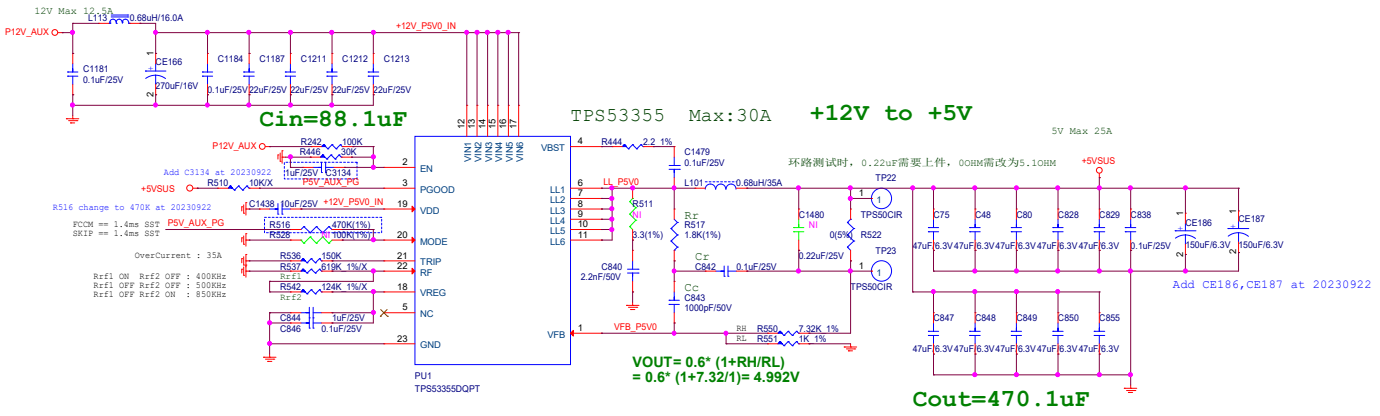


Total 5V\_AUX I<sub>max</sub> ~25A



$$C_{inmin} = I_o * V_{out} / (D V_{in} * f_{sw} * V_{in}) = 30 * 5 / (0.24 * 0.5 * 12) = 104.16 \mu F, I_o = 30A, D V_{in} = V_{in ripple} = 2\% * 12 = 240mV$$

MODE与PGOOD以100k电阻相连，工作在强制CCM模式，软启动时间为1.4ms

f<sub>sw</sub> = 500kHz, R<sub>f</sub>引脚悬空

$$L_{min} = (V_{inmax} - V_{out}) * V_{out} / (I_{out} * 0.4 * V_{inmax} * f_{sw}) = (12 - 5) * 5 / (30 * 0.4 * 12 * 0.5) = 0.486 \mu H, L = 1.25 * 0.586 = 0.61 \mu H$$

$$I_{ripple} = (V_{inmax} - V_{out}) * V_{out} / (L * f_{sw} * V_{inmax}) = (12 - 5) * 5 / (0.68 * 0.5 * 12) = 8.58A$$

$$I_{ocp} = V_{trip} / (32 * R_{ds}) + (V_{in} - V_{out}) * V_{out} / 2 * L * f_{sw} * V_{in} = 1499 / (32 * 1.5) + (12 - 5) * 5 / (2 * 0.68 * 0.5 * 12) = 35.52A, R_{trip} = 149.9K, V_{trip} = R_{trip} * I_{ocp} = 10 \mu A = 1499mV, R_{ds} = 1.5m\Omega$$

$$C_{out} : ESR < L * f_{sw} / 60 = 0.68 * 0.5 / 60 = 5.67m\Omega$$

$$C_{outmin} = 3 * D I_{out} / (D V_{out} * f_{sw}) = 3 * 7.04 / (0.165 * 0.5) = 256 \mu F, D V_{out} = 5\% * V_{out} = 165mV, D I_{out} = I_{ripple}$$

$$L * C_{out} / (R_r * C_r) > N * T_{on} / 2, N = 4, (0.68E-6 * 304.1E-6) / (R_r * C_r) 4 * (3.3 / 12 * (1 / 500E3)) / 2, set C_r = 0.1 \mu F, R_r < 1.88K$$

<b>DHBIENS</b>	
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