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Page 2: Input Power Connector, Filter and Control

Page 3: DC-DC Modules: 24V and +/-12V

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12V DC-DC Converter:

The Sense input and power Vout lines are internally connected through low value resistors to their respective polarities so that the converter can operate without external connection to the Sense. Nevertheless, if the Sense function is not used for remote regulation, the user should connect +Sense to +Vout and –Sense to –Vout at the converter pins.

5V DC-DC Converter:

Pins 7 and 5 must be connected for proper regulation of the output voltage. If these connections are not made, the converter will deliver an output voltage that is slightly higher than its specified value.

3.3V DC-DC Converter:

Connect each sense input to its respective Vout if sense is not connected at a remote load. The Sense and VOUT lines are internally connected through low value resistors. Nevertheless, if the sense function is not used for remote regulation the user should connect the +Sense to +VOUT and –Sense to –VOUT at the DC-DC converter pins.

Rework

2017-04-11

Page 2: Solder a 1nF capacitor (C65) on top of R65.

Page 3: Change C28 from DNS to stuff.

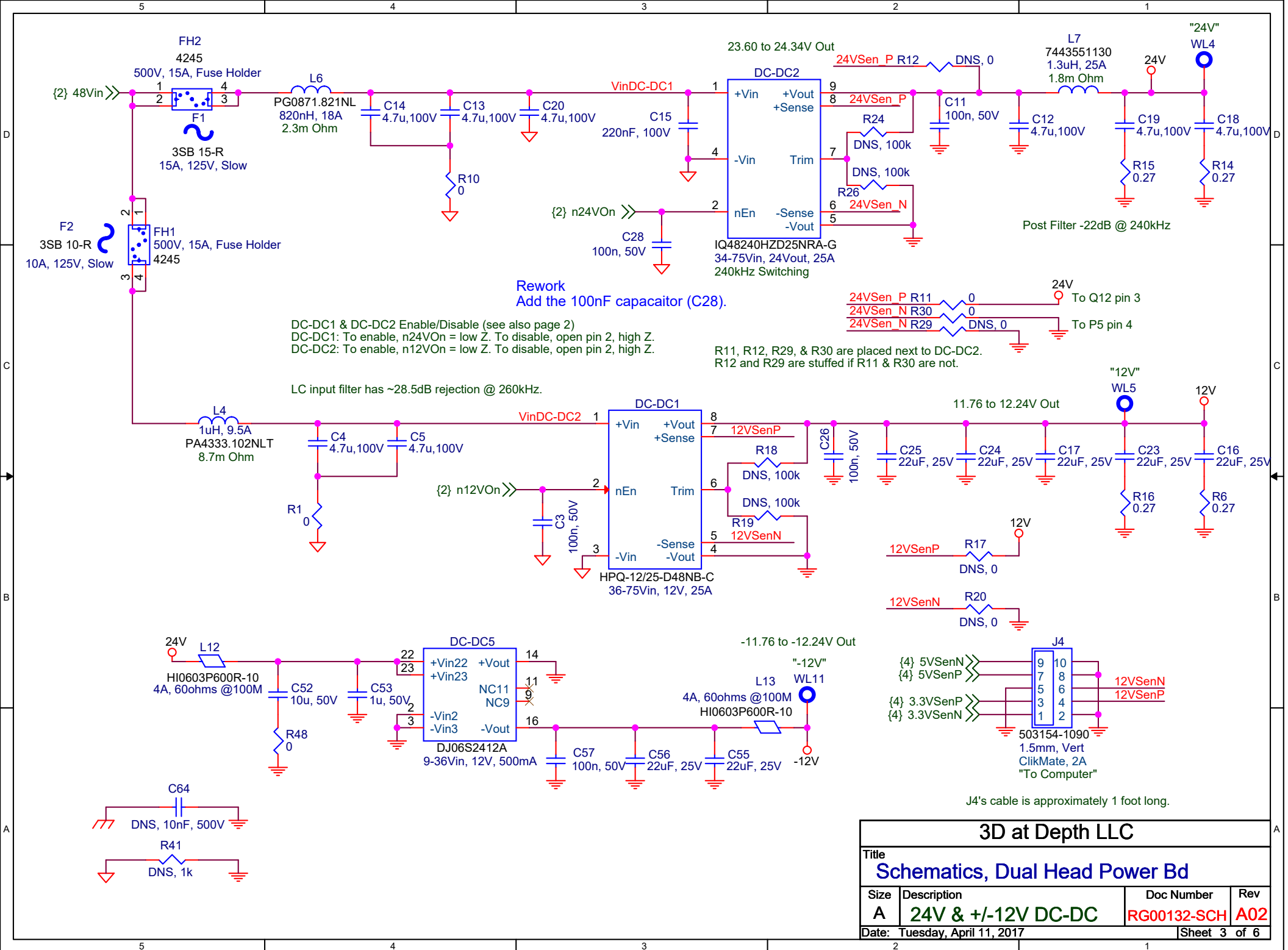
3D at Depth LLC			
Title			
Schematics, Dual Head Power Bd			
Size	Description	Doc Number	Rev
A	Cover Sheet	RG00132-SCH	A02
Date: Tuesday, April 11, 2017		Sheet 1 of 6	

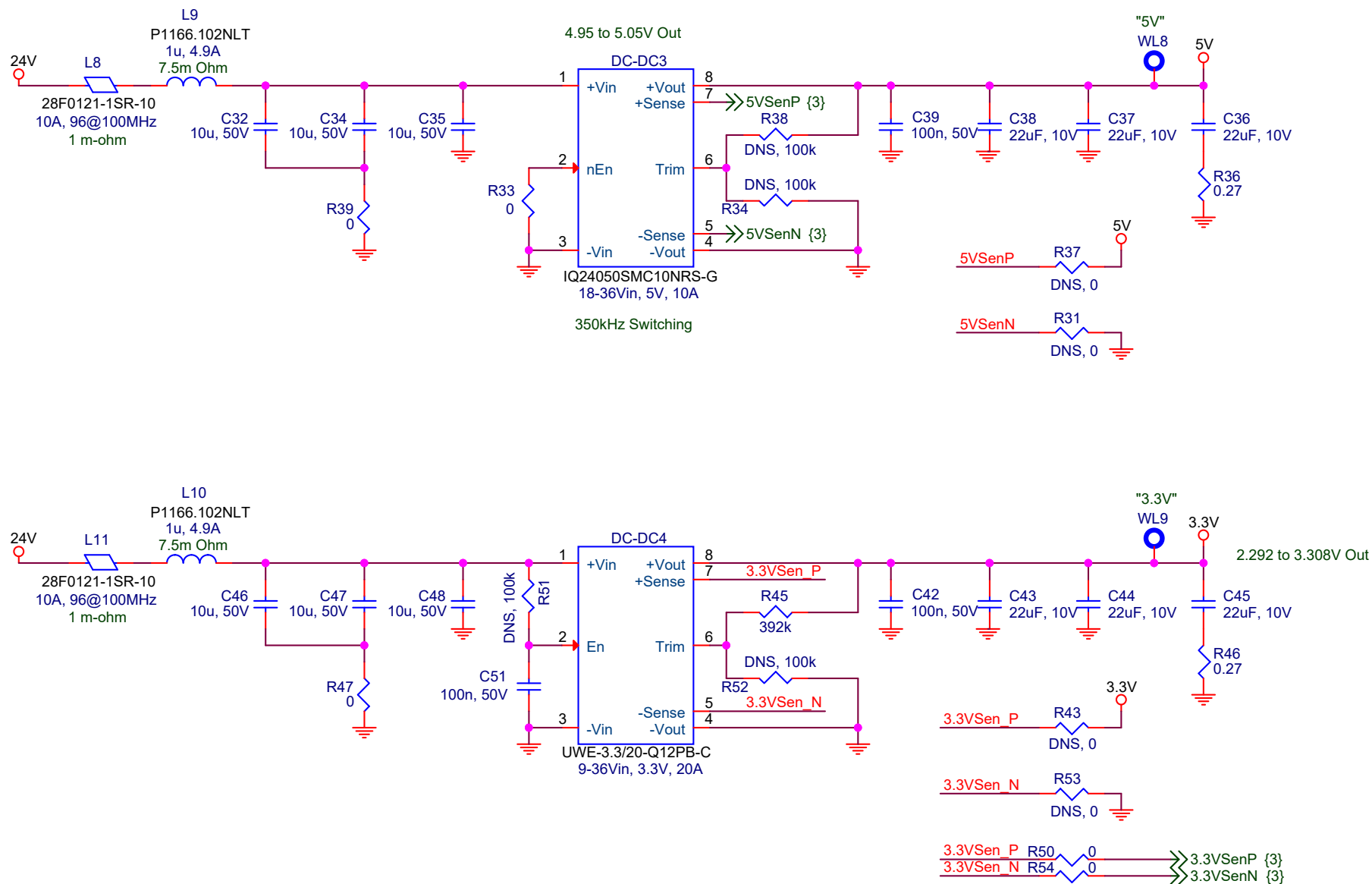
Rework
Solder a 1nF capacitor
(C65) on top of R65.

As 48V_{IN} turns on, V_{POR} increases linearly to a maximum of 5.1V. When the POR activates, nV_{rst} is low thereby keeping Q16 & Q18 off which holds DC-DC1 & DC-DC2 off. When the POR times out after approximately 140ms, nV_{rst} goes high allowing DC-DC1 & DC-DC2 to turn on. After the uC software comes up, it asserts InputPwrOn (which assures Q16 & Q18 stay on) so that any potential transients on 48V_{IN} do not cause the POR to reset the board's DC-DC converters.

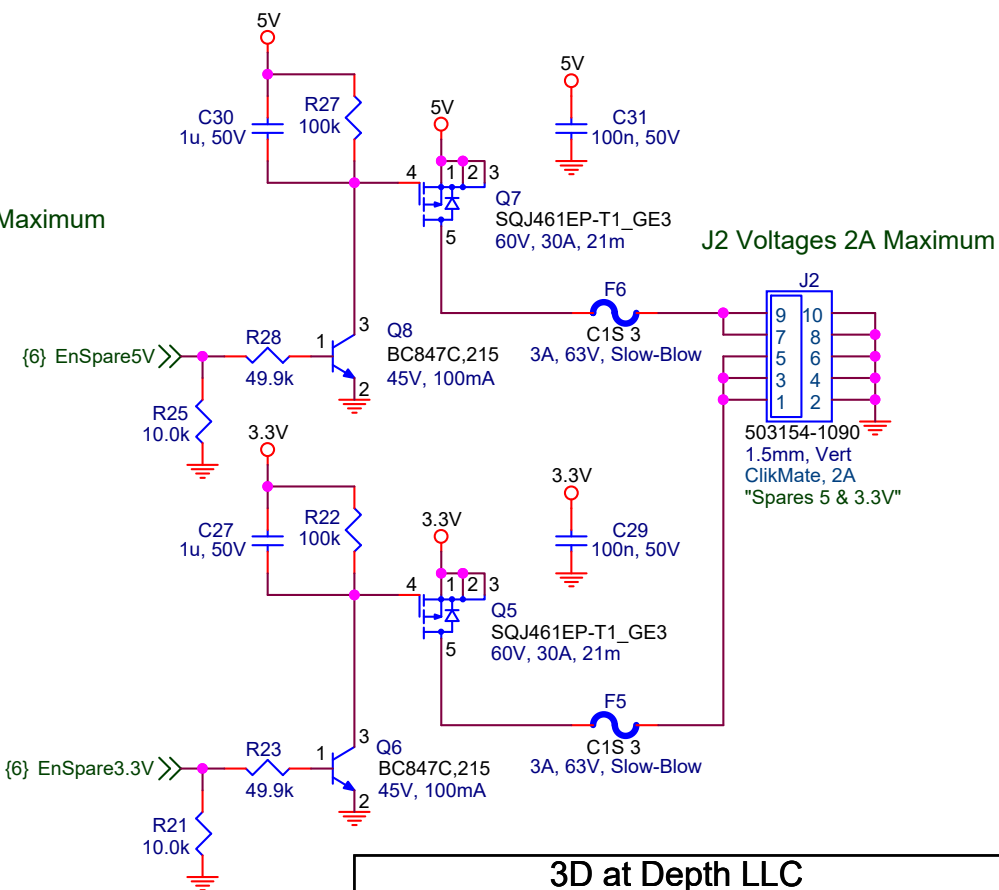
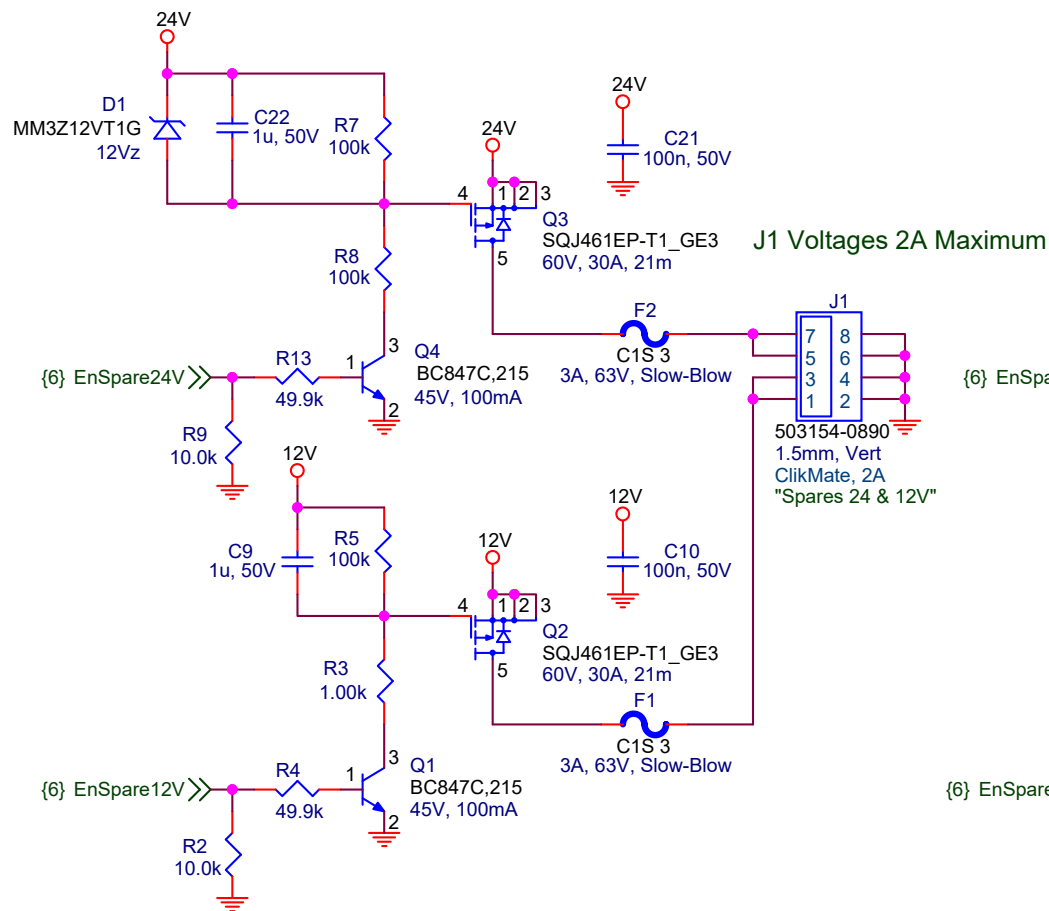
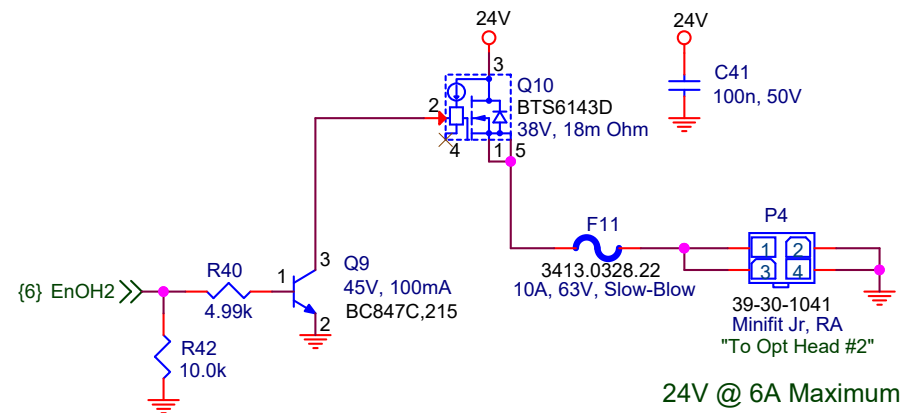
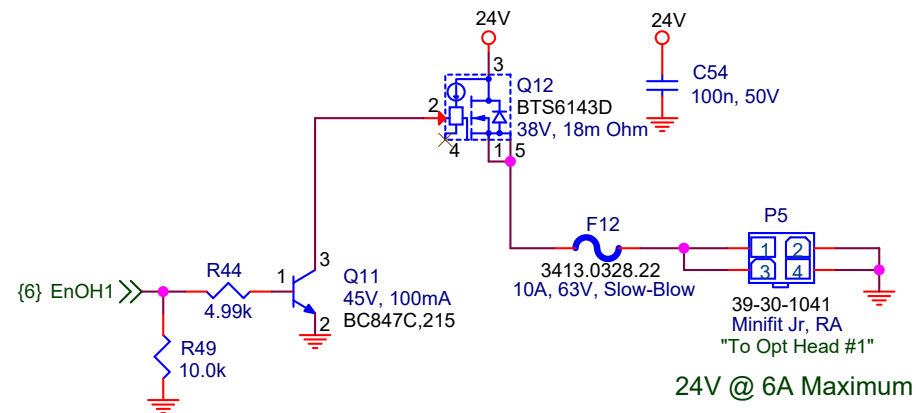
When the uC decides to turn all the power modules off, it first disables InputPwrOn then it asserts 48VInOff. The MOSFETS Q15 and Q17 turn on and due to positive feedback stay latched on even if 48VInOff should disappear. nRst is thereby pulled low forcing nVrst low and again turns DC-DC1 & DC-DC2 off. The only way to turn the two transistor latch off is by removing the 48VIn and allowing LatchEn to return close to zero volts.

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Title Schematics, Dual Head Power Bd			
Size A	Description Input Power Control	Doc Number RG00132-SCH	Rev A02
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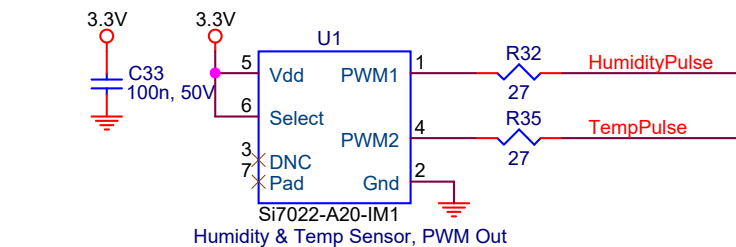




3D at Depth LLC			
Title			
Schematics, Dual Head Power Bd			
Size	Description	Doc Number	Rev
A	5V & 3.3V DC-DC	RG00132-SCH	A02
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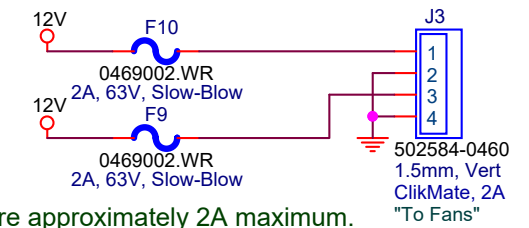
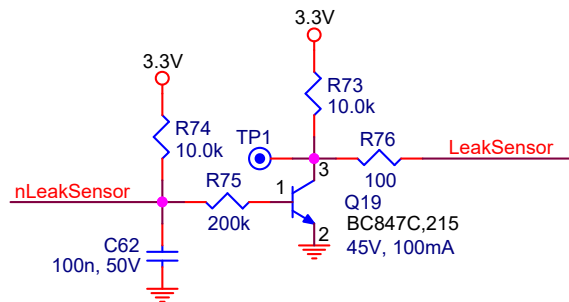
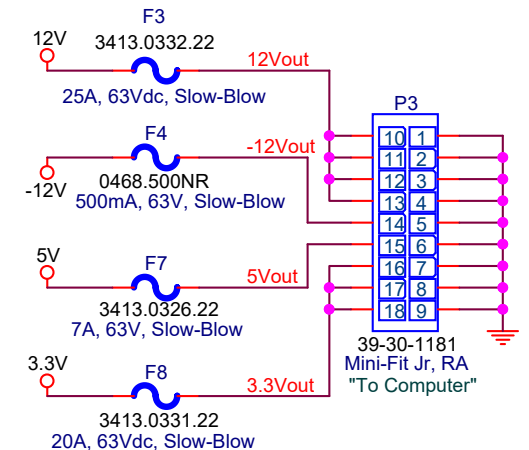


3D at Depth LLC			
Title			
Schematics, Dual Head Power Bd			
Size	Description	Doc Number	Rev
A	Switchable Voltages	RG00132-SCH	A02
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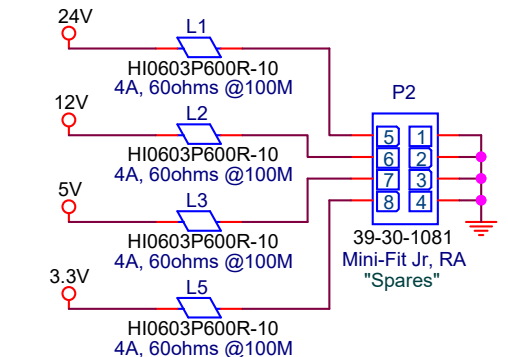
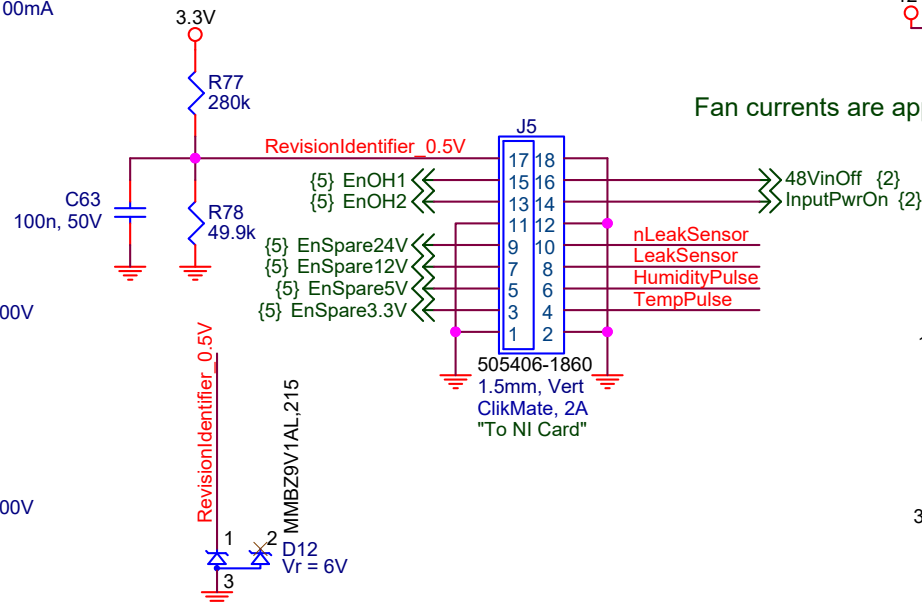
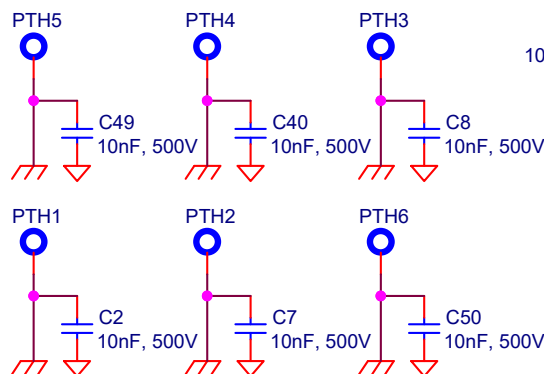


Computer Currents Max:
 12V ~ 20A
 -12V ~ 250mA
 5V ~ 5.5A
 3.3V ~ 14.1A

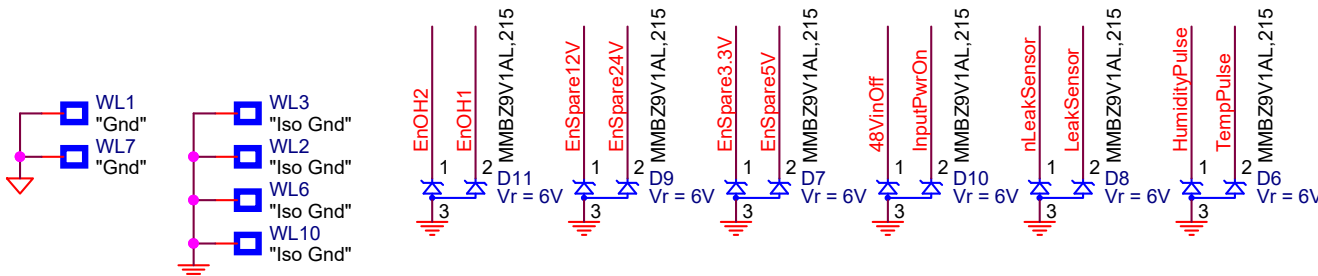
To allow P3 to stay the coolest at high current levels, use crimps from the Molex "Mini-Fit HCS Plus" series (e.g., the Molex 45750-3112 terminal for 16 AWG wire) as opposed to from the regular "Mini-Fit Jr" series. Also, larger-diameter wire (e.g., 16 AWG) will allow more heat to be conducted away from P3. Note that 20AWG wire will allow 6A to be conducted with a 30C rise, 18AWG = 7.5A/30C rise, and 16 AWG = 8.5A/30C.



Fan currents are approximately 2A maximum.



Spare currents are approximately 2A maximum.



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Title			
Schematics, Dual Head Power Bd			
Size	Description	Doc Number	Rev
A	Connectors, Temp Sensor	RG00132-SCH	A02
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