



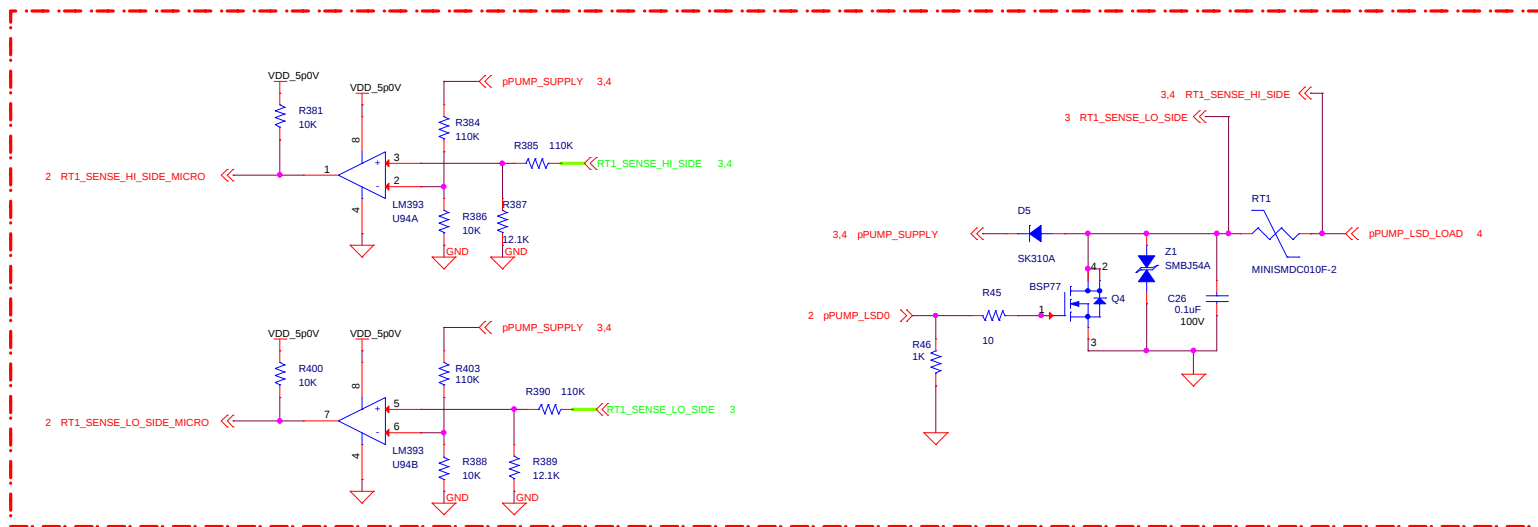
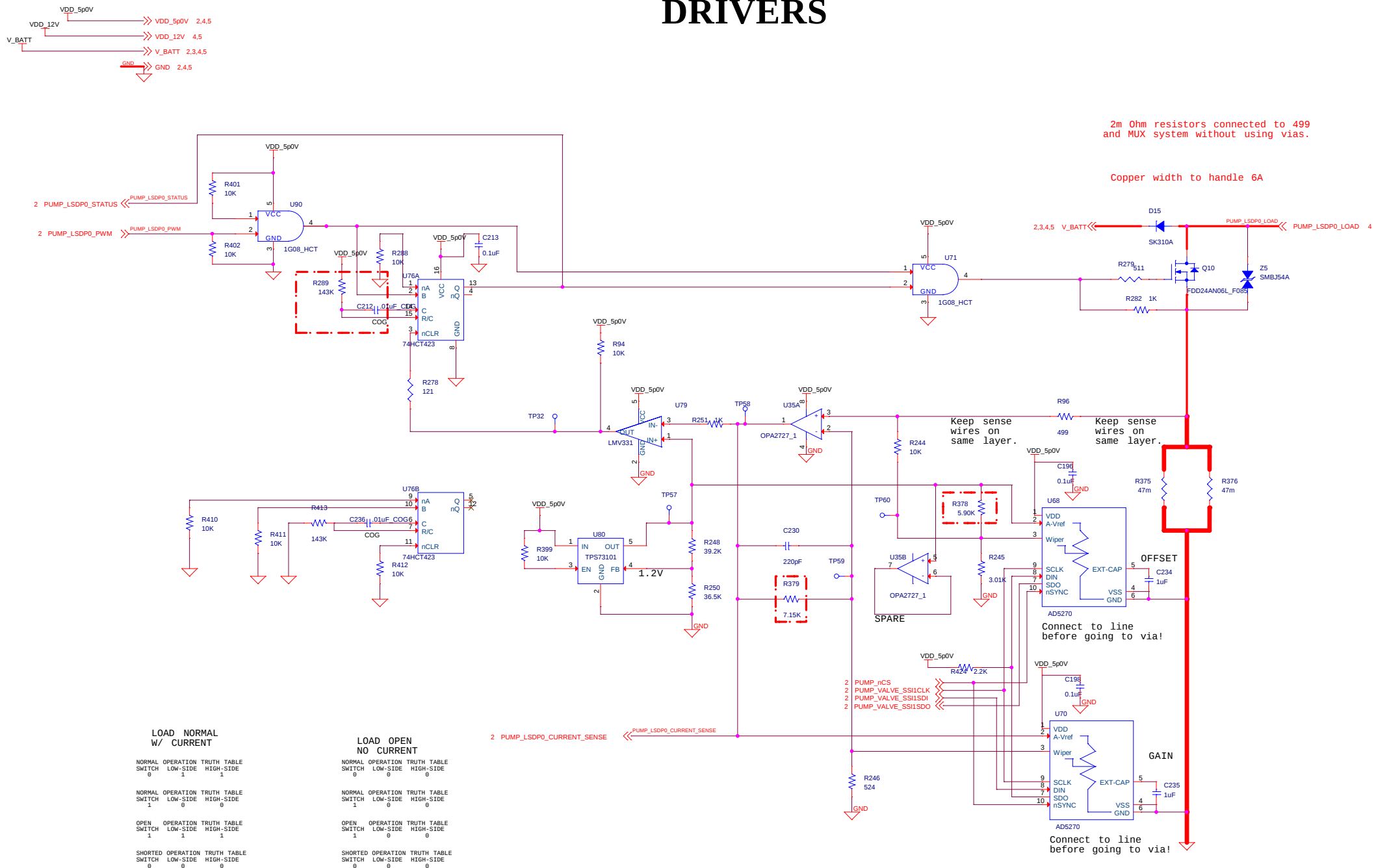
***VOLGA WET NEXT GEN ECH20
MODULE BOARD
Q25053-004***

Changelog:

- Rev B: Removed Injection Pump options.
- Rev C: Added pins for RS232 and help clear up schematic pins for layout.
- Rev D: Removed Capacitors to help balance out VDD_3P3V for layout boundary.
- Rev E: Switched Current shunt resistors to 0.060 value. Offset resistor and Gain resistor changed to 130k and 8.06k (submitted to QPL add on 22 July 2014)
- Rev F: Added Battery Level sense adjusted resistors for LEDs and use 0 ohm resistors as voltage select for Pump. Used 0.5% ref for A/D
Changed LED resistors to balance color brightness for Membrane Blue (86.6 --> 243 ohms). Green (1k --> 100 ohms)
Changed Mode Detect circuit to allow system to function from 52V to 20V
Added 1k ohm 1206 resistors to prevent ESD damage on inputs of pins.
Red Boxes added to help layout see changes immediately.
Quickturns of Board: Q25053-002
- Rev G: Added dual comparator for new pPUMP circuit.
Removed Valve circuit.
Non-pop digital pots and added resistors.
Removed RS485 communications.
Added Shokkey Diode to block path through MUX from CAN when system is charging.
Removed U28 ESD chip.
Quickturns of Board: Q25053-003
- Rev H: Removed MUX and added circuitry to utilize the CAN Silent pin. Also have put the LED circuitry on the CAN bus with blocking diodes to prevent issues. NO POP RS232 Circuitry
- Rev I: Rev (EYE) skipped because I looks like lowercase "L"
- Rev J: Revoved Decoupling Capacitors that couldn't fit due to crowding.
- Rev K: Change to gain resistors for current measurement and control. CAH (2/15/2017)

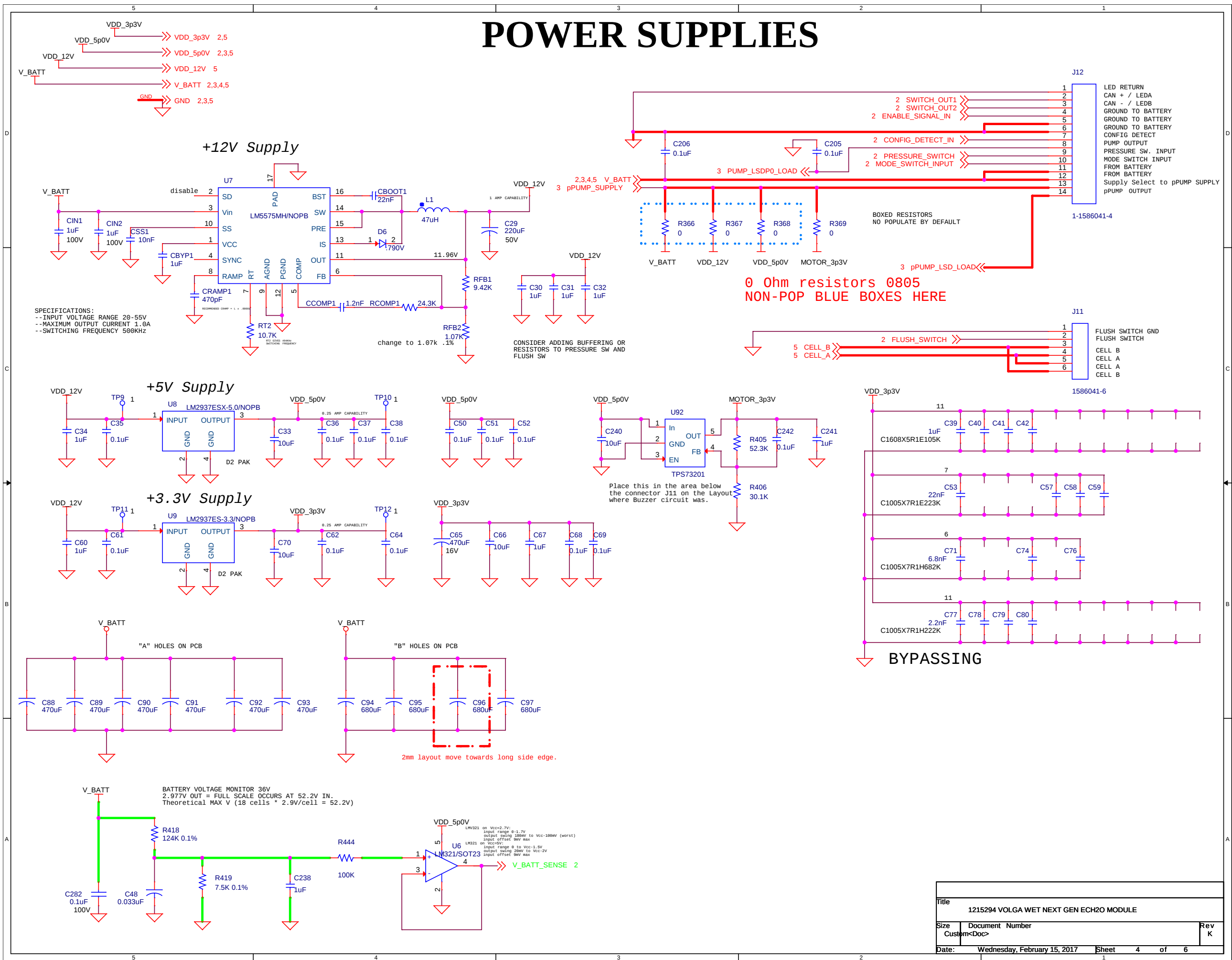
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DRIVERS



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POWER SUPPLIES



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LAYOUT NOTES

- 1) J12 & TPD4E001 Need to be close.
- 2) J10 Copied from VW ECH20 and has special placement on Layout!
- 3) Do NOT via between current sense resistors and Op amps on page 5.
- 4) RS232 set to POPULATE
- 5) RS485 set to NO-POPULATE
- 6) Capacitors C88,C89,C90,C91,C92,C93 are ONE option. C94,C95,C96,C97 are another option. These capacitor groups can OVER LAP!

Red Boxes added to help layout see changes immediately.

Corrections

- 1) RS232 set to POPULATE (Will Zanto)
- 2) RS485 set to NO-POPULATE (Will Zanto)
- 3) CAN_SELECT connected to PE7 (Nathan Meyers)
- 4) LED_SELECT connected to PJ4 (Nathan Meyers)
- 5) Remove Populate text from RTC/Battery Back-up (Tim Lambrix)
- 6) Removed the Injection Pump options
- 7) Added missing RS232 pins to Micro
- 8) Connected VALVE_LSDP1_LOAD to Drain of Q28
- 9) Removed capacitors that don't fit in the VDD_3P3V boundary

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