The Output adjustable Flyback converter

I. Specification

Vin = 220[Vac]±10[%], 50/60[Hz]

Vout=0~600[Vdc]@0.25[A]

Switching frequency : 70 ~ 100[KHz]

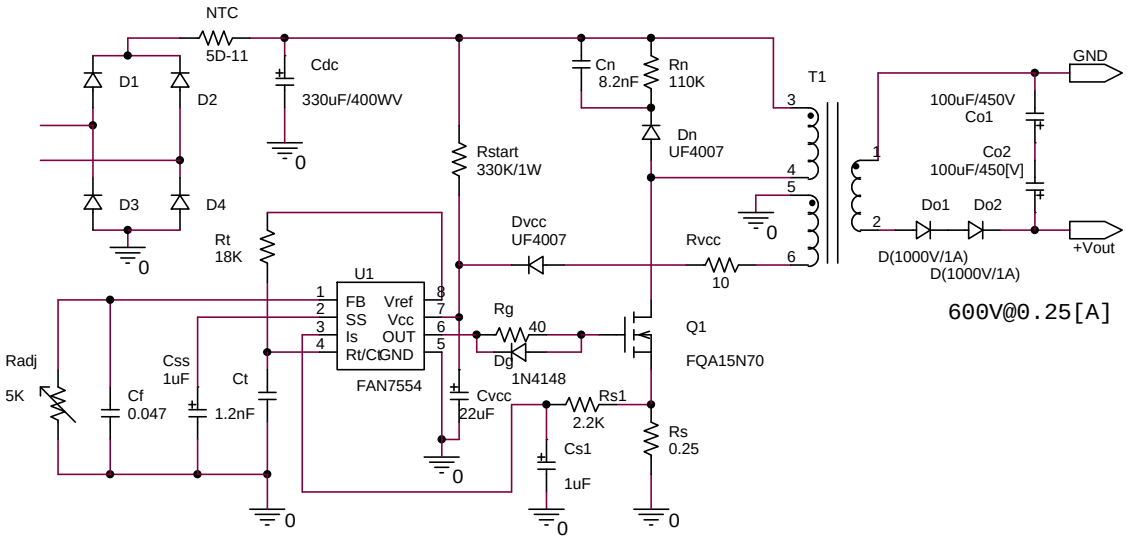

Fig. 1 Main schematic diagram

II. Design Guideline

DCM mode, output power is 200[W].

The input RMS current in worst condition with discontinuous current mode can be calculated as

$$I_{rms} = \frac{P_o}{V_{dc}} = \frac{200}{220 \times 0.9 \times \sqrt{2}} \cong 0.72[A]$$

If the optimum operating duty cycle is set at D=0.35, then input peak current can be found as

$$I_{peak} = \frac{I_{rms}}{D} \times 2 = \frac{0.72}{0.35} \times 2 \approx 4.11[A]$$

Therefore the voltage sensing limit voltage level from the FAN7554 data sheet is 1.5[V].

The current sensing value can be calculated as

$$R_s = \frac{1.5}{4.11} = 0.36[\Omega]$$

Based on the calculation result, the 0.25[Ohm] is used in considering the margin.

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