

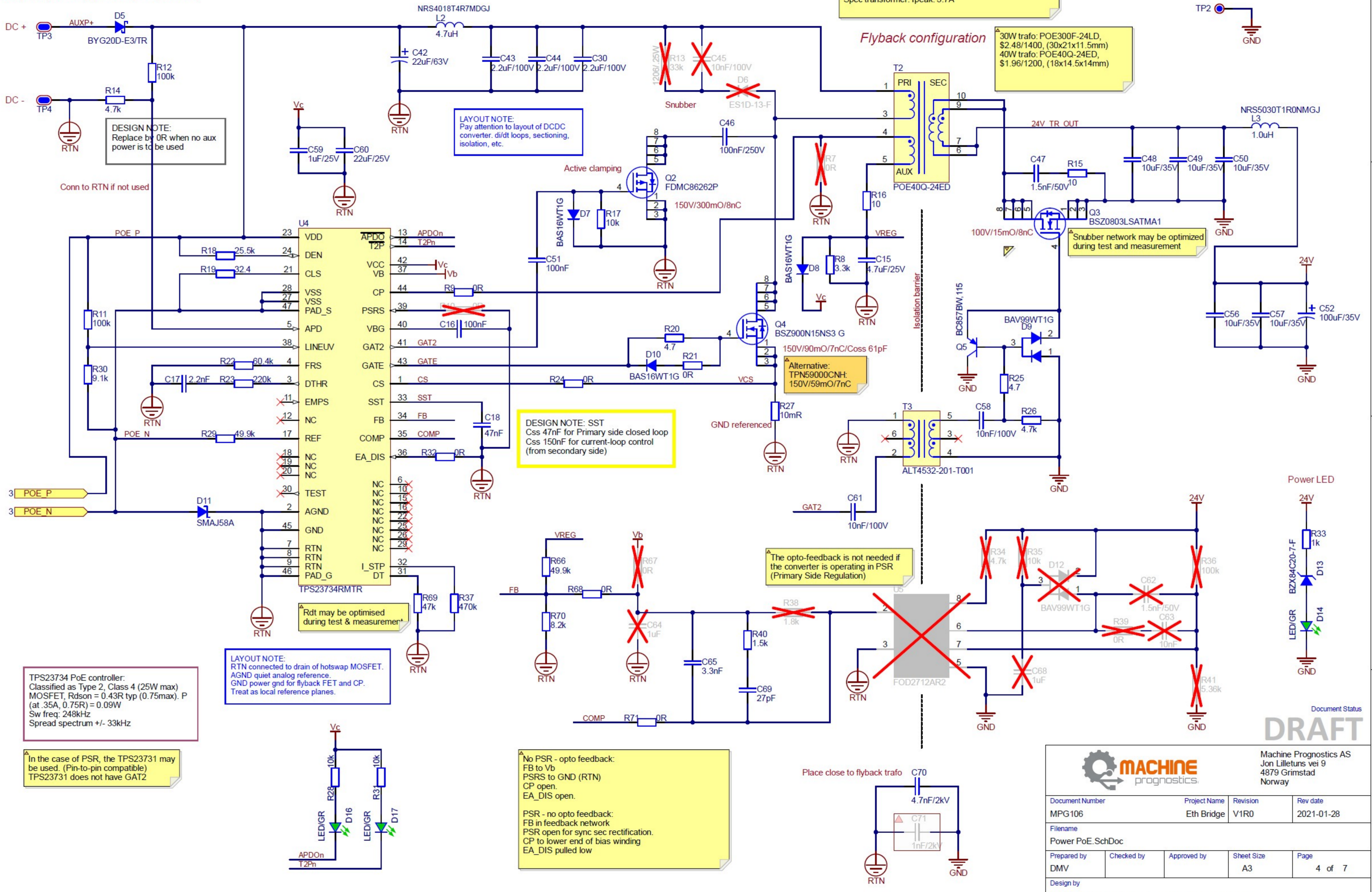
# Power PoE

Power over Ethernet 25W, 24V DC (PoE+)

Aux power (35V - 57V) (for test only - not production)

Primary:  
 I<sub>avg\_max</sub>: 0.75A  
 I<sub>step</sub>: 1.86A  
 I<sub>dL</sub>: 1.75A  
 I<sub>peak</sub>: 2.91A  
 Spec transformer: I<sub>peak</sub>: 3.7A

30W trafo: POE300F-24LD, \$2.48/1400, (30x21x11.5mm)  
 40W trafo: POE40Q-24ED, \$1.96/1200, (18x14.5x14mm)



DESIGN NOTE:  
 Replace by OR when no aux power is to be used

LAYOUT NOTE:  
 Pay attention to layout of DCDC converter. di/dt loops, sectioning, isolation, etc.

DESIGN NOTE: SST  
 C<sub>ss</sub> 47nF for Primary side closed loop  
 C<sub>ss</sub> 150nF for current-loop control (from secondary side)

The opto-feedback is not needed if the converter is operating in PSR (Primary Side Regulation)

No PSR - opto feedback:  
 FB to Vb  
 PSRS to GND (RTN)  
 CP open.  
 EA\_DIS open.

PSR - no opto feedback:  
 FB in feedback network  
 PSR open for sync sec rectification.  
 CP to lower end of bias winding  
 EA\_DIS pulled low

TPS23734 PoE controller:  
 Classified as Type 2, Class 4 (25W max)  
 MOSFET, R<sub>ds(on)</sub> = 0.43R typ (0.75max). P (at .35A, 0.75R) = 0.09W  
 Sw freq: 248kHz  
 Spread spectrum +/- 33kHz

LAYOUT NOTE:  
 RTN connected to drain of hotswap MOSFET.  
 AGND quiet analog reference.  
 GND power gnd for flyback FET and CP.  
 Treat as local reference planes.

In the case of PSR, the TPS23731 may be used. (Pin-to-pin compatible)  
 TPS23731 does not have GAT2

Document Status  
**DRAFT**

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