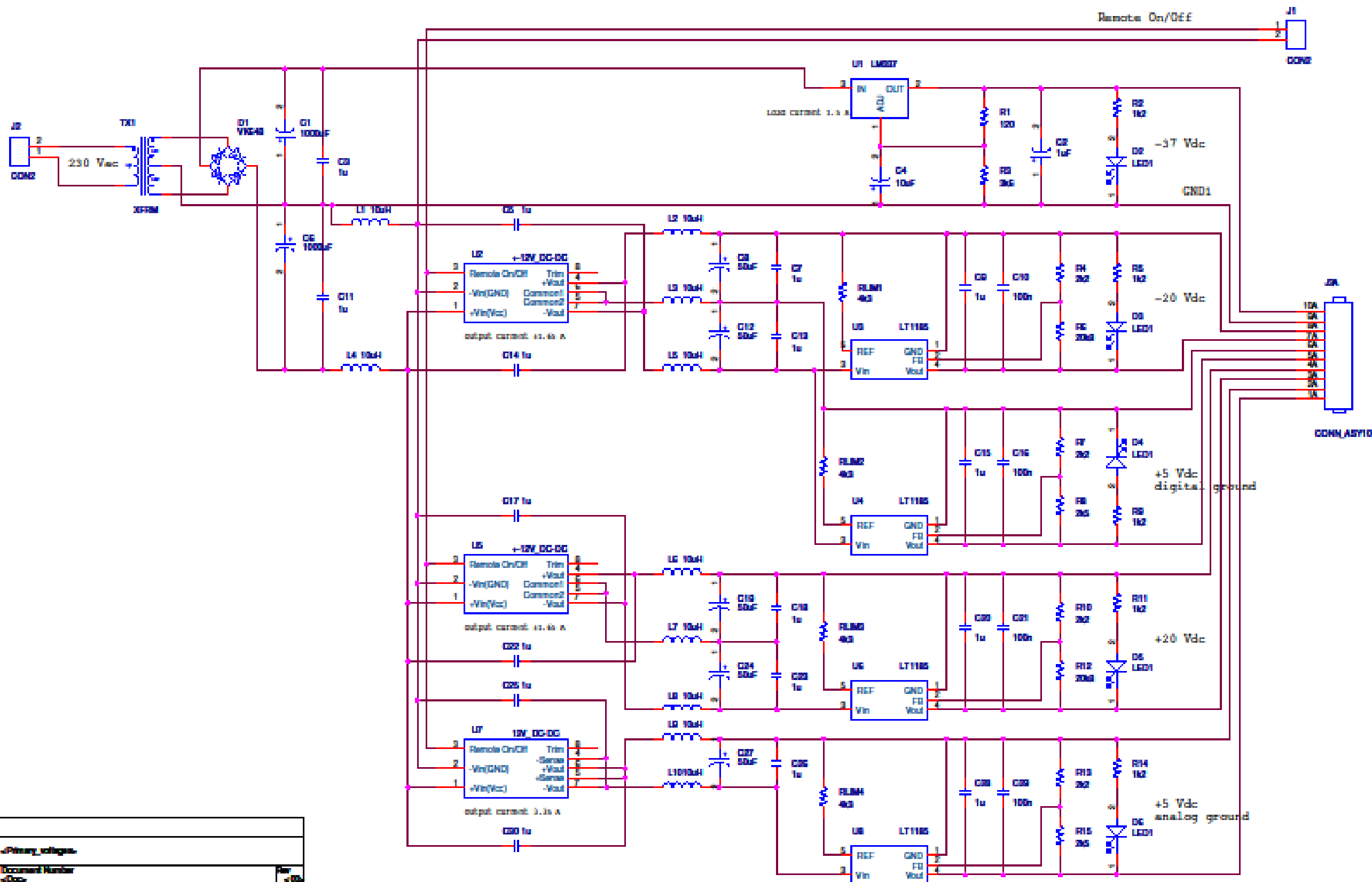


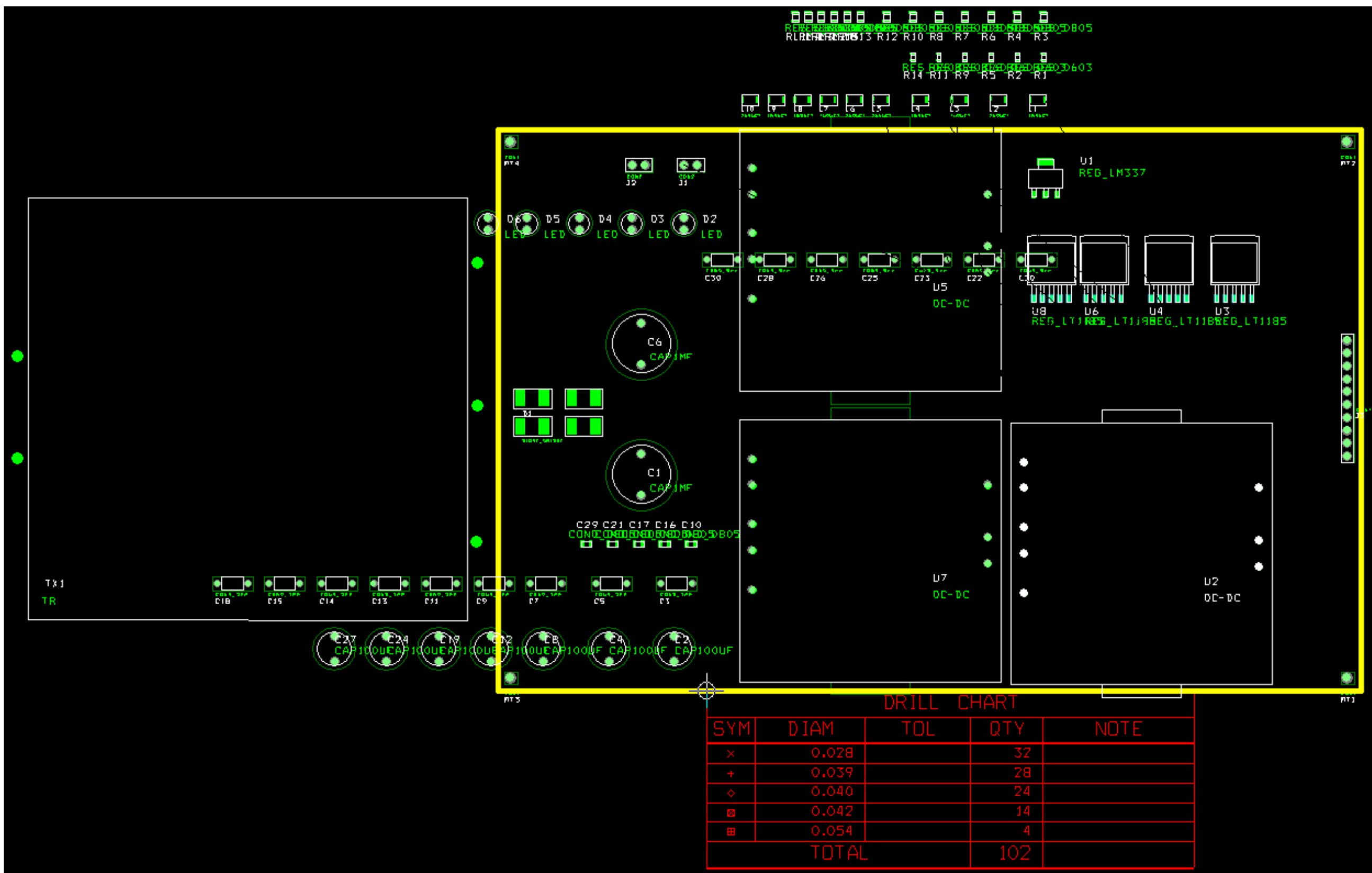
First board for primary floating voltages

Second board for PXD powering

Primary voltages. Schematic



Title		Primary voltages	
Doc. No.	Document Number	+Doc.	
Date:	Tuesday, August 10, 2010	Sheet	1 of 1

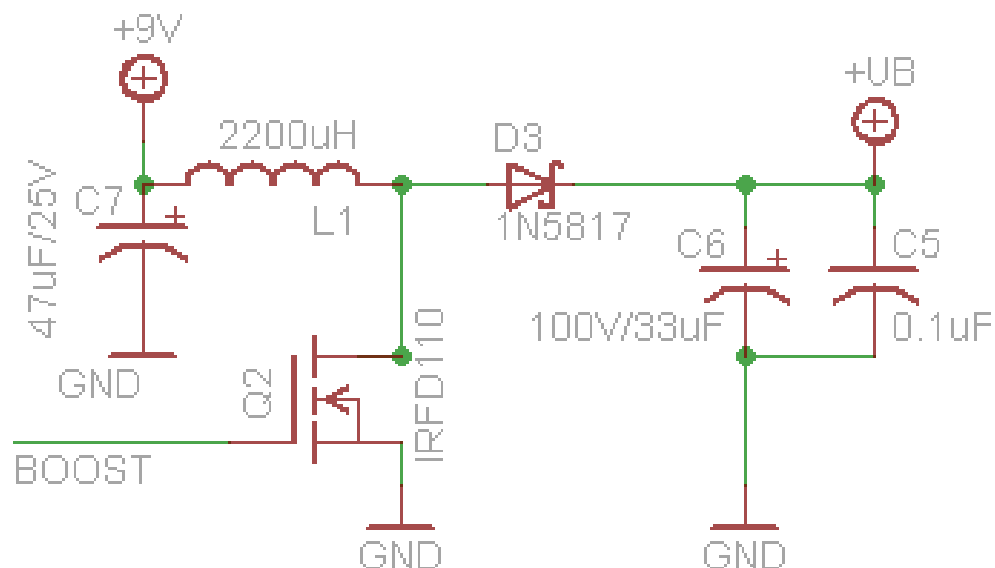


Device	Domain	Voltage (nominal)	Voltage (range)	Current per chip	Current per module	Net name	Comment
DEPFET	<i>Pixels: 250 cols x 800 rows; 4 fold readout: 800 drains x 250 gates&clears</i>						
	source	0-7 V		100µA per single DEPFET	100mA per half module	VSOURCE	many other voltage refer to VSOURCE
	common clear gate	+1 - -4 V	+1 -- -4 V	???	???	VCCG	referenced to VSOURCE
	bulk	10-20V		???	???	VBULK	referenced to VSOURCE
	back plane	-40V/-80V	0 -- -100V	35 µA	35 µA	VBP	75µ thick sensor! punchthrough option. Current after 1E13n/cm ² @ 30deg
guard ring	-5V		???	???	VGUARD	replaces VEDGE	

RefIn nominal voltage: 1.1V

RefIn Voltage range: 0.9V-1.4V

Tube 30-60VDC boost supply

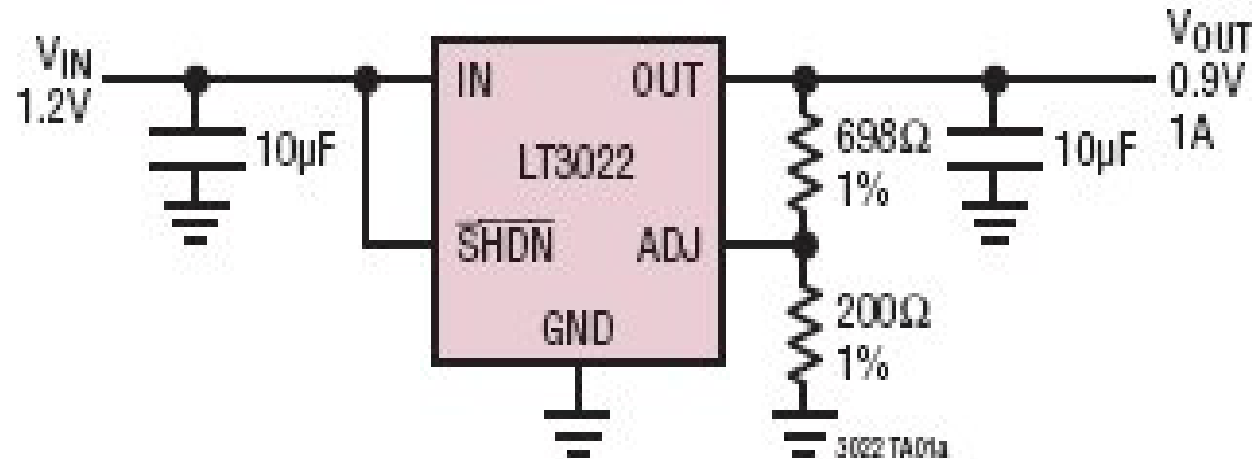


Frequency	31250 Hz	This is the boost converter frequency. For microcontrollers its often the CPU clock / 256
Min Vin	30 V	The lowest expected input voltage
Max Vin	40 V	The highest expected input voltage
Min Vout	40 V	The lowest desired output voltage
Max Vout	80 V	The highest desired output voltage
Iout	0.2 Amps	Output current draw
Vripple	0.2 V	Maximum allowable voltage ripple

Min. Duty Cycle	$D_{min} = 1 - (V_{imax}/V_{omin})$	0%
Max. duty cycle	$D_{max} = 1 - (V_{imin}/V_{omax})$	62.5 %
Min. Inductor size	$L > D * V_{in} * (1-D) / (freq * 2 * I_{out})$	800 uH
Peak inductor current	$I_{pk} = (V_{inmax} * D)/(f * L)$	0.8 A
Minimum capacitor	$Cap > I_{out} / (V_{ripple} * freq)$	32 uF
Minimum Schottky diode	$V_{breakdown} \geq V_{outmax} \ \& \ I_{diode} \geq I_{pk}$	80 V 0.8 A

RefIn voltage range: 0.9V-1.4V

1.2V to 0.9V, 1A VLDO Regulator



Features

V_{IN} Range: 0.9V to 10V

Dropout Voltage: 145mV Typical

Output Current: 1A

Adjustable Output ($V_{REF} = V_{OUT(MIN)} = 200mV$)

Stable with Low ESR, Ceramic Output Capacitors (10µF Minimum)

0.05% Typical Load Regulation from 1mA to 1A

Quiescent Current: 400µA Typical

7.5µA Typical Quiescent Current in Shutdown

Current Limit Protection

common clear gate **+1 - -4 V** VCCG referenced to VSOURCE

