



电感取值计算

$$L = \left(\frac{V_o}{\eta * V_{in}} \right) * \left(\frac{V_{in} - V_o}{I_o * k * F_{sw}} \right)$$

$$\eta = 90\%$$

$$I_o = 8A$$

$$k = 0.3$$

$$F_{sw} = 500kHz$$

$$V_{in} = 48V; V_o = 36V$$

$$L = 8.33uH, \text{实际电感取值 } 10uH$$

L有效值电流越8.03A
 L峰值电流为9.2A
 L饱和电流为峰值电流的1.2~1.5倍
 取1.3倍计算饱和电流约为12A
 额定电流17.2A,饱和电流(Isat)21A

开关频率

$$F_{sw} = \left(\frac{R_{Vout1} + R_{Vout2}}{R_{Vout2}} \right) * \left(\frac{1}{R_{on} * C_{con}} \right)$$

$$R_{Vout1} = 134k\Omega; R_{Vout2} = 10k\Omega$$

$$R_{on} = 24k\Omega; C_{con} = 1.2nF$$

$$F_{sw} = \left(\frac{14.4}{24 * 1.2} \right) * 10^6 \quad F_{sw} = 500kHz$$

输出电压&过压阈值

设置Vout输入电压2.5V

$$V_o = 2.5V * \left(\frac{R_{Vout1} + R_{Vout2}}{R_{Vout2}} \right); V_o = 36V$$

$$V_{ovp} = 3.05V * \left(\frac{R_{Vout1} + R_{Vout2}}{R_{Vout2}} \right)$$

$$V_{ovp} = 43.92V$$

欠压阈值&迟滞电压

$$V_{uvp} = 1.276V * \left(1 + \frac{R_{UDIM1}}{R_{UDIM2}} \right)$$

$$V_{uvp} = 39.7V$$

$$V_{hy} = 21uA * \left(\frac{R_{UDIM3} * (R_{UDIM1} + R_{UDIM2})}{R_{UDIM2}} \right)$$

$$V_{hy} = 14.6V$$

启动电压大于39.7V, 关机电压低于25.1

输出36V/8A