

Topology 01: S1 OFF, S2 ON

Physical State: Phase 2 stores energy (S2 ON). Phase 1 transfers stored energy to output (S1 OFF, D8 ON).

Inductor Equations

$$\begin{aligned}diL1/dt &= V_{in} / L1 \\diL2/dt &= (V_{in} - vC1 - vC0) / L2 \\diL3/dt &= 0 \\diL4/dt &= 0 \\diL5/dt &= vC0 / L5 \\diL6/dt &= -vC3 / L6\end{aligned}$$

Capacitor Equations

$$\begin{aligned}dvC1/dt &= iL2 / C1 \\dvC3/dt &= (-iL6) / C3 \\dvC0/dt &= (iL2 + iL5 - P/vC0) / C0\end{aligned}$$

Symmetric Operation: Topology 01 is the mirror of Topology 10. Phase 1 now transfers (L2→C1→L5→D8→Cout) while Phase 2 stores. L5 releases stored energy forward ($diL5/dt > 0$).