



Q25056-SCH_revM

M17 SIDE SWEEP BOARD

Rev E - Major CHANGES from Design review.
Precharge to use micro to control.

Rev F - References cleaned up for LAYOUT

Rev G - DIODE added to Pre charge.
changed resistors from 0402 to 0603
changed HIGH current FETs to LOW current FETs
changed JTAG port to smaller version
added a NON-POP cap for possible filtering for Vac Fan
added 2 NON-POP resistors for possible increase in discharge time of BULK CAPS

Rev H - Changed Precharge flyback diode connection to Precharge in.

Rev J - Changed Op-Amps for Vac fan circuits from OPA2727 to LM358D.
OPA2727 were having latch-up issues due to ESD coming from FAN.

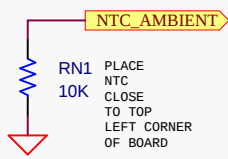
Rev K - Convert to Altium
Cleaned up excessive text notes, removed notes can be found in changelog in SVN
Change CAN chip to CAN FD part
Add bidirectional TVS diode to PRECHARGE_IN at J4
Add output protections to Dust Vac 1 & 2 and Dry Vac circuits
Changes summary:
+C205, C206, C207, C208, C209, C210, C211, C212, C213, C214
+D25, D26, D28, D29, D30
+R238, R249, R250, R251, R252, R253, R254
-C198, CIN3, CIN4

Rev L - Depop & repop components that were missed when converting from OrCAD to Altium for rev K:
Change U4 from Q19064-005 to Q19064-021
Depop C79,C87,C88,C98,C103,C117,C124,C146
Depop C99,C138,C153,C180
Depop C168,C186,C204
Depop R247,R248
Populate R30
Change R238 from Q10012-490 to Q10015-490

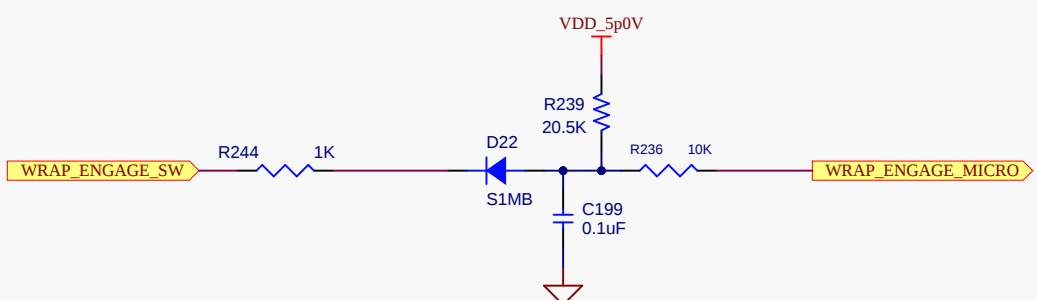
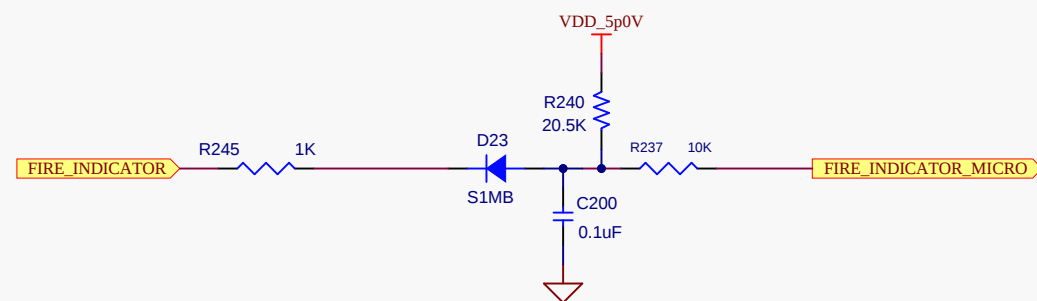
Rev M - Corrected R253 population for SN65HVD vs TJA CAN transceiver variants
Moved R252 and erroneous trace on CAN HI to VIO pin of CAN transceiver

PCB
BOM
Q25056-PCB_revE

FW1
BOM
Q30073-002

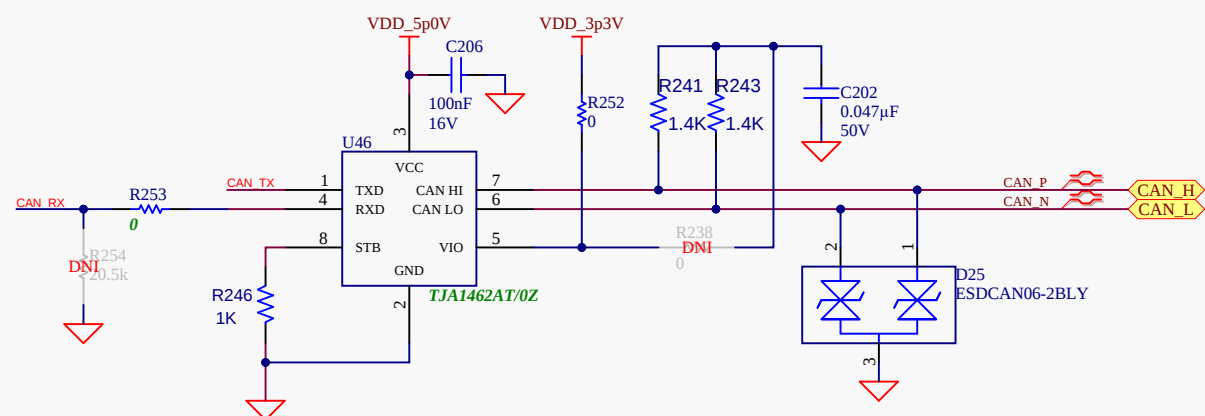


INPUTS

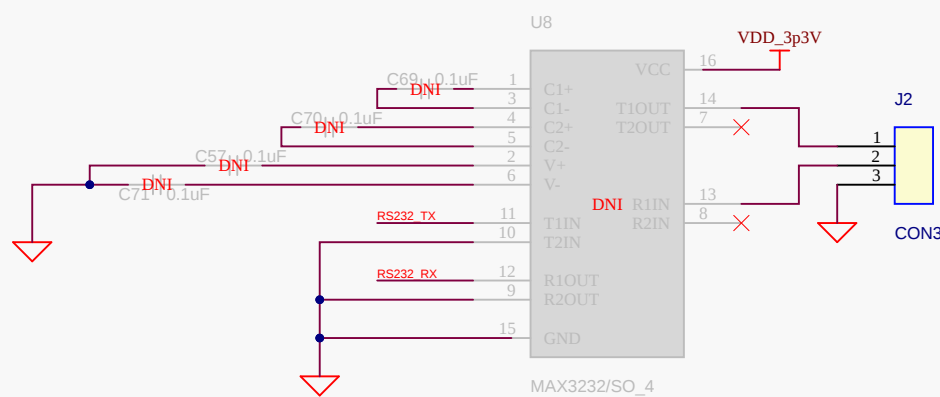


CAN COMMUNICATIONS

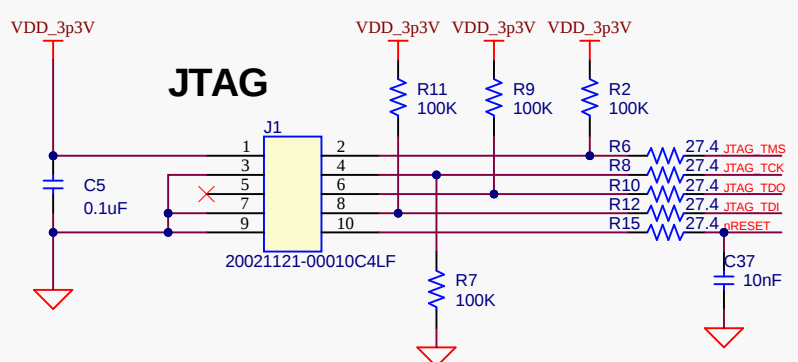
12V Going out the CAN J1-4 powers the User Interface Module



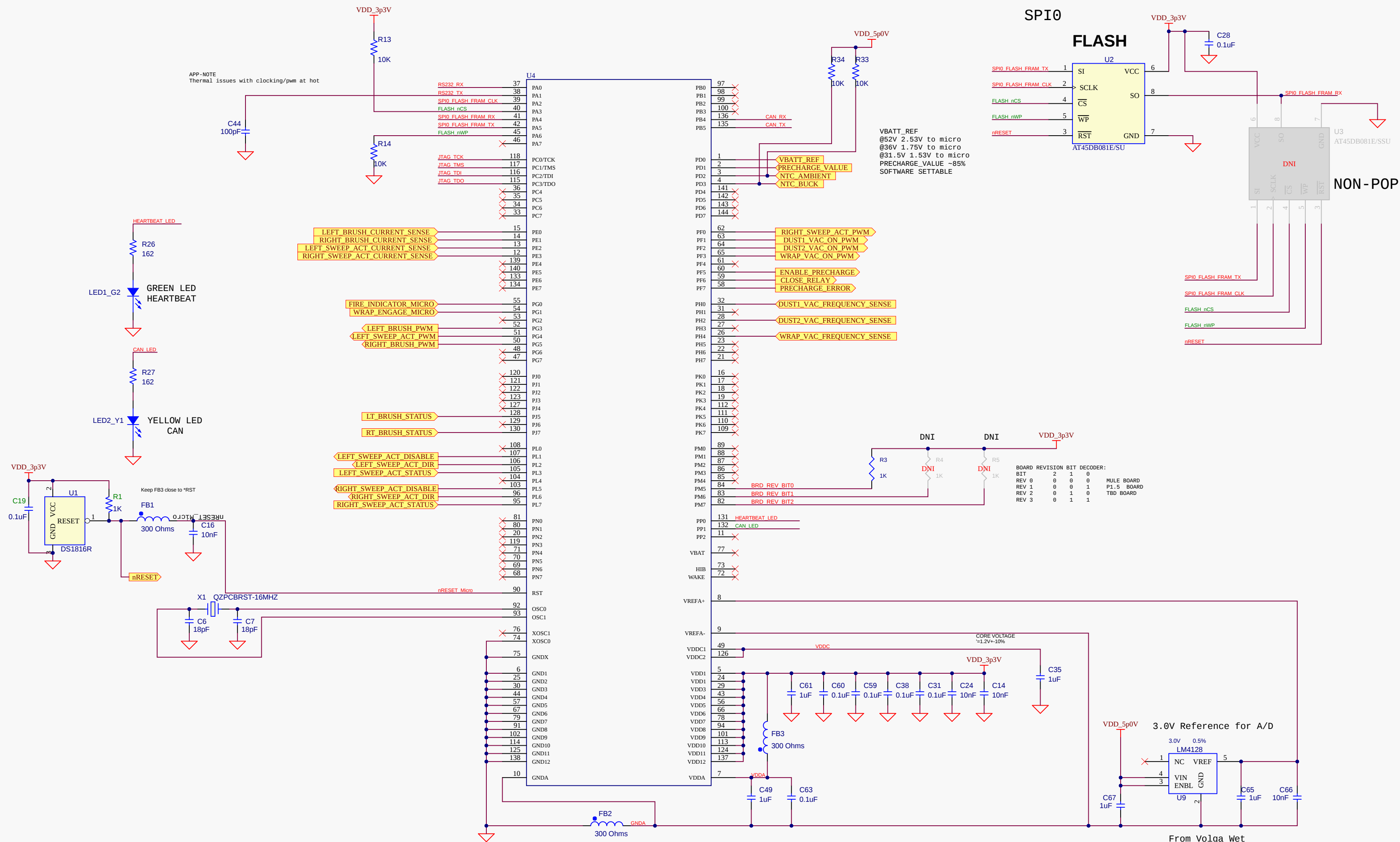
RS-232 SERIAL PORT



JTAG



LIGHTNING SWEEP BOARD MICRO AND COMMUNICATIONS

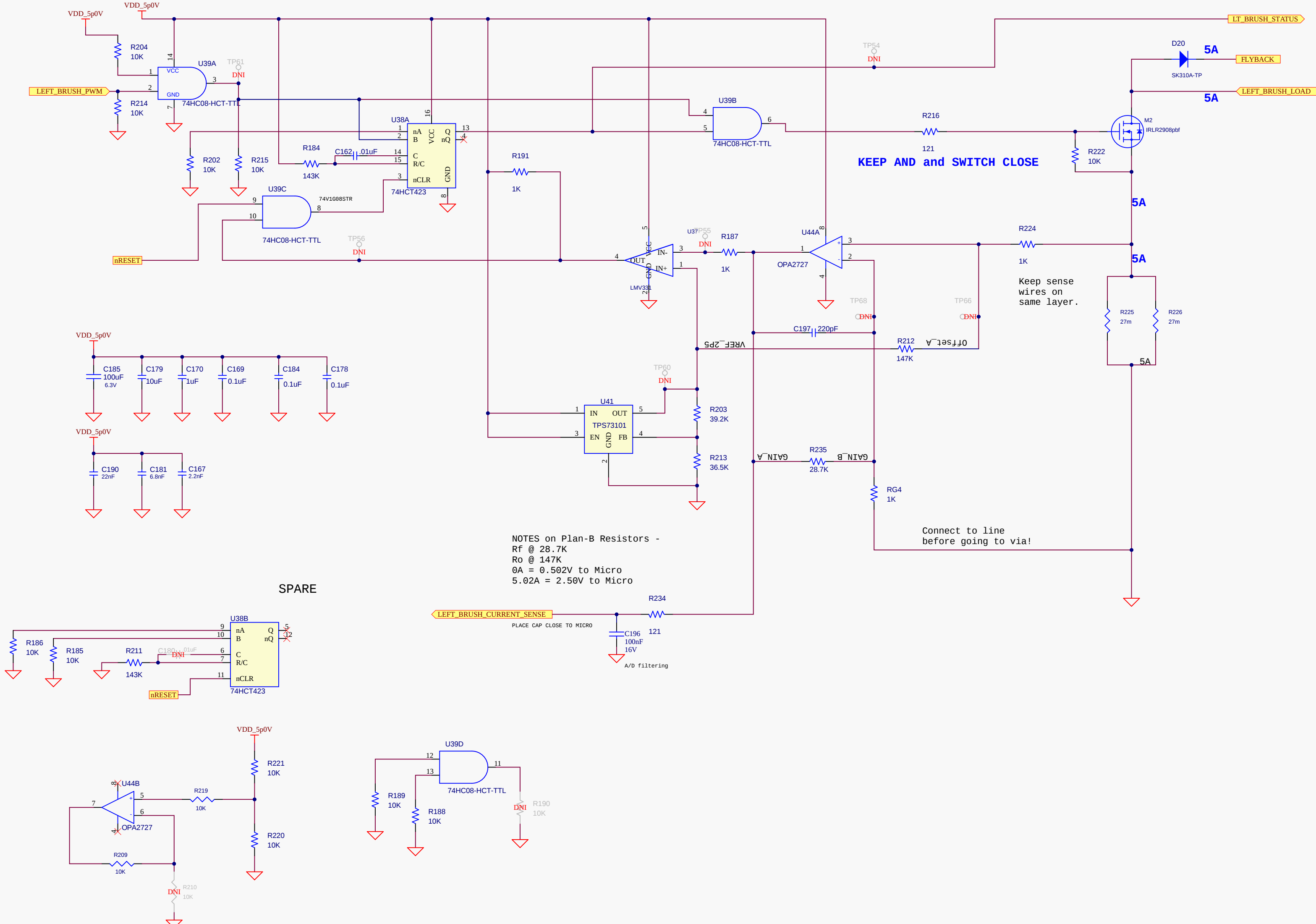


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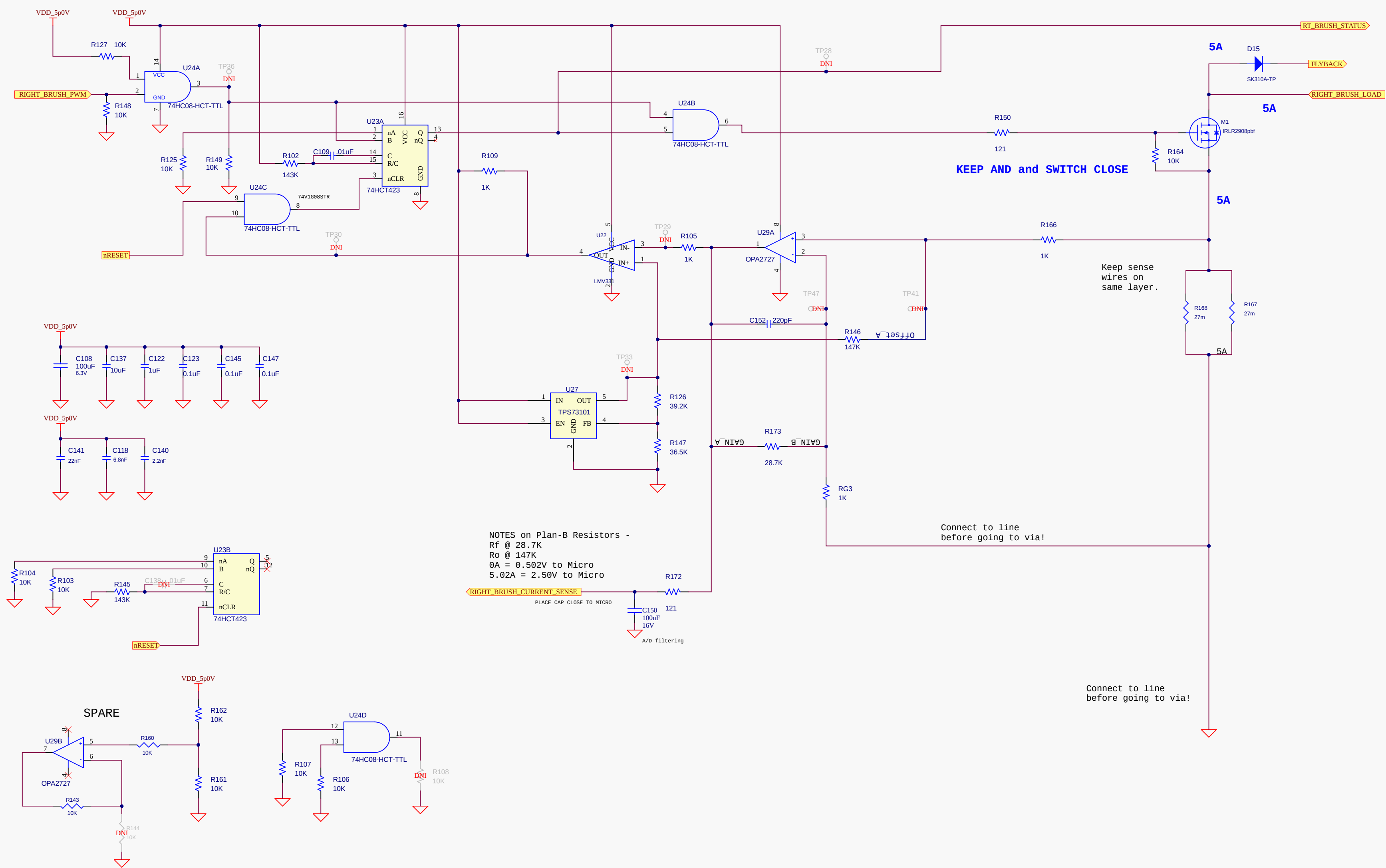


Rev		Title	
M		M17 LIGHTNING: SIDE SWEEP	
Size:		INPUT/OUTPUT PROTECTION UPDATE	
Document Number		Engineer	
Q25056-SCH		A. SMITH	
Date:		12/22/2025	
		Sheet 2 of 10	

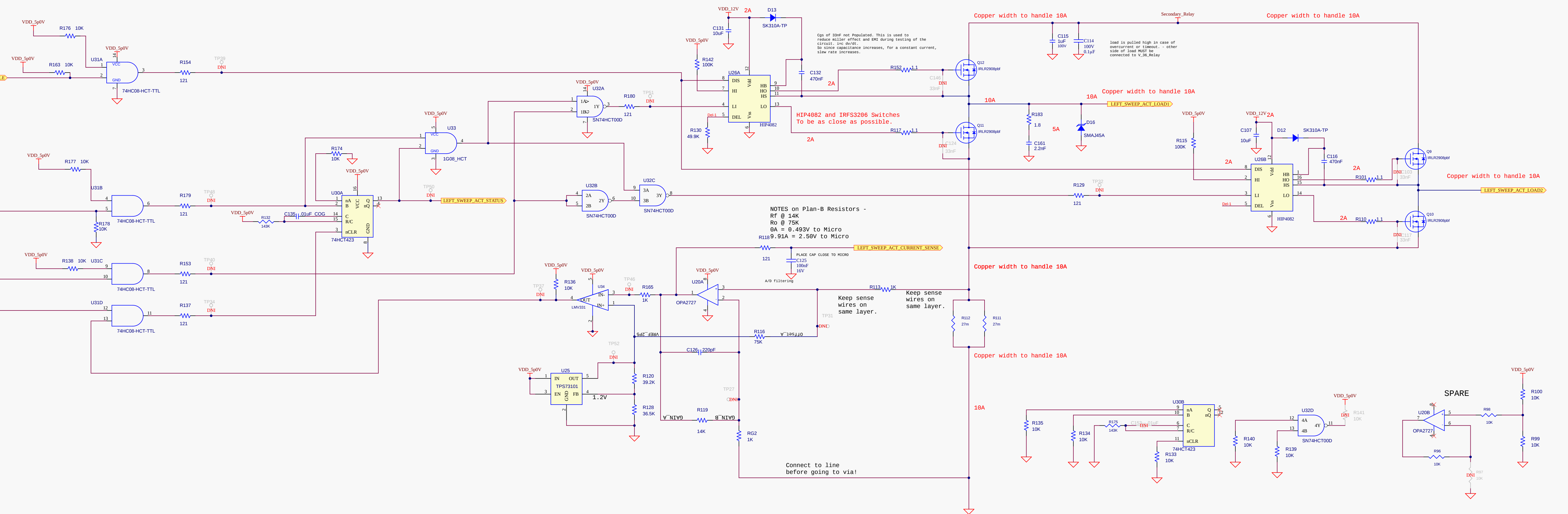
**LIGHTNING
SWEEP BOARD LSDPWM
LEFT BRUSH**



**LIGHTNING
SWEEP BOARD LSDPWM
RIGHT BRUSH**

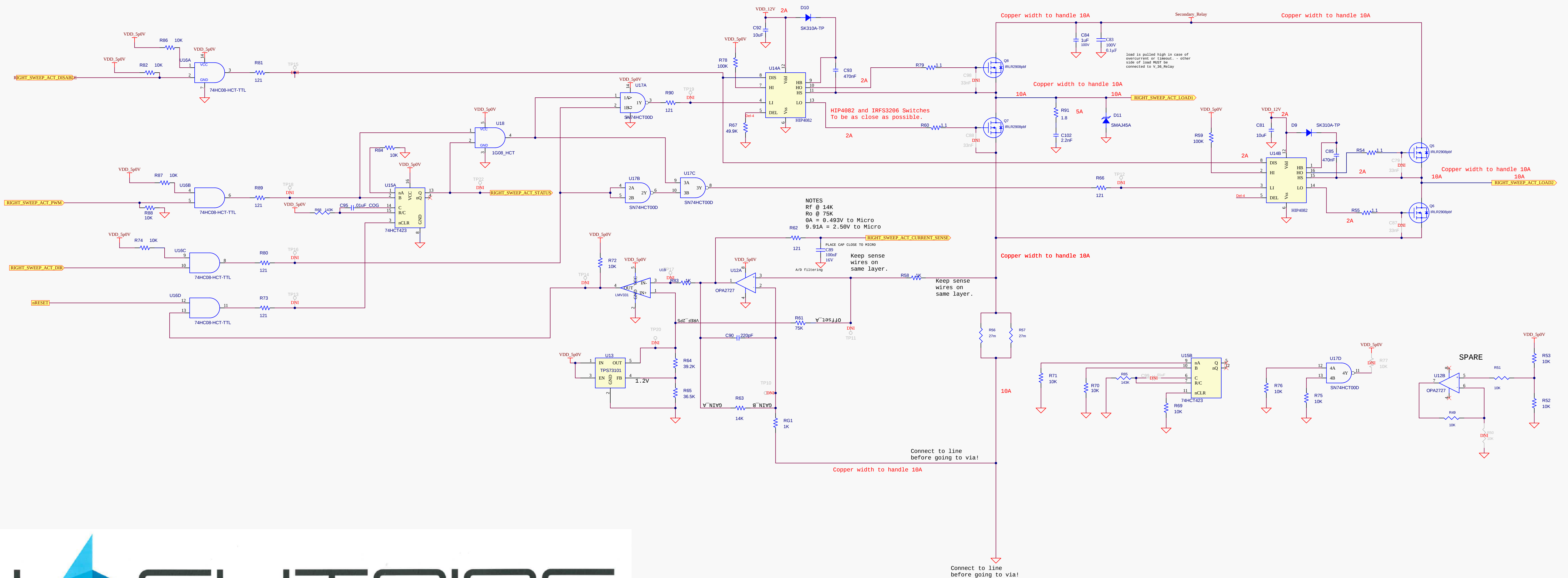
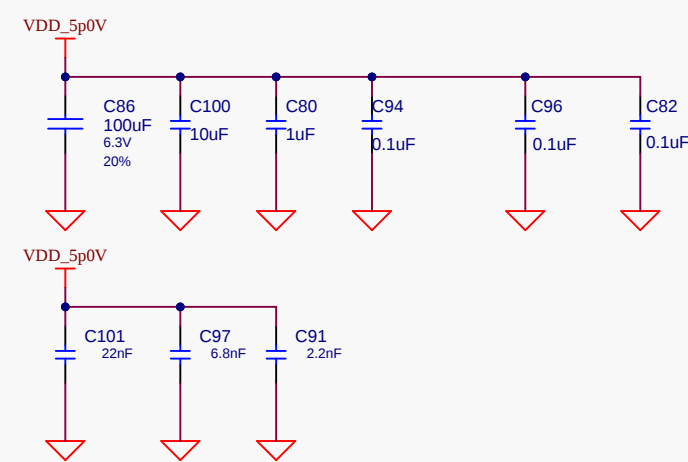


LEFT BRUSH ACT

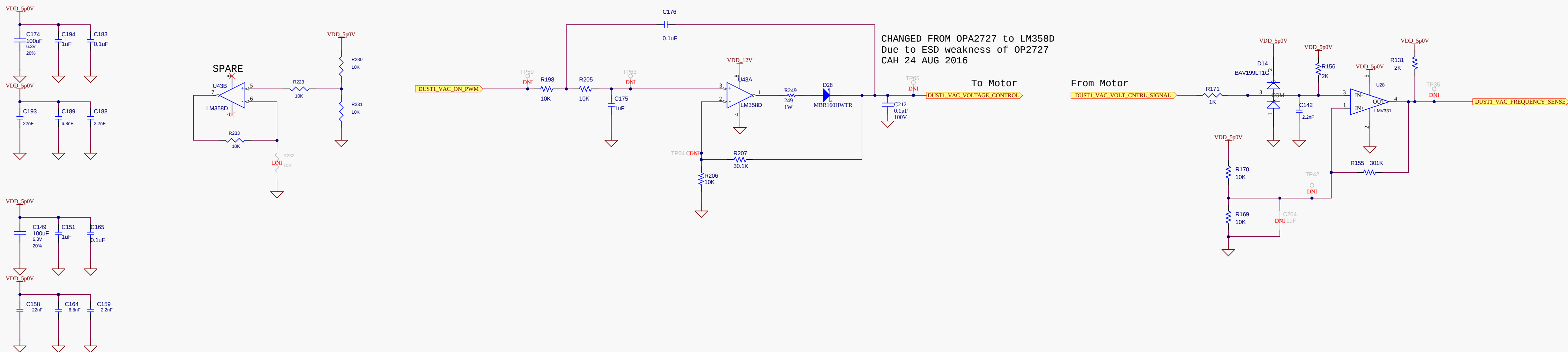


SWEEP BOARD H - BRIDGE

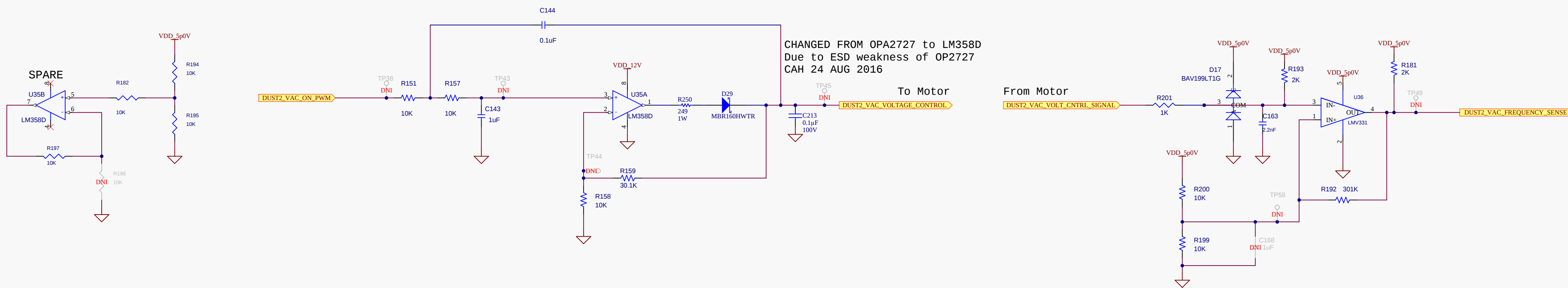
RIGHT BRUSH ACT

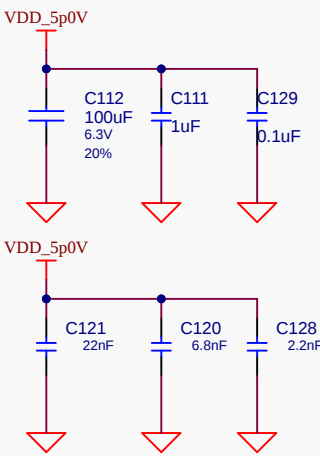


DUST 1 VAC CONTROL & CURRENT MONITOR

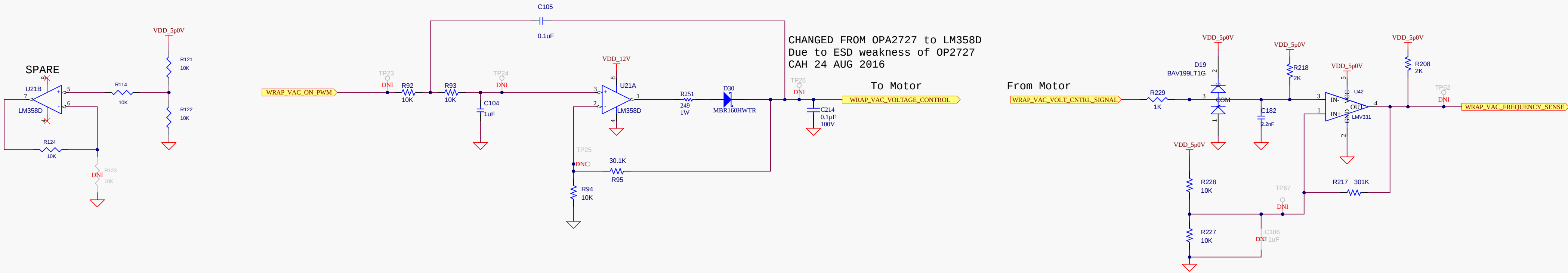


DUST 2 VAC CONTROL & CURRENT MONITOR



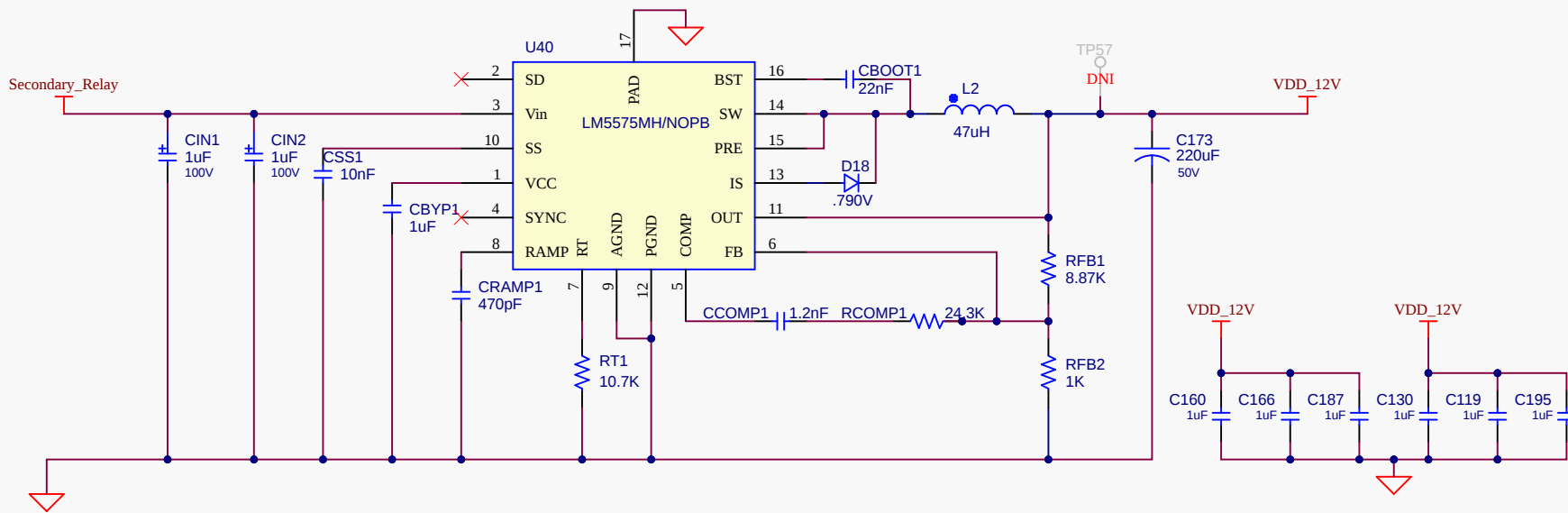


DRY VAC CONTROL

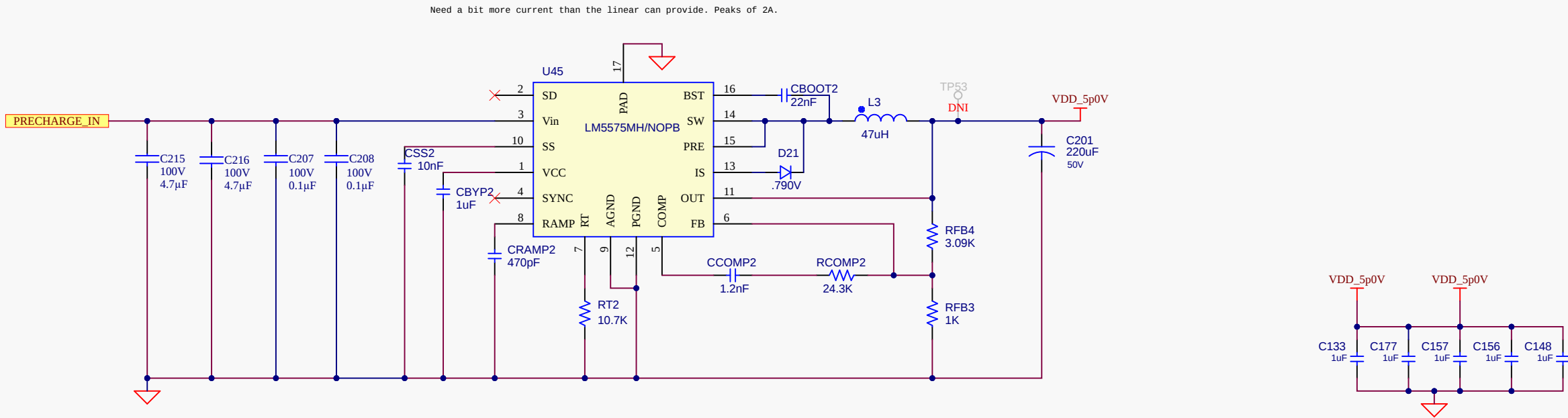


POWER SUPPLIES & CONNECTORS

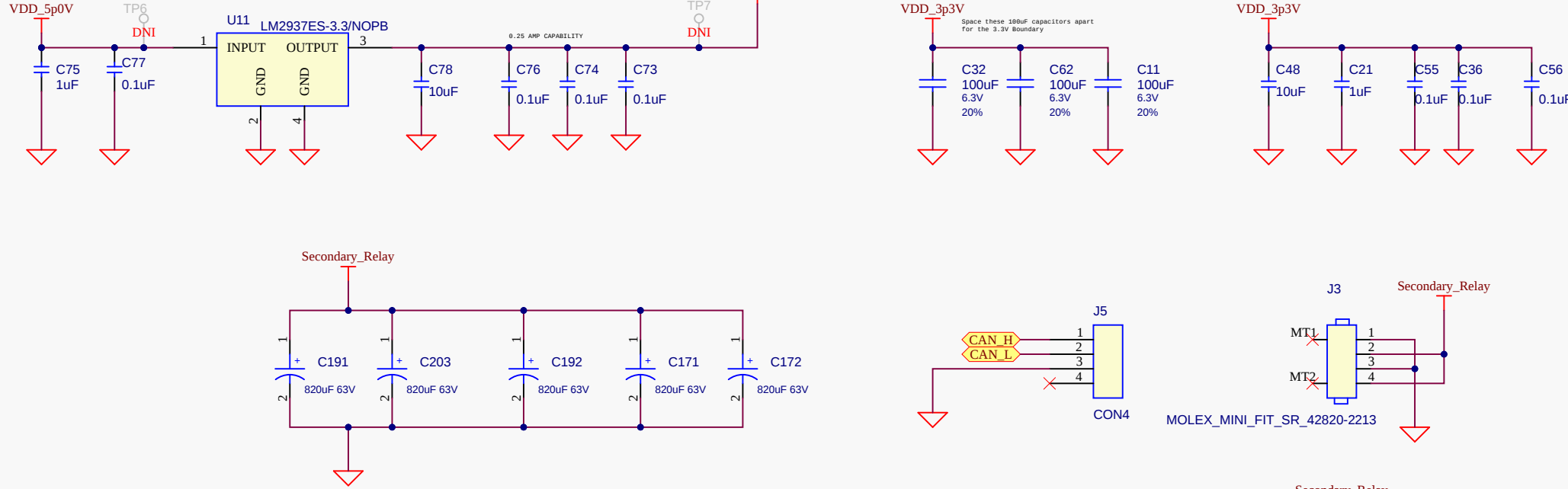
12V



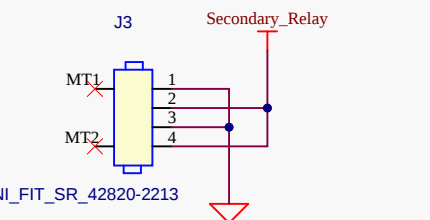
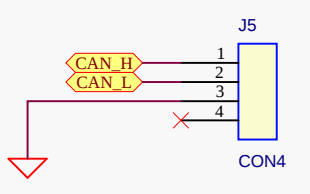
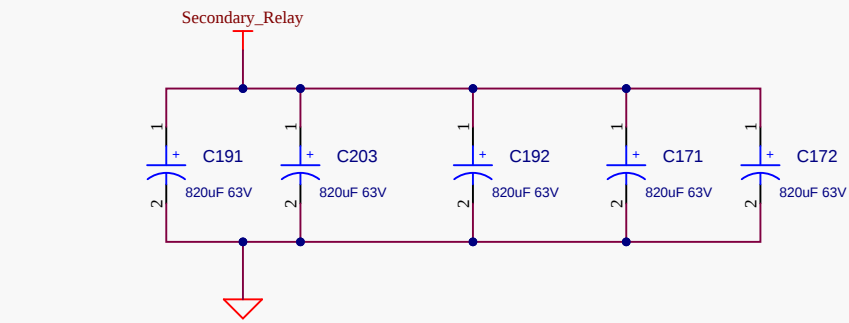
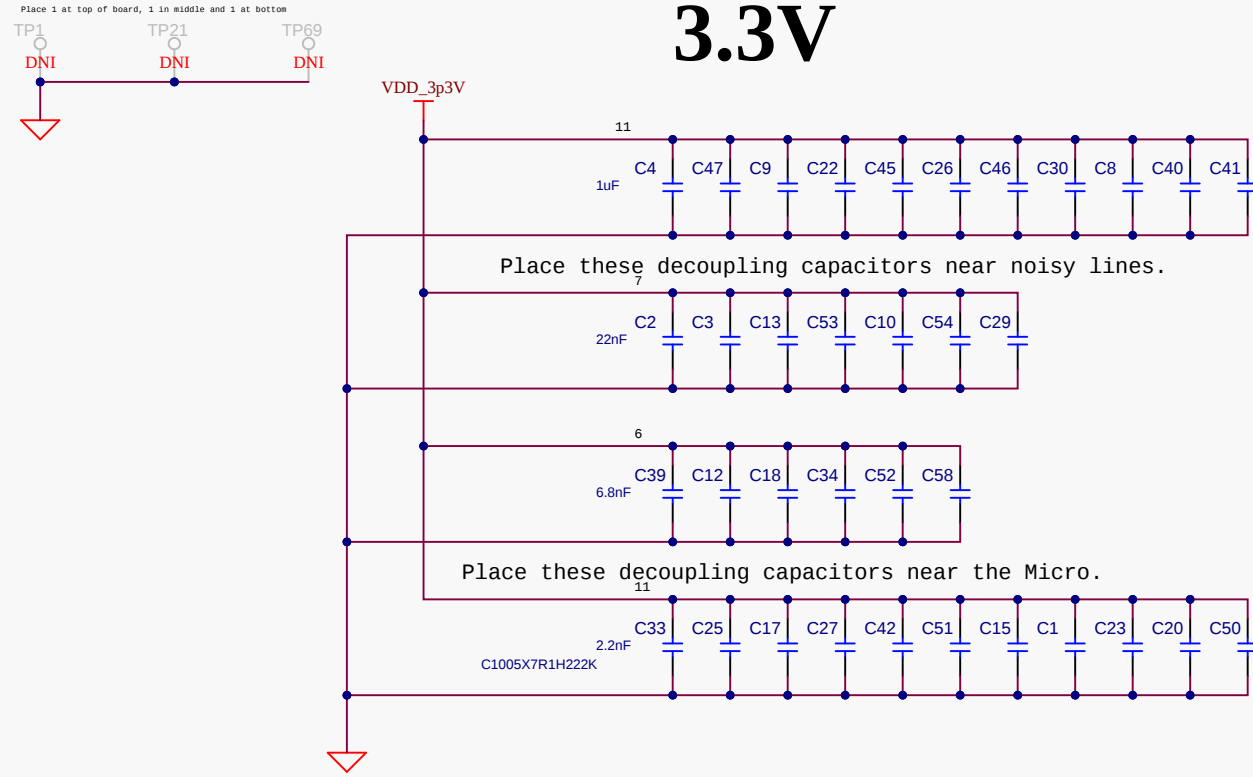
5V



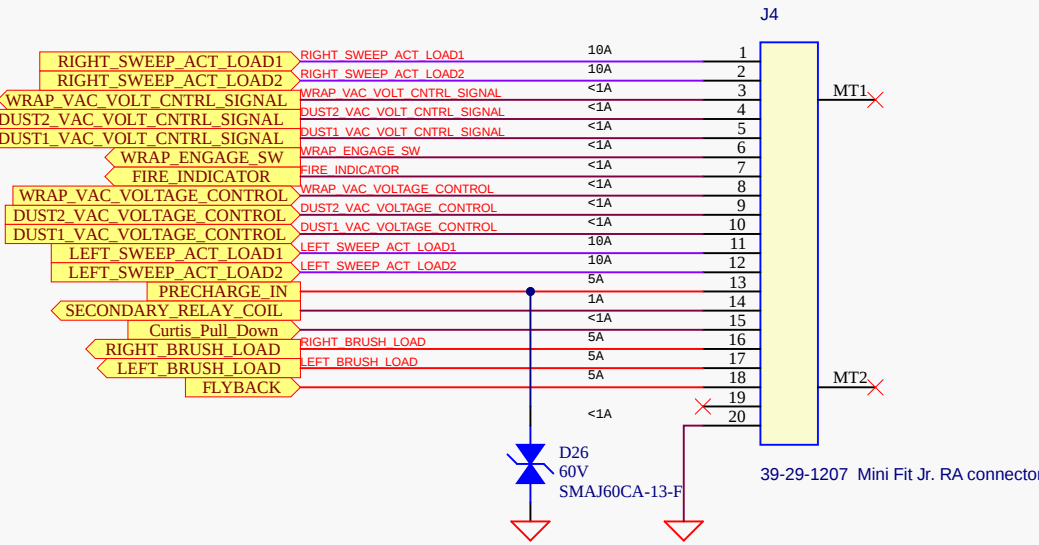
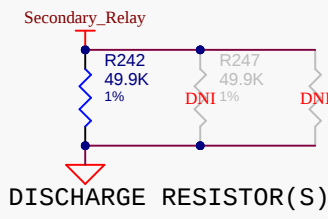
3.3V



3.3V



Resistor to discharge BULK Capacitors



LIGHTNING
SIDE SWEEP BOARD PRE-CHARGE
BUCK

