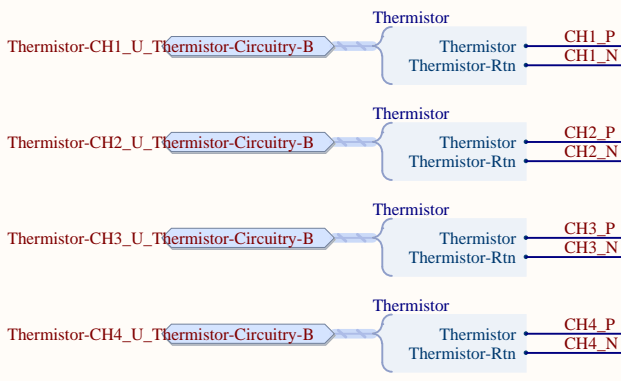
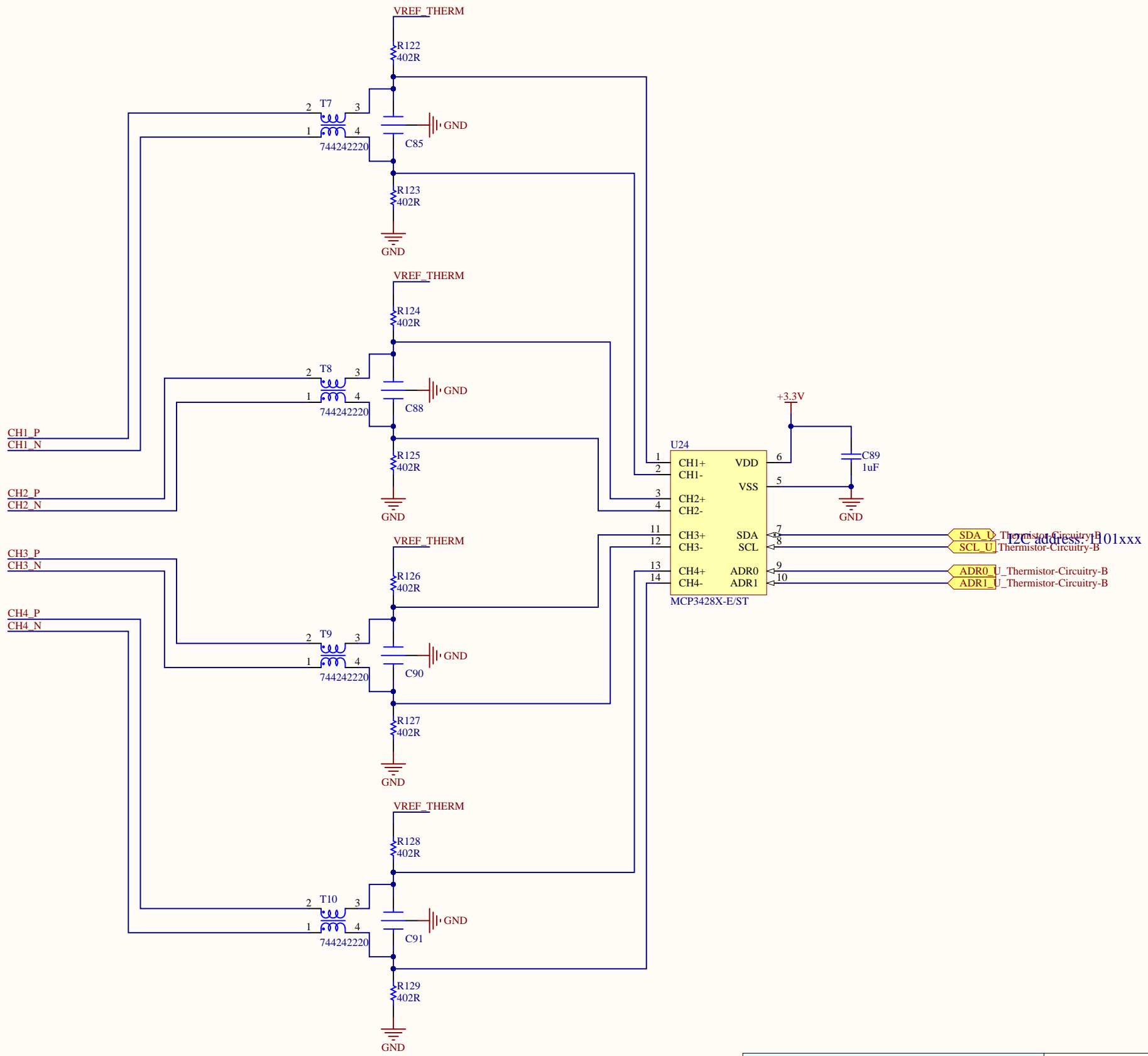
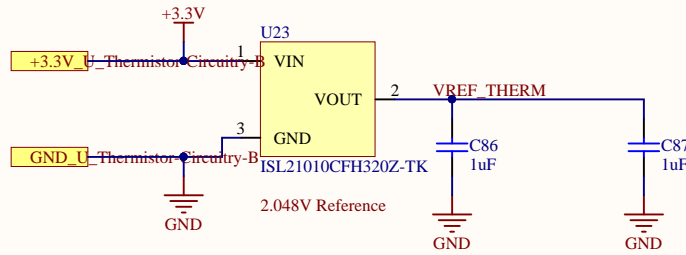
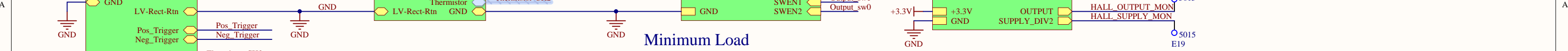


Thermistor Circuitry



A



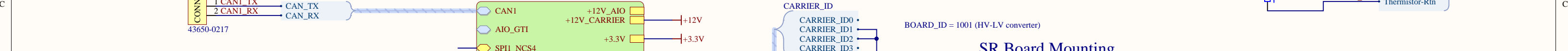
A

B



B

C



C

D



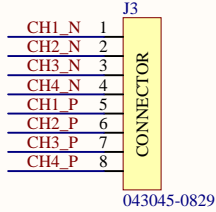
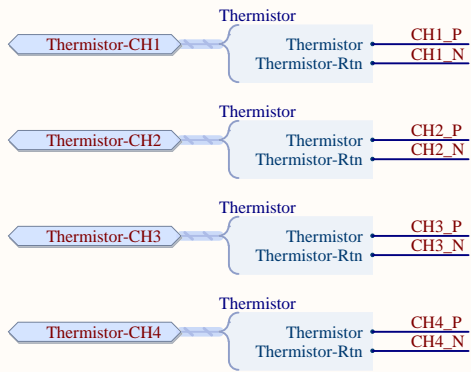
D

The AIO module standoff height should be 0.250 inches (6.35 mm).

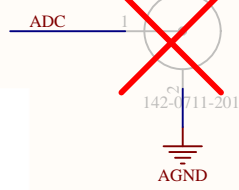
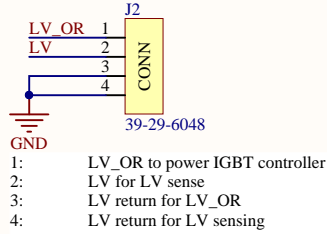
M3 chassis mount holes should be used for non-captured hardware.

SMTSO-632-8ET PemNuts have 6-32 thread for direct mounting (but uses non-metric screws).

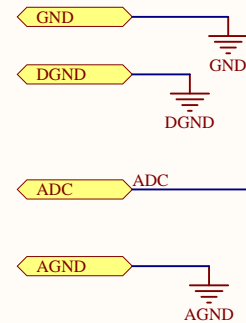
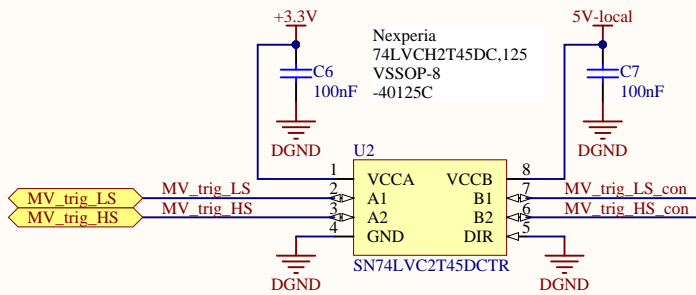
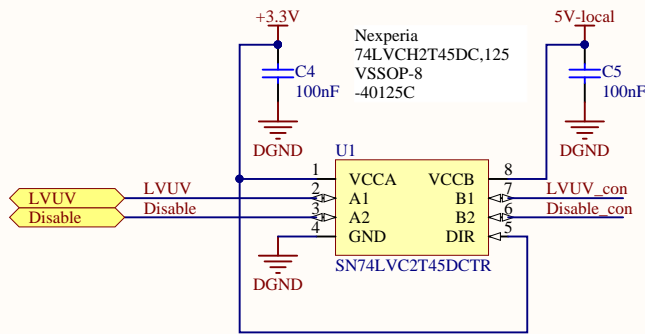
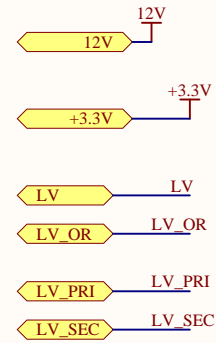
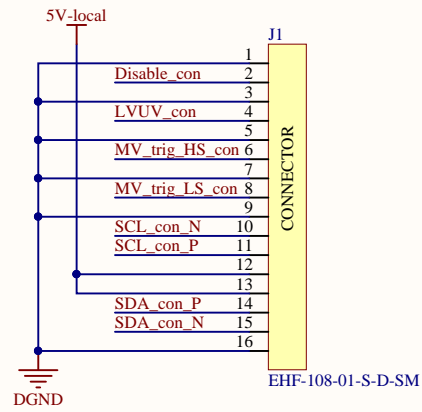
SMTSO-143-8ET PemNuts have clearance holes for use with an M3 stacked standoff on the bottom.



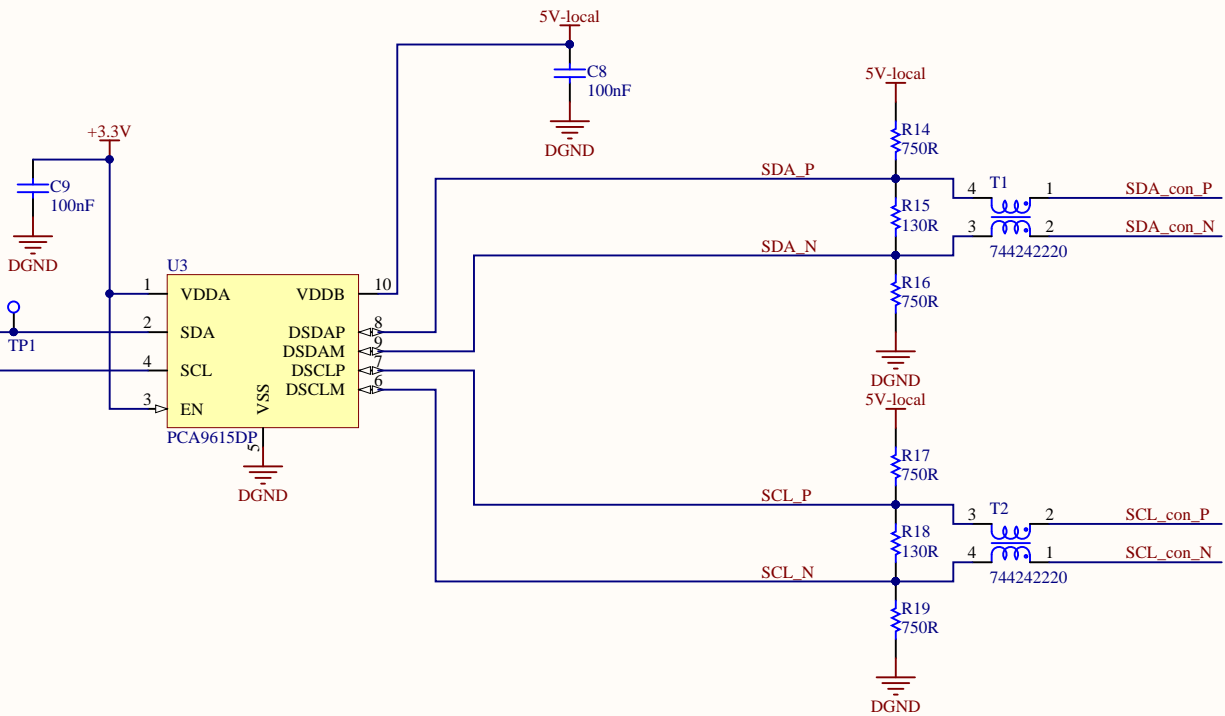
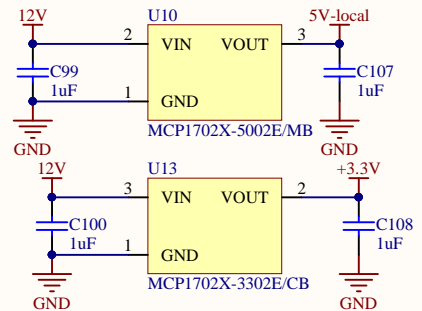
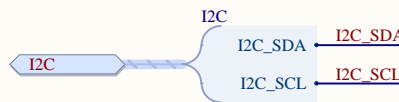
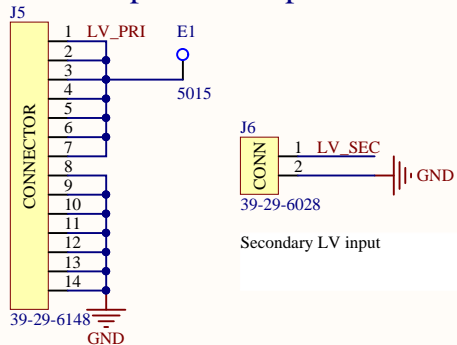
IGBT Controller connector (LV)



IGBT Controller connector (signal)

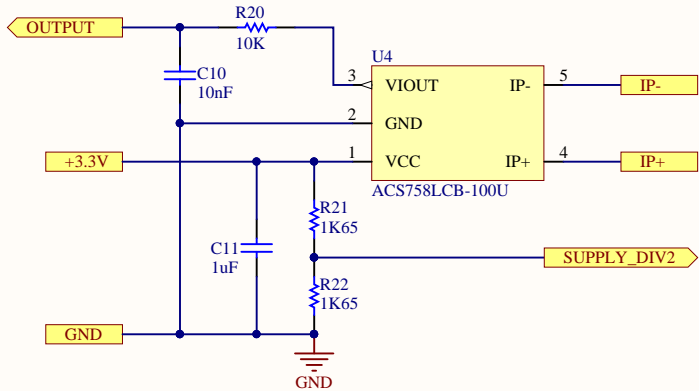


LV input and output



Sheet Title: *		
Project Title: SynchronousRectifier.PrjPcb		
Size: Tabloid	Number:	Revision:
Date: 10/21/2019	Time: 10:49:05 AM	Sheet 2 of 17
Author: *	File: Extension_Connector.SchDoc	

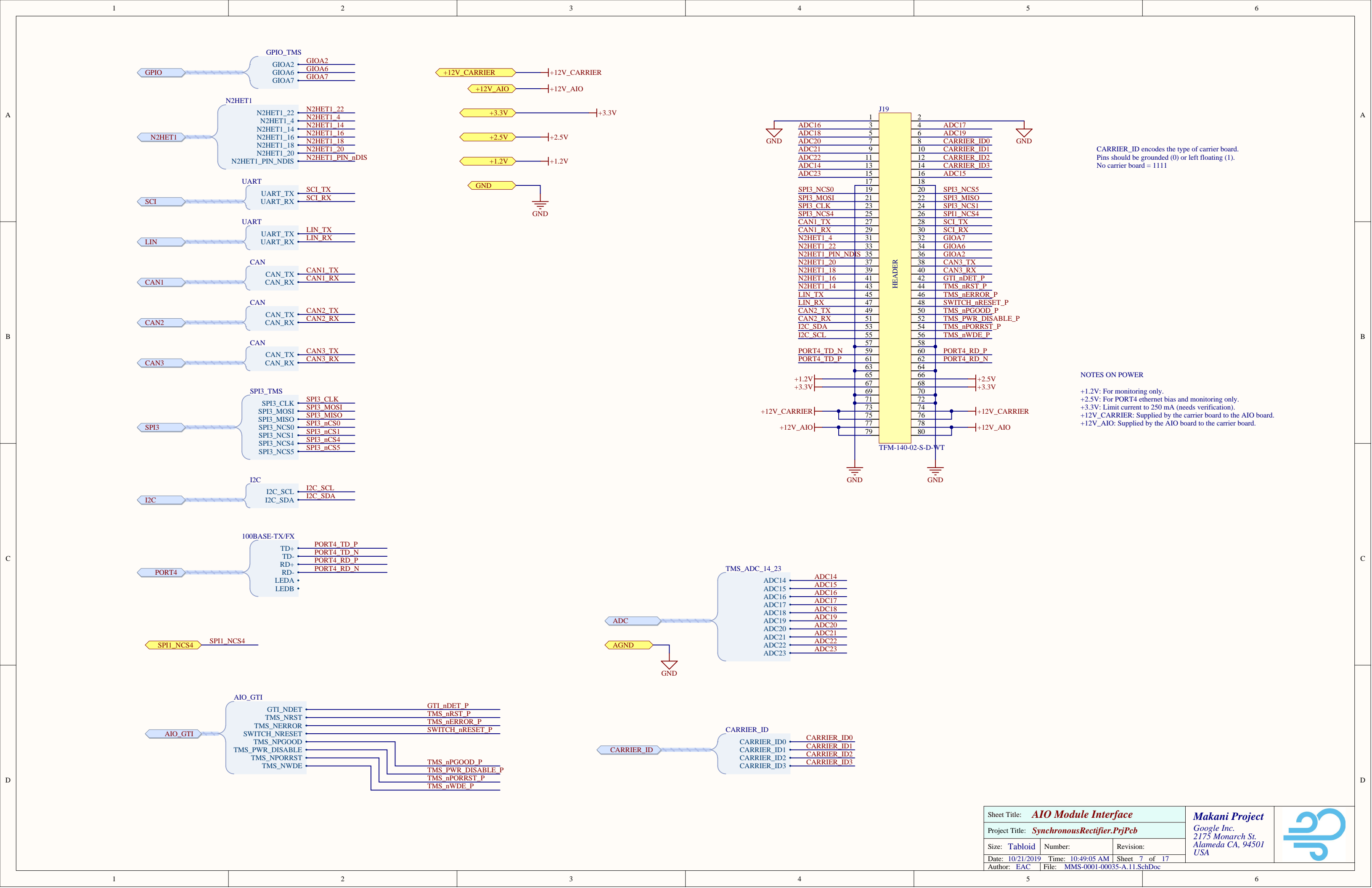




AIO filter: 51 Ohm 1nF, f0 =3.12MHz

10 kOhm 10nF, f0 =1.59kHz

Hall Effect Sensor

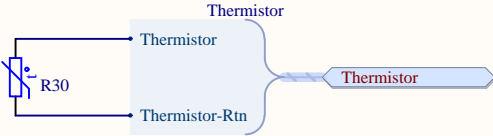
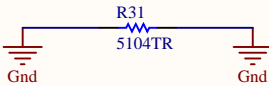
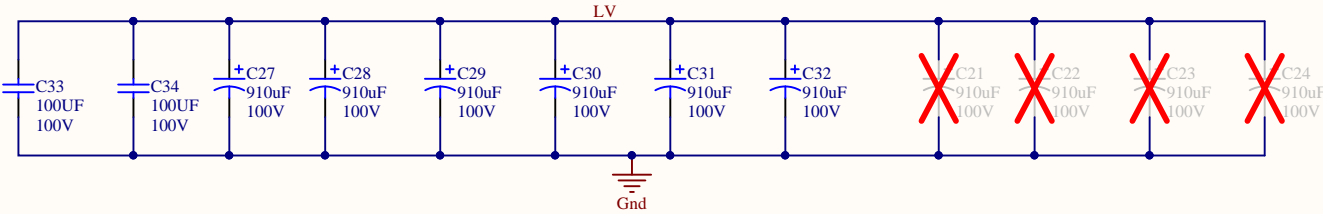


Film Cap 1(R60EW61005000K)
100uF 100V, 37.5mm, 41.50mm x 20.00mm x 41mm, -55°C ~ 105°C, PE&PET, \$12.57

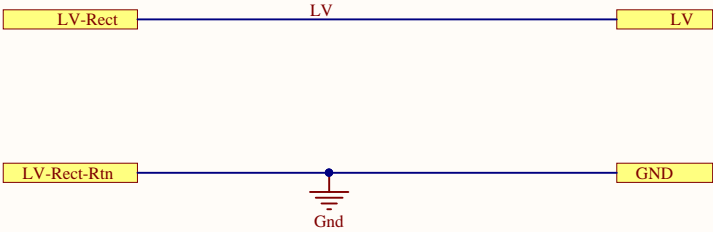
Film Cap 2 (B32526R3686K) CMP-0174-00328-1
68uF 250V, 37.5mm, 28.0mm x 42.5mm x 41.5mm, -55°C ~ 125°C, PE&PET, \$21.03

Film Cap 3(C4ATDBW5600A30J) CMP-0192-00004-2
60uF 250V, 52.5mm, 57.50mm x 35.00mm x 50mm, -40°C ~ 85°C, PP, \$11.17

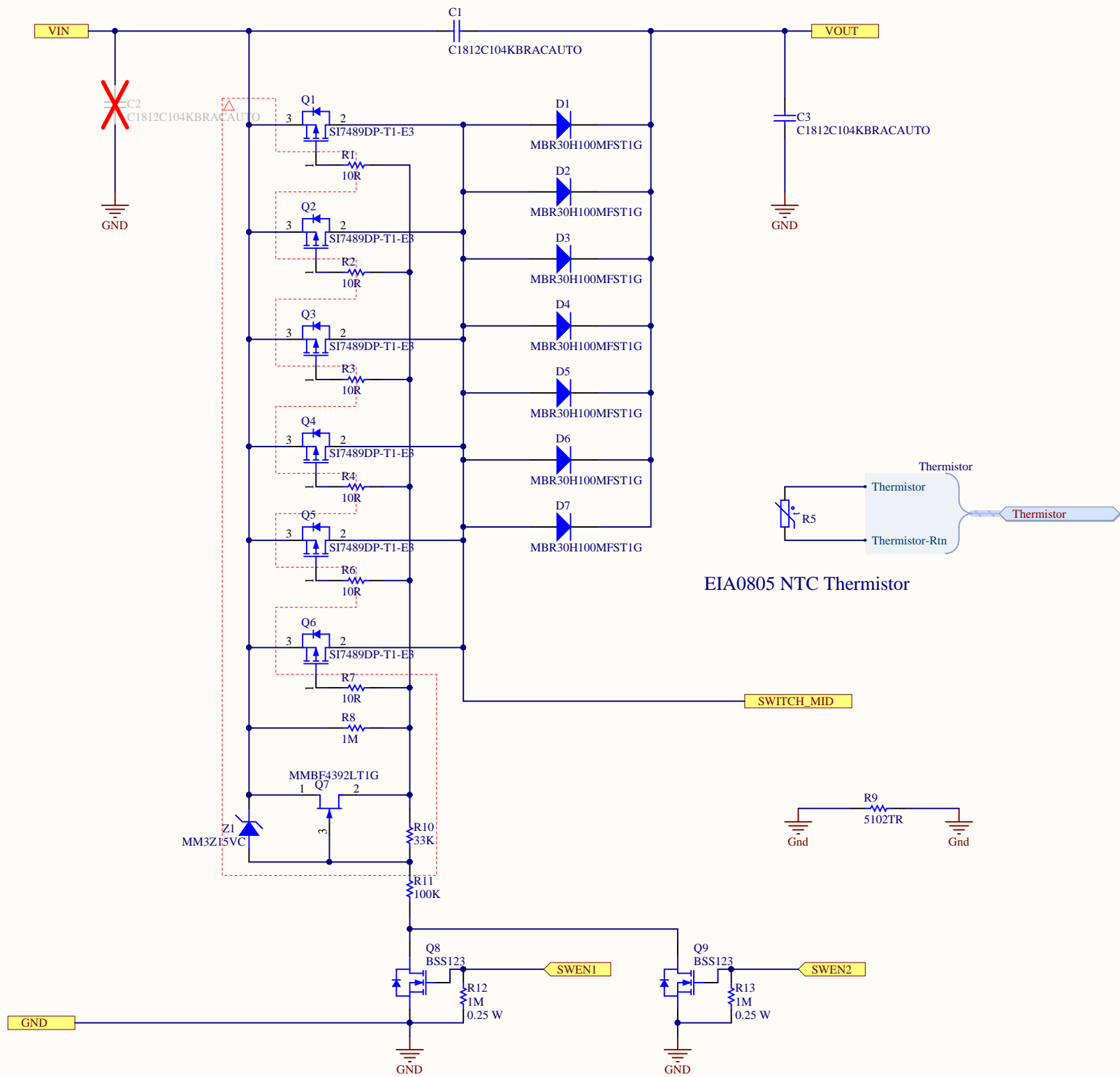
Al Cap (EGPD101ELL911MM40H)
910uF 100V, 7.5mm, 18.0mm x 41.5mm, 2000 Hrs @ 135°C, \$4.51

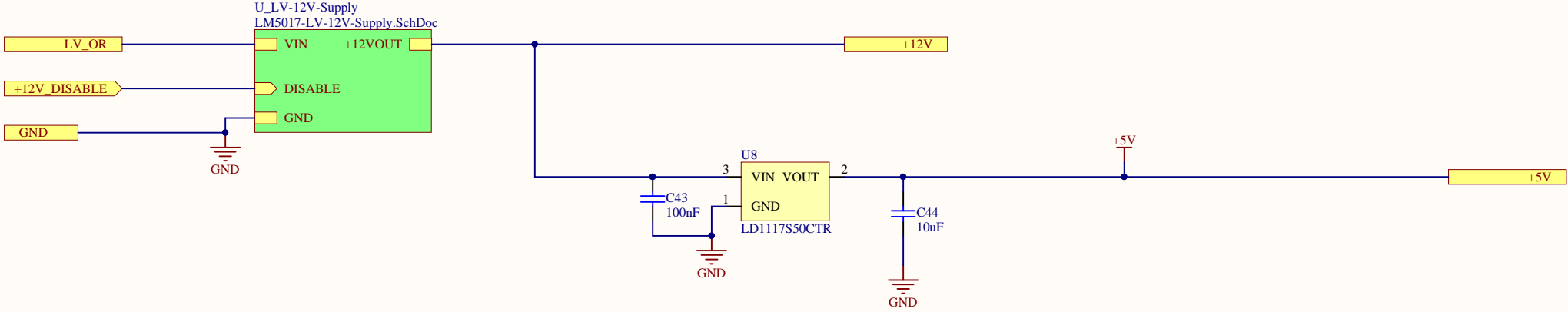


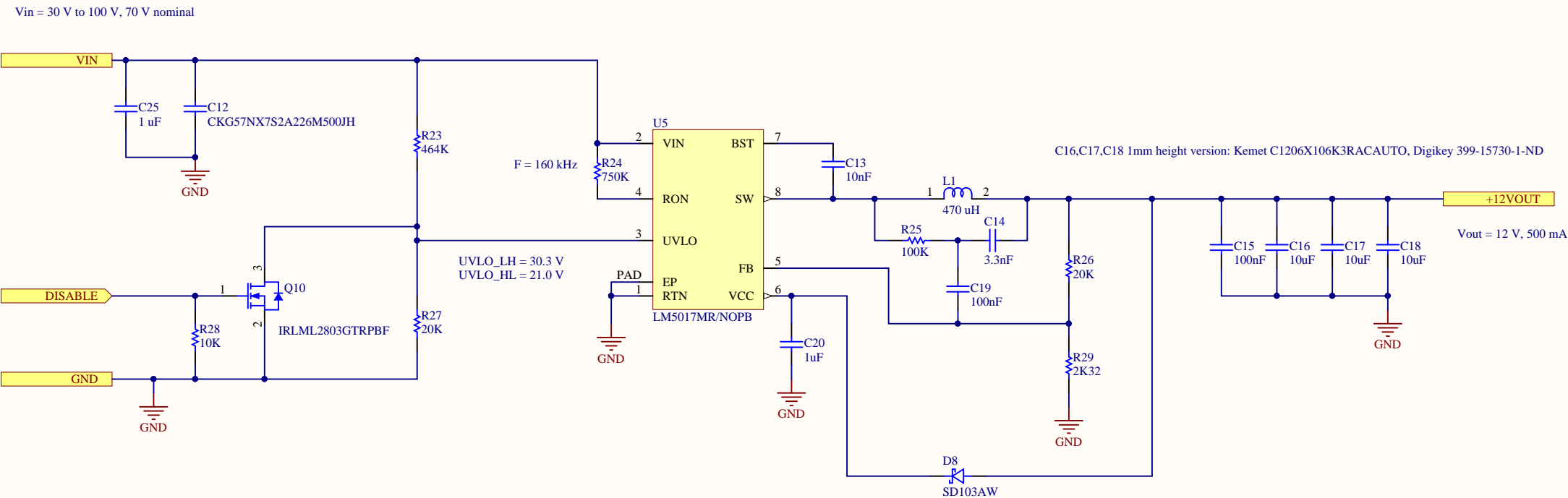
EIA1206 NTC Thermistor



Battery Connection Switch

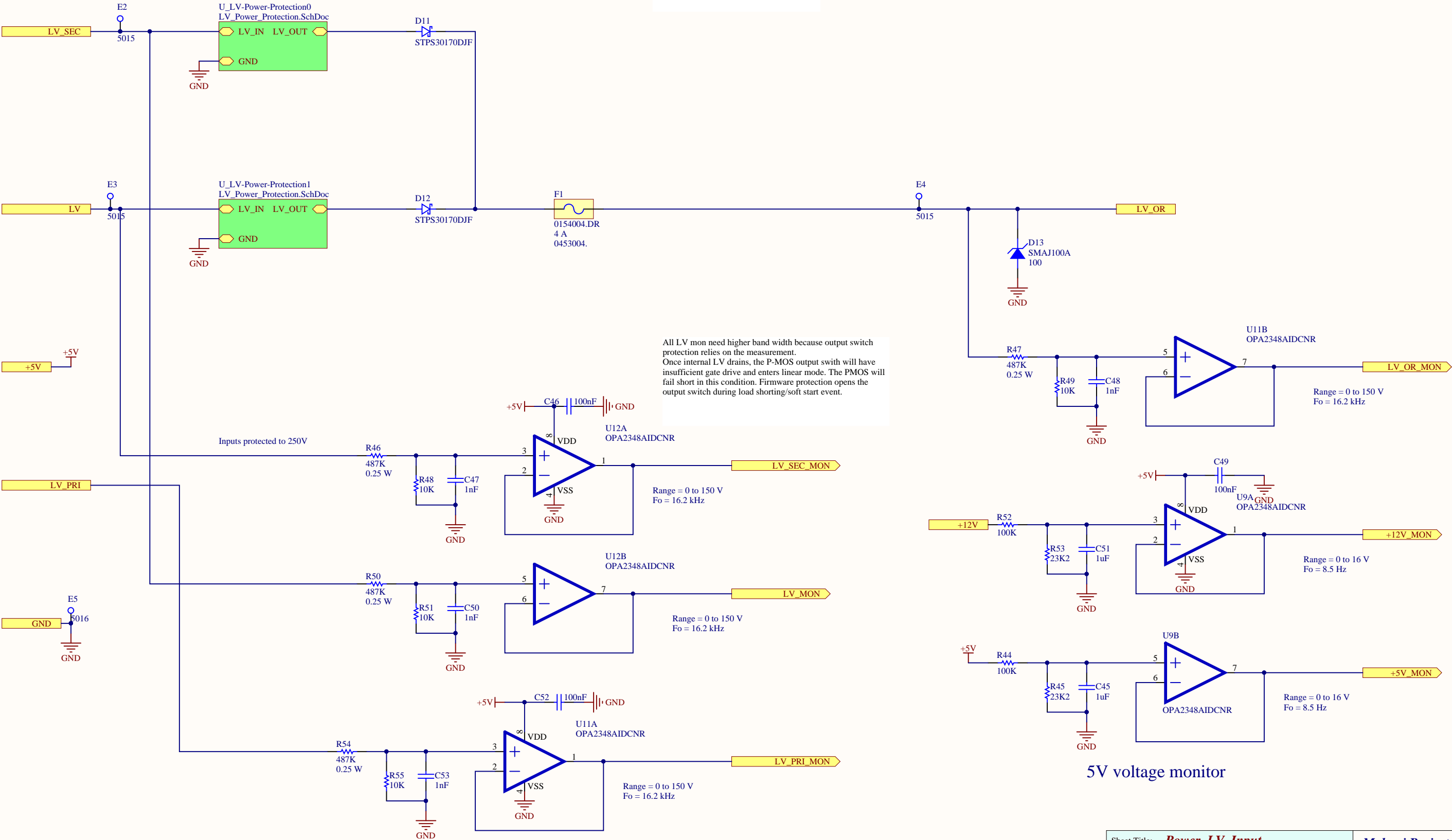






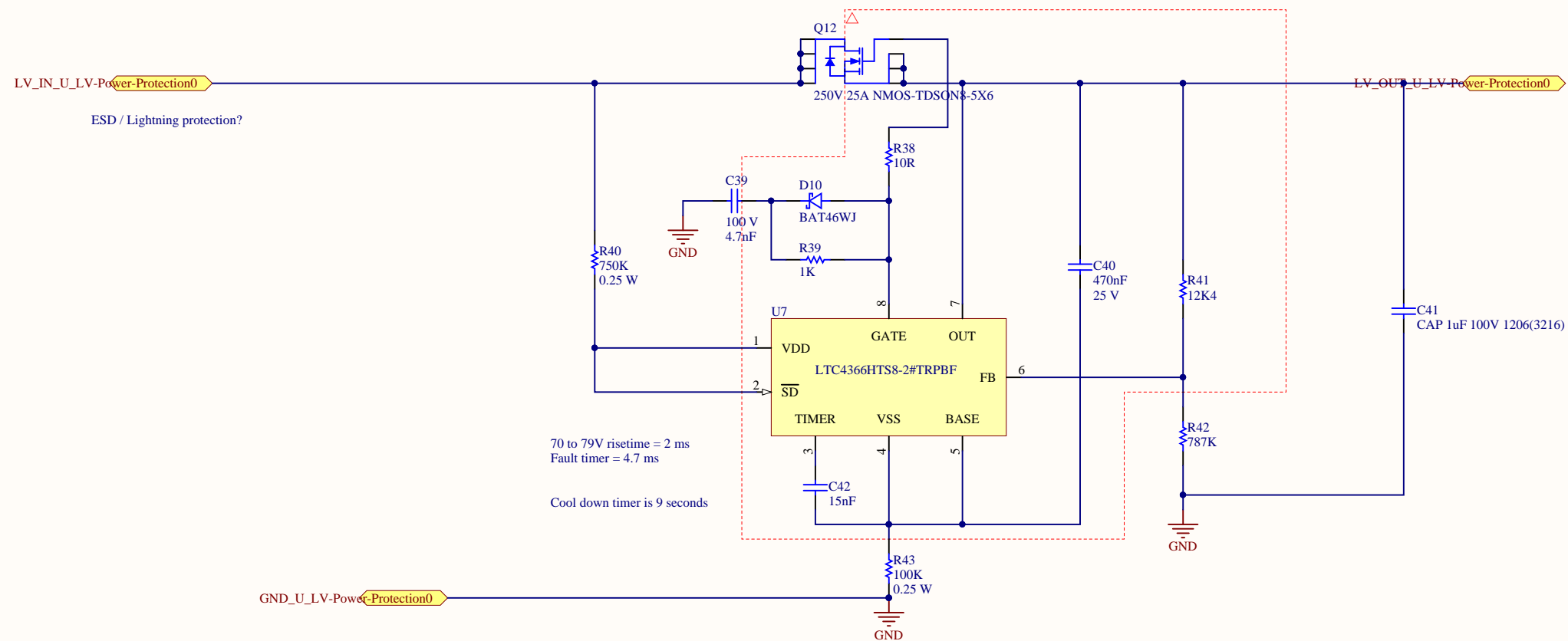
Power LV input:
Modified based on
BMB-AIO-Carrier version AB

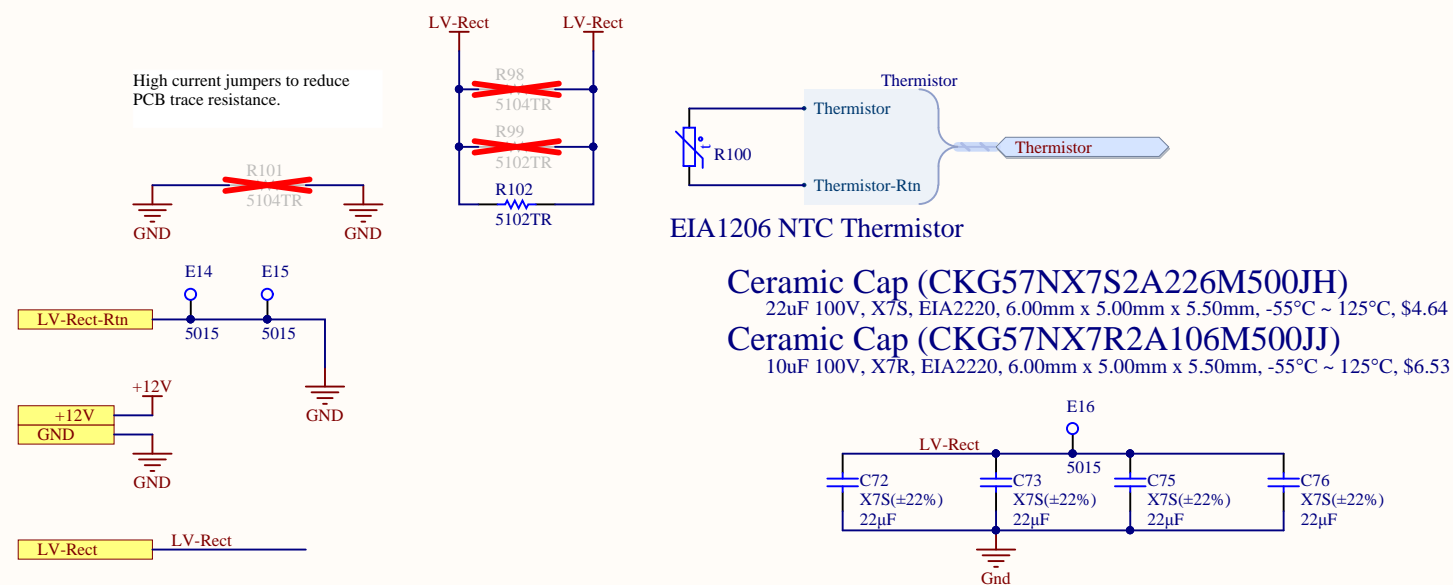
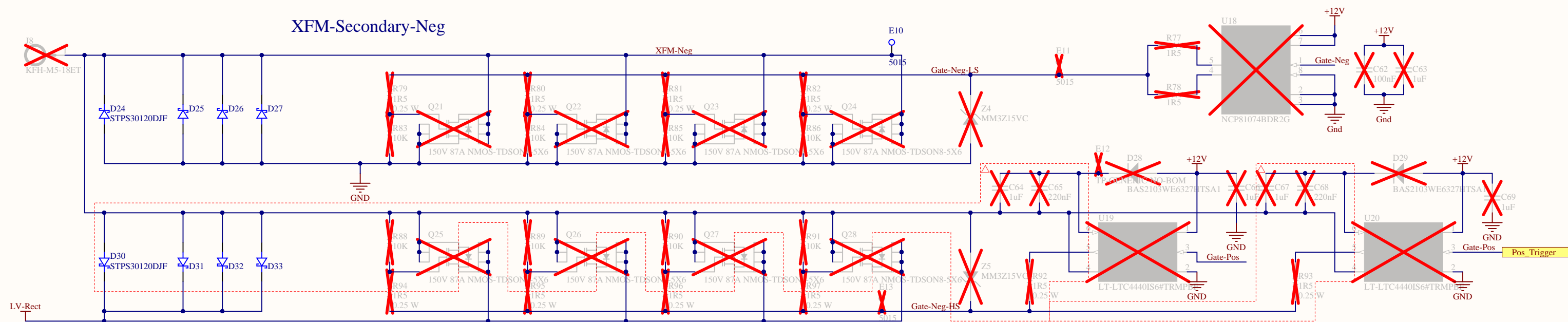
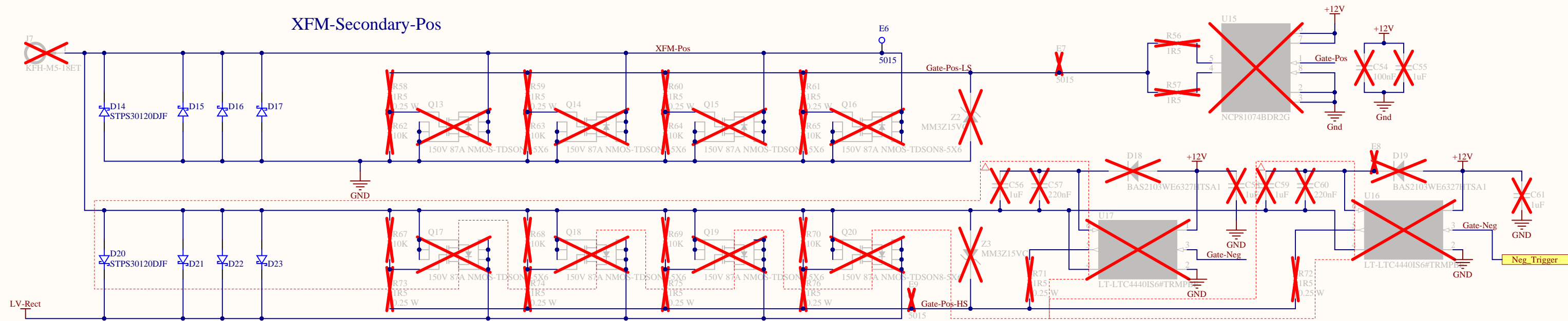
All LV mon need higher band width because output switch protection relies on the measurement. Once internal LV drains, the P-MOS output switch will have insufficient gate drive and enters linear mode. The PMOS will fail short in this condition. Firmware protection opens the output switch during load shorting/soft start event.



Maximum transient overvoltage = 200 V
Maximum continuous voltage = 87.5 V
Minimum voltage = 31 V

Output clamp voltage = 89.2 V (min = 87.5 V, max = 91.0 V)






MOSFET in the design can be replaced by diode (STPS30120DJF) since they have the same footprint. In order to do that, DNP all gate resistors and make the gate pad floating.

MOSFET:
BSC035N10NS5ATMA1
Diode:
STPS30120DJF

High side gate driver:
IRS10752/20752
LTC4440

Sheet Title: <i>MV-LV Sync Rectifier</i>			<i>Makani Project</i> Google Inc. 2175 Monarch St. Alameda, CA 94501 USA	
Project Title: <i>SynchronousRectifier.PrjPcb</i>				
Size: Tabloid	Number:	Revision:		
Date: 10/21/2019	Time: 10:49:06 AM	Sheet 17 of 17		
Author: TT	File: Synchronous-Rectifier.SchDoc			

Thermistor Circuitry

