



MONACO Scrub Controller Board

Q26024-001

Changelog:
Original Boards.

REV A--Initial send to layout.
REV B--Fix overlap connection page 8.
--BOM correction J8.
--Add D33, invert sense on power good ckt.
--Add U63,U64,U65 to hold off drivers when keyswitch off.
--Mule board as implemented.
REV C--Add clamps to current references D34,D35,D36.
--Delete U5, use spare section of U11.
REV D--Add FRAM
--Add LEDs
--P1 board as implemented.
REV E--Add .01uF cap to JTAG_RESET for noise suppression.
--Run 3.0V_REF out to deterg pot.
--C181 case style changed from SMT to radial leaded.
--Eliminate U56, U60 level shifters from cell modem.
--Adjust L5in circuits page 2 to pass ESD.
--Add pressure sensor.
--Change R311 to 20.5K.
--Improve accuracy of Vref to A/D.
--Add D9 and remove power source selection resistor jumpers on page 3.
--Add R293 to give higher current options on water pump driver LSD.
--Add C58, C107 in I-drive enable ckt to help RF immunity.
--Eliminate C117, C15 extraneous bypass caps.
--Change accelerometer to SPI interface FXL8471Q. Delete R174,R175, move 3 analog inputs.
--P1.5 boards as released.
REV F--Add current shunt amplifier.
--Edit populate properties to seperate proto with or without telemetry.
--P2 boards as released.
REV G--Merge bus +3.3V_SW back with bus +3.3V
--Change all diodes pin numbering so pin1 is cathode.
--Change resistor pulldowns to 100K to work better at temp<85C: R46,R207,R254,R260,R274
REV H--
--Add U69 to keep I-drive enable off if keyswitch is off.
--Change R214 to 0.1 Ohm to set current limit at 2A for chem pump.
REV I--PP boards.
--Change name of signal BATTERY_LEVEL_SWITCH to ACTUATOR_MIDDLE_SWITCH.
--Add cell modem mounting standoffs.
REV J--PP boards.
--Change R27 to 0 Ohm.

REV K--Add assembly test points to schematic

Changelog:
ZANDER COST REDUCTION boards.
--Change offset voltage in half and full bridges to 0.35V.
--Add optional cheap reset IC.
--Eliminate cell modem buffers.
--Delete inductors and asymmetrical gate drive in half and full bridges.
--Add no-actuator version.

Changelog:
ZANDER COST REDUCTION boards.

MONACCO - VARIATION OF ZANDER.
Everything With Telemetry
Everything Without Telemetry

(REFERENCE ONLY) PCA VARIANTS: 1225593

TELEMETRY 4G NA VERSION 1247672
TELEMETRY 4G NA VERSION 1261067

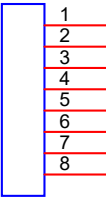
LAYOUT FEATURES: TELEMETRY 3G EMEA VERSION 1225594
TELEMETRY 4G EMEA VERSION 1261077

CORNER MOUNTING HOLES

MH1 MH4 MH5 MH2 MH3



HEATSINK MOUNTING HOLES



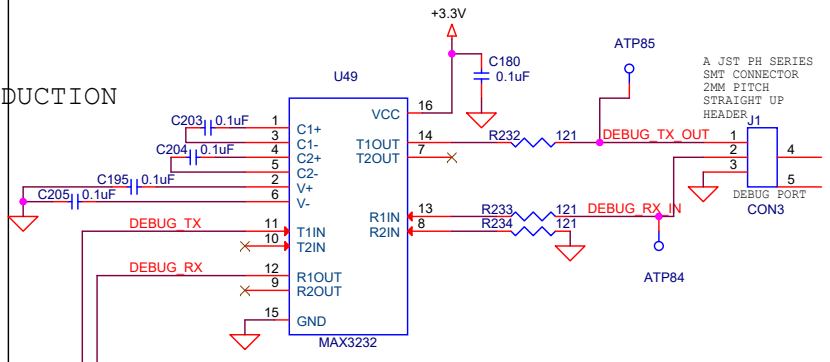
PCB Q25069-004

SCHEMATIC Q26021-001

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T300 T350 MONACO SCRUB BOARD		
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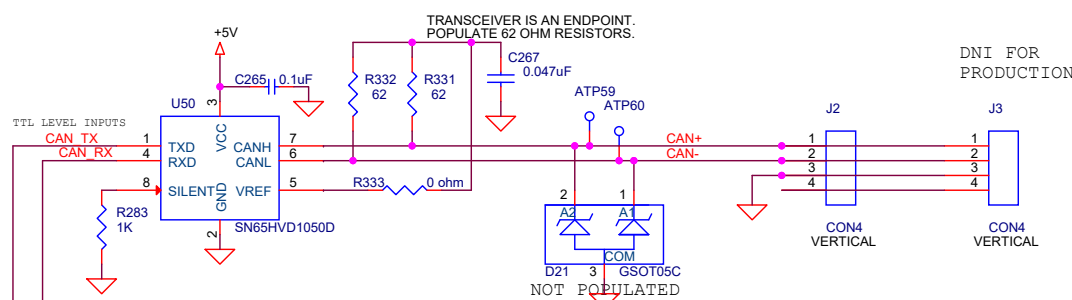
RS-232 SERIAL PORT

DNI FOR PRODUCTION

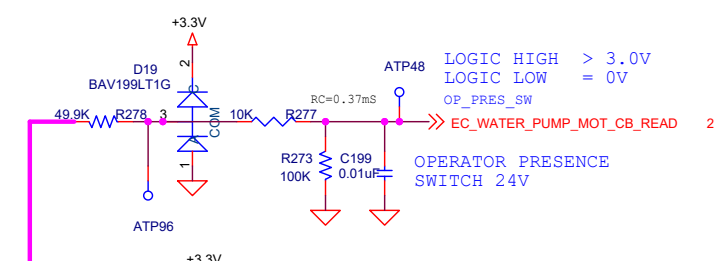


CAN INTERFACE

ELECTROSTATIC DISCHARGE PROTECTION
One operating frame+14 temperature range
PARAMETER TEST CONDITIONS Value
ESD Contact Discharge IEC 61000-4-2 Bus terminals vs GND ±4 kV All pins ±4 kV
Human Body Model (HBM) Standard 22, Test Method A114C.01 Bus terminals vs GND ±4 kV All pins ±4 kV
Field-Induced-Charged Device Model (FICD) Standard 22, Test Method C101 All pins ±1.5 kV
Machine Model (MM) IEC61000-4-3 1500 V



DNI FOR PRODUCTION

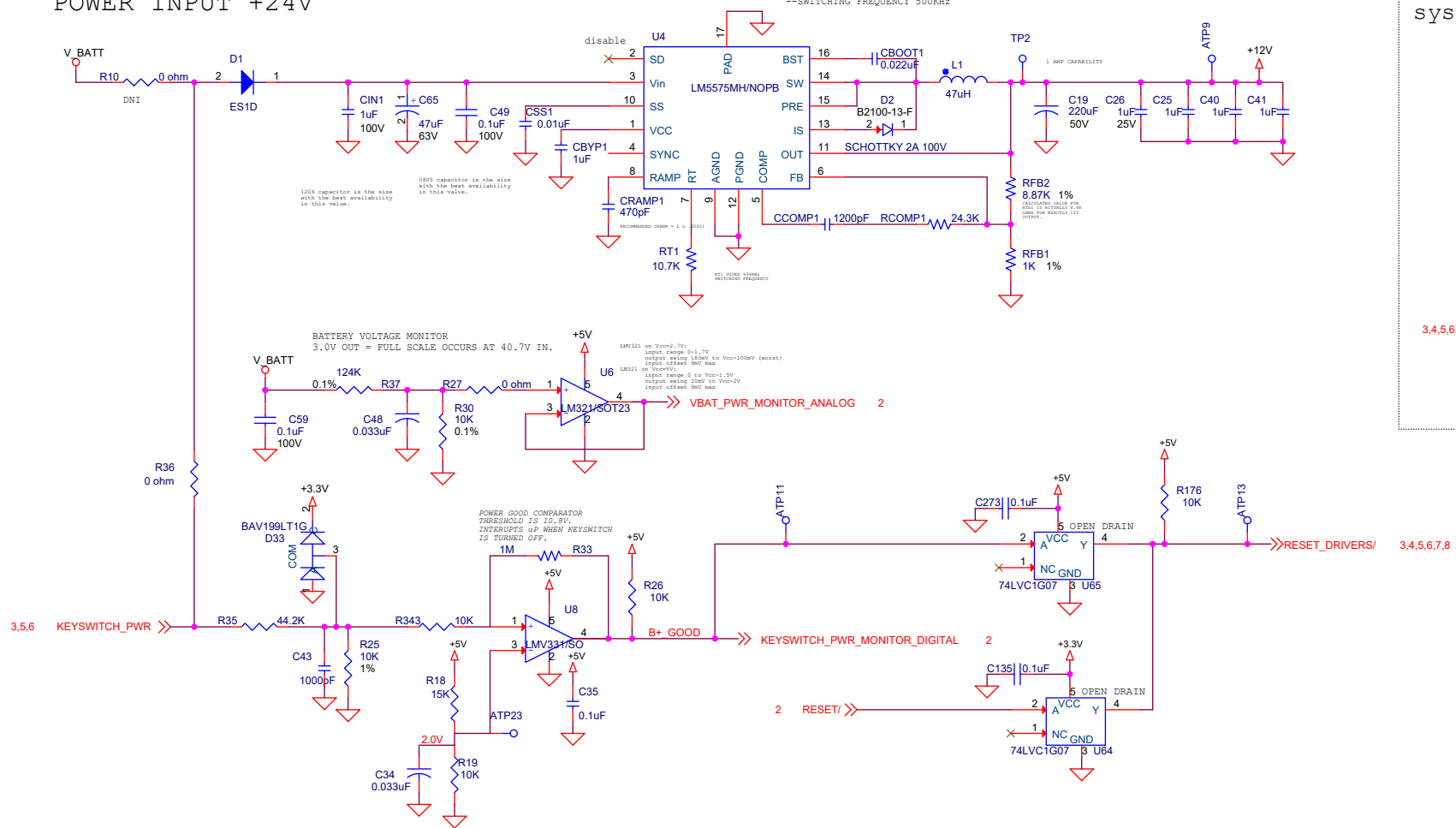


Power Supplies

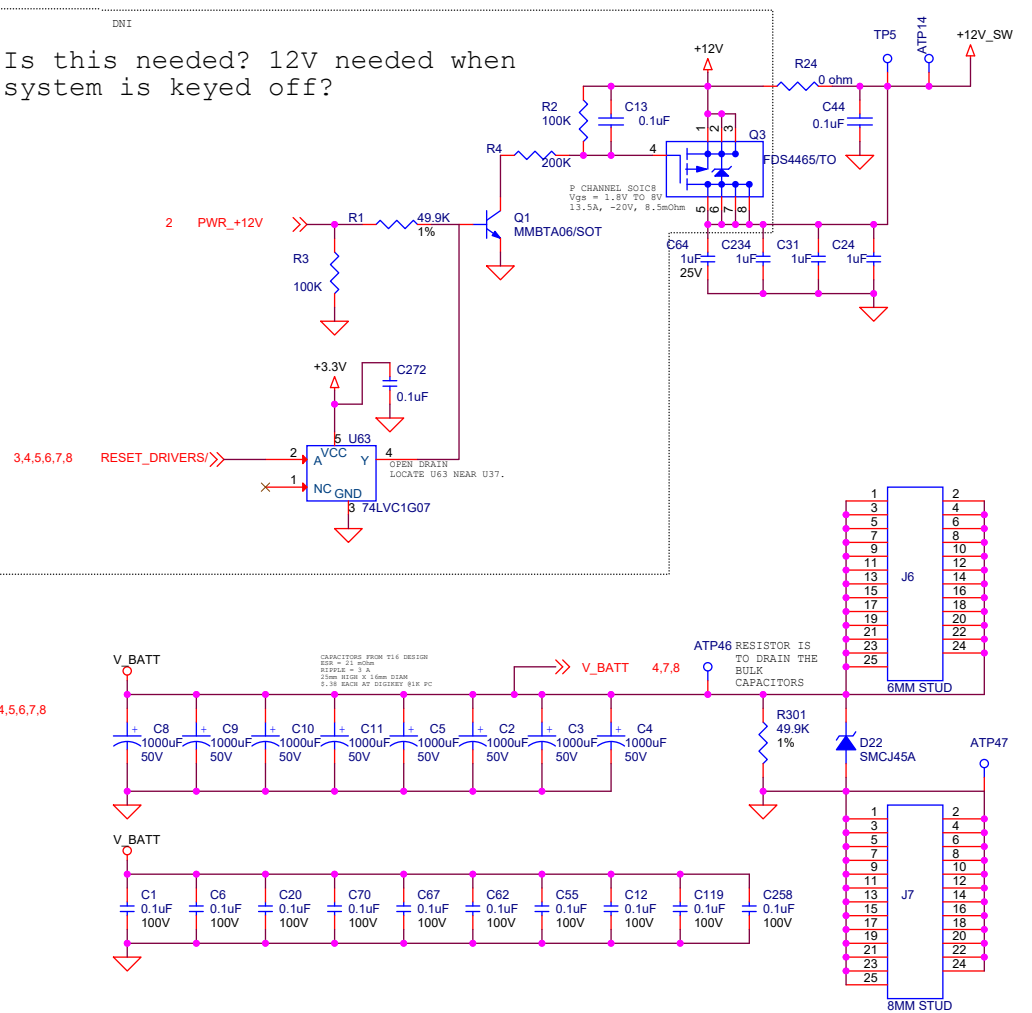
POWER INPUT +24V

+12V Supply

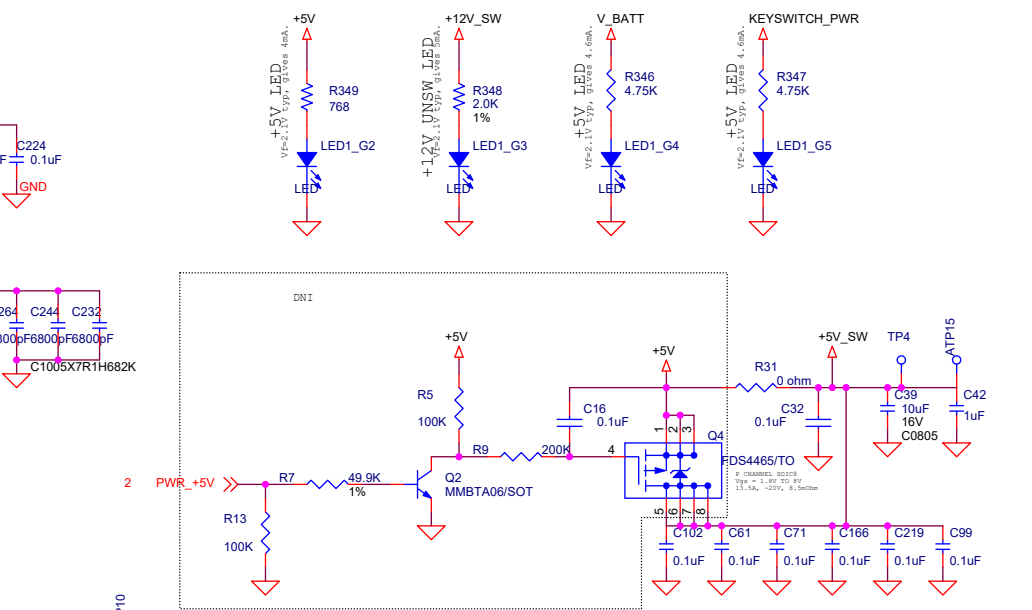
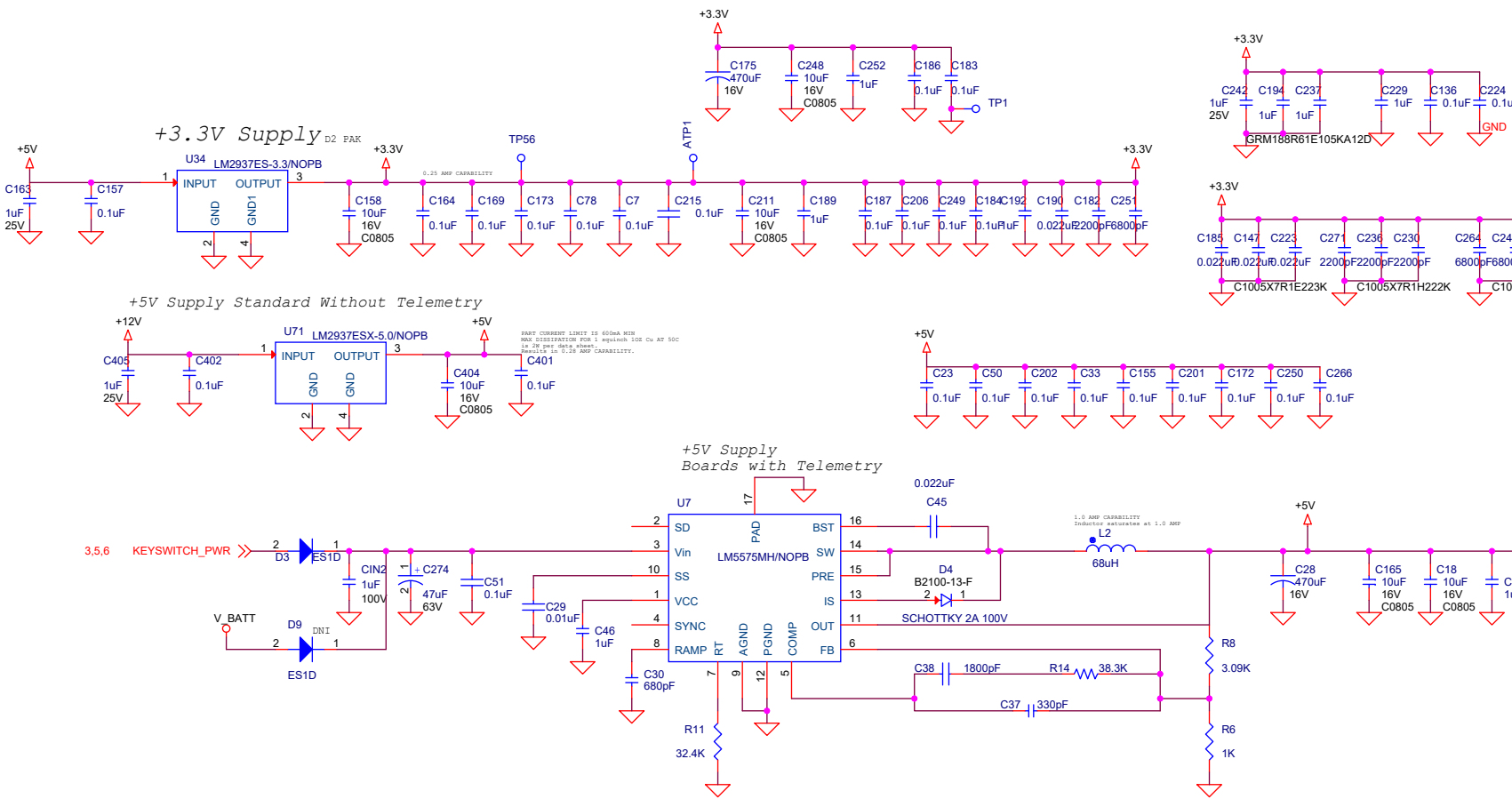
SPECIFICATIONS:
--INPUT VOLTAGE RANGE 20-55V
--MAXIMUM OUTPUT CURRENT 1.0A
--SWITCHING FREQUENCY 500KHz



Is this needed? 12V needed when system is keyed off?

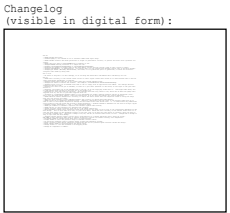


POWER LEDS ARE UNPOPULATED ON PRODUCTION VERSIONS.

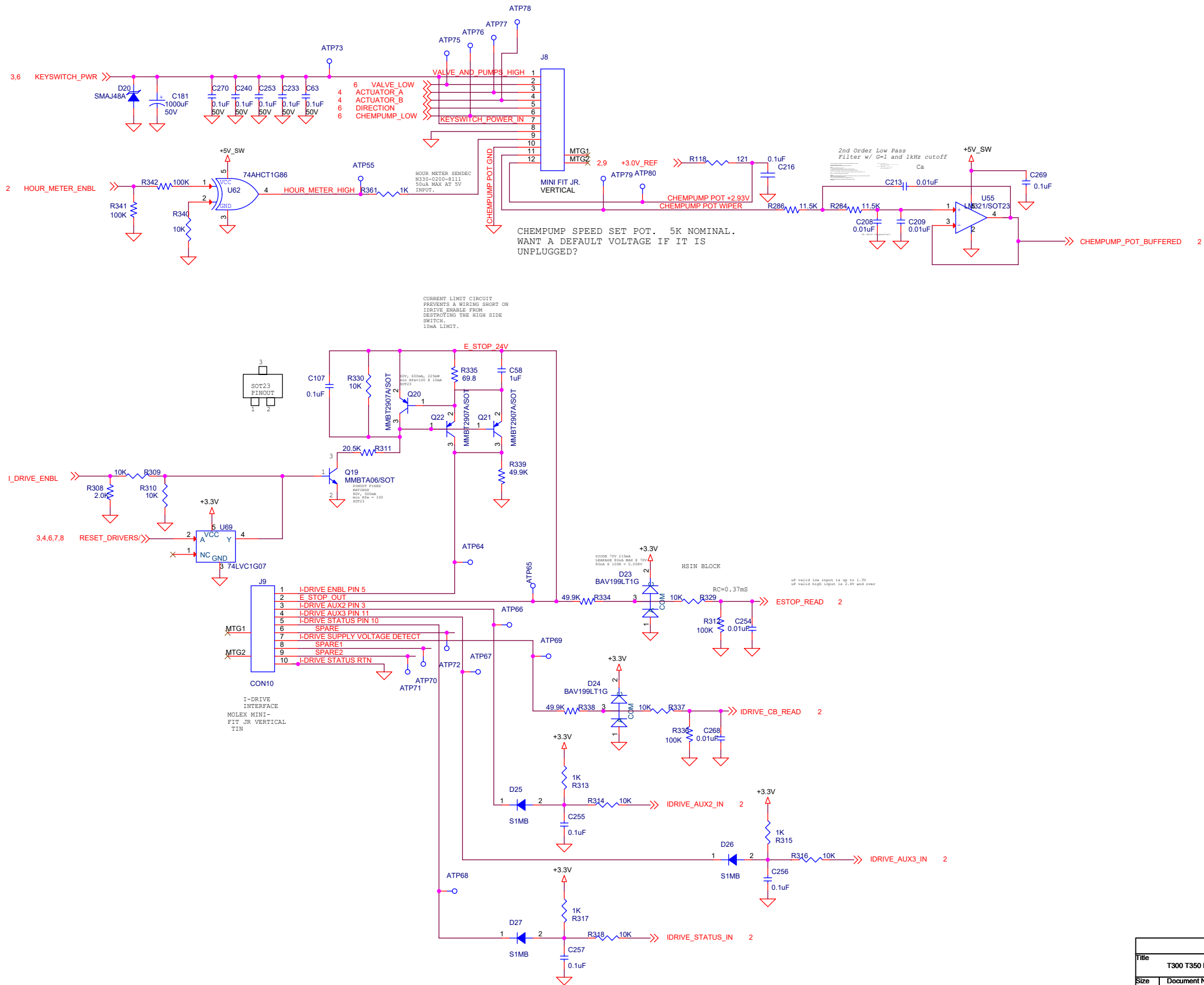


Power Supplies

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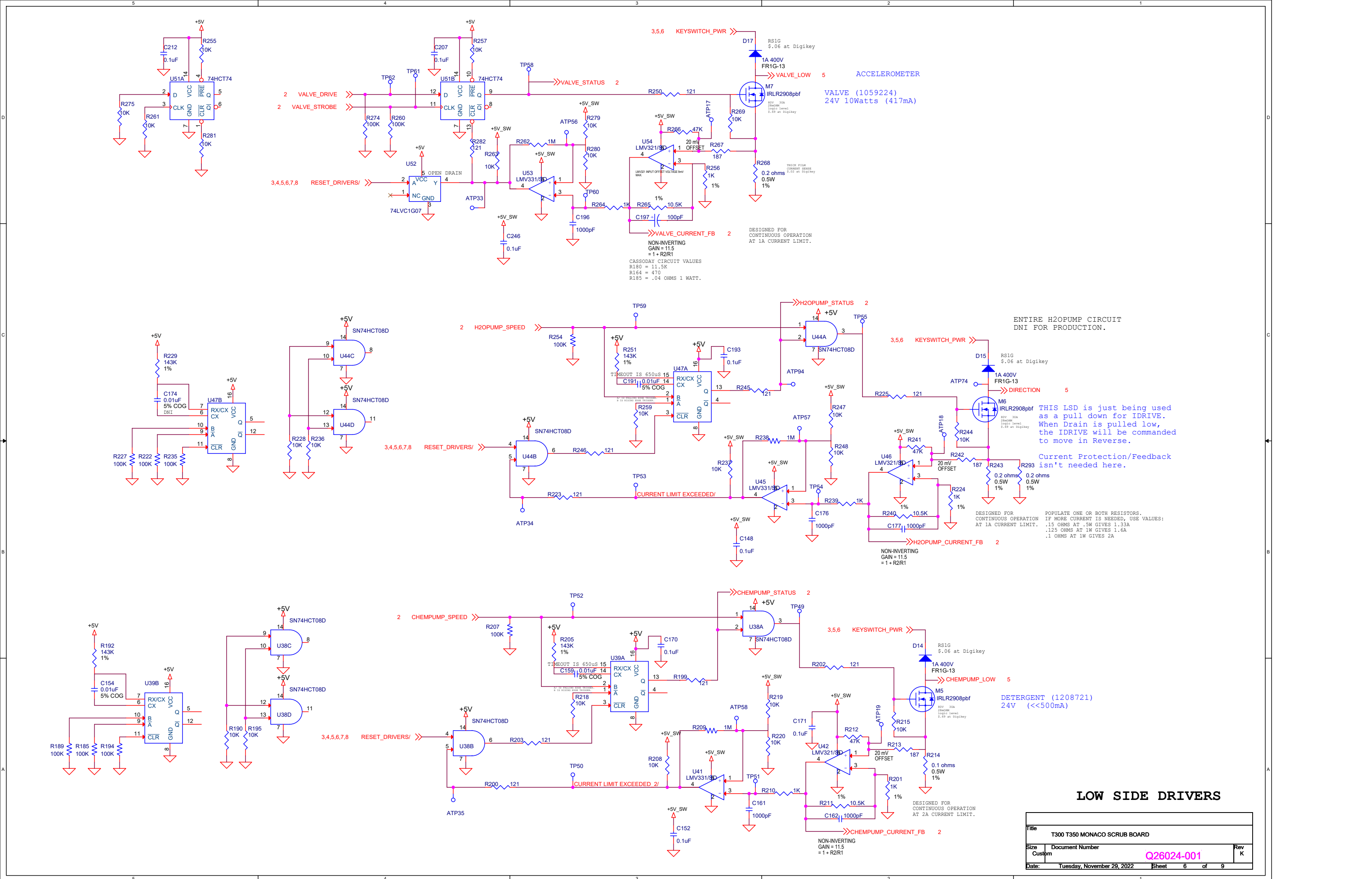


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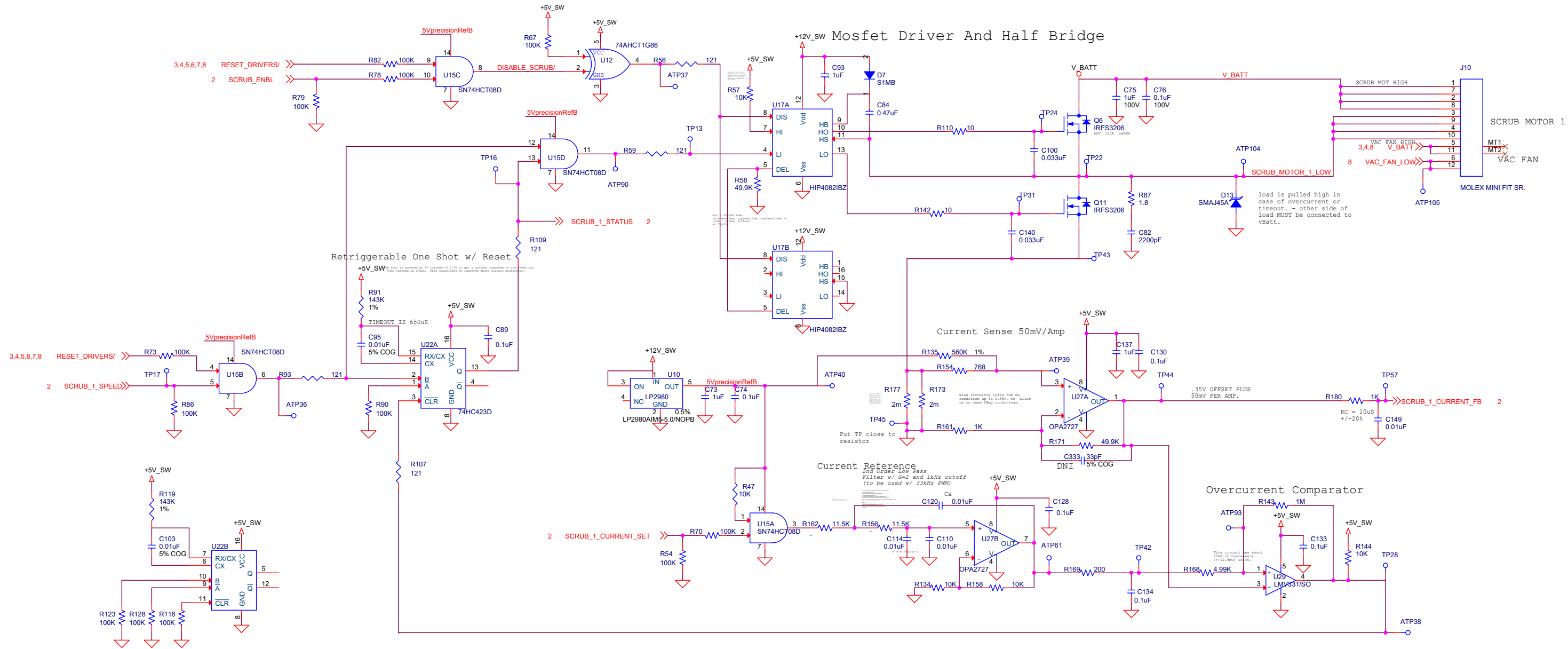
PROPEL INTERFACE

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LOW SIDE DRIVERS

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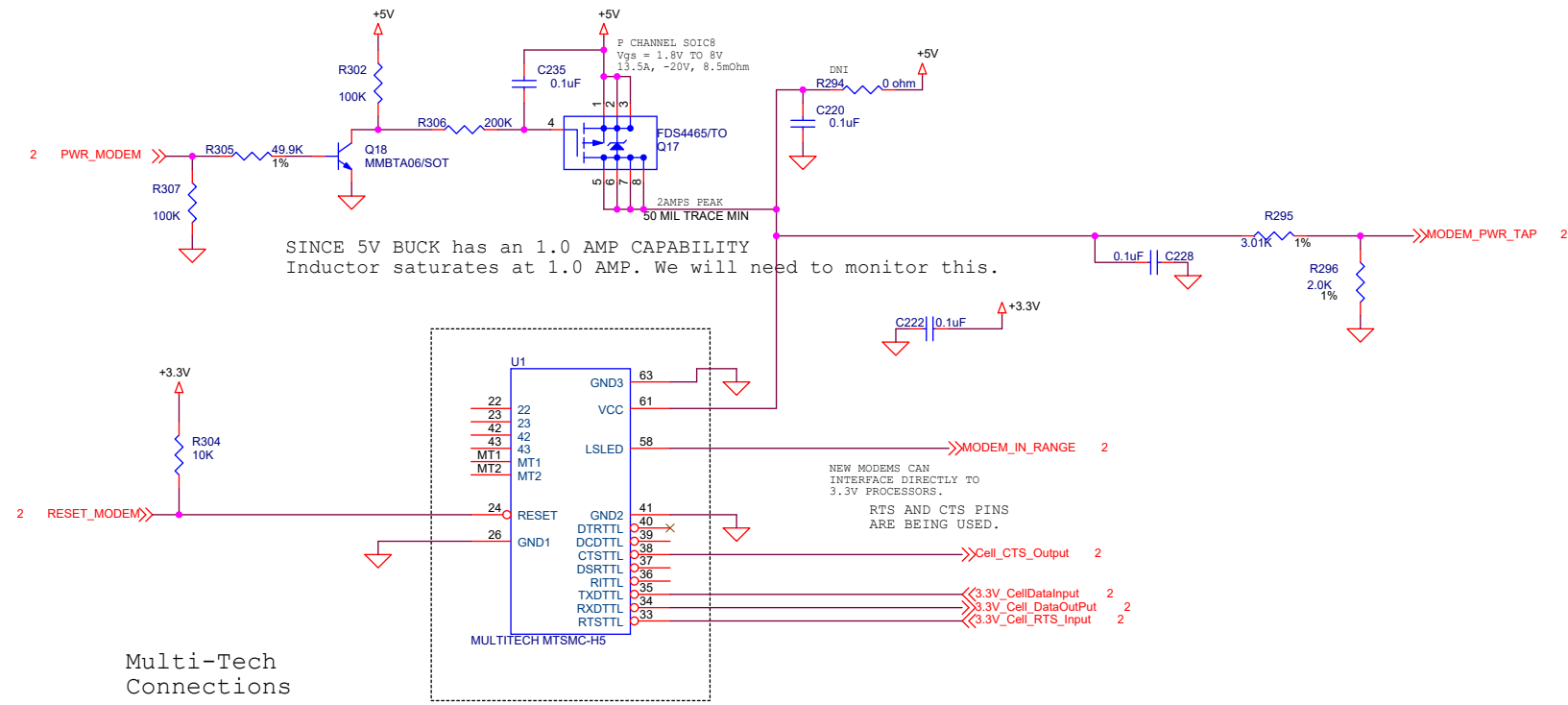
Changelog
(visible in digital form):

SCRUB MOTOR
HALF BRIDGE

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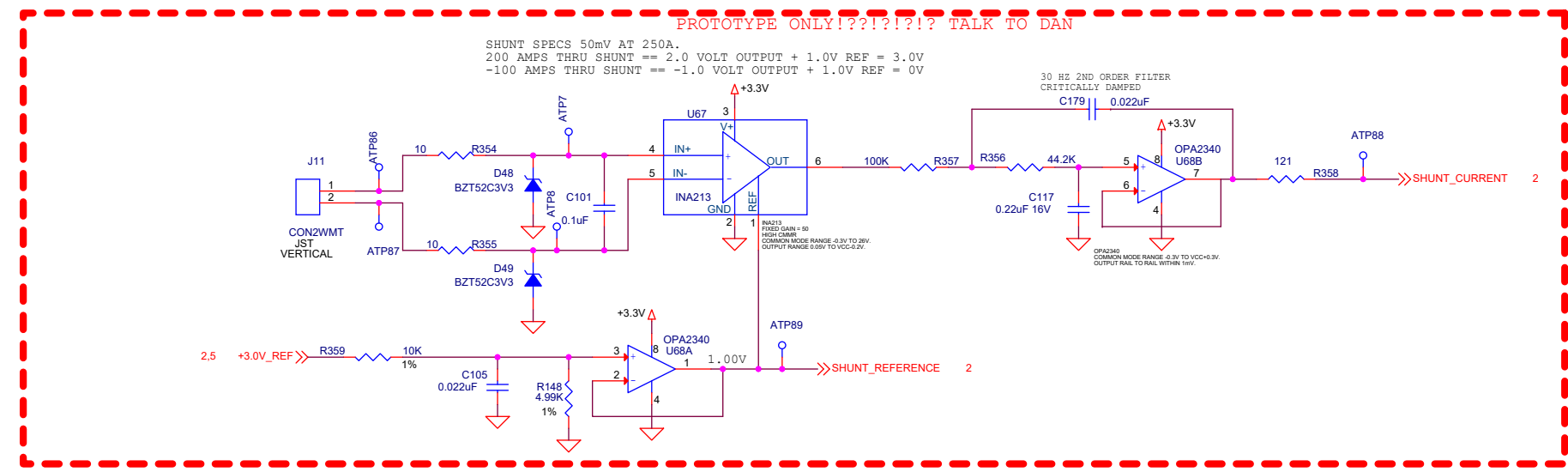


Multi-Tech
Connections

3G	4G	4G
3G NA	4G NA	4G EMEA
CURRENT CONSUMPTION AT 5V: SLEEP 80mA AVG 135mA MAX 280mA PEAK 1.25A	CURRENT CONSUMPTION AT 5V: SLEEP 13mA IDLE 20mA MAX 400mA PEAK 1.25A	CURRENT CONSUMPTION AT 5V: SLEEP 8mA IDLE 13mA MAX 747mA PEAK 1.25A

LAYOUT FEATURES AND MOUNTING HARDWARE:

- MH6 MH7 MH8
- HW1 SCREW, M3 X 6MM TORX Q17005-007
- HW2 SCREW, M3 X 6MM TORX Q17005-007
- HW3 SCREW, M3 X 12MM TORX Q17005-008
- HW4 TIE WRAP SCREW MOUNTED Q17016-001
- ANTENNA CABLE 1070195



CELL MODEM.
BATTERY CURRENT SHUNT AMPLIFIER.

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