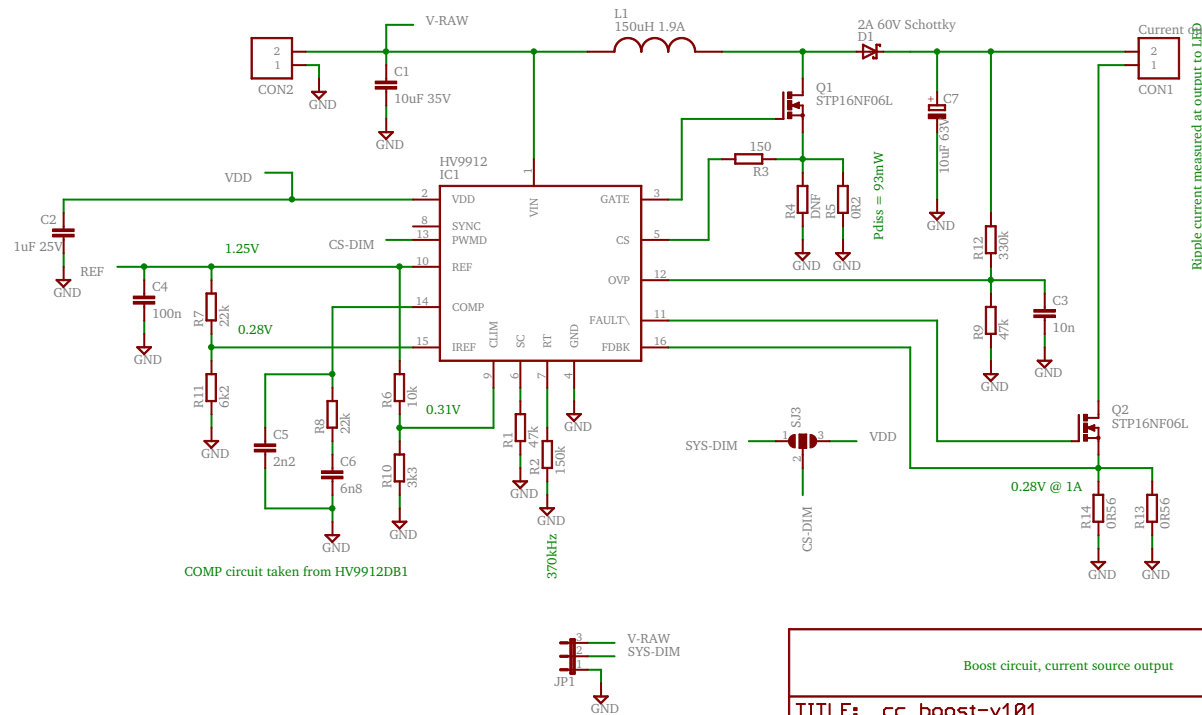


HV9912NG, Microchip IC LED driver 16SOIC HV9912NG-G-M901, Digikey #HV9912NG-G-M901CT-ND
 2-way socket, Phoenix Contact Combicon MSTBA 1757242, Digikey #277-1106-ND
 2-way plug, Phoenix Contact Combicon MSTB positions marked 1758364, Digikey #277-1964-ND
 47uF 63V LOESR, Panasonic 284mA ripple EEU-FR1J470B, Digikey #P15285CT-ND
 150uF 63V LOESR, Panasonic 1A ripple EEU-FR1J151, Digikey #P15406-ND

100mR 0.5W 1206 resistor, TE Connectivity 5% RLP73K2BR10JTD, Digikey #A109842CT-ND
 150mR 0.5W 1206 resistor, TT Electronics LRC-LR1206LF-01-R150F, Digikey #989-1032-1-ND
 200mR 250mW 5% 1206 resistor, CTS 7314R20J, Digikey #7314R20JCT-ND
 22uH 4A inductor, Abracon 4A 6.1A sat. 43mR AIUR-06-220K, Digikey #AIUR-06-220K-ND
 150uH 1.9A inductor, Abracon 1.9A 2.4A sat. 162mR AIUR-06-151K, Digikey #AIUR-06-151K-ND



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For 24V input, 30V output:
 L = 150uH, Rcs = 0.2R, Cout = 47uF 63V LOESR
 Q1 no heatsink, Q2 no heatsink
 Efficiency 94%
 Q1 15C above ambient, Q2 10C above ambient
 L1 18C above ambient, D1 21C above ambient
 C7 7C above ambient, ripple 4mA(rms)

Increase R3 (Rsc) for lower input voltages. Eg. 1k

For 15V input, 30V output:
 L = 22uH, Rcs = 0.10R, Cout = 47uF 63V LOESR
 Q1 20C/W heatsink, Q2 no heatsink
 Q1 21C above ambient
 Current limits at 14.3V.

For 12V input, 30V output:
 L = 22uH, Rcs = 0.075R, Cout = 47uF 63V LOESR
 Efficiency 87% (at 12V), 94% at 24V
 Q1 20C/W heatsink, Q2 no heatsink
 Q1 37C above ambient, L1 32C above ambient
 C7 15C above ambient, ripple 8mA(rms)
 Current limits at 11.5V.

For 10V input, 30V output:
 L = 22uH, Rcs = 0.06R, Cout = 47uF 63V LOESR
 Efficiency 86.2% at 10V (95% at 24V)
 Q1 20C/W heatsink, Q2 no heatsink
 Q1 40C above ambient, L1 41C above ambient
 C7 21C above ambient, ripple 10mA(rms)
 Current limits at 9.8V.

Replaced C7 with 150uF 63V LOESR
 C7 11C above ambient, ripple 9mA(rms)