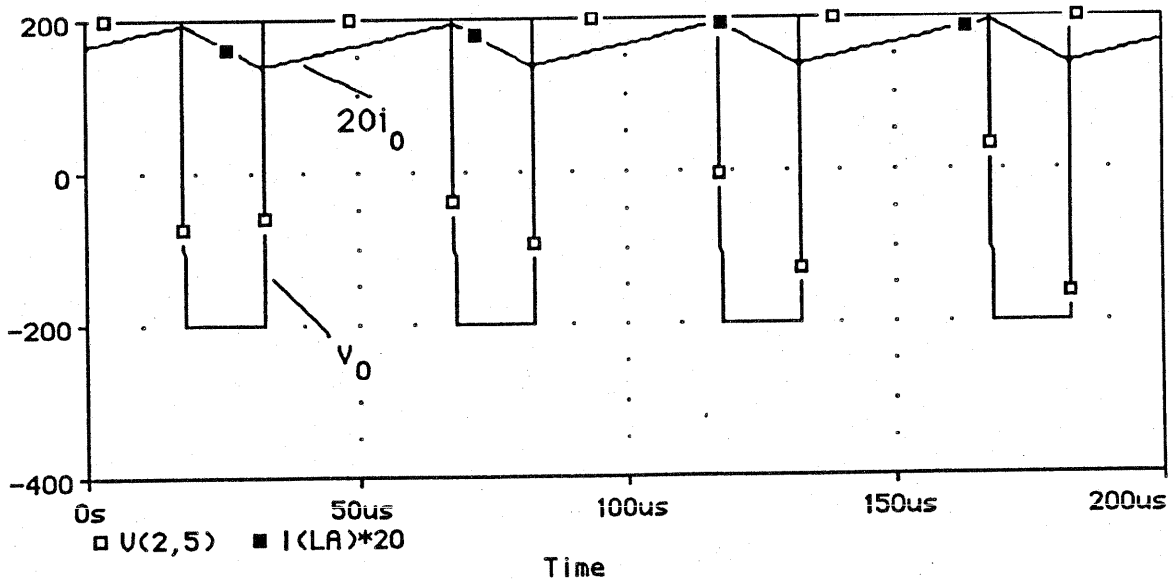


# Problem 7-24 (a) Bi-polar voltage switching

## Input Circuit File Listing:

```

FBBSDCDC.CIR
* Full-Bridge, Bipolar-Switching, DC-DC Converter
* Power Electronics: Simulation, Analysis & Education.....by N. Mohan.
.LIB          PWR_ELEC.LIB
.PARAM       RISE=24.99us, FALL=24.99us, PW=0.01us, PERIOD=50us
*
VCONTL       50      0      0.416V
XLOGIC       50      0      52      53      PWM_TRI
*
XSWA1        1        2      52      0      SWITCH
XDA1         2        1      SW_DIODE_WITH_SNUB
XSWA2        2        0      53      0      SWITCH
XDA2         0        2      SW_DIODE_WITH_SNUB
*
XSWB1        1        5      53      0      SWITCH
XDB1         5        1      SW_DIODE_WITH_SNUB
XSWB2        5        0      52      0      SWITCH
XDB2         0        5      SW_DIODE_WITH_SNUB
*
RA           2        3      0.37
LA           3        4      1.5mH IC=8.33A
*
VEMF         4        5      79.5V
VD           1        0      200V
*
.TRAN        0.1us   200.0us      0s      0.5us   uic
.PROBE
.END
    
```



## (b) Unipolar Voltage Switching

FBUSDCDC.CIR

\* Full-Bridge, Unipolar-Switching, DC-DC Converter

\* Power Electronics: Simulation, Analysis & Education.....by N. Mohan.

.LIB PWR\_ELEC.LIB

.PARAM VcntlA = 0.416V, VcntlB = -0.416V

.PARAM RISE=24.99us, FALL=24.99us, PW=0.01us, PERIOD=50us

\*

VCONTLA 49 0 0.416V

VCONTLB 50 0 -0.416V

\*

XLOGICA 49 0 52 53 PWM\_TRI

XLOGICB 50 0 54 55 PWM\_TRI

\*

XSWA1 1 2 52 0 SWITCH

XDA1 2 1 SW\_DIODE\_WITH\_SNUB

XSWA2 2 0 53 0 SWITCH

XDA2 0 2 SW\_DIODE\_WITH\_SNUB

\*

XSWB1 1 5 54 0 SWITCH

XDB1 5 1 SW\_DIODE\_WITH\_SNUB

XSWB2 5 0 55 0 SWITCH

XDB2 0 5 SW\_DIODE\_WITH\_SNUB

\*

RA 2 3 0.37

LA 3 4 1.5mH IC=8.33A

\*

VEMF 4 5 79.5V

VD 1 0 200V

\*

.TRAN 0.1us 200.0us 0s 0.5us uic

.PROBE

.END

