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]

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

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

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

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

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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