

Block design: PSFB resonant inductor

- E_{STORE} in L_S charges total C_{OSS} of one leg
- Achieve ZVS down to **Load_{MIN} = 15%** of full load →

$$L_S \geq 2 \cdot COSS(Qa, avg) \cdot \frac{(V_{IN}(fb, nom))^2}{\left[\text{LOAD}(\text{min}) \cdot \left(I_{PP} - \frac{\Delta I_{L\text{OUT}}}{N_{PS}(fb)} \right) \right]^2} - L_{LK} = 1.13 \cdot 10^{-5} H$$

- Where: $L_{LK} = 3.5 \text{ uH}$ (0.1% of magnetizing inductance) → **$L_S = 10 \text{ }\mu\text{H}$**
- L_S RMS current and T1 primary current are the same (have only AC component)
- **Select PQ20/20 platform with:**
 - **$\Delta B_{PK} = 118 \text{ mT}$, 10 turns Litz wire (160x0.1 mm)**
 - **N97 EPCOS core, gap 0.77 mm, $\mu_E = 57$**
 - **Results in copper losses = 0.63 W and core losses = 0.57 W**