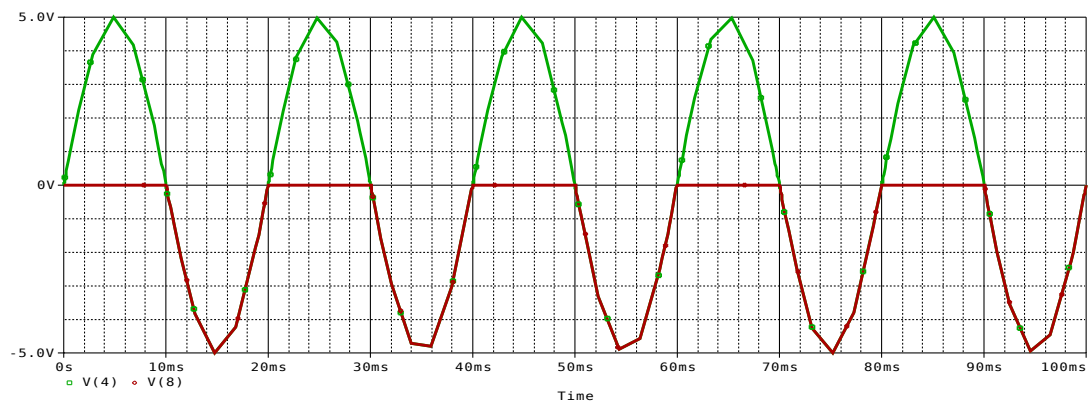
.DC V4 -15 15 0.1

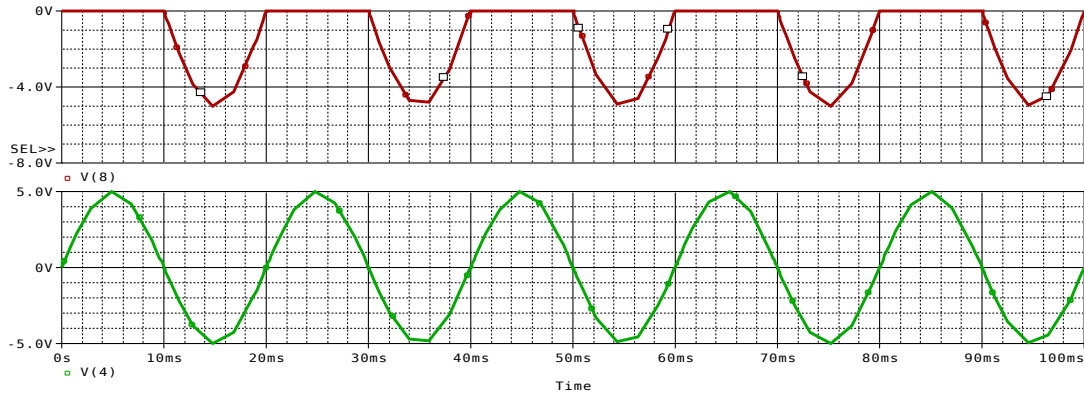
.FOUR 50 V(4) V(8)

.PROBE

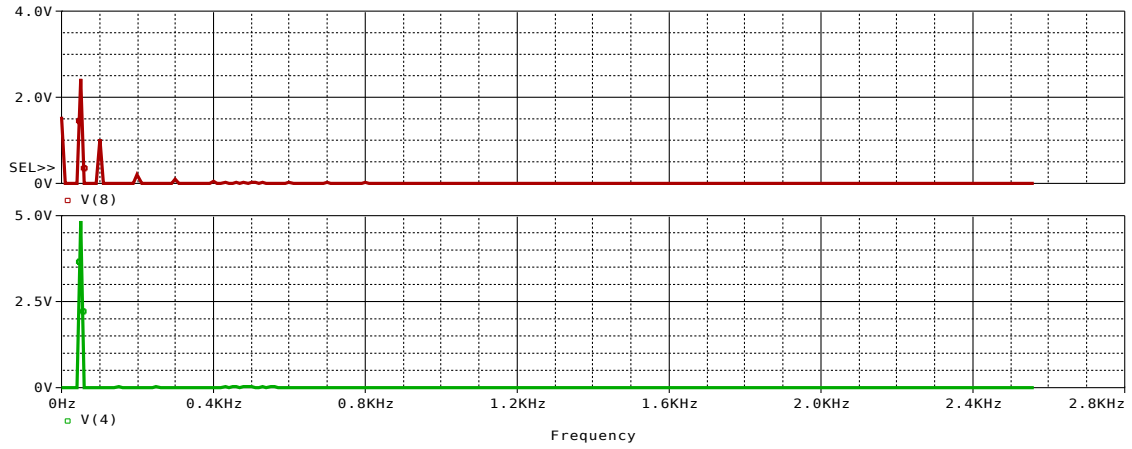
.END

Analiza tranzitorie:

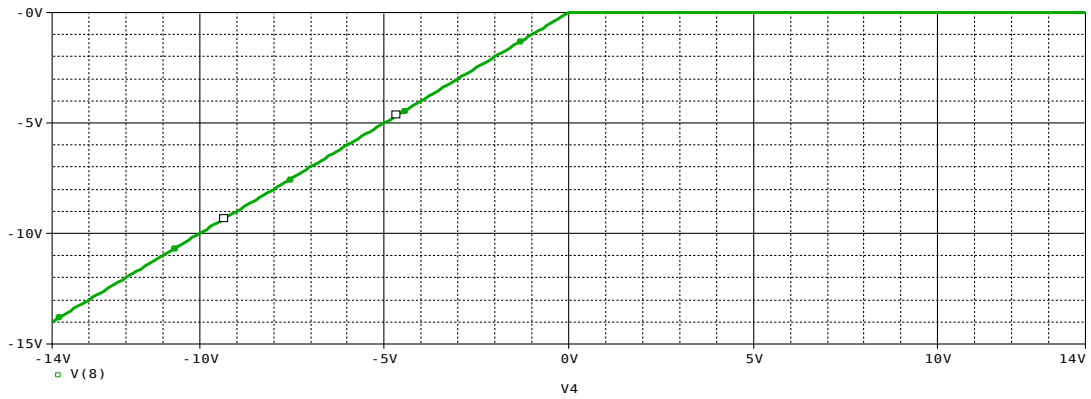




Analiza fourier:



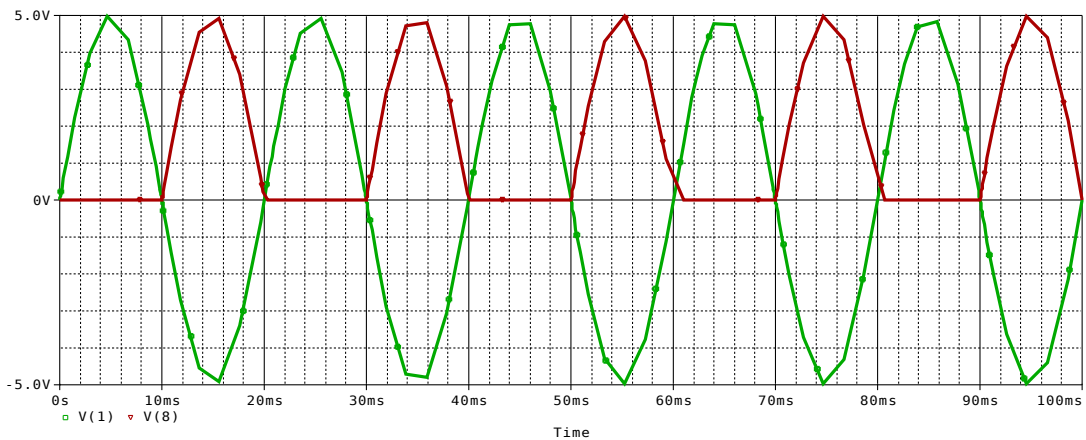
Cracteristica de transfer:



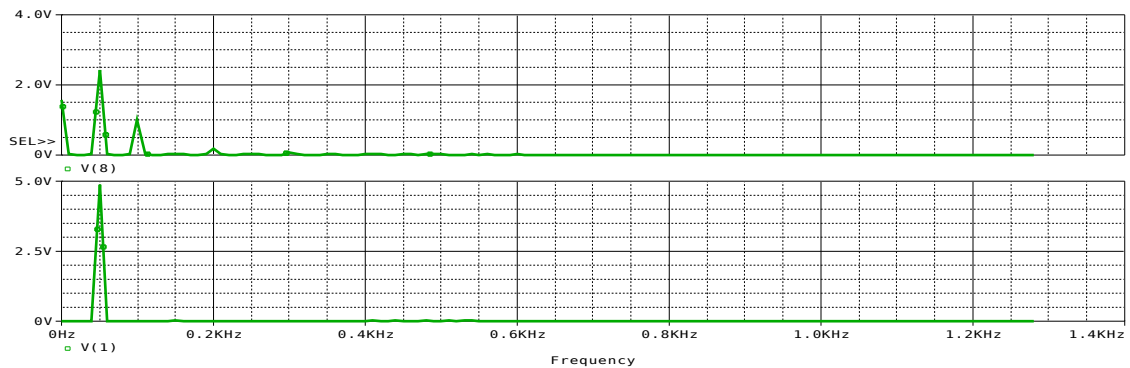
*redresor monolternanta cu ao pt alt neg
*fara saturarea amplificatorului

```
R1 1 3 20K  
R2 3 8 20K  
R3 8 0 1K  
D1 3 5 DM2  
D2 5 8 DM2  
.MODEL DM2 D (IS=8.0E-16)  
X1 0 3 6 7 5 UA741  
.LIB OPAMP.LIB  
VCC 6 0 DC 15V  
VEE 0 7 DC 15V  
V1 1 0 SIN(0 5 50)  
.TRAN 0.2M 100M  
.DC V1 -16 16 0.1  
.FOUR 50 V(1) V(8)  
.PROBE  
.END
```

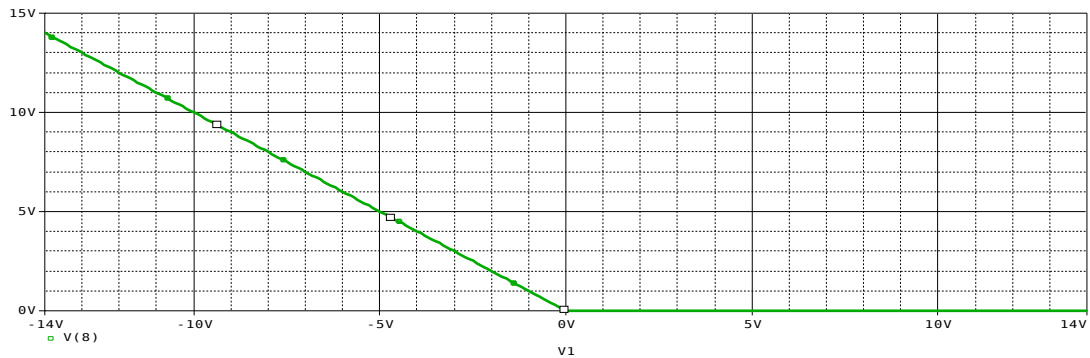
Analiza tranzitorie:



Analiza fourier:



Caracteristica de transfer:



*redresor monolternanta cu ao pt alt neg

*fara saturarea amplificatorului

*cu inversarea diodelor

R1 1 3 20K

R2 3 8 20K

R3 8 0 1K

D1 5 3 DM2

D2 8 5 DM2

.MODEL DM2 D (IS=8.0E-16)

X1 0 3 6 7 5 UA741

.LIB OPAMP.LIB

VCC 6 0 DC 15V

VEE 0 7 DC 15V

V1 1 0 SIN(0 5 50)

.TRAN 0.2M 100M

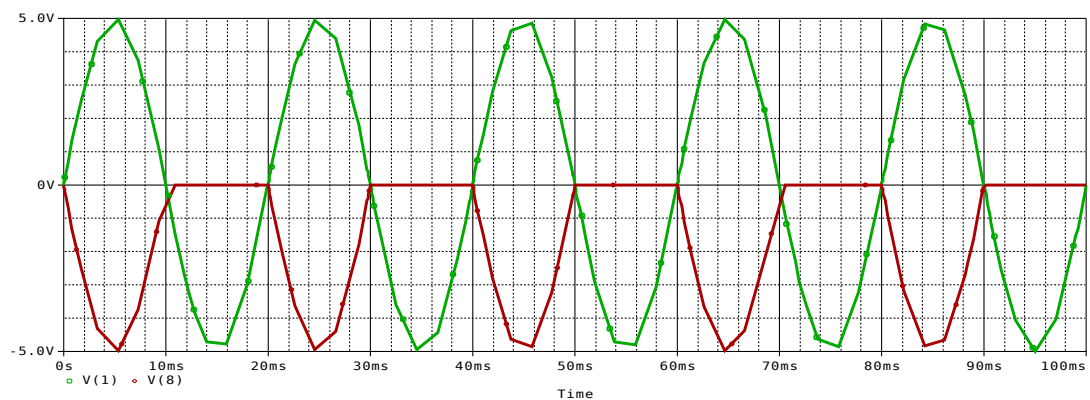
.DC V1 -16 16 0.1

.FOUR 50 V(1) V(8)

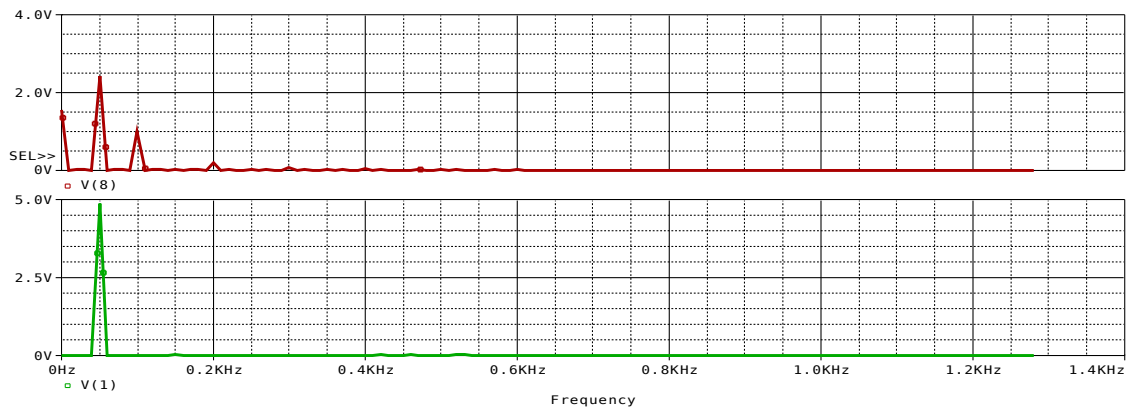
.PROBE

.END

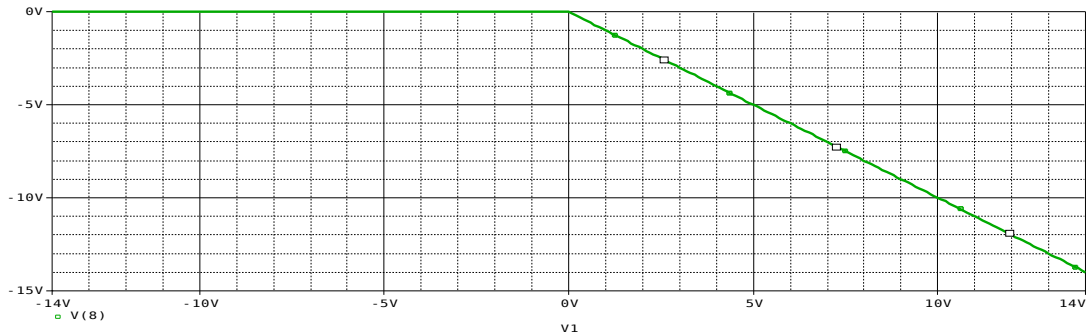
Analiza tranzitorie:



Analiza fourier:



Caracteristica de transfer:



*redresor de precizie dubla alternanta

R1 1 3 20K

R2 3 8 20K

R3 3 4 20K

R4 8 2 20K

R5 2 9 20K

D1 5 4 DM2

D2 8 5 DM2

.MODEL DM2 D (IS=8.0E-16)

X1 0 3 6 7 5 UA741

X2 4 2 6 7 9 UA741

.LIB OPAMP.LIB

VCC 6 0 DC 15V

VEE 0 7 DC 15

V1 1 0 SIN(0 5 50)

.TRAN 0.2M 100M

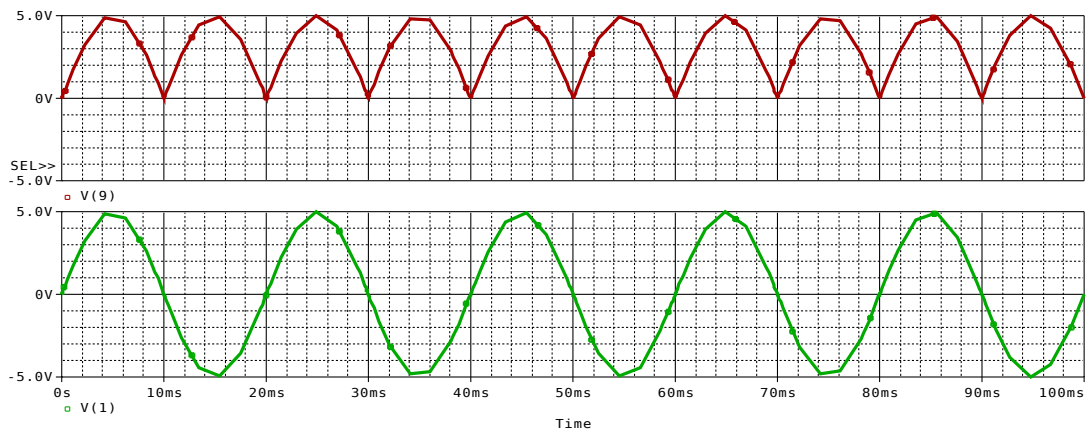
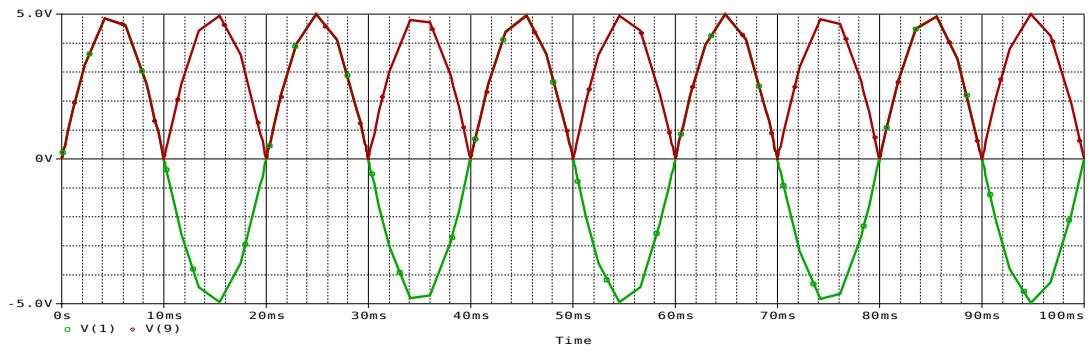
.DC V1 -16 16 0.1

.FOUR 50 V(1) V(9)

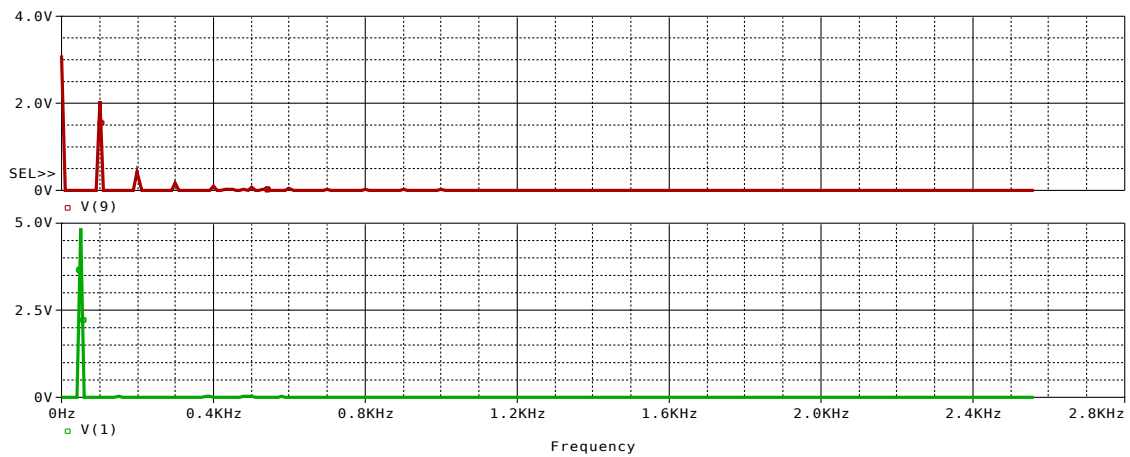
.PROBE

.END

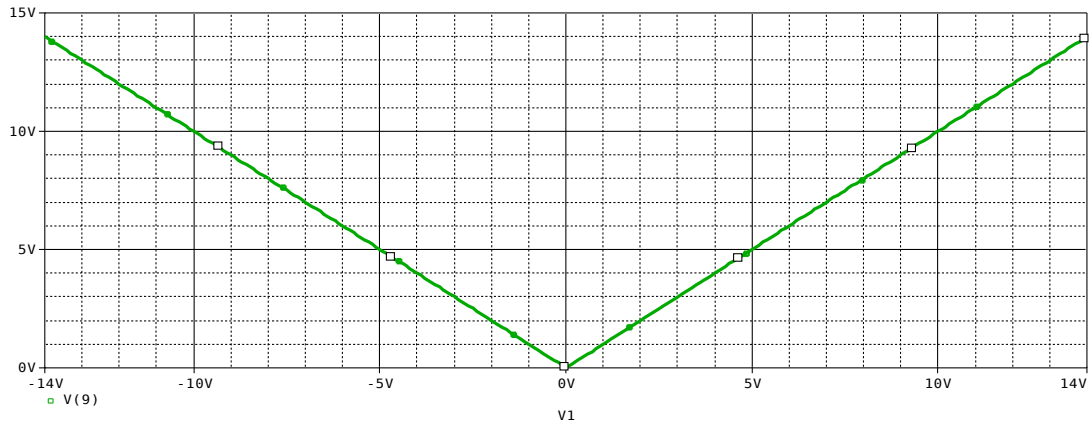
Analiza tranzitorie:



Analiza fourier:



Caracteristica de transfer:



*redresor de precizie dubla alternanta

*cu inversarea diodelor

R1 1 3 20K

R2 3 8 20K

R3 3 4 20K

R4 8 2 20K

R5 2 9 20K

D1 4 5 DM2

D2 5 8 DM2

.MODEL DM2 D (IS=8.0E-16)

X1 0 3 6 7 5 UA741

X2 4 2 6 7 9 UA741

.LIB OPAMP.LIB

VCC 6 0 DC 15V

VEE 0 7 DC 15

V1 1 0 SIN(0 5 50)

.TRAN 0.2M 100M

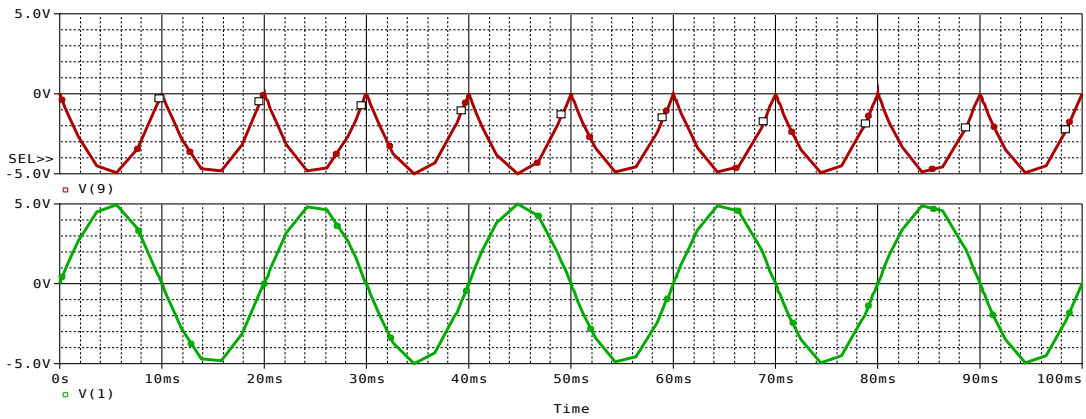
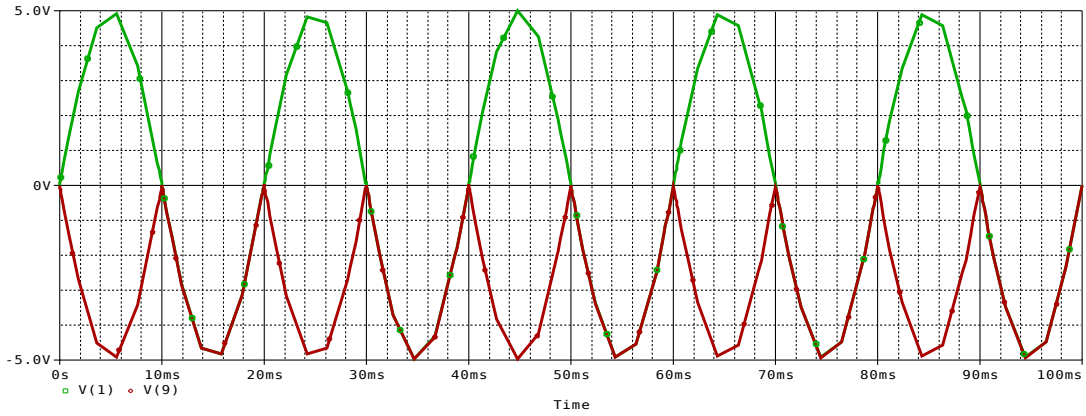
.DC V1 -16 16 0.1

.FOUR 50 V(1) V(9)

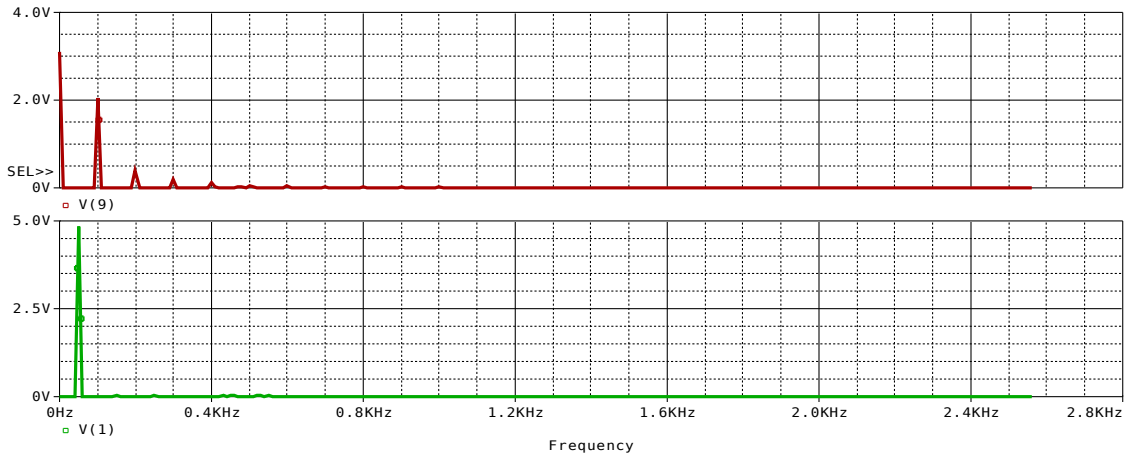
.PROBE

.END

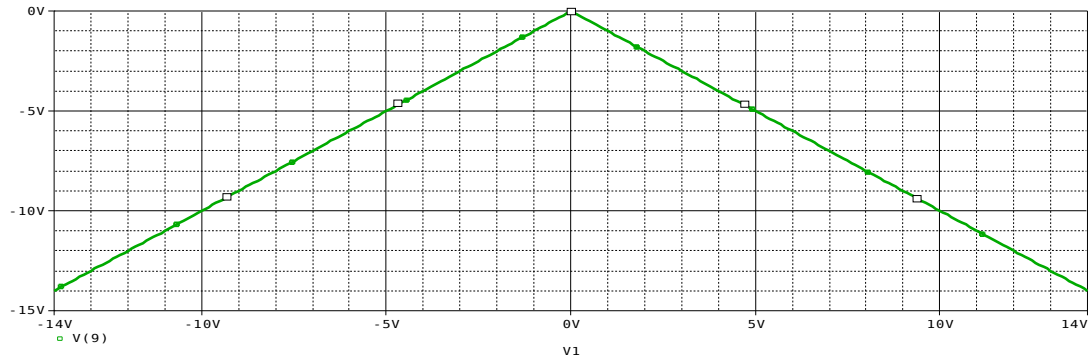
Analiza tranzitorie:



Analiza fourier:



Caracteristica de transfer:



*redresor de precizie dubla alternanta

R1 1 3 20K

R2 3 8 20K

R3 3 2 20K

D1 2 5 DM2

D2 5 8 DM2

.MODEL DM2 D (IS=8.0E-16)

X1 0 3 6 7 5 UA741

.LIB OPAMP.LIB

VCC 6 0 DC 15V

VEE 0 7 DC 15

V1 1 0 SIN(0 5 50)

.TRAN 0.2M 100M

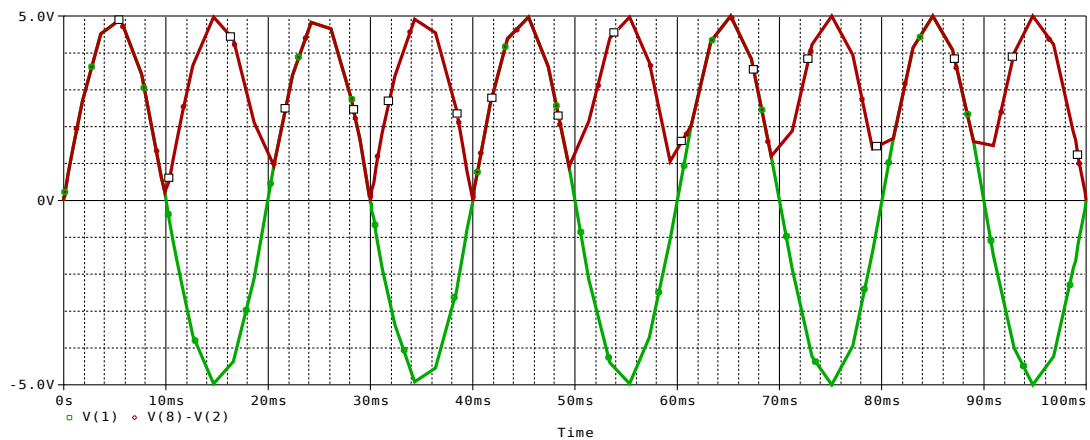
.DC V1 -16 16 0.1

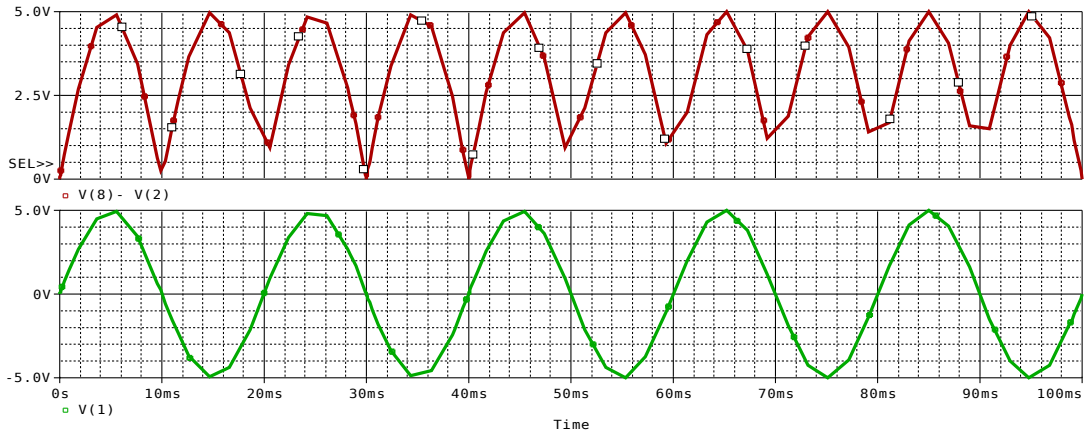
.FOUR 50 V(1) V(5)

.PROBE

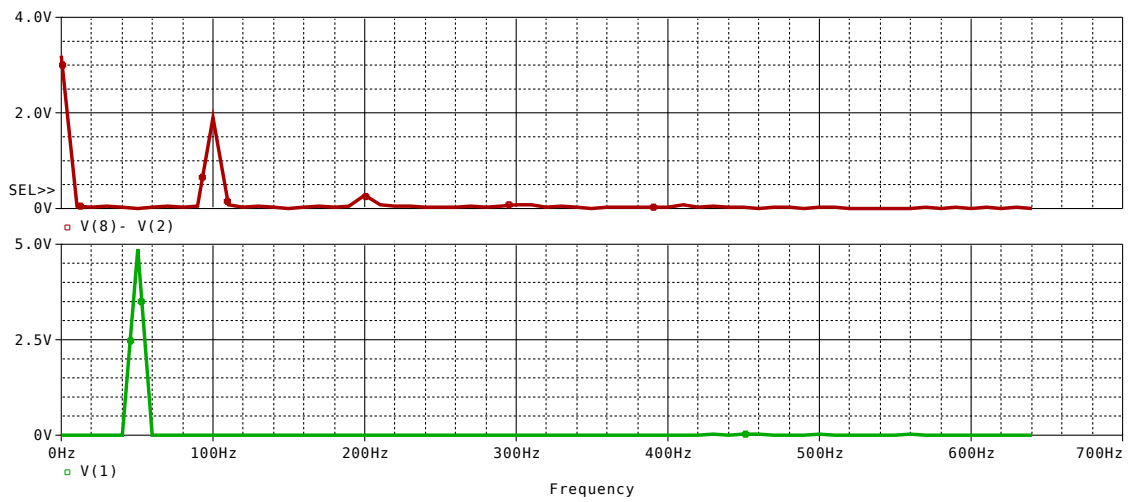
.END

Analiza tranzitorie:

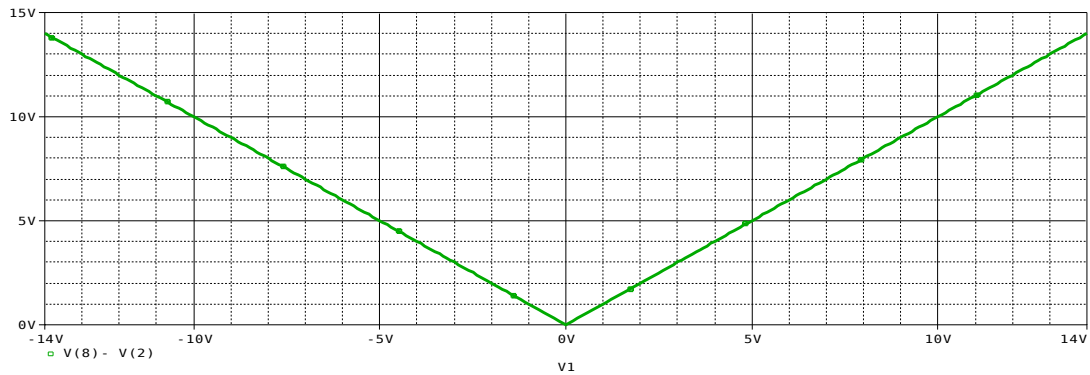




Analiza fourier:



Caracteristica de transfer:

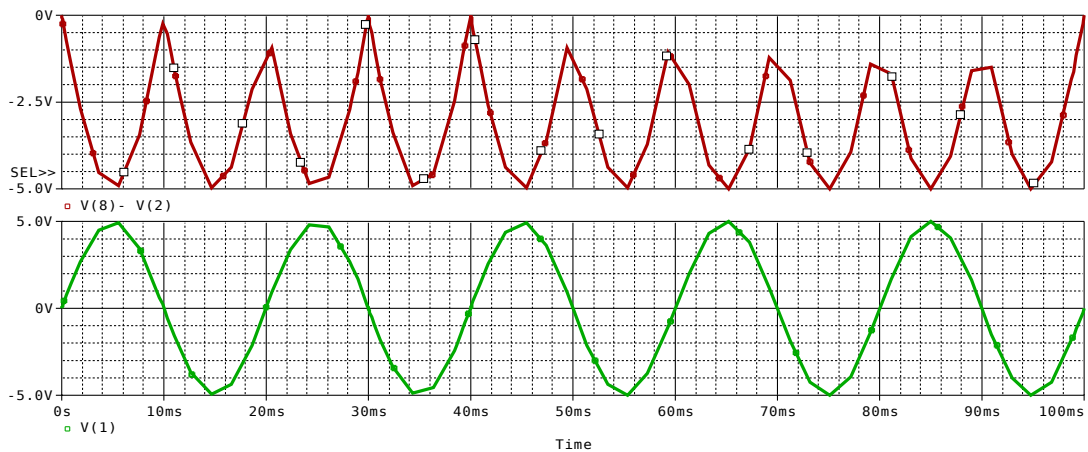
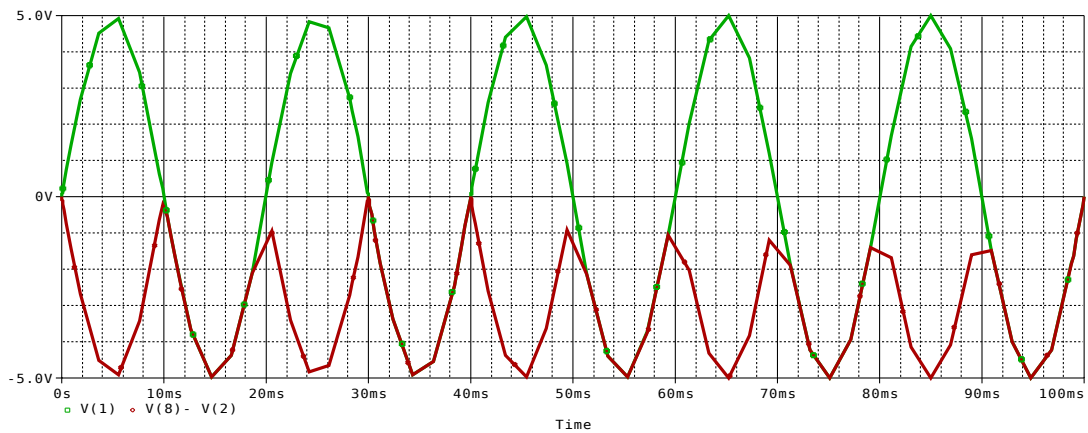


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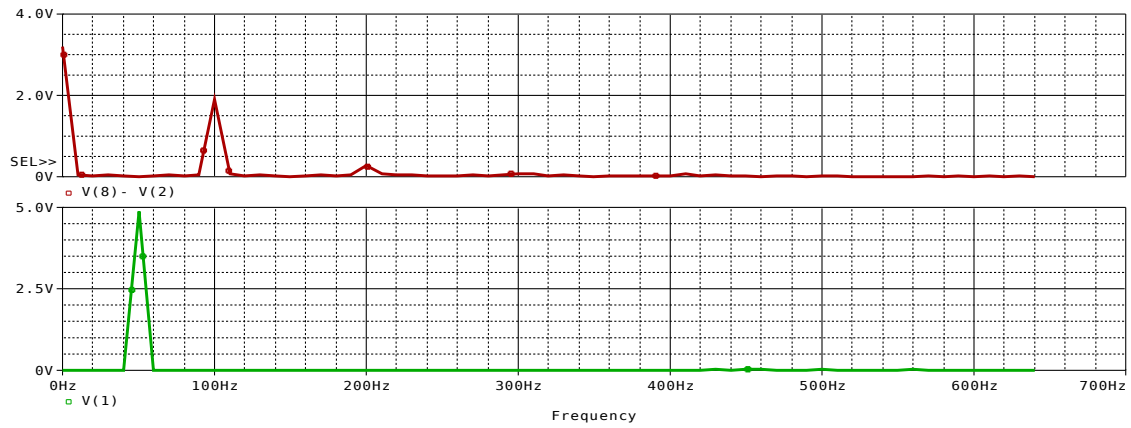
*redresor de precizie dubla alternanta
*cu schimbarea diodelor
R1 1 3 20K
R2 3 8 20K
R3 3 2 20K
D1 5 2 DM2
D2 8 5 DM2
.MODEL DM2 D (IS=8.0E-16)
X1 0 3 6 7 5 UA741
.LIB OPAMP.LIB
VCC 6 0 DC 15V
VEE 0 7 DC 15
V1 1 0 SIN(0 5 50)
.TRAN 0.2M 100M
.DC V1 -16 16 0.1
.FOUR 50 V(1) V(5)
.PROBE
.END

```

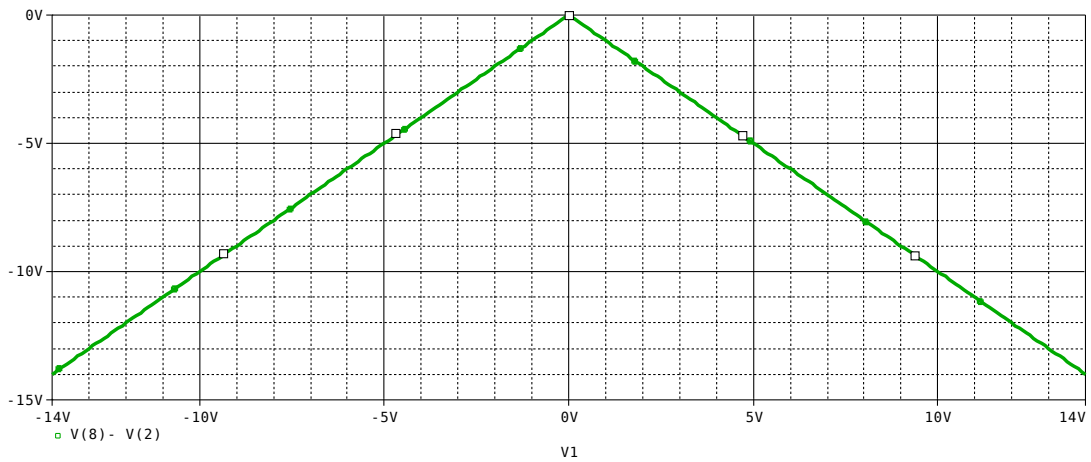
Analiza tranzitorie:



Analiza fourier:



Caracteristica de transfer:



*redresor de precizie dubla alternanta

R1 1 3 1K

R2 8 2 1K

D1 2 5 DM2

D2 5 8 DM2

D3 2 3 DM2

D4 3 8 DM2

.MODEL DM2 D (IS=8.0E-16)

X1 0 3 6 7 5 UA741

.LIB OPAMP.LIB

VCC 6 0 DC 15V

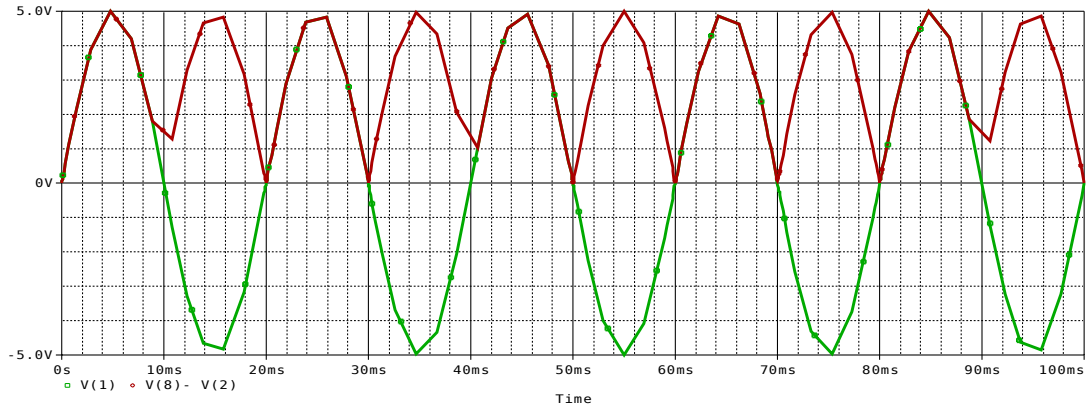
VEE 0 7 DC 15

V1 1 0 SIN(0 5 50)

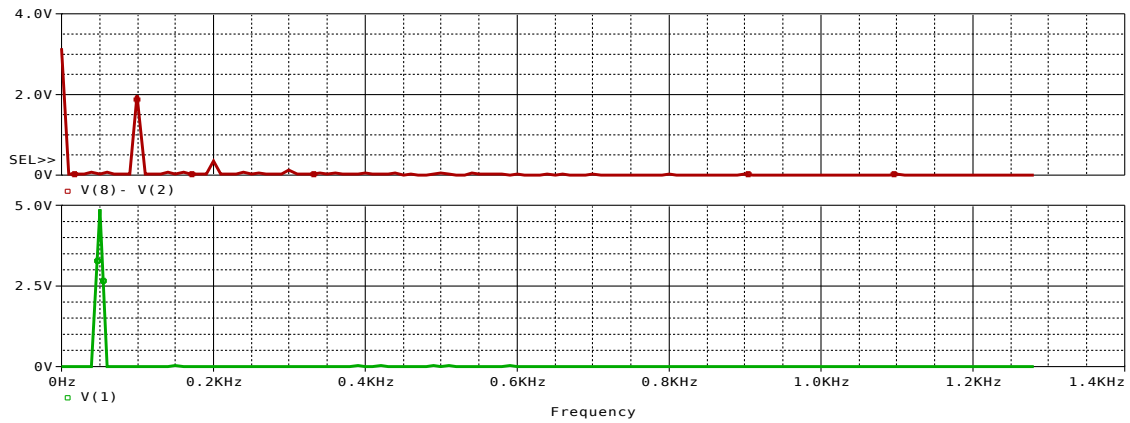
.TRAN 0.2M 100M

```
.DC V1 -16 16 0.1
.FOUR 50 V(1) V(5)
.PROBE
.END
```

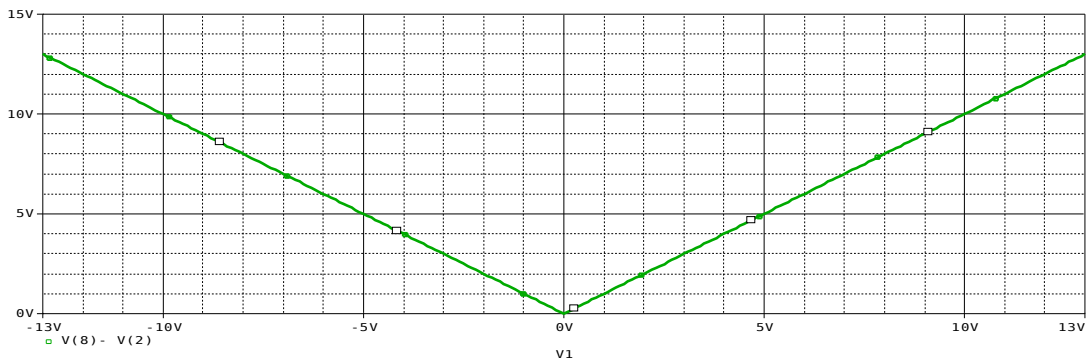
Analiza tranzitorie:



Analiza fourie:



Caracteristica de transfer:

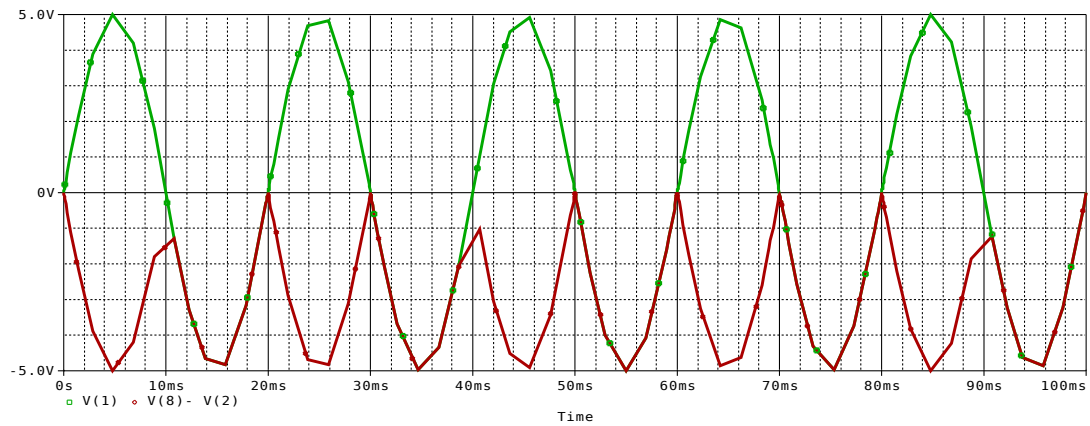



```

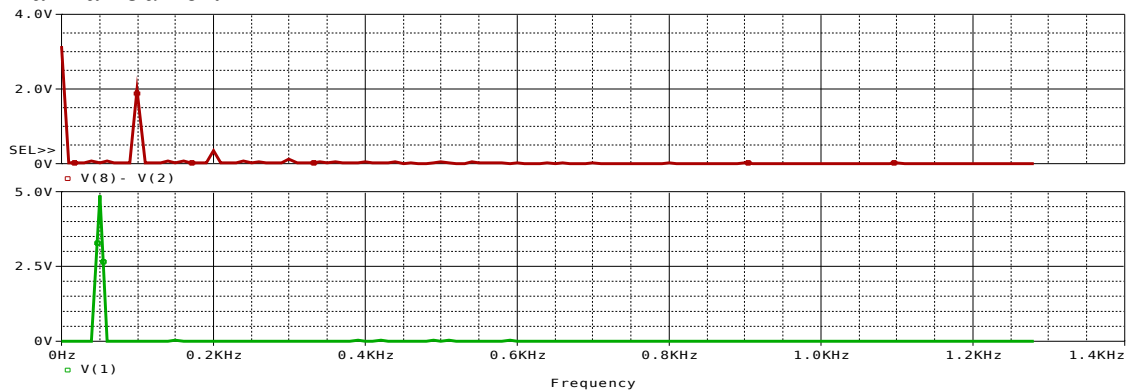
*redresor de precizie dubla alternanta
*cu inversarea diodelor
R1 1 3 1K
R2 8 2 1K
D1 5 2 DM2
D2 8 5 DM2
D3 3 2 DM2
D4 8 3 DM2
.MODEL DM2 D (IS=8.0E-16)
X1 0 3 6 7 5 UA741
.LIB OPAMP.LIB
VCC 6 0 DC 15V
VEE 0 7 DC 15
V1 1 0 SIN(0 5 50)
.TRAN 0.2M 100M
.DC V1 -16 16 0.1
.FOUR 50 V(1) V(5)
.PROBE
.END

```

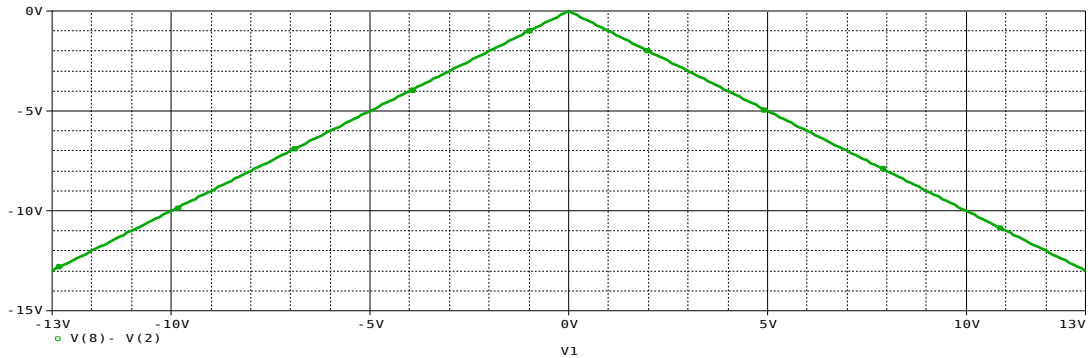
Analiza tranzitorie:



Analiza fourier:



Caracteristica de transfer:



*redresor de precizie dubla alternanta

R1 1 3 20K

R2 3 8 20K

R3 1 2 20K

R4 8 2 10K

R5 2 4 20K

D1 3 5 DM2

D2 5 8 DM2

.MODEL DM2 D (IS=8.0E-16)

X1 0 3 6 7 5 UA741

X2 0 2 6 7 4 UA741

.LIB OPAMP.LIB

VCC 6 0 DC 15V

VEE 0 7 DC 15

V1 1 0 SIN(0 5 50)

.TRAN 0.2M 100M

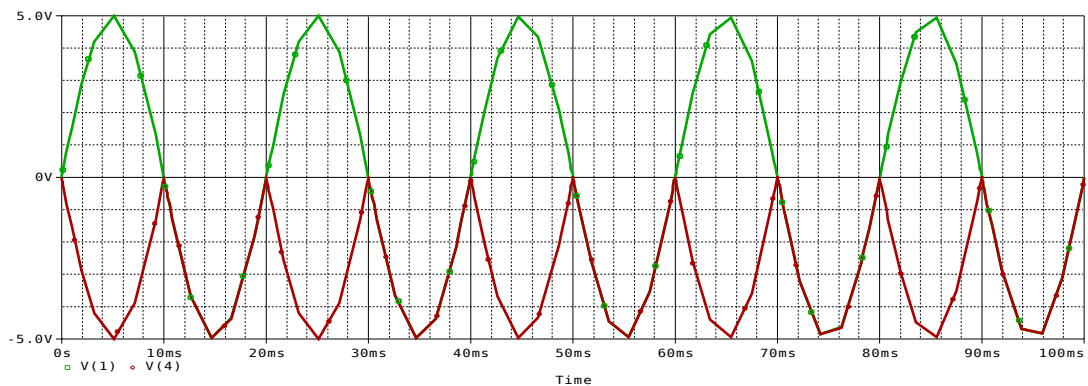
.DC V1 -16 16 0.1

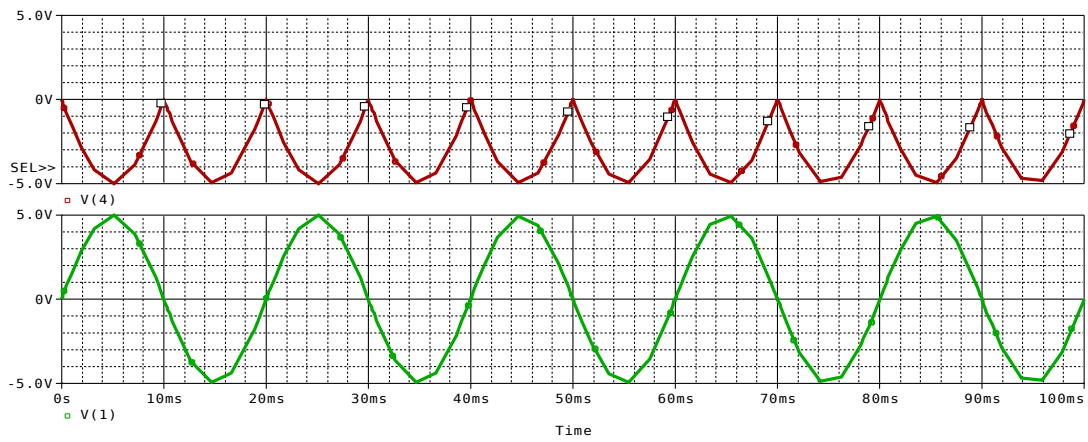
.FOUR 50 V(1) V(4)

.PROBE

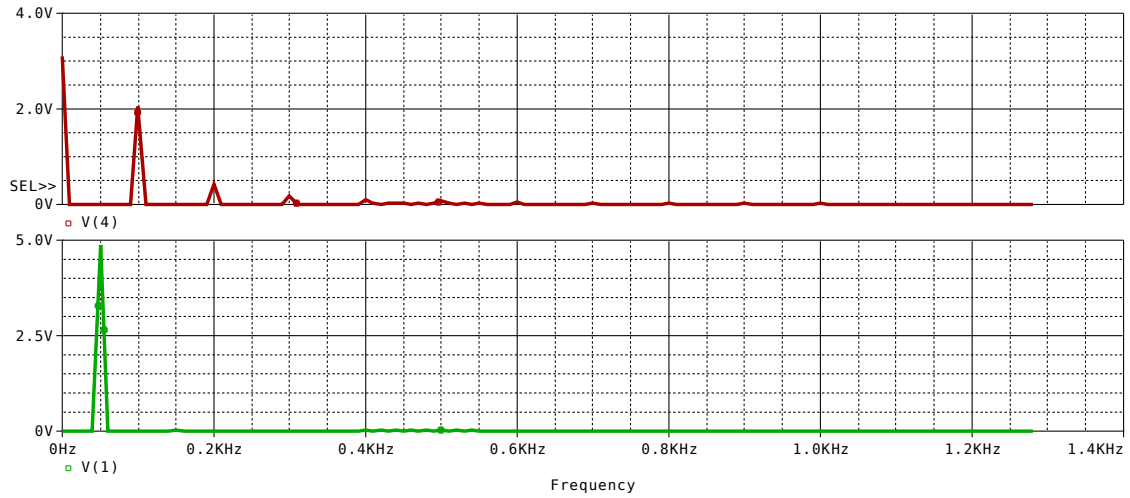
.END

Analiza tranzitorie:

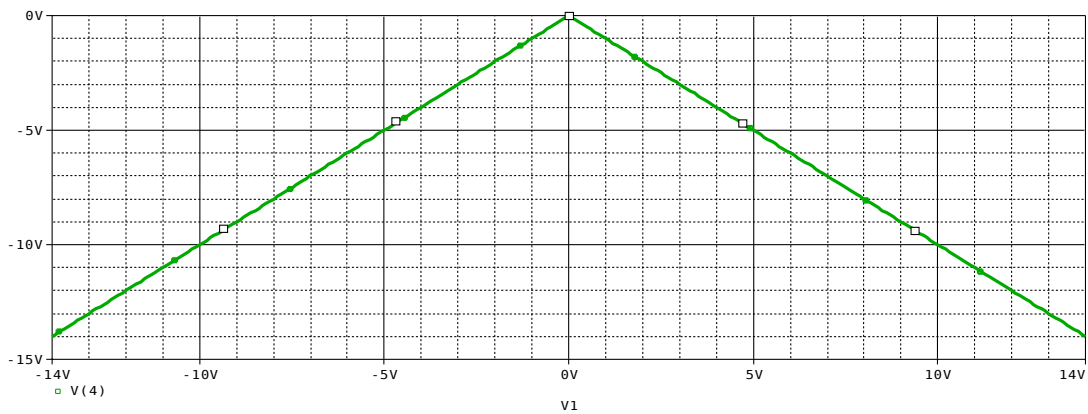




Analiza fourier:



Caracteristica de transfer:



*redresor de precizie dubla alternanta

*cu inversarea diodelor

R1 1 3 20K

R2 3 8 20K

R3 1 2 20K

R4 8 2 10K

R5 2 4 20K

D1 5 3 DM2

D2 8 5 DM2

.MODEL DM2 D (IS=8.0E-16)

X1 0 3 6 7 5 UA741

X2 0 2 6 7 4 UA741

.LIB OPAMP.LIB

VCC 6 0 DC 15V

VEE 0 7 DC 15

V1 1 0 SIN(0 5 50)

.TRAN 0.2M 100M

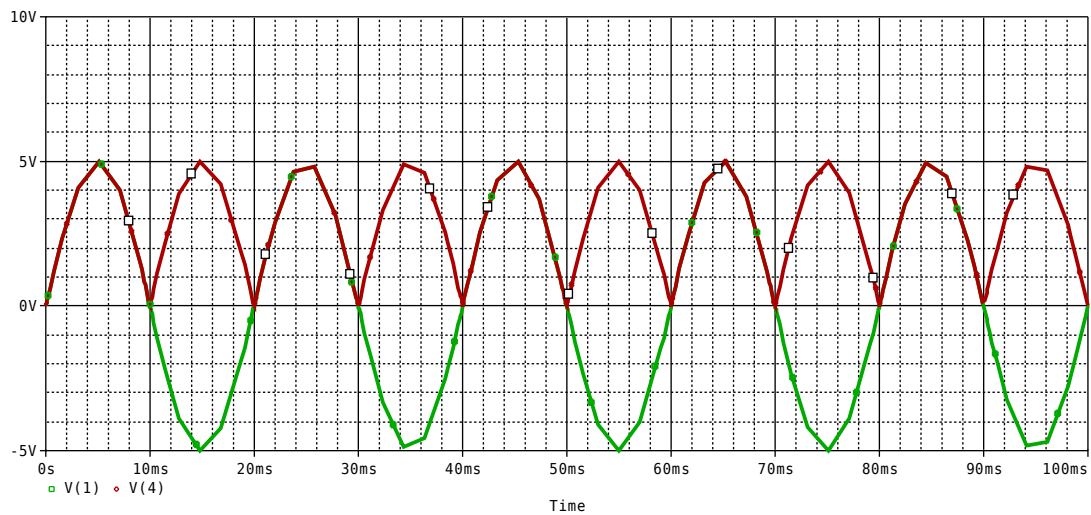
.DC V1 -16 16 0.1

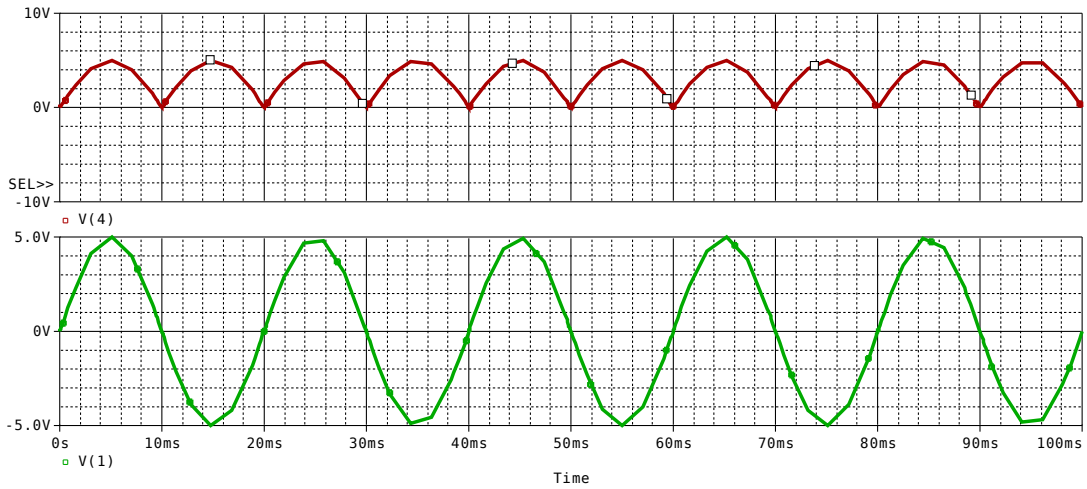
.FOUR 50 V(1) V(4)

.PROBE

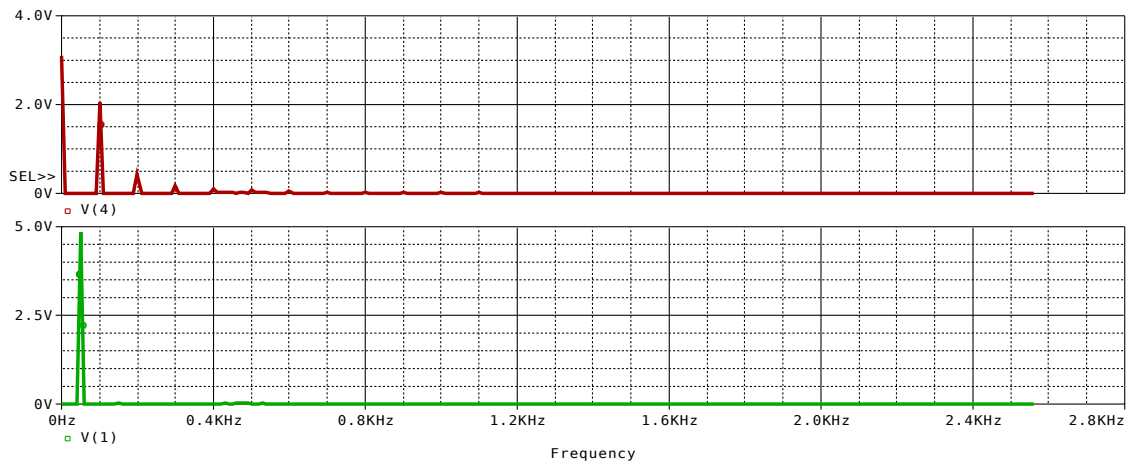
.END

Analiza tranzitorie:

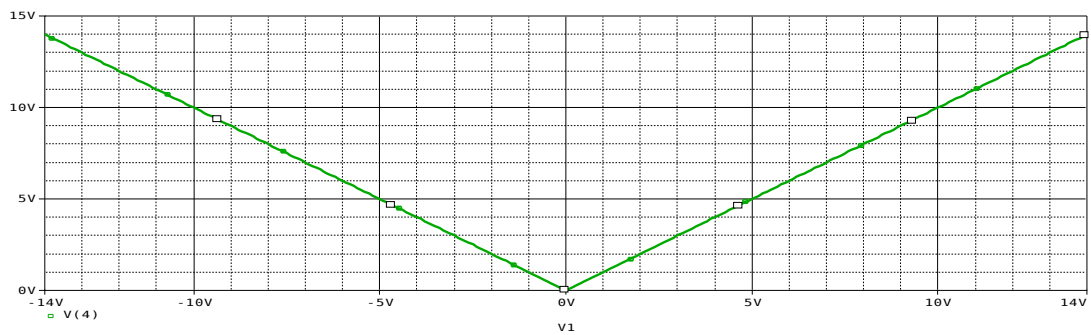




Analiza fourie:



Caracteristica de transfer:



*redresor de precizie dubla alternanta

R1 1 3 20K

R2 3 8 20K

R3 2 8 20K

D1 3 5 DM2

D2 5 8 DM2

D3 2 4 DM2

D4 4 8 DM2

.MODEL DM2 D (IS=8.0E-16)

X1 0 3 6 7 5 UA741

X2 1 2 6 7 4 UA741

.LIB OPAMP.LIB

VCC 6 0 DC 15V

VEE 0 7 DC 15

V1 1 0 SIN(0 5 50)

.TRAN 0.2M 100M

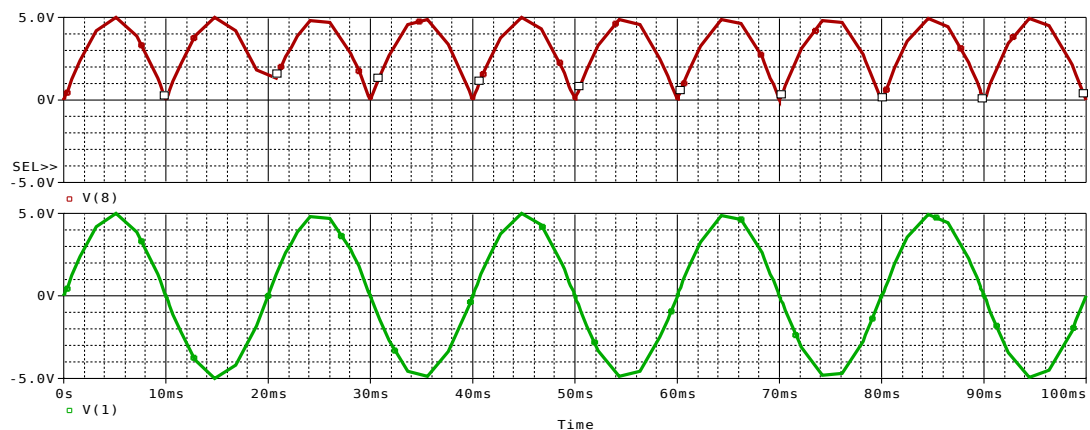
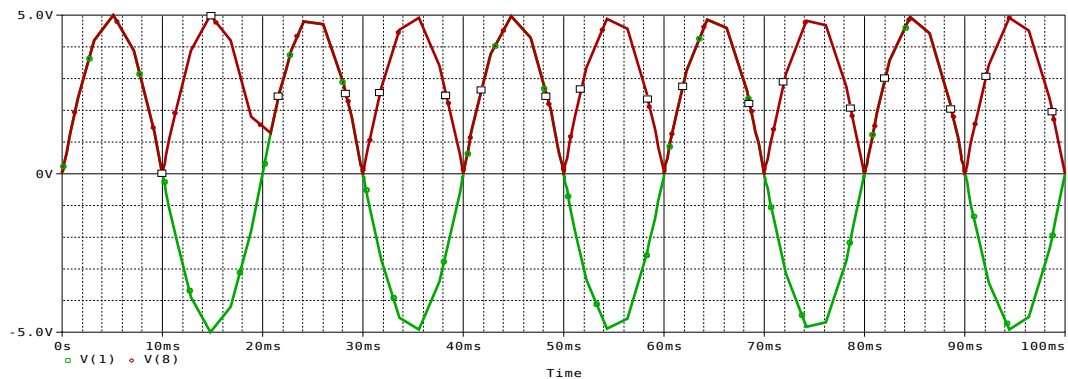
.DC V1 -16 16 0.1

.FOUR 50 V(1) V(8)

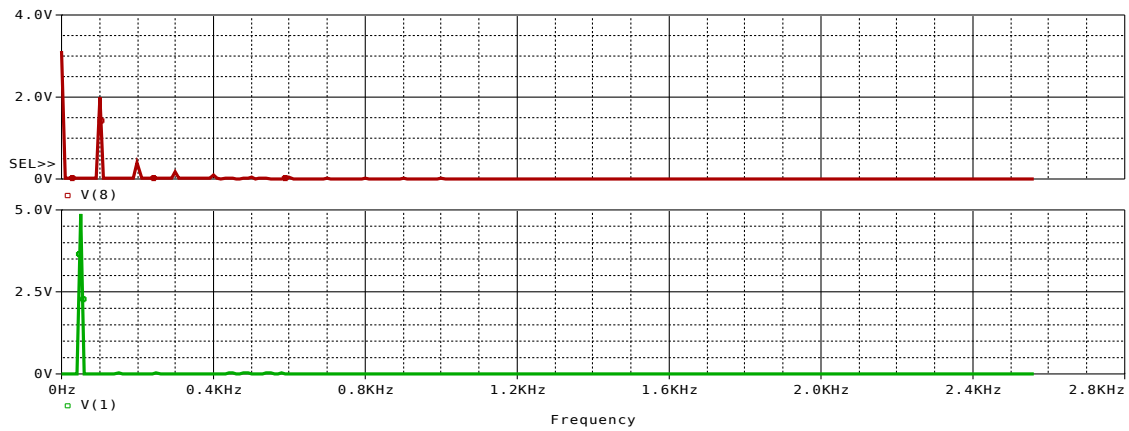
.PROBE

.END

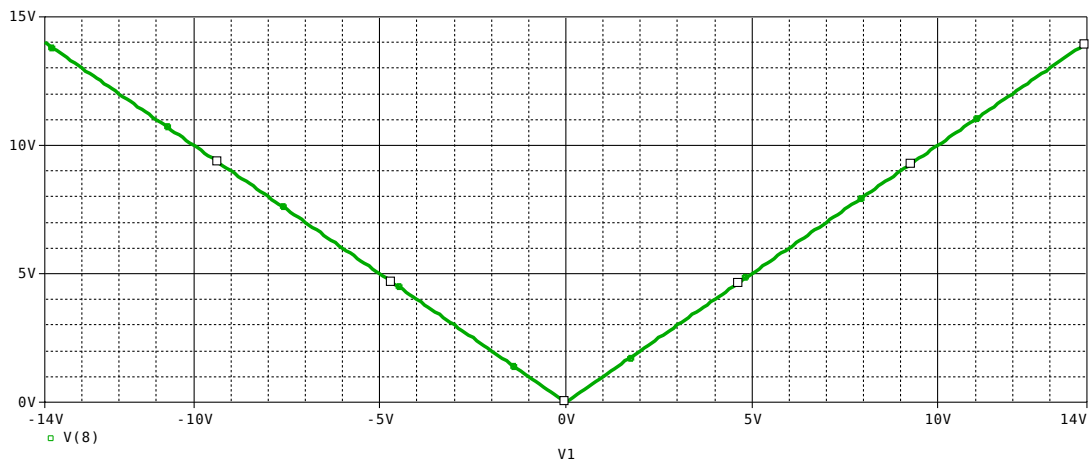
Analiza tranzitorie:



Analiza fourie:



Caracteristica de transfer:



*redresor de precizie dubla alternanta

*cu inversarea diodelor

R1 1 3 20K

R2 3 8 20K

R3 2 8 20K

D1 5 3 DM2

D2 8 5 DM2

D3 4 2 DM2

D4 8 4 DM2

.MODEL DM2 D (IS=8.0E-16)

X1 0 3 6 7 5 UA741

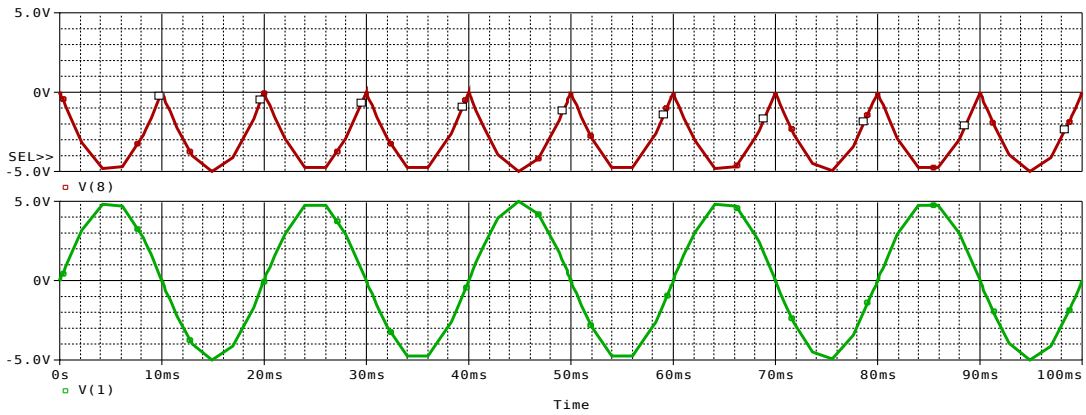
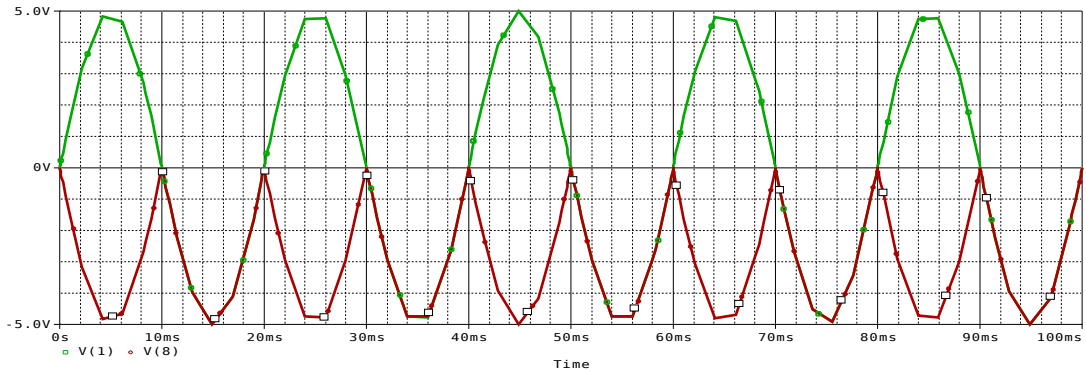
X2 1 2 6 7 4 UA741

```

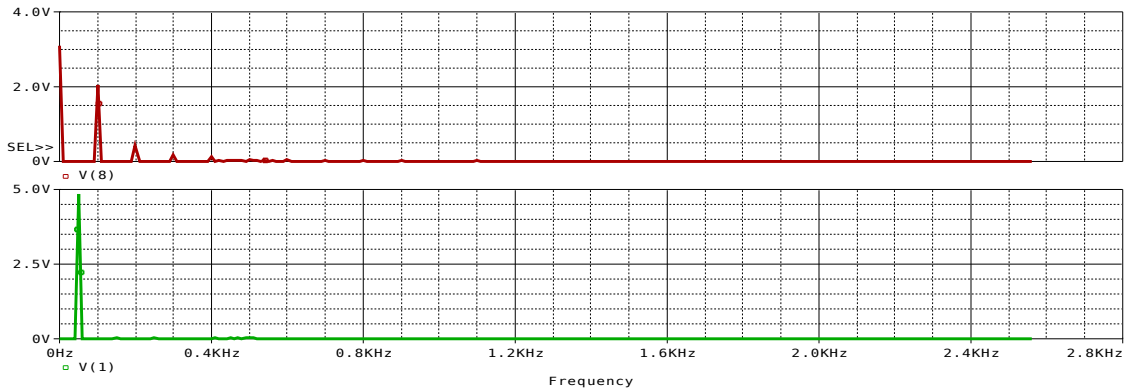
.LIB OPAMP.LIB
VCC 6 0 DC 15V
VEE 0 7 DC 15
V1 1 0 SIN(0 5 50)
.TRAN 0.2M 100M
.DC V1 -16 16 0.1
.FOUR 50 V(1) V(8)
.PROBE
.END

```

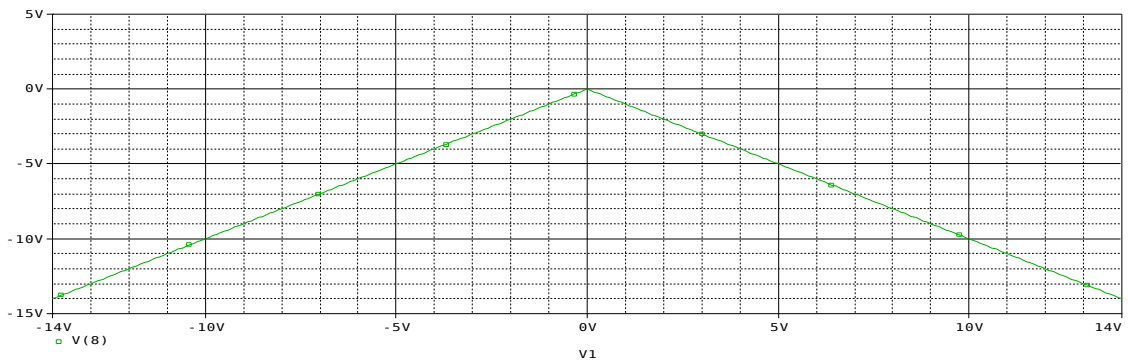
Analiza tranzitorie:



Analiza fourie:



Cracteristica de transfer:



*redresor de precizie dubla alternanta

R1 0 3 20K

R2 3 8 20K

R4 8 2 20K

R5 2 4 40K

D1 3 5 DM2

D2 5 8 DM2

.MODEL DM2 D (IS=8.0E-16)

X1 1 3 6 7 5 UA741

X2 1 2 6 7 4 UA741

.LIB OPAMP.LIB

VCC 6 0 DC 15V

VEE 0 7 DC 15

V1 1 0 SIN(0 5 50)

.TRAN 0.2M 100M

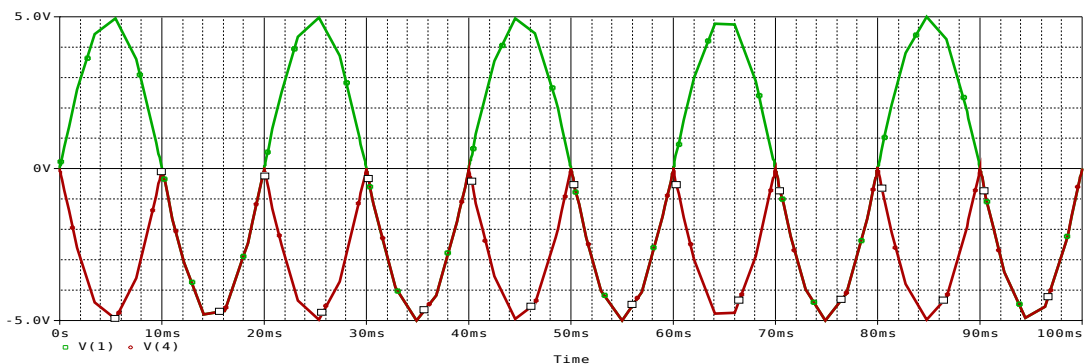
.DC V1 -16 16 0.1

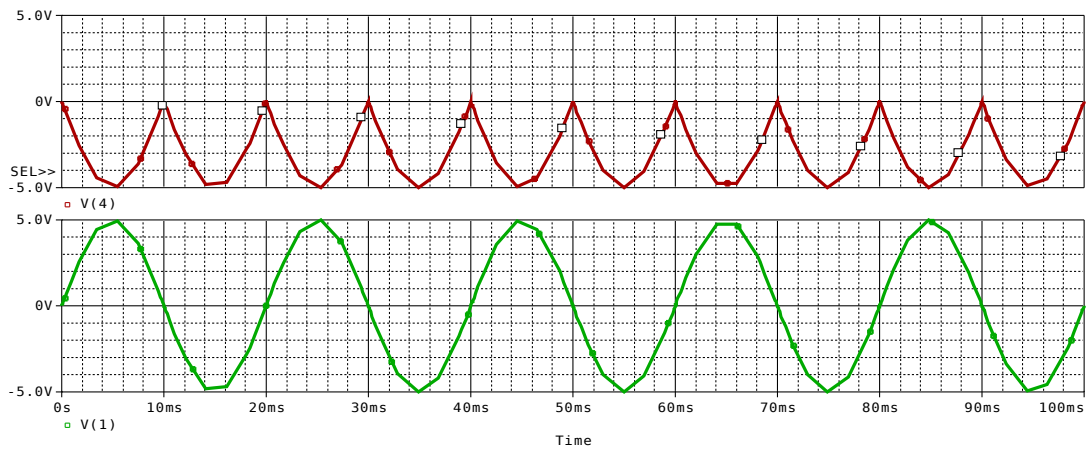
.FOUR 50 V(1) V(4)

.PROBE

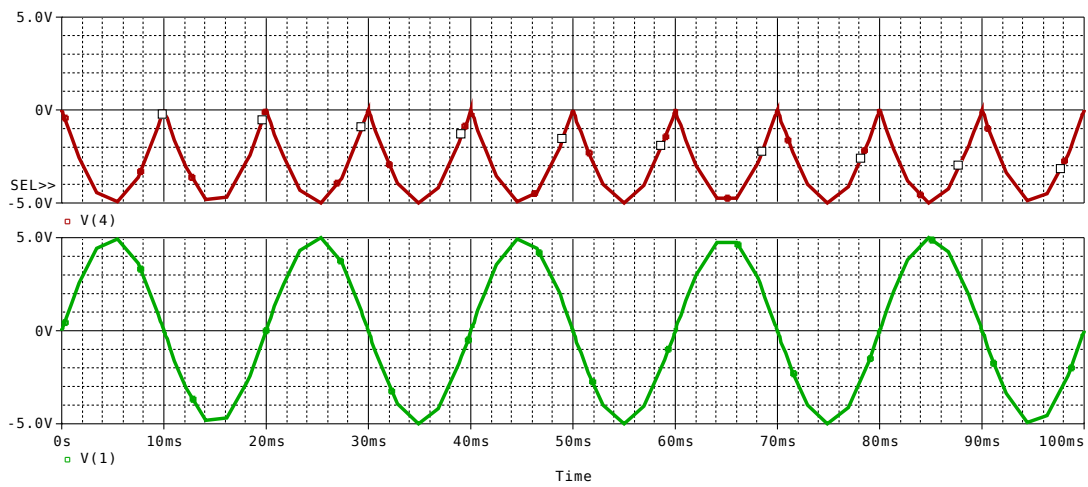
.END

Analiza tranzitorie:

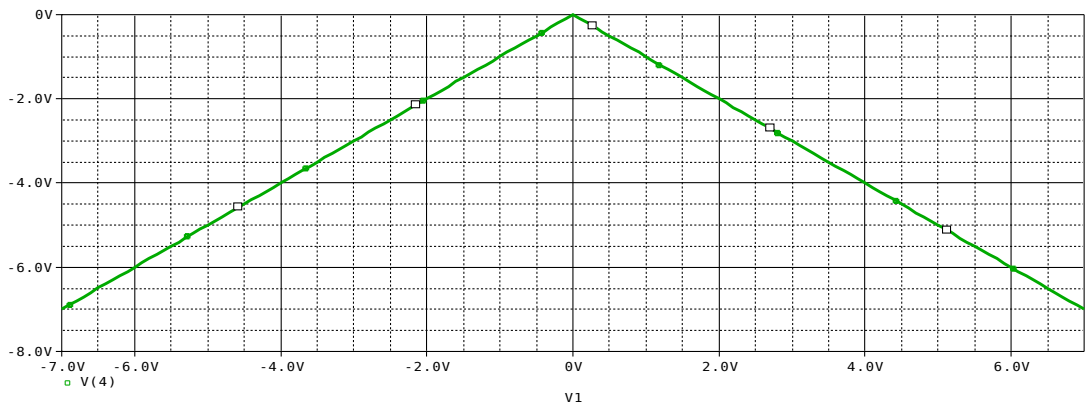




Analiza fourie:



Caracteristica de transfer:



*redresor de precizie dubla alternanta

*cu inversarea diodelor

R1 0 3 20K

R2 3 8 20K

R4 8 2 20K

R5 2 4 40K

D1 5 3 DM2

D2 8 5 DM2

.MODEL DM2 D (IS=8.0E-16)

X1 1 3 6 7 5 UA741

X2 1 2 6 7 4 UA741

.LIB OPAMP.LIB

VCC 6 0 DC 15V

VEE 0 7 DC 15

V1 1 0 SIN(0 5 50)

.TRAN 0.2M 100M

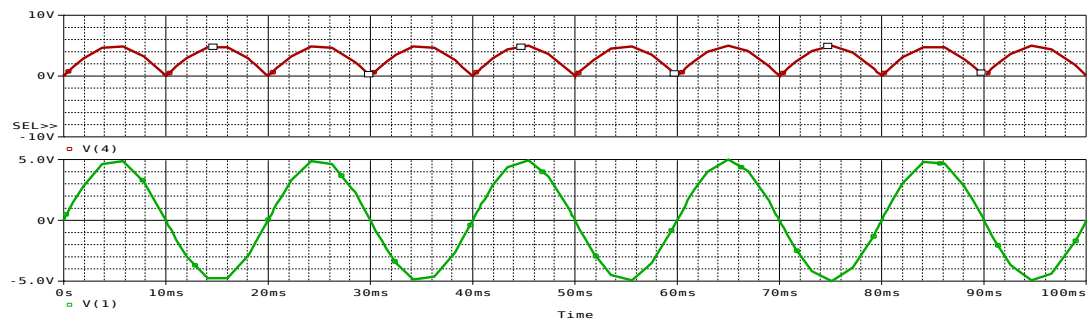
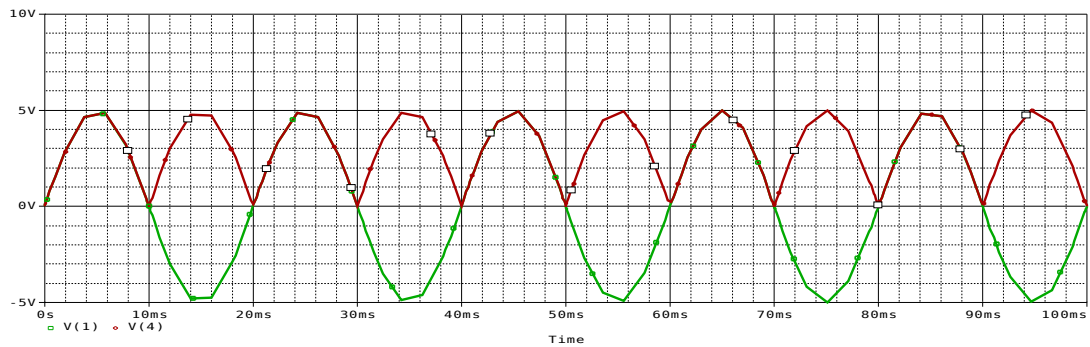
.DC V1 -16 16 0.1

.FOUR 50 V(1) V(4)

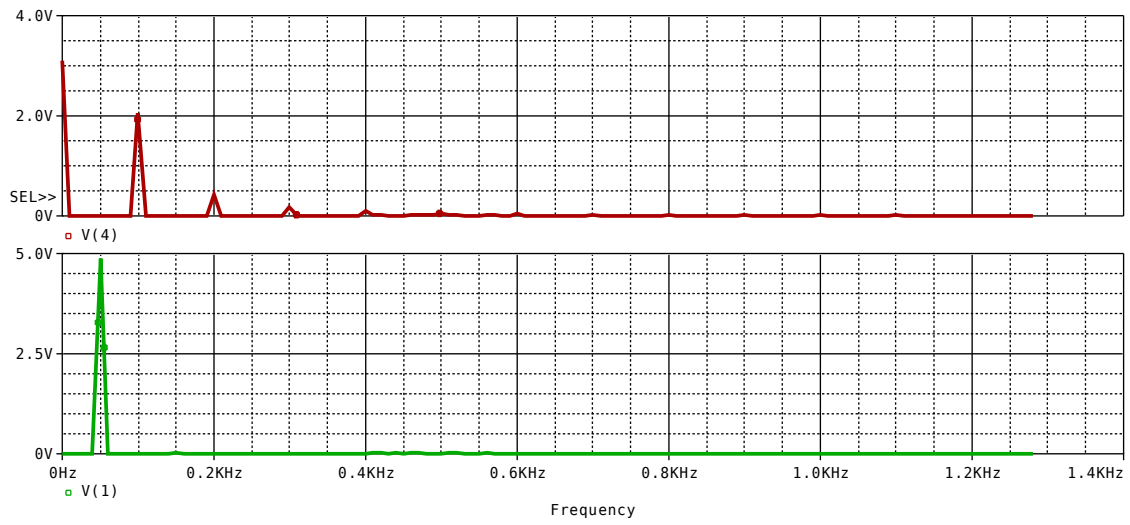
.PROBE

.END

Analiza tranzitorie:



Analiza fourie:



Caracteristica de transfer:

