

Phase-Shift Resonant Converter $V_o=50V$ $I_o=50A$

Phase-Shift Resonant Converter Simulation Circuit

Input: $V_{in}=350V \sim 500V$

Output: $V_o=50V$ $I_{out}=20A \sim 50A$

PFM: $f_{sw}=100kHz \sim 500kHz$

Gate Drive: $V_d=10V$ $V_s=-5V$
 $t_{d1}, t_{d2}=50ns$
 $R_{g \text{ source}}=5\Omega$
 $R_{g \text{ sink}}=2\Omega$

Q1,2,3,4: R6030ENZ1 MOSFET (600V 30A)
D1,2: SCS240AE2HR SiC SBD (650V 40A)

TX1: $500\mu H : 20\mu H + 20\mu H$ $K=1$

L1: $5\mu H$

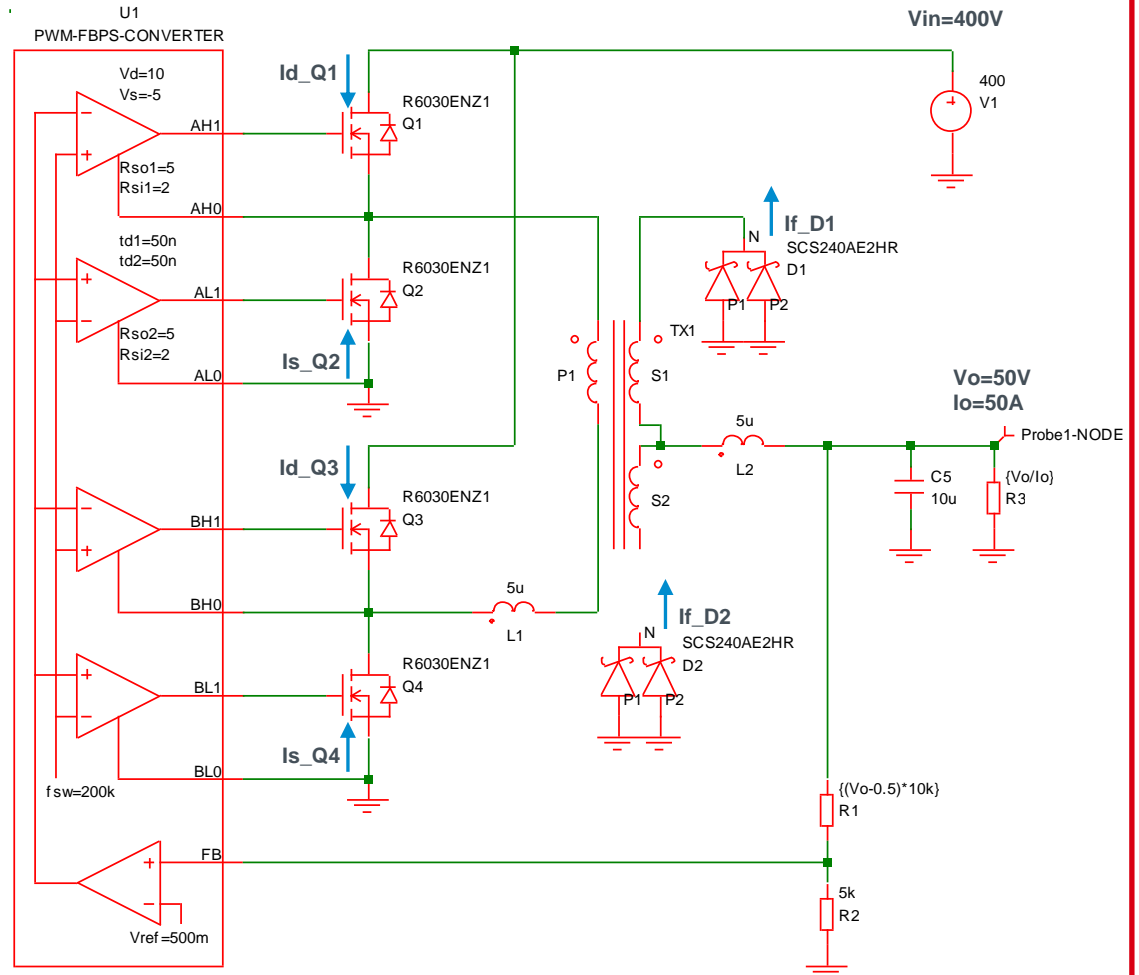
L2: $5\mu H$

Tj: $-25^\circ C \sim 125^\circ C$

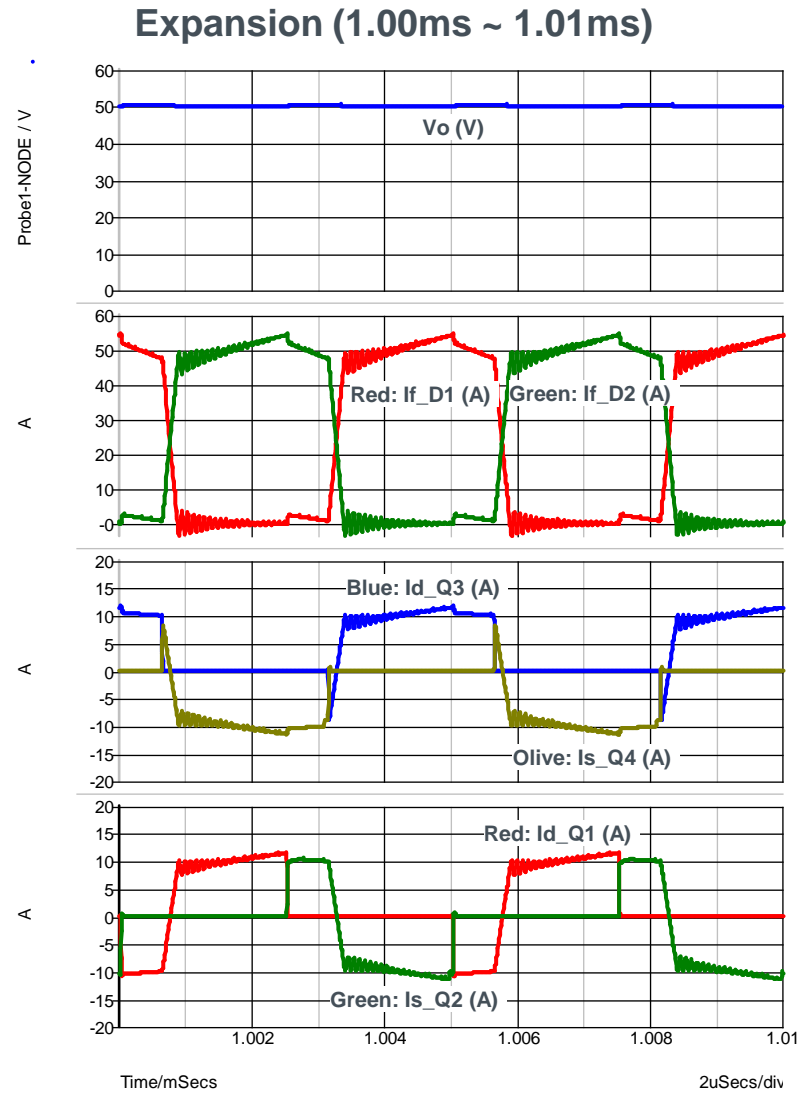
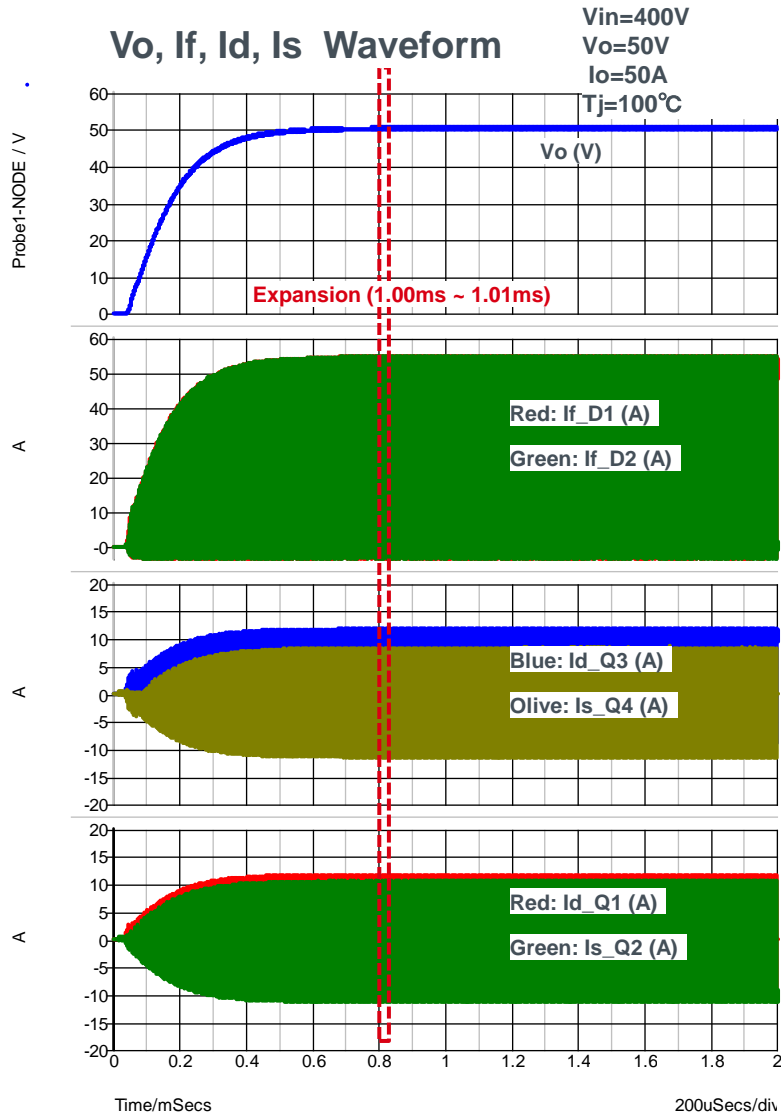
SIMetrix SPICE Simulation Data File



DC-DC Phase-Shift Resonant Converter $V_o=50V$ $I_o=50A$.xsxsch

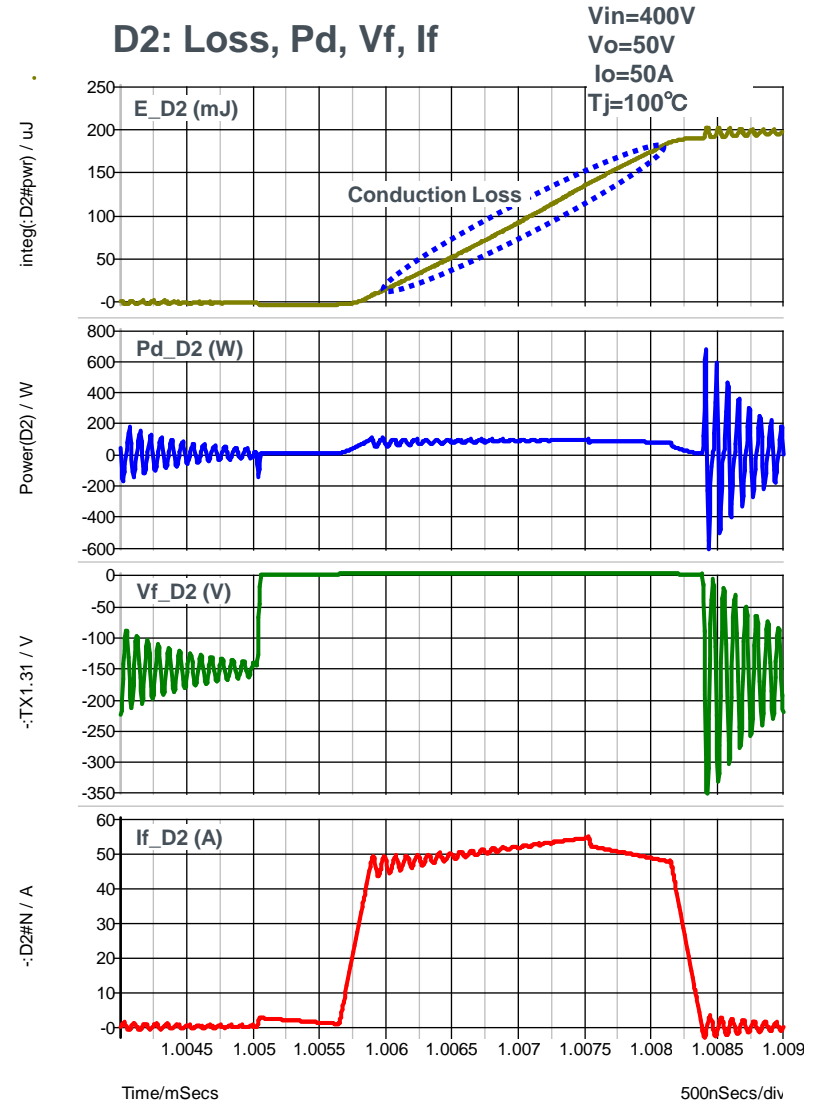
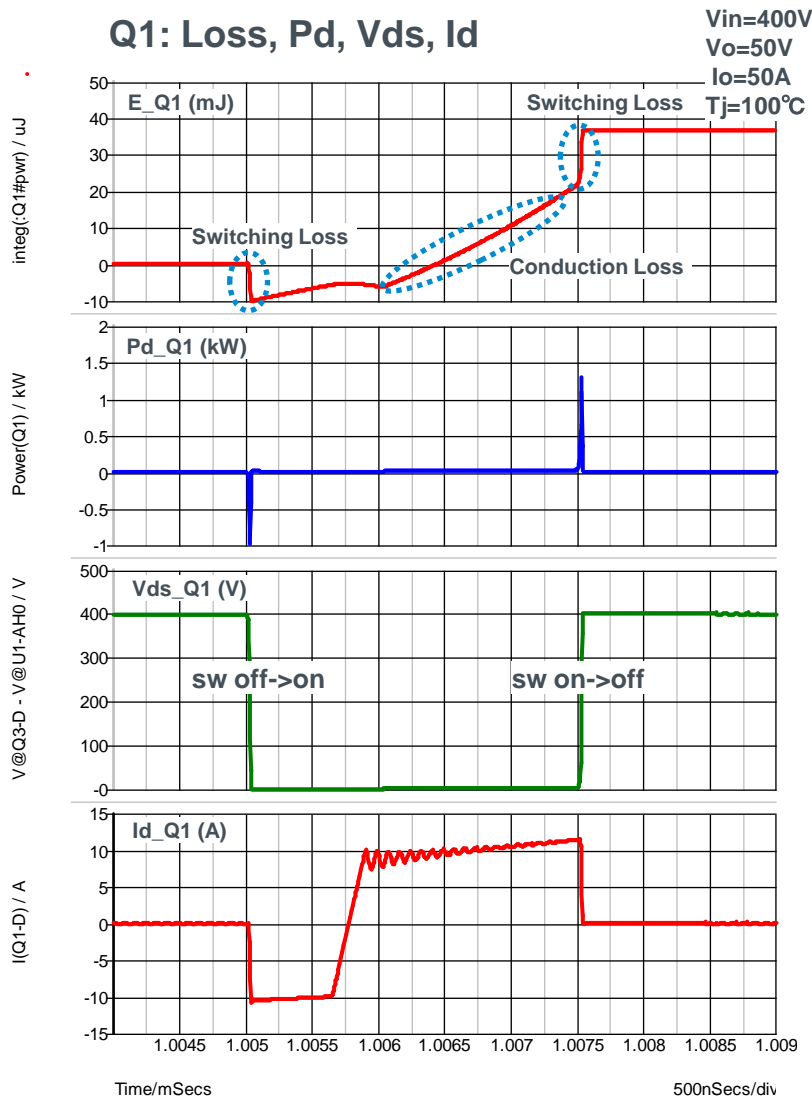


Simulation Waveform 1



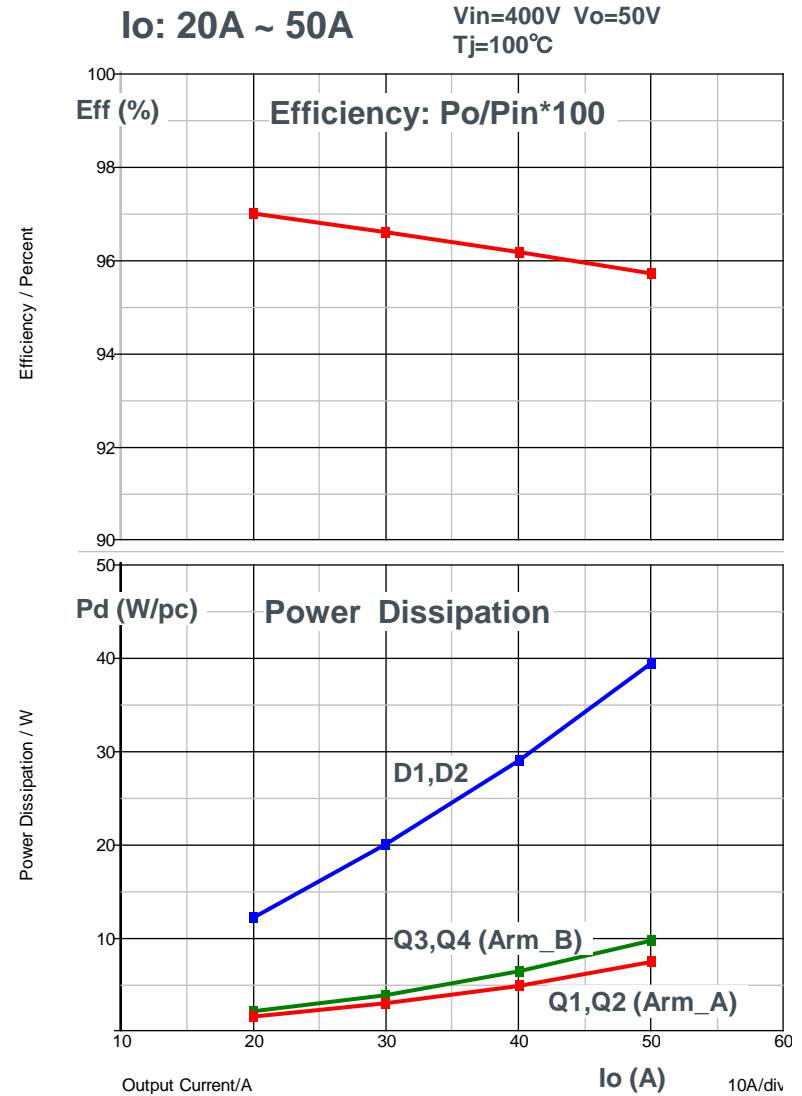
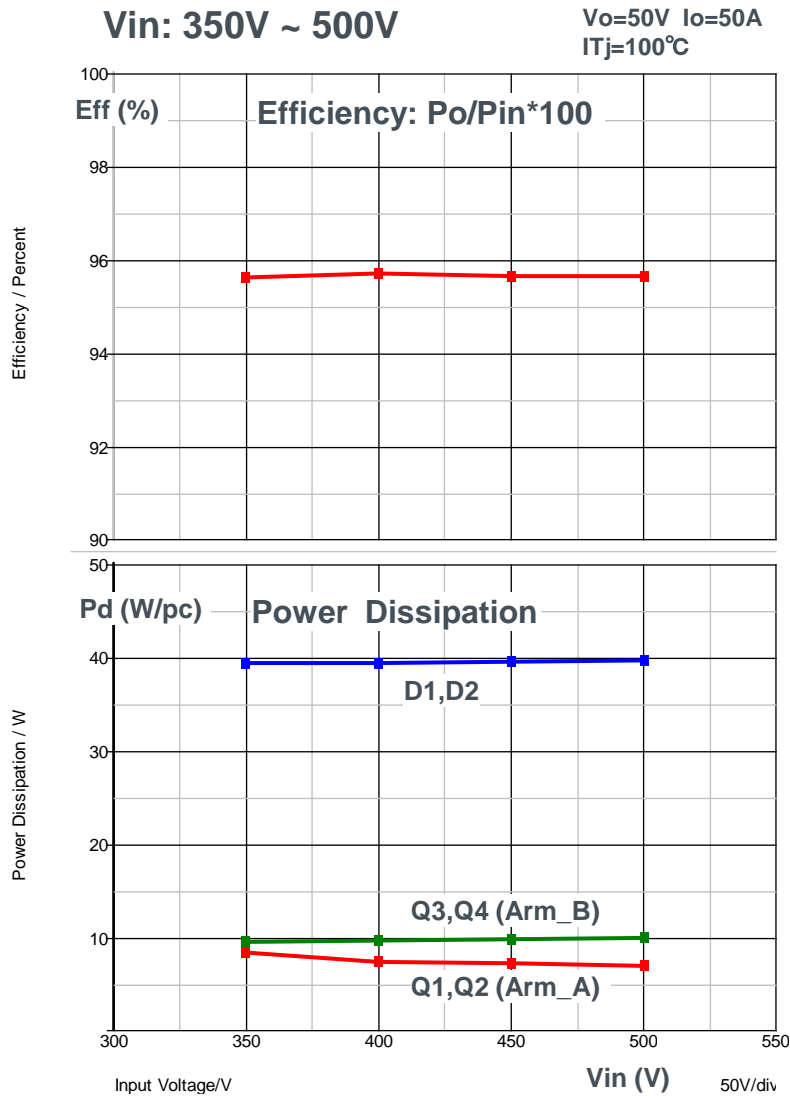
Simulation Waveform 2

ROHM PD SimG



Efficiency, Power Dissipation 1

ROHM PD SimG



Efficiency, Power Dissipation 2

ROHM PD SimG

