

$$I_{lim} = 0.055/0.07 = 0.785A$$

$$I_{n_Rush} I = (0.8 * (0.04/R9)) - I_{load}$$

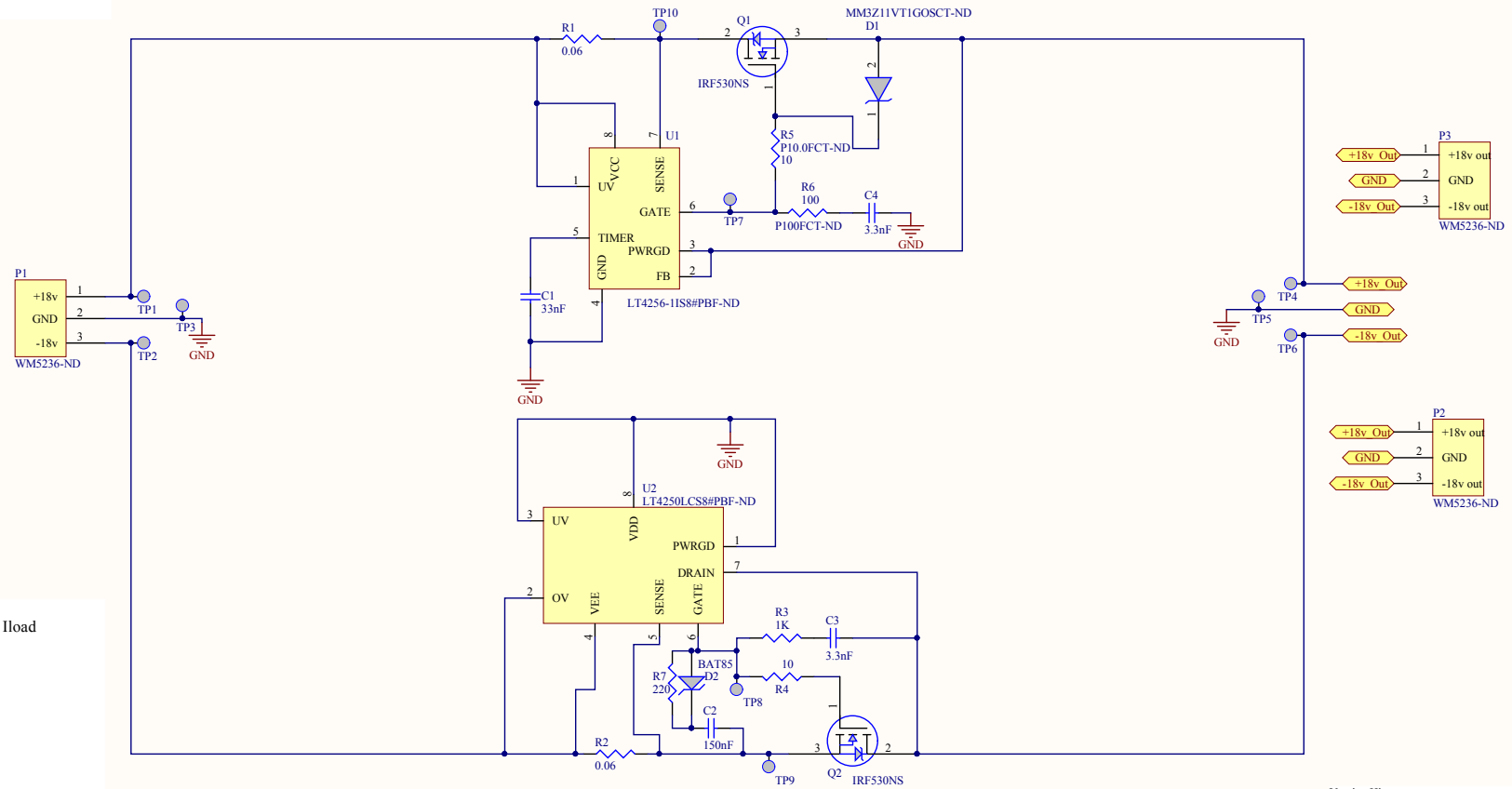
@-18v and R9=0.06Ohms

Iload(A)	Rload(ohms)
0.32757	55
0.27649	65
0.23838	75
0.21081	85
0.18892	95

@-24v	
0.4355	55
0.36874	65
0.31955	75
0.28207	85
0.25162	95

$$I_{lim} = 0.05/0.060 = 0.833A.$$

R4 and R5 Prevent high frequency oscillations in Q1 and Q2.
R1 and R2 provide current detection and limit.
C3 and C4 control the GATE slew rate.
R6 and R3 compensate the current control loop.
C2 control the starting time.



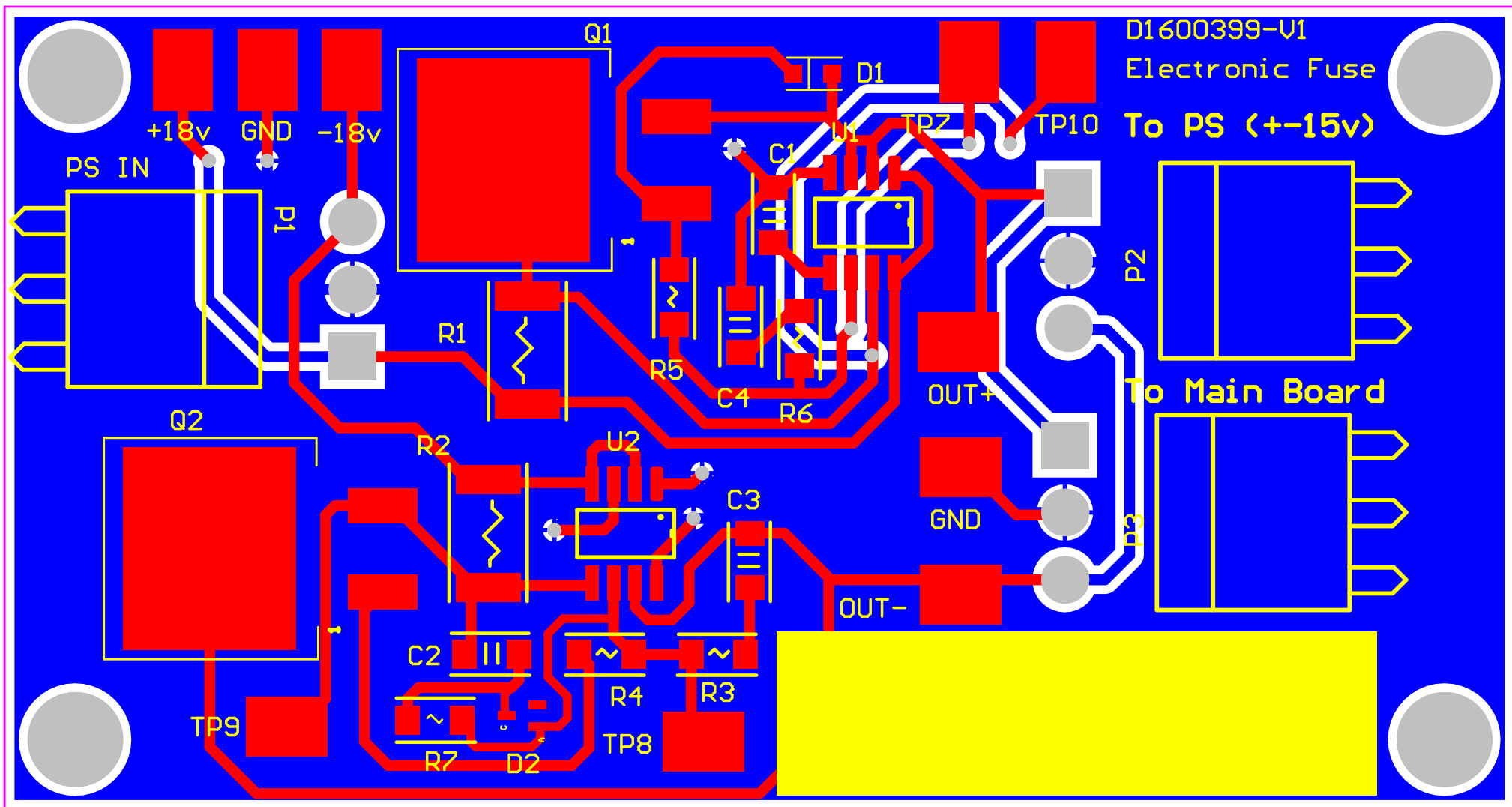
Version History:

v0 - Two PCBs created, for testing.

v1 - New PCB release. Changes are:
1. Added BAT85 diode and 220Ω resistor for keeping Q2 "ON" at negative rail section. To prevent that initial overshoot trigger and shut down output, turning "OFF" Q2.

Title Electronic Fuse			Last Edited: 3/21/2017	
Size: B			DCC Number: D1600399-v1	
Revision: A			Engineer: L. Sánchez	
Date: 3/21/2017			Time: 10:35:36 AM	
Sheet 1 of 1				

File: C:\Users\Public\Documents\Altium\Projects\ElectronicFuse v2\ElectronicFuse2.SchDoc



D1600389-V1
Electronic Fuse
To PS (+-15v)

To Main Board

3500.004 (mil)

1860 (mil)

LIGO Bill of Materials

Source Data From:	PCB_ElectronicFuse_v2.PrjPcb
Board Designed By:	L.Sánchez
Board D-number	D1600399-v1
Board Revision	A
Variant:	None

Creation Date:	3/21/2017	10:35:37 AM
Print Date:	21-Mar-17	10:35:40 AM

Designator	Comment	Description	Digikey Part Number	Manufacturers Part Number	Quantity
TP1, TP2, TP3, TP4, TP5, TP6, TP7, TP8, TP9, TP10	TESTPT	PCB Testpoint	36-5016CT-ND	5016	10
D2	DIODE SCHOTTKY 40V 200MA SOT323	DIODE SCHOTTKY 40V 200MA SOT323	568-7984-1-ND	BAT854W,115	1
U1	LT4256-1 Positive High Voltage Hot SwapControllers	Hot Swap Controllers 10.8v to 80v	LT4256-1IS8#PBF-ND	LT4256-1CS8#PBF	1
P1, P2, P3	Molex 3p 0.156inch RA, Molex 3p 0.156inch RA, Molex 3p 0.156inch Through Hole RA	Molex 3p 0.156inch RA	WM5236-ND	0026615030	3
Q1, Q2	IRF530NS	MOSFET N-CH 100V 17A D2PAK	IRF530NSTRLPBFCT-ND	IRF530NSTRLPBF	2
U2	LT4250L Neg Voltage Hot SwapController	Negative Volage Hot Swap Controller	LT4250LCS8#PBF-ND	LT4250LCS8#PBF	1
R7	RES SMD 220 OHM 0.1% 0.4W 1206	RES SMD 220 OHM 0.1% 0.4W 1206	RTAN1206BKE220RCT-ND	RTAN1206BKE220R	1
C2	SMD Capacitor 150nF 50v 1206	SMD Capacitor 150nF 50v 1206	478-1558-1-ND	12065C154KAT2A	1
C3, C4	SMD Capacitor 3.3nF 50v X7R 1206	SMD Capacitor 3.3nF 50v 1206	399-1228-1-ND	C1206C332K5RACTU	2
C1	SMD Capacitor 33nF 50v 1206	SMD Capacitor 33nF 50v 1206	478-1548-1-ND	12065C333KAT2A	1
R6	SMD Res 1206 100ohm 0.25W	SMD Res 1206 100ohm 0.25W	P100FCT-ND	ERJ-8ENF1000V	1
R4, R5	SMD Res 1206 10ohm 0.25W	SMD Res 1206 10ohm 0.25W	P10.0FCT-ND	ERJ-8ENF10R0V	2
R3	SMD Res 1206 1K 0.25W	SMD Res 1206 1K 0.25W	P1.00KFCT-ND	ERJ-8ENF1001V	1
R1, R2	SMD Res 2512 0.06ohm 1W 1%	SMD Res 2512 0.06ohm 1W 1%	WSLG-.06CT-ND	WSL2512R0600FEA	2
D1	MM3Z11VT1GOSCT-ND	Zener Diode 11v 300mW SOD-323	MM3Z11VT1GOSCT-ND	MM3Z11VT1G	1
					30