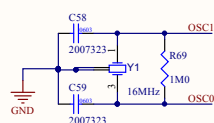
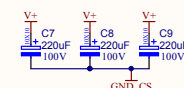
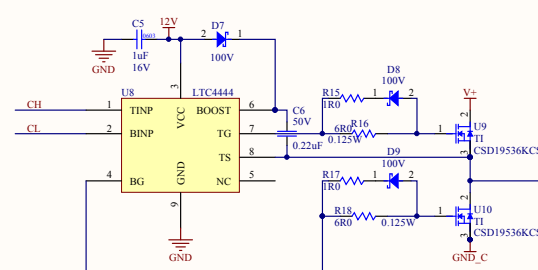
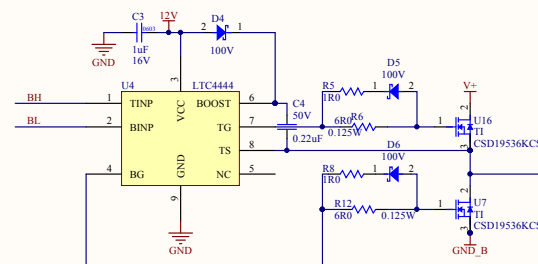
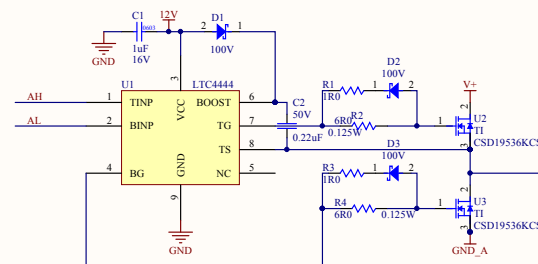
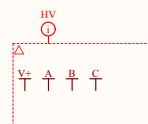


3.3V:  
55mA      micro, 80 MHz, 85C, All peripherals on

5V (sensors)

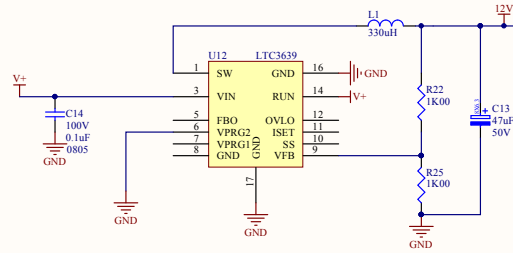
12V (gate drive):  
50 mA RMS at 50kHz (from sim)



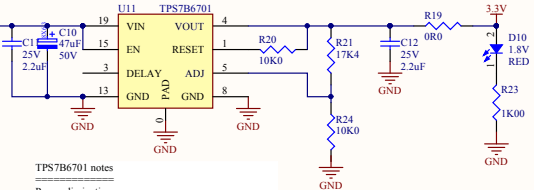
hall current sense: LEM HS 40-P/SP600

ITEM NAME <b>10kW Controller</b>		REVISION	
SHEET TITLE #			
Engineer <b>J. Shanahan</b>	DOCUMENT <b>mcu SchDoc</b>	SIZE <b>B</b>	MODIFIED <b>8/23/2014</b>
DATE	<b>DO NOT SCALE DRAWING</b>	<b>SHEET</b>	<b>* OF *</b>

alts: LTC3703  
100V => 12V DCDC



12V => 3.3V



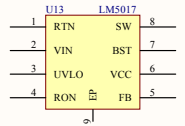
TPS7B6701 notes  
Power dissipation:  
(12-3.3)\*0.06A = 0.522W  
RthJA = 45C/W  
temp rise above ambient = 23.5C  
  
Vout = 1.233V \* (1 + Rhigh/Rlow)  
(Rhigh + Rlow) must be between 10 k and 100 kΩ

Power Requirements

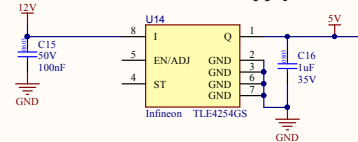
100V => 12V  
12V => 5V (mostly for offboard sensors; eg Hall, throttle)  
12V => 3.3V (micro)

Current Consumption Budget

3.3V:  
55mA micro, 80 MHz, 85C, All peripherals on  
  
5V (sensors):  
12V (gate drive):  
50 mA RMS at 50kHz (from sim)  
  
Sleep Current  
1.75mA LM5017



Off-board 5V supply

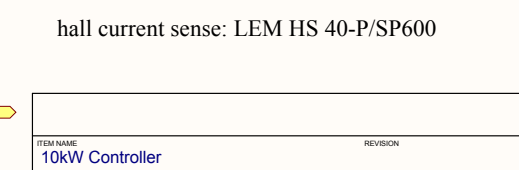
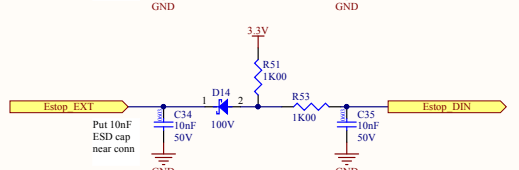
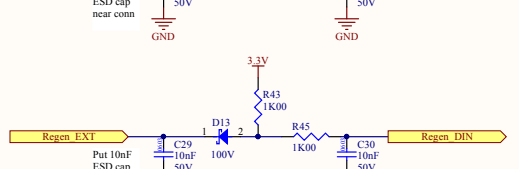
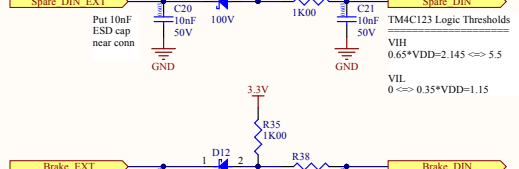
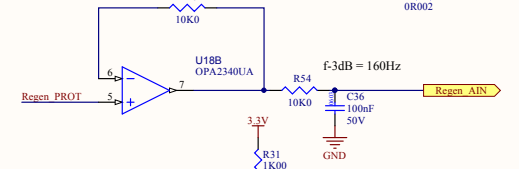
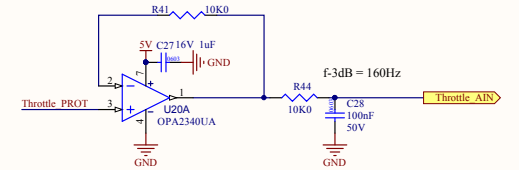
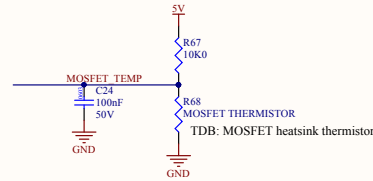
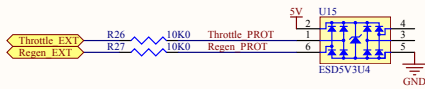


TLE4254GS notes  
Power dissipation:  
(12-5)\*0.030A = 0.21W  
RthJA = 110C/W  
temp rise above ambient = 23C

hall current sense: LEM HS 40-P/SP600

ITEM NAME		REVISION	
10kW Controller			
SHEET TITLE			
Power			
Engineer	DOCUMENT	SIZE	MODIFIED
J. Shanahan	power.SchDoc	B	8/23/2014
DATE	DO NOT SCALE DRAWING		SVN REV
*	SHEET * OF *		

Sensors  
 =====  
 V+ volt sense  
 B- curr sense  
 phase voltage sense  
 phase curr sense on ground leg  
 analog inputs: throttle, regen, mosfet heatsink thermistor  
 digital inputs: brake, regen, estop



hall current sense: LEM HS 40-P/SP600

ITEM NAME 10kW Controller		REVISION	
SHEET TITLE #			
Engineer J. Shanahan	DOCUMENT sensors.SchDoc	SIZE B	MODIFIED 8/23/2014
DATE +	DO NOT SCALE DRAWING		SHEET * OF *