

$$V_{in} := 12V$$

$$V_o := 55V$$

$$V_{fd} := 0.9V$$

$$B_m := 0.2T$$

$$A_e := 1.216\text{cm}^2$$

$$D_{max} := 48\%$$

$$F_{sw} := 70\text{KHz}$$

$$T_{on} := \frac{D_{max}}{F_{sw}}$$

$$N_p := \text{ceil}\left(\frac{V_{in} \cdot T_{on}}{B_m \cdot A_e}\right)$$

$$N_p = 4$$

$$N_s := \left\lceil \frac{N_p \cdot (V_o - V_{fd})}{V_{in}} \right\rceil$$

$$N_s = 18.033$$