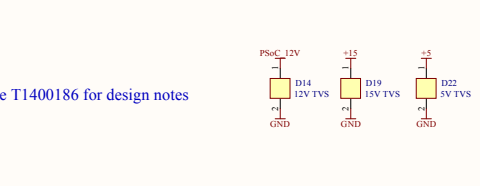
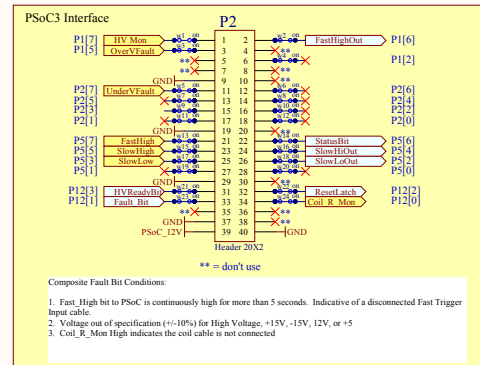
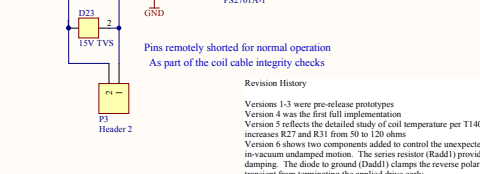
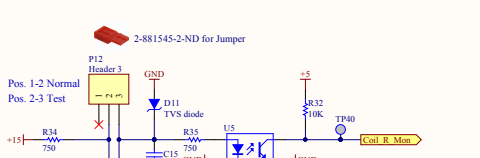
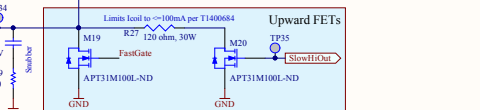
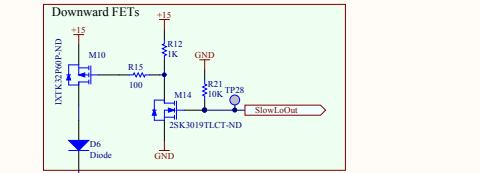


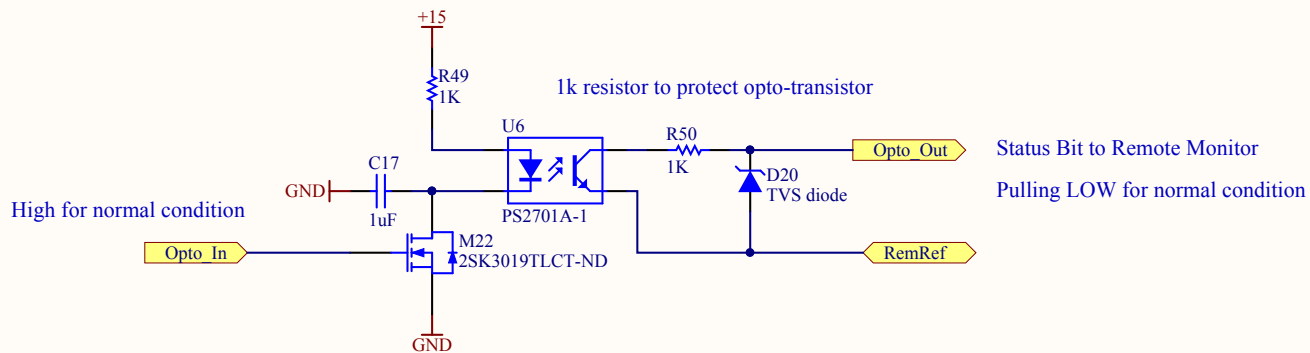
* After a Fast High trigger event, the shutter is left in the UP position. A falling edge on this input will reset the shutter in the DOWN position.



See T1400186 for design notes



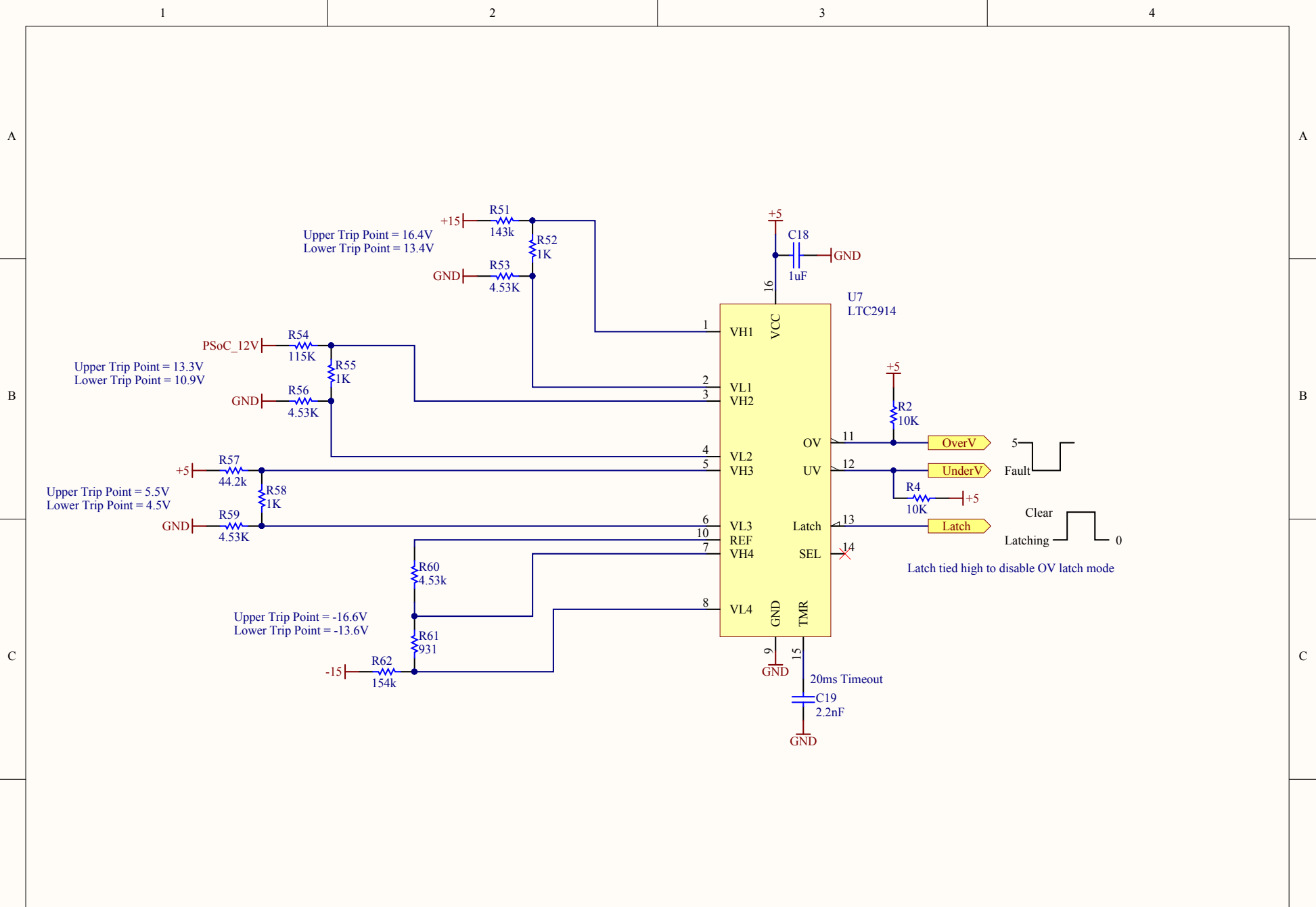
- Part1: T0220 Resistor Heatsink
- Part2: Wk7264-101E-ND
- Part3: Board Standoff
- Part4: 2-881545-2-ND
- Part5: 2-881545-2-ND



In order to deterministically annunciate a fault condition, the input to this stage is held at +5V such that the output will pull low. The remote readout for this monitor normally floats high, and will be actively pulled low by this stage. A loss of power on this monitor, or a disconnected cable, will show as a fault condition to the remote readout stage.

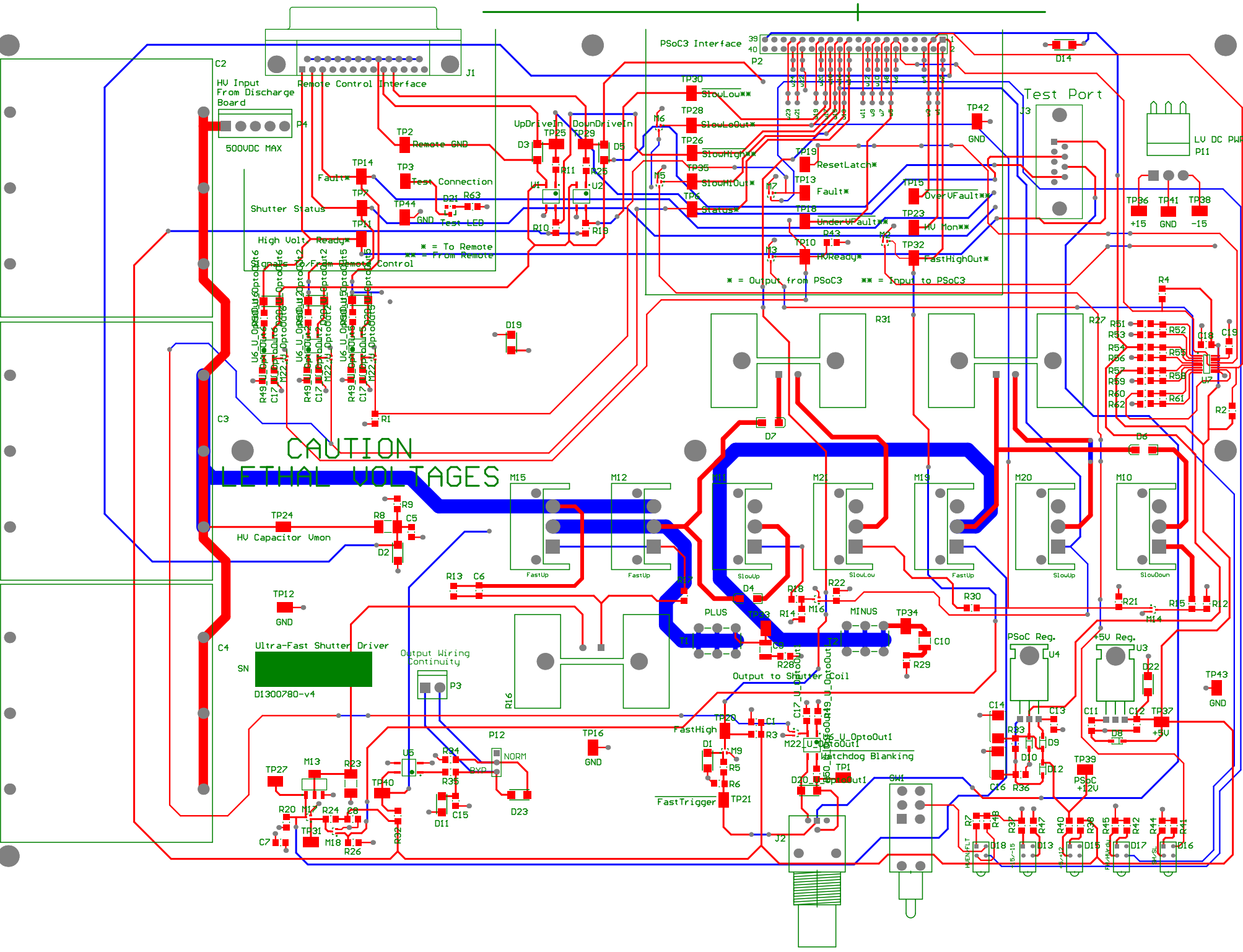
Last Edited: 8/25/2016

Title Opto-isolated Output Monitor		LIGO Project California Institute of Technology Massachusetts Institute of Technology		LIGO	
Size: A	DCC Number: D1300780	Revision: v6	Engineer: Shao, R. Abbott	Date: 8/25/2016	Time: 10:45:16 AM
File: C:\Rich's Files\Mycadfiles\ISC\FastShutterPulser\Pulser v5\OptoOut.SchDoc				Sheet 2 of 3	



Last Edited: 8/25/2016

Title Voltage Monitor		LIGO Project California Institute of Technology Massachusetts Institute of Technology		LIGO	
Size: A	DCC Number: D1300780	Revision: v6	Engineer: Shao, R. Abbott	Date: 8/25/2016	
File: C:\Rich's Files\Mycadfiles\ISC\FastShutterPulser\v5\VoltageMonitor.SchDoc				Time: 10:45:16 AM	Sheet 3 of 3



**CAUTION
LETHAL VOLTAGES**

Ultra-Fast Shutter Driver
D1300780-v4

Remote Control Interface
500VDC MAX

PSoC3 Interface

Test Port

High Volt Ready*
Control

* = To Remote
** = From Remote

* = Output from PSoC3 ** = Input to PSoC3

LU DC PWR
P11

HV Capacitor Umon

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LIGO Bill of Materials

Source Data From: FastPulse_v6_PrjPCB
 Board Designed By: Shao, R. Abbott
 Board D-number: D1300780
 Board Revision: v6
 Variant: 500V Variant of FastPulse_v1

Creation Date: 8/25/2016 10:45:22 AM
 Print Date: 25-Aug-16 10:45:26 AM

Designator	Comment	Description	Digikey Part Number	mfr Name Error/Manufacturers Part No.	Quantity
C1, C5, C7, C8, C11, C12, C13, C15, C17_U_OptoOut1, C17_U_OptoOut2, C17_U_OptoOut5, C17_U_OptoOut6, C18	1uF	Capacitor	1276-1204-1-ND		13
C2, C3, C4	160uF, 700VDC	4 Pin High Voltage Capacitor	BC2624-ND		3
C6	4.7nF	Capacitor	445-7684-1-ND		1
C9, C10	0.1uF, 1KV	Capacitor	399-6782-2-ND		2
C14, C16	101uF Tantalum, 35V	Polarized Cap	478-1722-1-ND		2
C19	2.2nF	Capacitor	1276-2823-1-ND		1
D1	TVS diode	Single TVS diode	SMAJ15CABCT-ND		1
D2, D22	5V TVS	5V Bi-directional Transient Voltage Suppressor	SMAJ5.0CALFCT-ND		2
D3, D5, D11, D20_U_OptoOut1, D20_U_OptoOut2, D20_U_OptoOut5, D20_U_OptoOut6	TVS diode	Single TVS diode	SMAJ24A-FDICT-ND		7
D4, D6, D7	Diode	Default Diode	SE20AFJ-M3GAGICT-ND		3
D8, D10	Diode 1N4148	High Conductance Fast Diode	1N4148WTPM5CT-ND		2
D9, D12	R6160M-60	High Conductance Fast Diode	R6160M-50CT-ND		2
D13, D15, D16, D17	Stacked LED	Dual Green LED	67-132-ND		4
D14	12V TVS	5V Bi-directional Transient Voltage Suppressor	SMAJ12CALFCT-ND		1
D18	Stacked LED	Dual Yellow/Red LED	350-2719-ND		1
D19, D23	15V TVS	5V Bi-directional Transient Voltage Suppressor	SMAJ15CALFCT-ND		2
D21	Green LED	SOT-23 Green LED	754-1637-1-ND		1
J1	D Connector 25	Receptacle Assembly, 25 Position, Right Angle	BE17C-025S-AJ-120-ND		1
J2	BNC	Stacked Dual BNC	891-1023-ND		1
J3	D9 Female	Receptacle Assembly, 9 Position, Right Angle	A35166-ND		1
M2, M3, M5, M6, M7, M9, M14, M16, M17, M18, M22_U_OptoOut1, M22_U_OptoOut2, M22_U_OptoOut5, M22_U_OptoOut6	NMOS	ROHM N-Channel MOSFET	2SK3019TLCT-ND		14
M10, M11, M12, M15	NMOS	Microsemi N-Channel MOSFET	0TK32P60P-ND		4
M13	STN1HNK60	ST Microelectronics N-Channel MOSFET	497-4668-1-ND		1
M19, M20, M21	NMOS	Microsemi N-Channel MOSFET	AFT31M100L-ND		3
P2	Header 20X2	Header, 20-Pin, Dual row	W1M8189-ND		1
P3	Header 2	Header, 2-Pin	A31678-ND		1
P4	MOLEX 0.156	Header, 5-Pin	W1M5227-ND		1
P11	Header 3H	Header, 3-Pin, Right Angle	W1M5236-ND		1
P12	Header 3	Header, 3-Pin	809-3468-ND		1
Part1	FET heatsink	3 Pin FET Heatsink	WA-1264-101E-ND		1
Part2	10220 Resistor Heatsink	2 Pin Resistor Heatsink	HS404-ND		1
Part3	Board Standoff	Solderable Board Standoff, 3/8 inch	2-881545-2-ND		1
Part4	Red Jumper	Red Jumper	P10.0KFCT-ND		13
R1, R2, R3, R4, R5, R10, R19, R21, R22, R24, R26, R32, R43	10K	Resistor	P100KFCT-ND		1
R6	100K	Resistor	P2.00KFCT-ND		9
R7, R13, R37, R41, R42, R44, R45, R47, R48	2K	Resistor	P2.00KFCT-ND		1
R8	1M	Resistor	S41-1.0MXT-ND		1
R9	8.06K	Resistor	P8.06KFCT-ND		1
R11, R25	3.3k	Resistor	P3.3KFCT-ND		2
R12, R14, R20, R49_U_OptoOut1, R49_U_OptoOut2, R49_U_OptoOut5, R49_U_OptoOut6, R50_U_OptoOut1, R50_U_OptoOut2, R50_U_OptoOut5, R50_U_OptoOut6, R52, R55, R58, R63	1K	Resistor, Resistor, surface mount	P1.00KFCT-ND		15
R15, R17, R18, R30	100	Resistor	P100FCT-ND		4
R16	82K, 35W	Resistor	MP925-82.0KF-ND		1
R23	402K	Resistor	PT402KAFCT-ND		1
R27, R31	120 ohm, 30W	Resistor	MP930-120-F-ND		2
R28, R29	200	Resistor	P200FCT-ND		2
R33	249	Resistor	P249FCT-ND		1
R34, R35, R40	750	Resistor	P750FCT-ND		3
R36	2.1k	Resistor	RNCF1206DTE2K10CT-ND		1
R38	402	Resistor	P402FCT-ND		1
R51	143k	Resistor	P143KFCT-ND		1
R53, R56, R59, R60	4.53K	Resistor	P4.53KFCT-ND		4
R54	119K	Resistor	P119KFCT-ND		1
R57	44.2k	Resistor	P44.2KFCT-ND		1
R61	931	Resistor	P931FCT-ND		1
R62	154k	Resistor	P154KFCT-ND		1
SW1	DPDT	Front Panel DPDT Switch	CRN1476-ND		1
T1, T2	Terminal	30A, 6-32, Single Terminal Block	B189K-ND		2
TP1, TP2, TP3, TP6, TP7, TP10, TP11, TP12, TP13, TP14, TP15, TP16, TP18, TP19, TP20, TP21, TP23, TP24, TP25, TP26, TP27, TP28, TP29, TP30, TP31, TP32, TP33, TP34, TP35, TP36, TP37, TP38, TP39, TP40, TP41, TP42, TP43, TP44	TESTPT	PCB Testpoint	B019KCT-ND		38
U1, U2, U5, U6_U_OptoOut1, U6_U_OptoOut2, U6_U_OptoOut5, U6_U_OptoOut6	PS2701A-1	High Isolation Voltage SOP Photocoupler	PS2701A-1-P-A-ND		7
U3	LM7805XCDT	D PACK VOLTAGE REGULATOR	LM7805CT-ND		1
U4	LM317T	Three-Terminal Adjustable Output Positive Voltage Regulator	LM317TFS-ND		1
U7	LTC2914	Quad UV/OV Supply Monitor	LTC2914CDHC-1#PBF-ND		1