

Anexo

Modelo en SWCADIII de convertidor elevador regulado por derivación de corriente

.SUBCKT XBOOST_SHUNT nout nsense2 vref nrg1 nerror npowerShunt npowerVout Gnd
PARAMS: Vmin={Vmin}, Vmax={Vmax}, Amp={Amp},fd={fd},
Volfref={Volfref},AmpRef={AmpRef}, GReg={GReg},BW={BW}

Vin nin Gnd dc 5

M ndM ng1 Gnd Gnd IRF330
Rg1 ng1 nrg1 1

Vsense2 nd1 ndM dc 0

GidM Gnd nsenseIDM VALUE={i(Vsense2)}
RidM nsenseIDM Gnd 1

DM2 nd1 nout D1N5818
L nin nsense 12.5u ic=0
Vsense nsense nd1 dc 0
C nout Gnd 5u ic=0
R nout Gnd 10

Gil Gnd nsense2 VALUE={i(Vsense)}
Ril nsense2 Gnd 1

Eao nao Gnd VALUE={1000 * (V(nmas)-V(nsense2))}

Rfiltro nao vinlimitadorhist 1
Cfiltro vinlimitadorhist Gnd 0.1n ic=0

BCompH noutCOMPH Gnd V=limit(V(vinlimitadorhist),0,12) ic=0
RoutCOMPH noutCOMPH Gnd 1
R1 nao nmas 1k
R2 nmas 2 1

Dmin nmin 2 D1N5818
Emin nmin Gnd VALUE={Vmin +(Amp*sin(2*3.141592*fd*TIME))}
Dmax 2 nmax D1N5818
Emax nmax Gnd VALUE={Vmax +(Amp*sin(2*3.141592*fd*TIME))}

Bcontrol nrg1 Gnd V=limit((V(noutCOMPH)+((1-(V(noutCOMPH)/12))*V(vaolim))),0,12) ic=0

Rdiv1 nout ndiv 1k
Rdiv2 ndiv Gnd 1k

ED vref Gnd VALUE= {Volfref + AmpRef * sin(2*3.141592*Fd*TIME)}

EaoReg vao Gnd VALUE= {GReg*(V(ndiv) - V(vref))}

RfiltroReg vao vao2 {1 / (2*3.141592*BW*8n)}

CfiltroReg vao2 Gnd 8n ic=0

B vaolim Gnd V=limit(V(vao2),0,12) ic=0

RoutlimReg vaolim Gnd 1

EpowerShunt npowerShunt Gnd VALUE={ V(nd1) * V(nsenseIDM) * V(nts hunt) } ic=0

RpowerShunt npowerShunt Gnd 1

BpowerVout npowerVout Gnd V=idt(V(nout) * V(nout)/10)/time ic=0

RpowerVout npowerVout Gnd 1

BTshunt nTshunt Gnd V= if(V(ng1) >= 11.7, 0 ,1)* if(V(ng1) >= 1, 1 ,0) ic=0

RTshunt nTshunt Gnd 1

Error nerror Gnd VALUE={ (V(nout)-2*V(vref)) }

Error nerror Gnd 1

.ENDS XBOOST_SHUNT