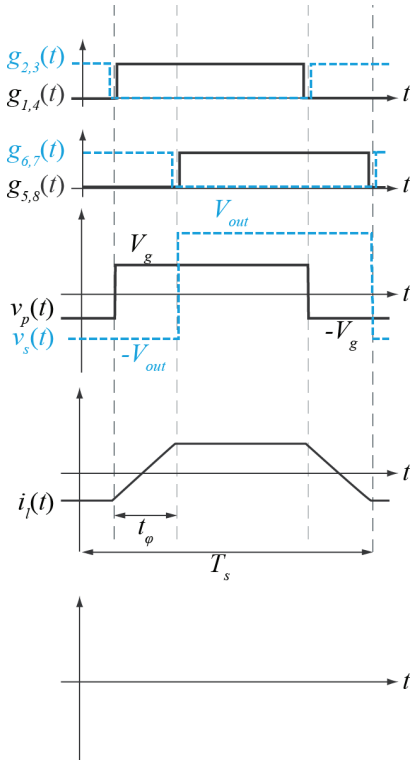
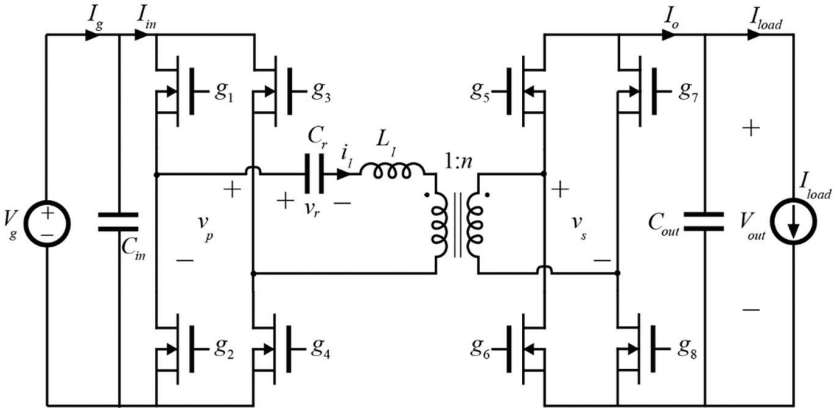
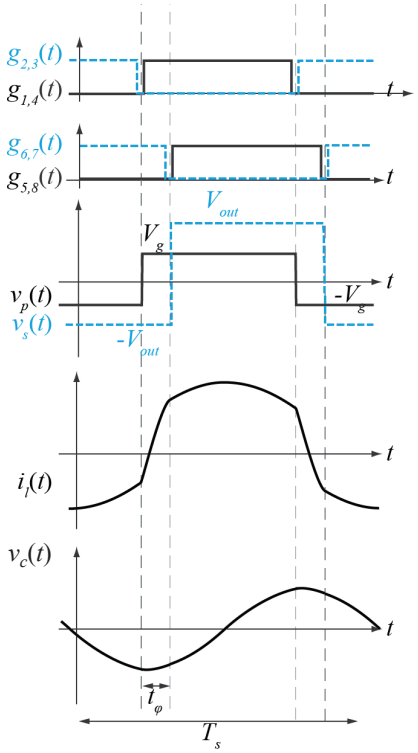
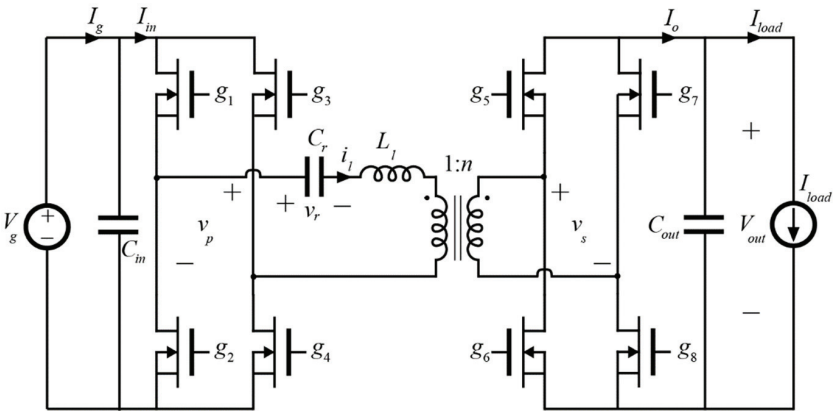
DAB: Transformer Saturation



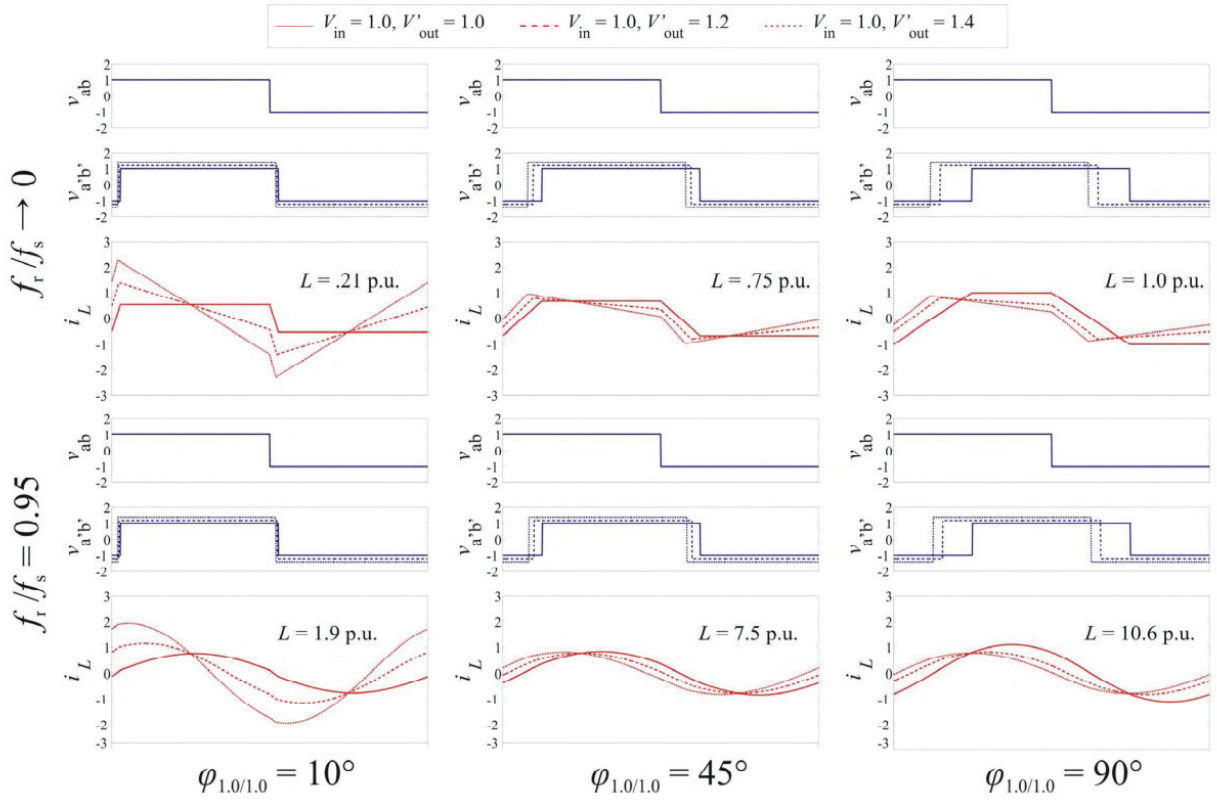


Series Resonant Converter



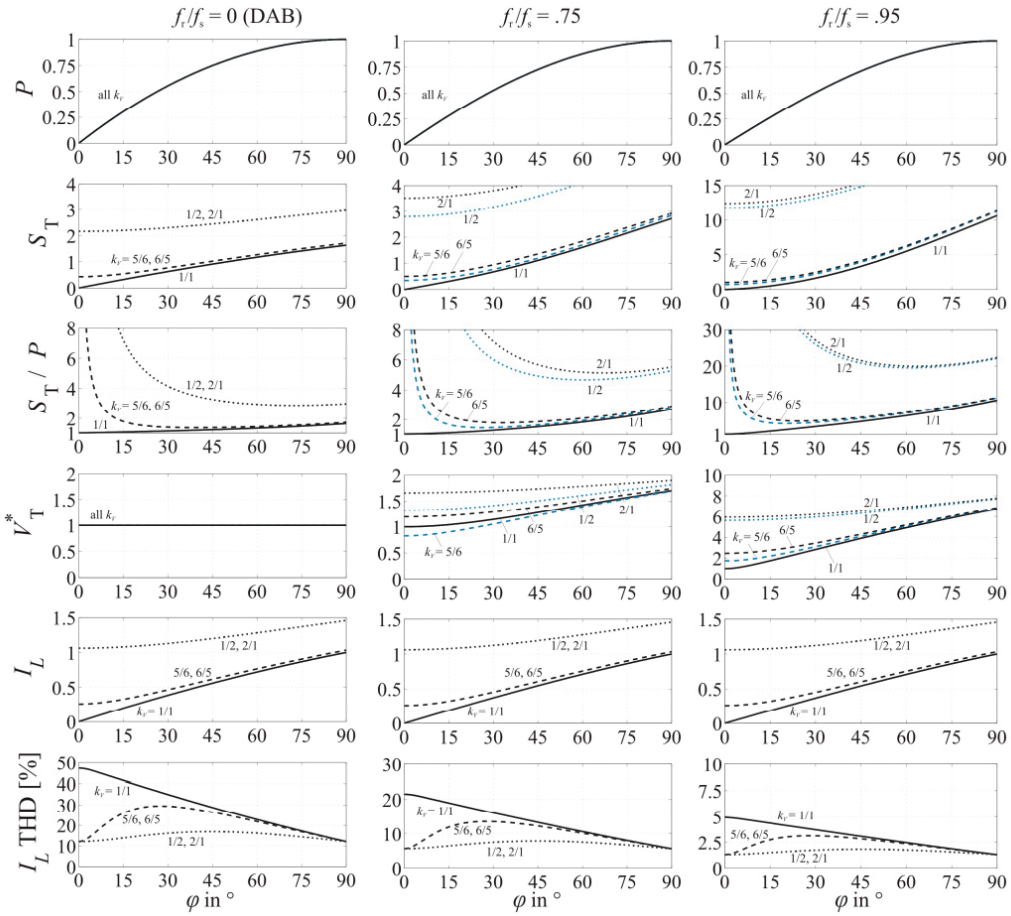


DAB vs SRC



R. Lenke, F. Mura and R. W. De Doncker, "Comparison of non-resonant and super-resonant dual-active ZVS-operated high-power DC-DC converters,"

THE UNIVERSITY OF TENNESSEE KNOXVILLE



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DAB vs SRC: Conclusions

DAB

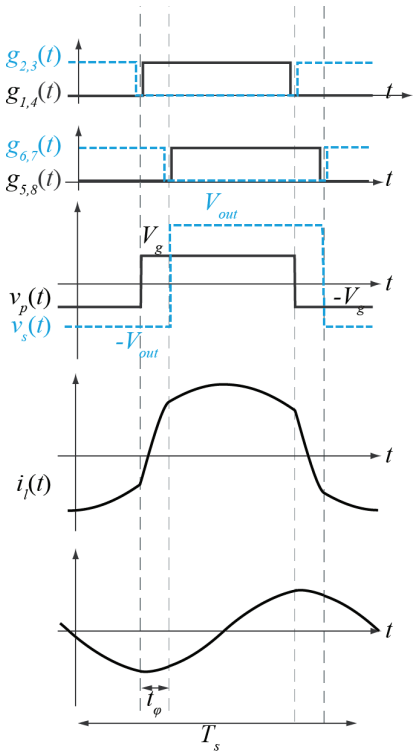
+ Smaller resonant tank
+ Smaller RMS currents
+ Wider Soft-switching range

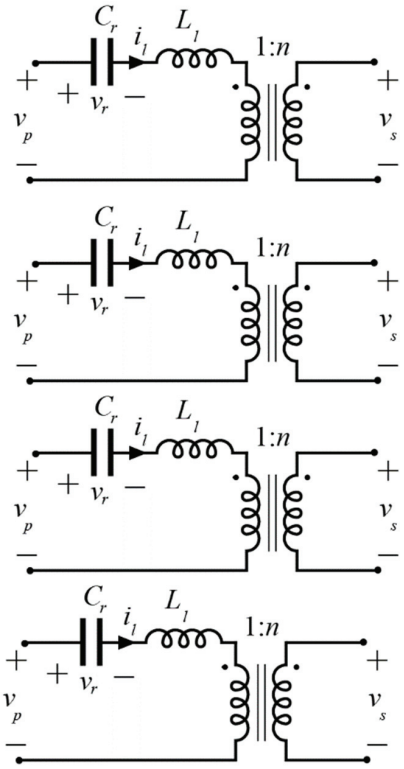
SRC

+ Can be designed with larger XF inductance
+ Lower AC winding losses
+ Reduced device turn-off losses

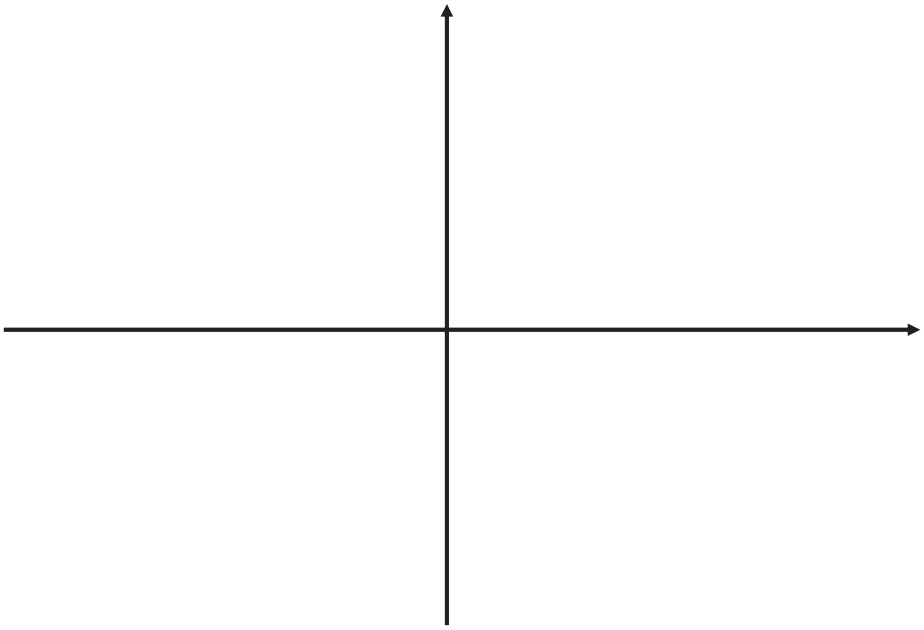
R. Lenke, F. Mura and R. W. De Doncker, "Comparison of non-resonant and super-resonant dual-active ZVS-operated high-power DC-DC converters,"

Subinterval Equivalent Circuits





Complete State Plane – Phase Shift Modulation



State Plane Solution

Averaging Step