

DC-DC Boost Converter $V_o=800V$ $I_o=20A$

Input : $V_{in}=250V$

Output : $V_o=800V$
 $I_o=20A$

Gate Drive : $V_d=18V$
 $R_{source}=2\Omega$
 $R_{sink}=1\Omega$

Q1 : BSM120C12P2C201
SiC Power Module
(1200V 120A)

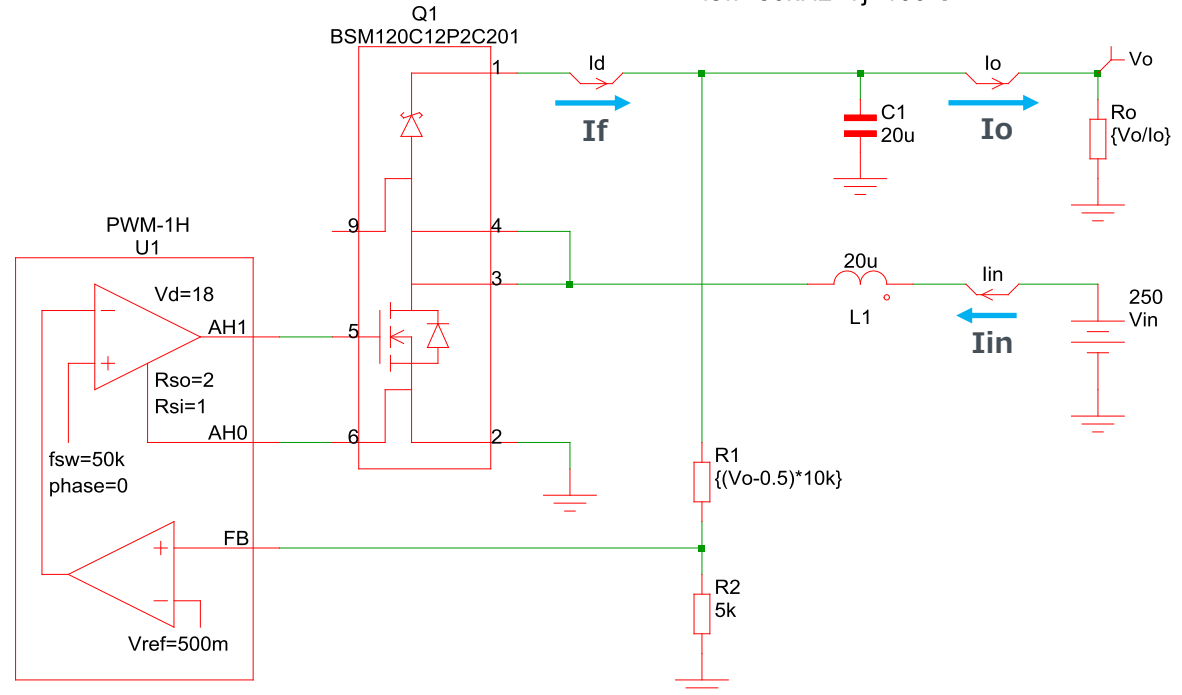
L1 : 20uH

C1 : 20uF

$T_j=100^\circ C$

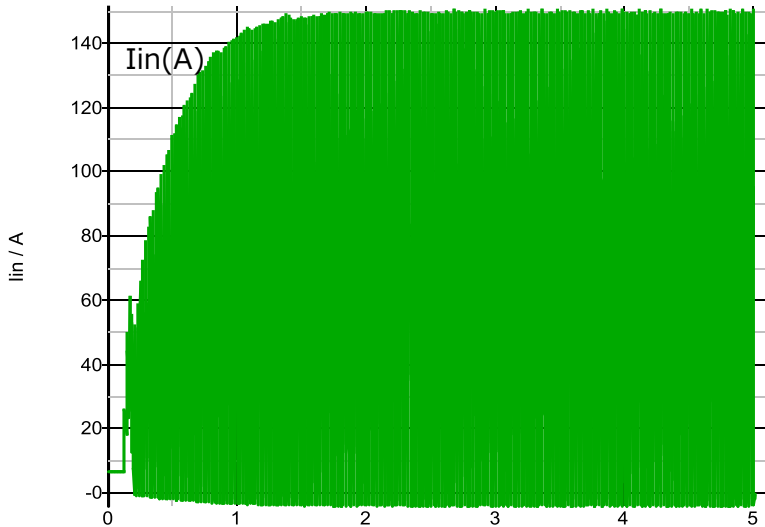
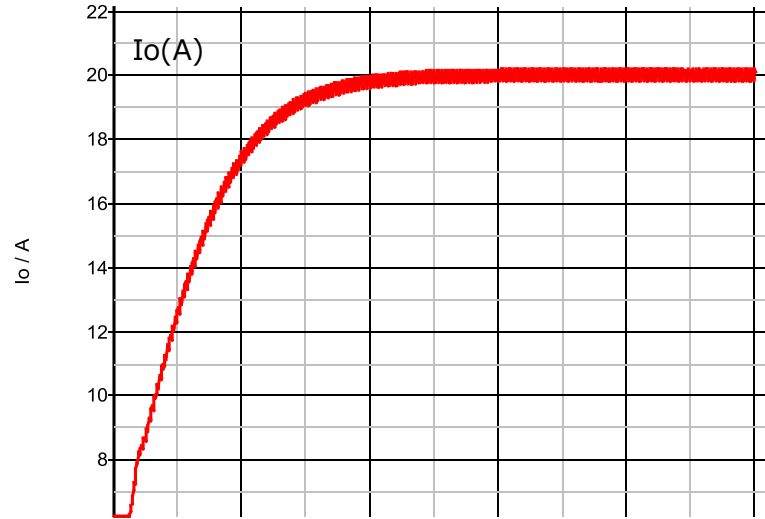
DC-DC Boost Converter $V_o=800V$ $I_o=20A$ Simulation Circuit

$V_{in}=250V$
 $V_o=800V$ $I_o=20A$
 $f_{sw}=50kHz$ $T_j=100^\circ C$



Simulation Waveform

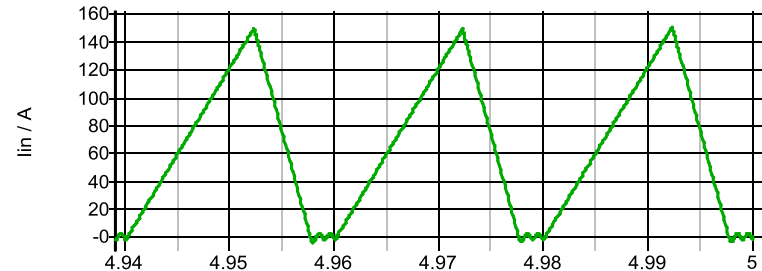
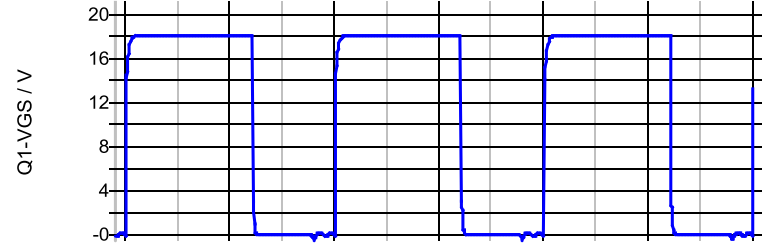
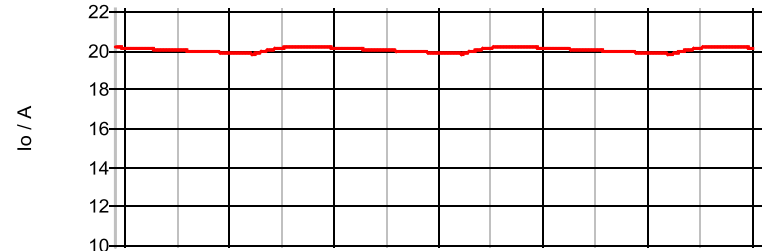
I_o, I_{in} (0~5ms)



Time/mSecs

1mSecs/div

$I_o, I_f, Q1-VGS, I_{in}$ (4.94ms~5.00ms)



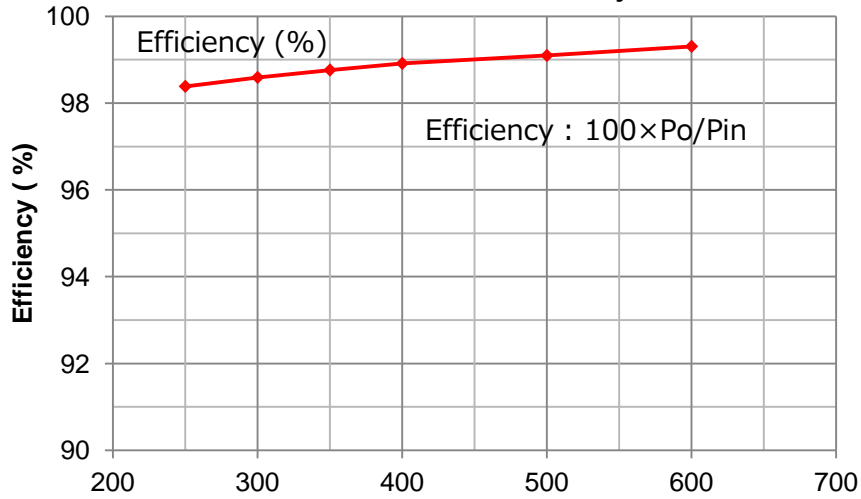
Time/mSecs

10uSecs/div

Efficiency, Power Dissipation 1

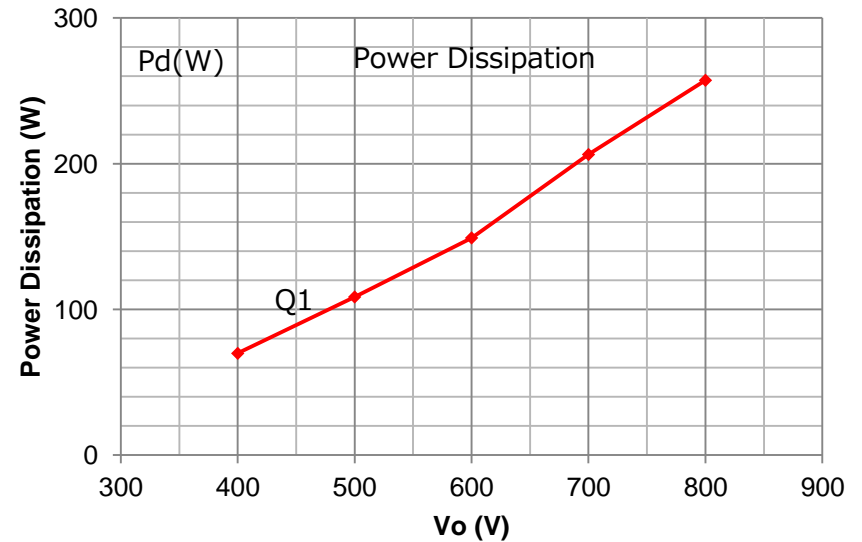
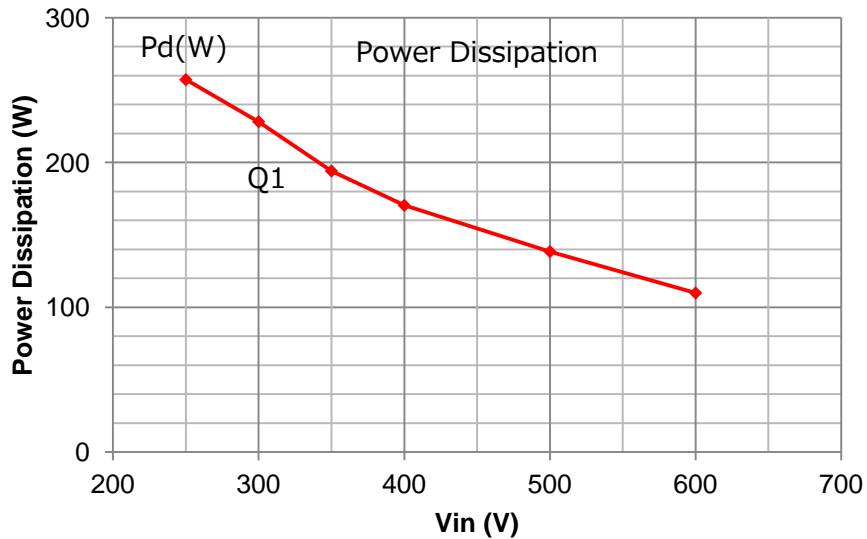
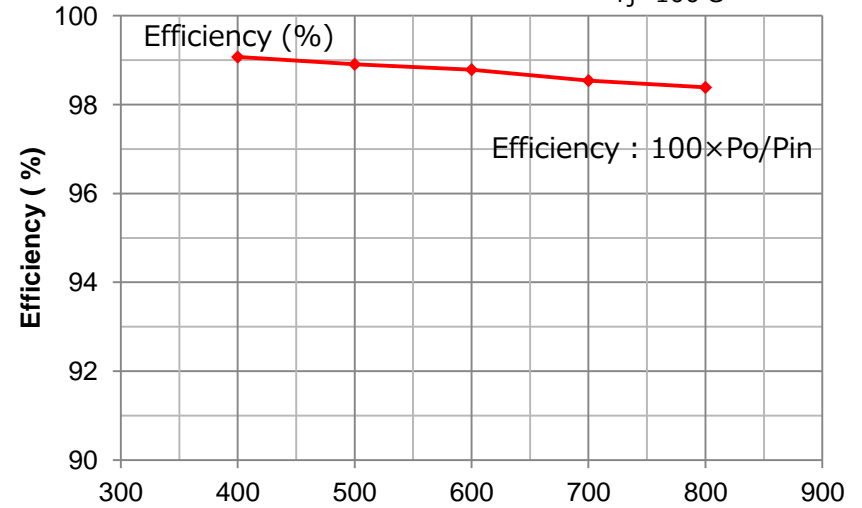
Vin : 250V~600V

Vo=800V Io=20A
Tj=100°C



Vo : 400V~800V

Vin=250V Io=20A
Tj=100°C



Efficiency, Power Dissipation 2

