

PFC Diode-Bridge-Less Half-Bridge Pin=5kW

PFC Diode-Bridge-Less Half-Bridge Simulation Circuit

Input: Pin=5kW
fps=50Hz
Vps=200Vac ~ 240Vac

Output: Vo=420Vdc

PWM: fsw=50kHz

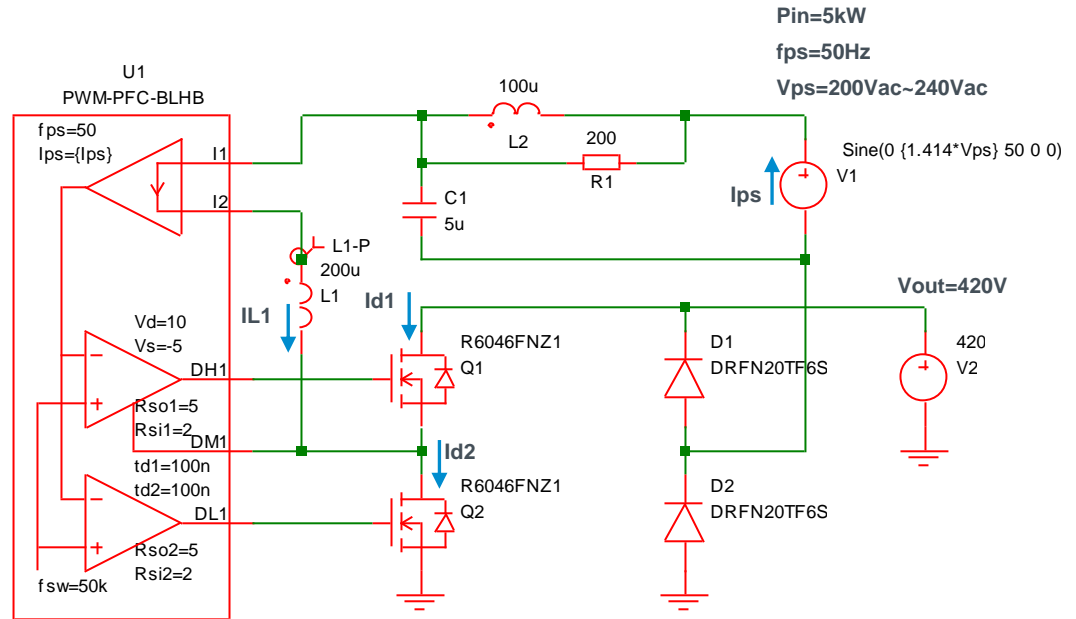
Gate Drive: Vd=10V Vs=-5V
R source=5Ω
R sink=2Ω

Q1,Q2: R6046FNZ1 Rohm
PrestMOS (600V 46A)

D1,D2: RFN20TF6S Rohm
FRD (600V 20A)

L1: 200uH
L2: 100uH + 200Ω

Tj=-25°C ~ 125°C



SIMatrix SPICE Simulation Data File

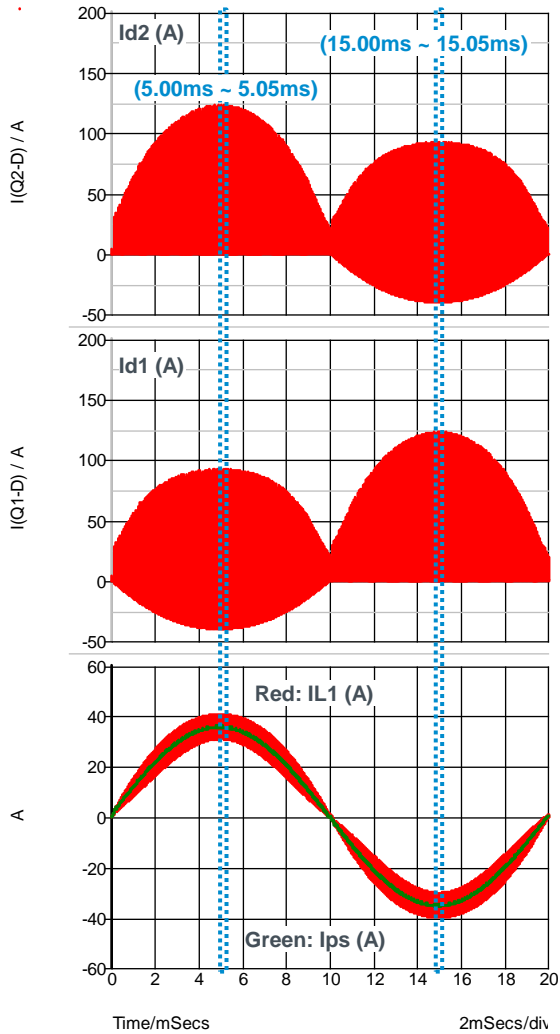


PFC Diode-Bridge-Less Half-Bridge Pin=5kW.sxsch

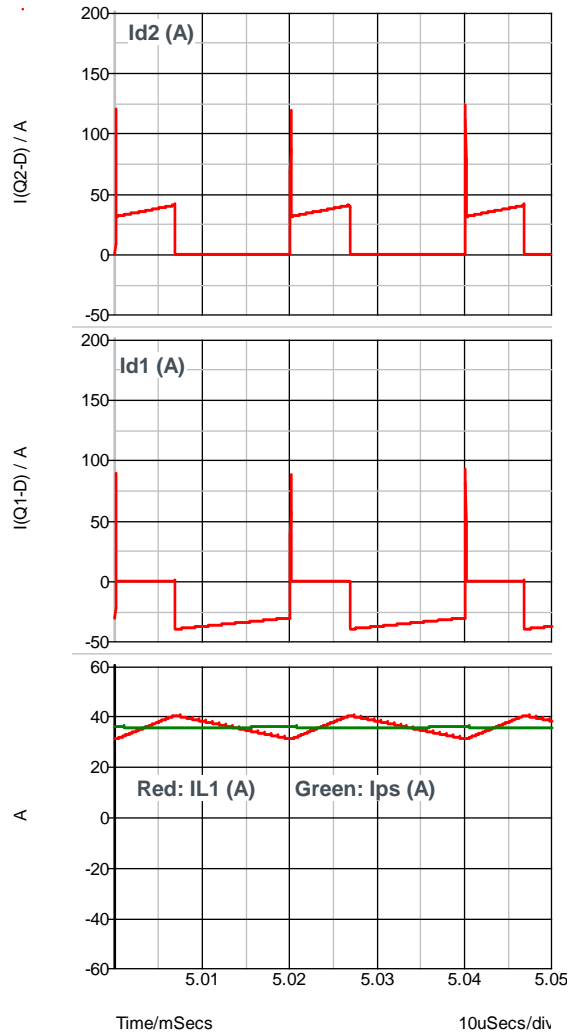
Simulation Waveform 1

**Id2, Id1,
IL1, Ips**

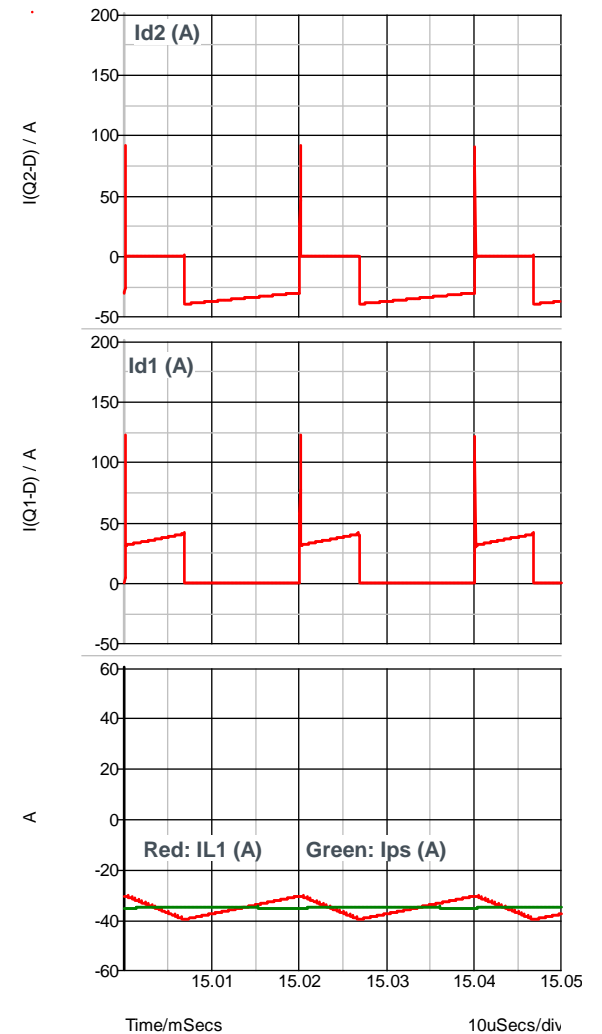
Pin=5kW Vps=200Vac
Vout=420V fsw=50kHz
Tj=100°C



**Expansion
(5.00ms ~ 5.05ms)**



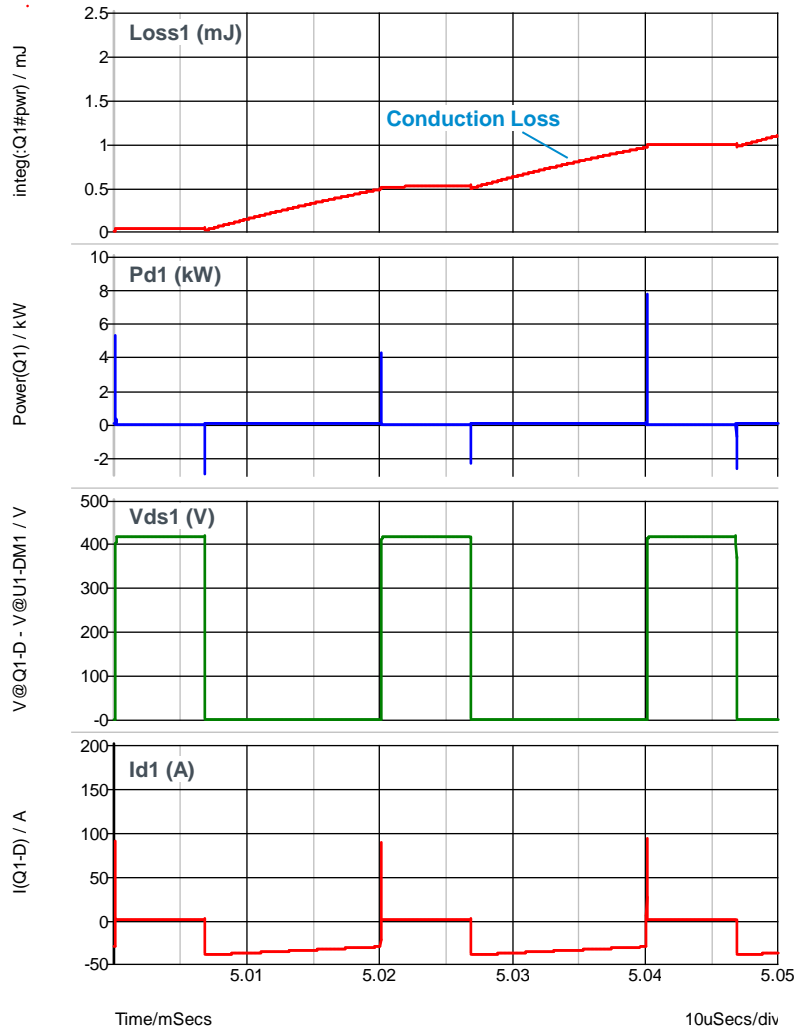
**Expansion
(15.00ms ~ 15.05ms)**



Simulation Waveform 2

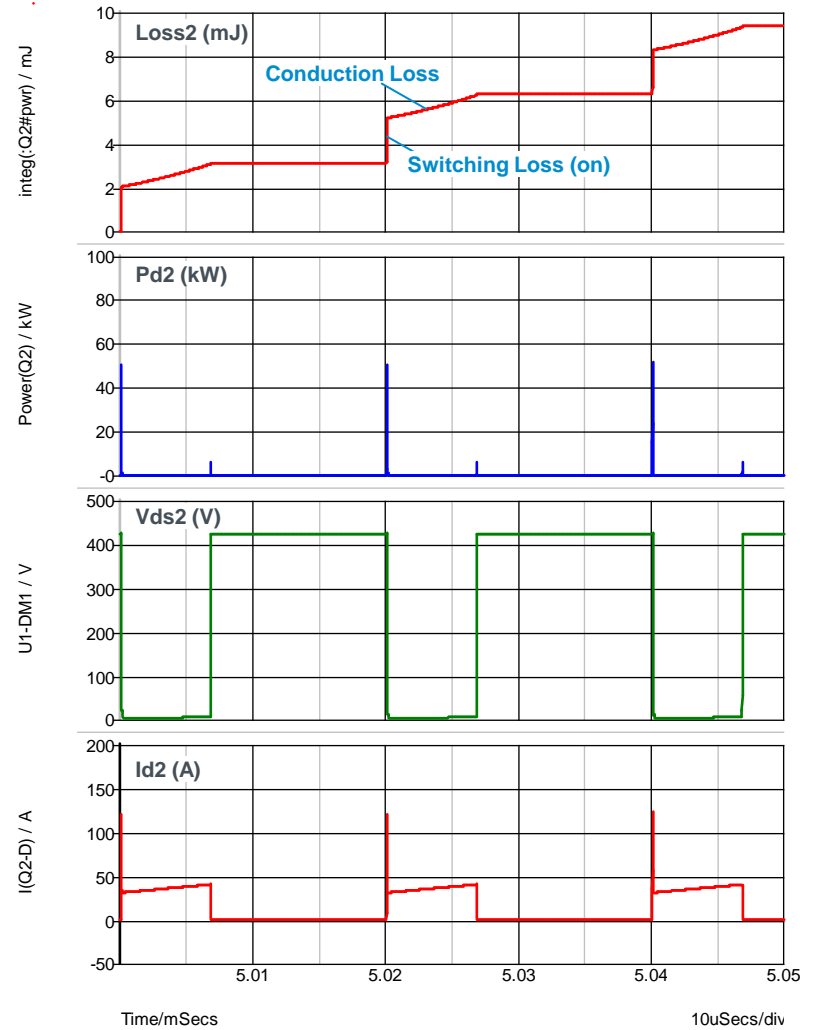
Q1_Loss,Pd,Vds,Id

Pin=5kW Vps=200Vac
 Vout=420V fsw=50kHz
 Tj=100°C



Q2_Loss,Pd,Vds,Id

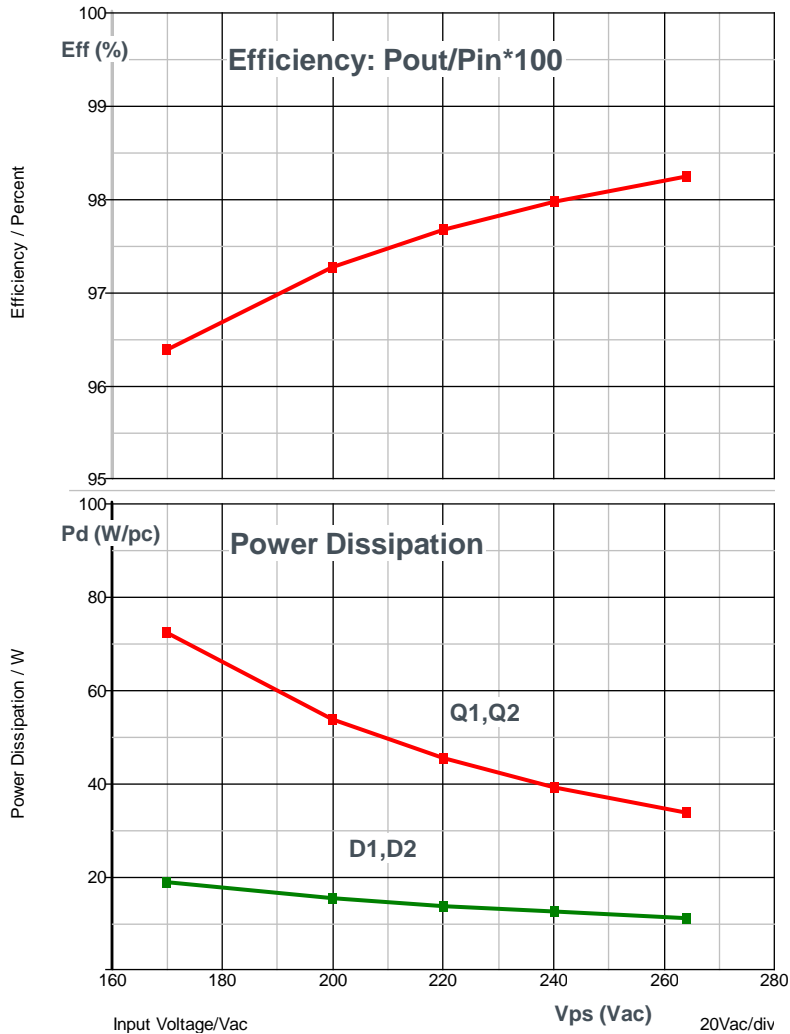
Pin=5kW Vps=200Vac
 Vout=420V fsw=50kHz
 Tj=100°C



Efficiency, Power Dissipation 1

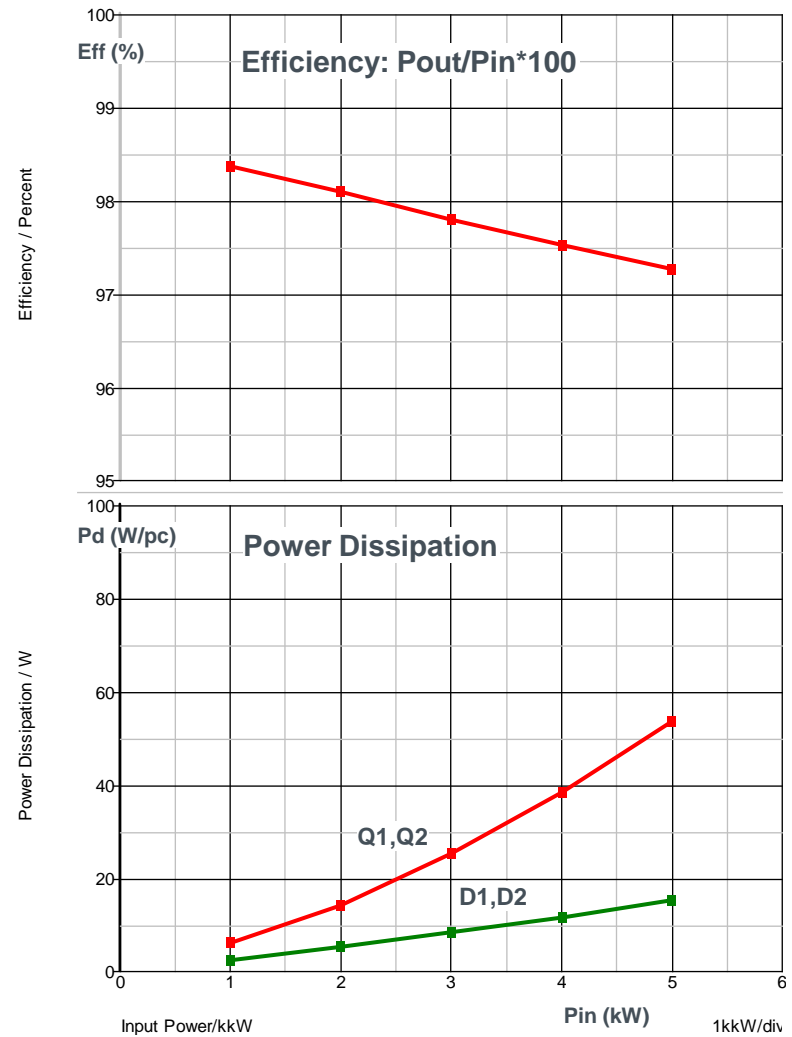
Vps=170Vac ~ 264Vac

Pin=5kW Vout=420V
fsw=50kHz Tj=100°C



Pin=1kW ~ 5kW

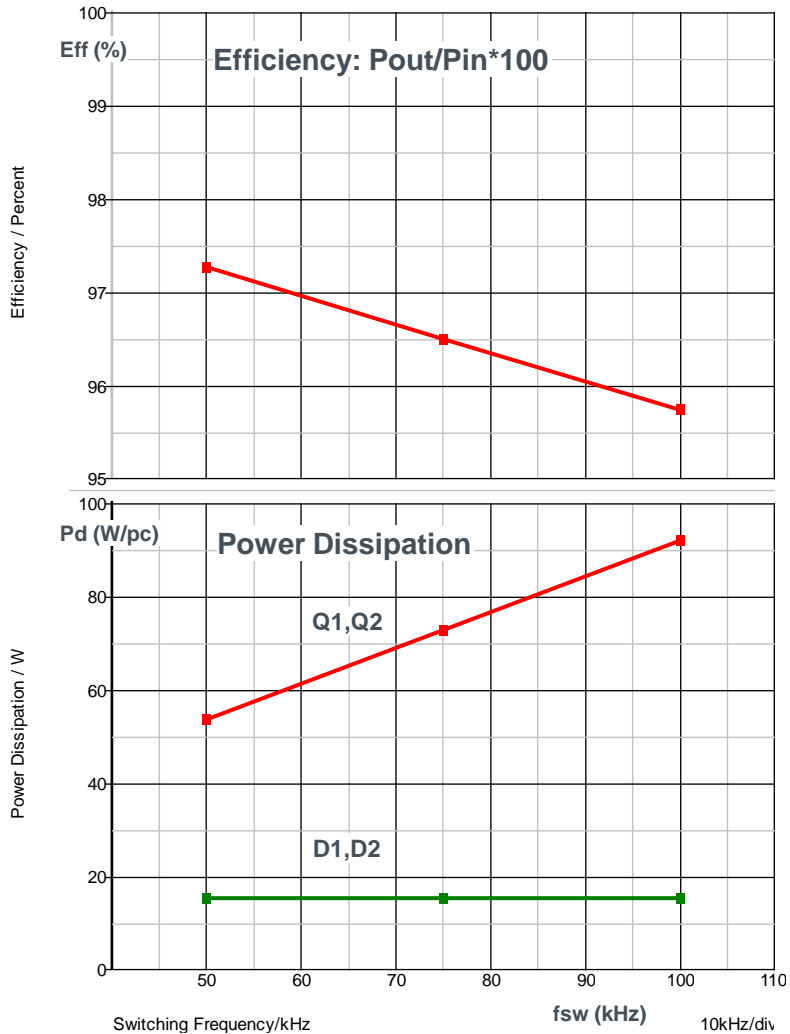
Vps=200Vac Vout=420V
fsw=50kHz Tj=100°C



Efficiency, Power Dissipation 2

fsw=50kHz ~ 100kHz

Pin=5kW Vps=200Vac
Vout=420V Tj=100°C



Tj=-25°C ~ 125°C

Pin=5kW Vps=200Vac
Vout=420V fsw=50kHz

