

Monitor Blanking V3

FILE Monitor Blanking V3.SchDoc

REVISION *

VARIANT [No Variations]

DATE 17/06/2025

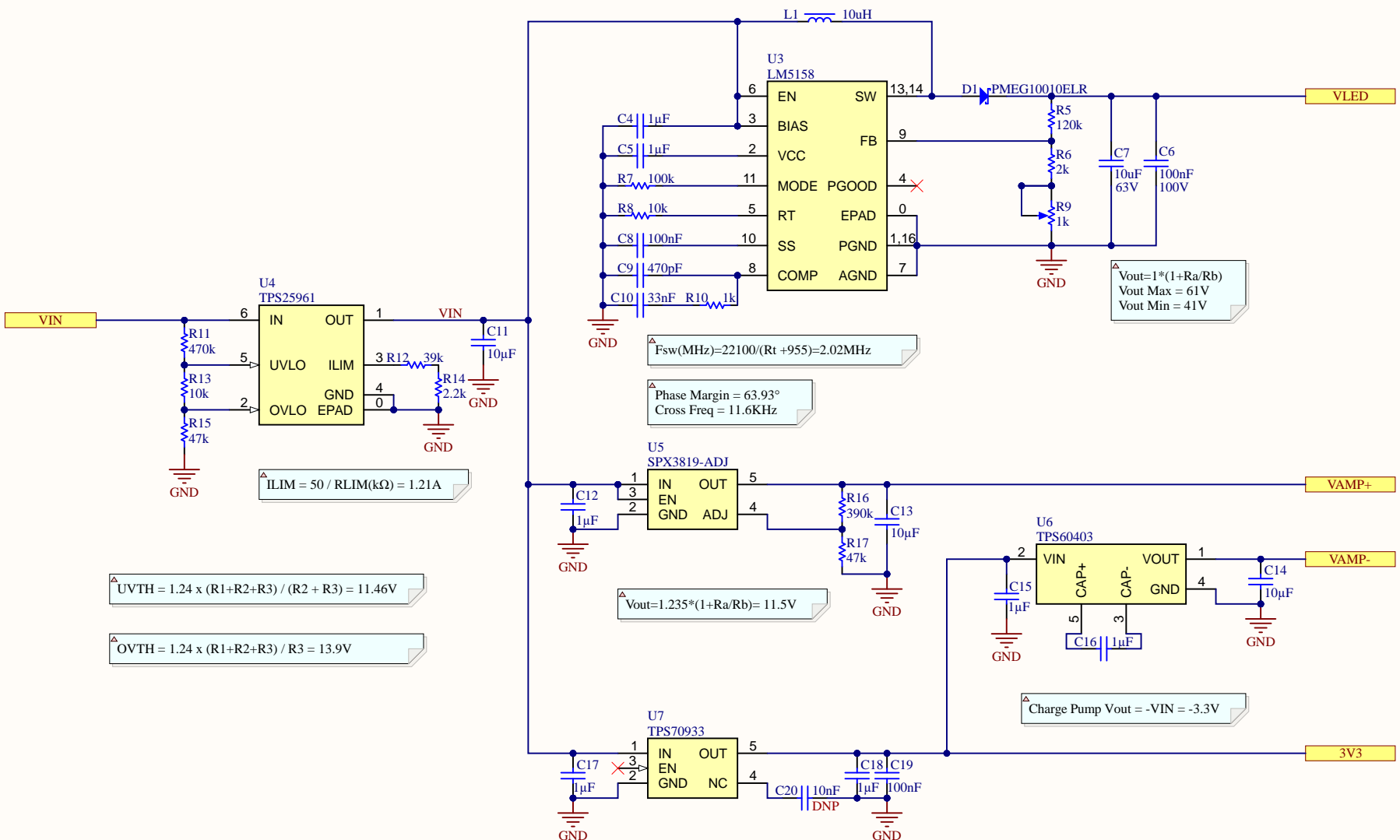
SHEET 1/3

PROJECT Monitor Blanking V3

SIZE A4

FabLab
Sainsbury Wellcome Centre
25 Howland Street W1T 4JG
London
www.sainsburywellcome.org



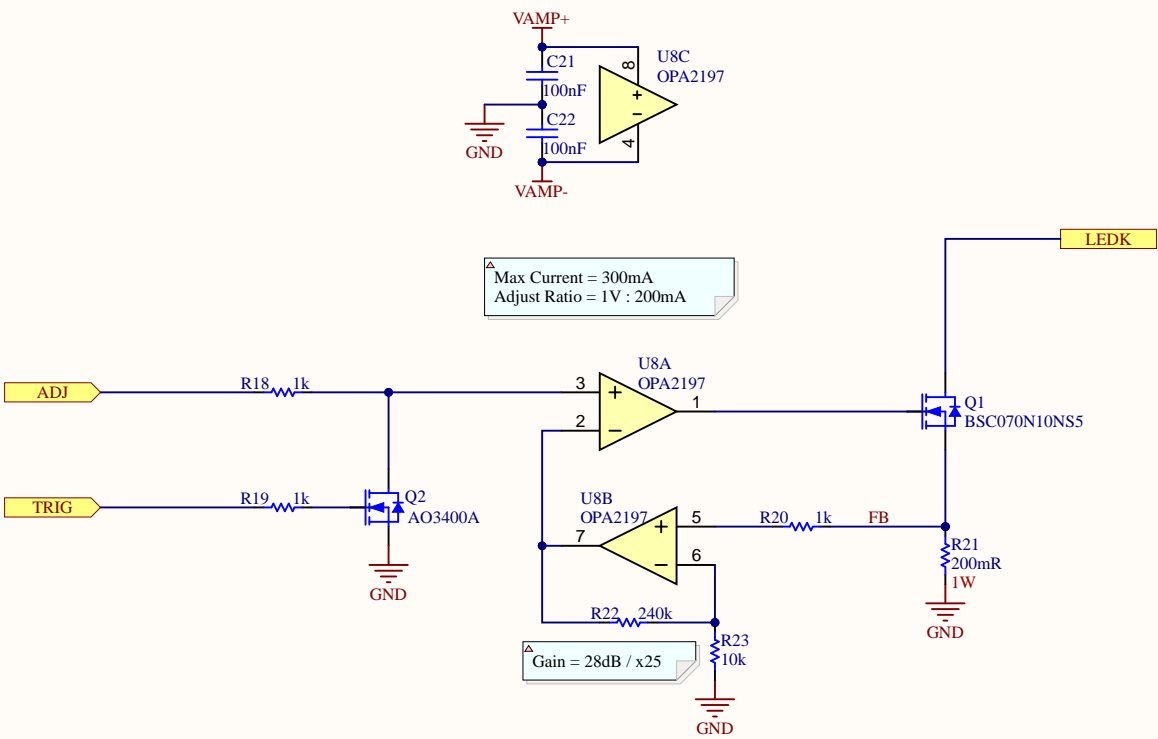


System Power

FILE System Power.SchDoc		REVISION *	
VARIANT [No Variations]	DATE 17/06/2025	SHEET 2 / 3	
PROJECT Monitor Blanking V3		SIZE A4	

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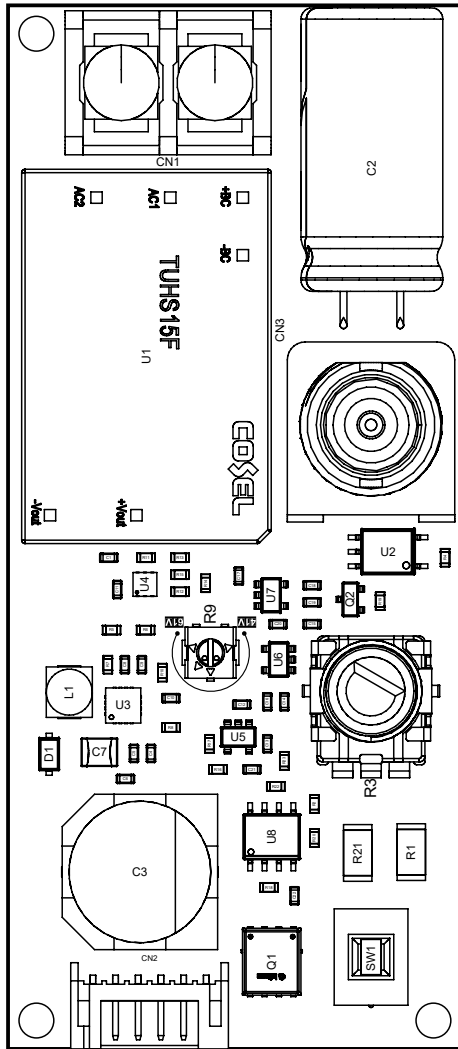
LED Driver

FILE LED Driver.SchDoc		REVISION *	
VARIANT [No Variations]	DATE 17/06/2025	SHEET 3 / 3	
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Top side



Bill Of Materials (Top)

Designator	Quantity	PartNumber	Value
C1, C8, C19, C21, C22	5	CC0603KRX7R9BB104	100nF
C2	1	450BXW33MEFR12.5X25	33µF
C3	1	EEEFK1J221AQ	220uF
C4, C5, C12, C15, C16, C17, C18	7	CL10A105KB8NNNC	1µF
C6	1	CC0603KRX7R0BB104	100nF
C7	1	GRM32ER71J106KA12L	10uF
C9	1	CC0603KRX7R8BB471	470pF
C10	1	CL10B333KB8NNNC	33nF
C11, C13, C14	3	CL10A106MA8NRNC	10µF
C20	1	0603B103K500NT	10nF
CN1	1	4DB-P108-02	
CN2	1	X2016WR-06-46SN	
CN3	1	5227222-3	
D1	1	PMEG10010ELRX	
L1	1	SPM4015T-100M-LR	10uH
Q1	1	BSC070N10NS5	
Q2	1	AO3400A	
R1	1	RC2010FK-0747RL	47R
R2, R8, R13, R23	4	0603WAF1002T5E	10k
R3	1	RK09L114001T	10k
R4	1	0603WAF4700T5E	470
R5	1	0603WAF1203T5E	120k
R6	1	0603WAF2001T5E	2k
R7	1	0603WAF1003T5E	100k
R9	1	3314J-1-102E	1k
R10, R18, R19, R20	4	0603WAF1001T5E	1k
R11	1	0603WAF4703T5E	470k
R12	1	0603WAF3902T5E	39k
R14	1	0603WAF2201T5E	2.2k
R15, R17	2	0603WAF4702T5E	47k
R16	1	0603WAF3903T5E	390k
R21	1	WSL2010R2000FEA18	200mR
R22	1	AC0603DR-07240KL	240k
SW1	1	SPPH410100	
U1	1	TUHS15F12	
U2	1	TLP2361(TPL,E(T	
U3	1	LM5158QRTERQ1	
U4	1	TPS25961DRVR	
U5	1	SPX3819M5-L	
U6	1	TPS60403DBVR	
U7	1	TPS70933DBVR	
U8	1	OPA2197IDR	

Monitor Blanking V3

VARIANT [No Variations]

FILE Assembly.PCBDwf

APPR *

PROJECT Monitor Blanking V3

REVISION 1

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SIZE A4


SCALE 1:1

Innovation and Research
Sainsbury Wellcome Centre
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VARIANT [No Variations]			REVISION 1		
FILE Fabrication.PCBDwf			SHEET 1 / 2		
APPR *		DATE 17/06/2025	SIZE A4		
PROJECT Monitor Blanking V3			SCALE 5:2		

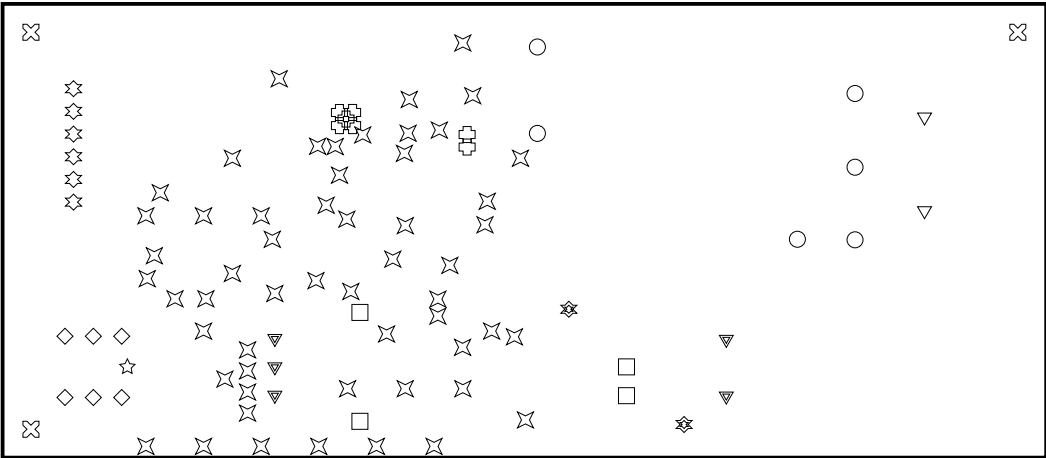


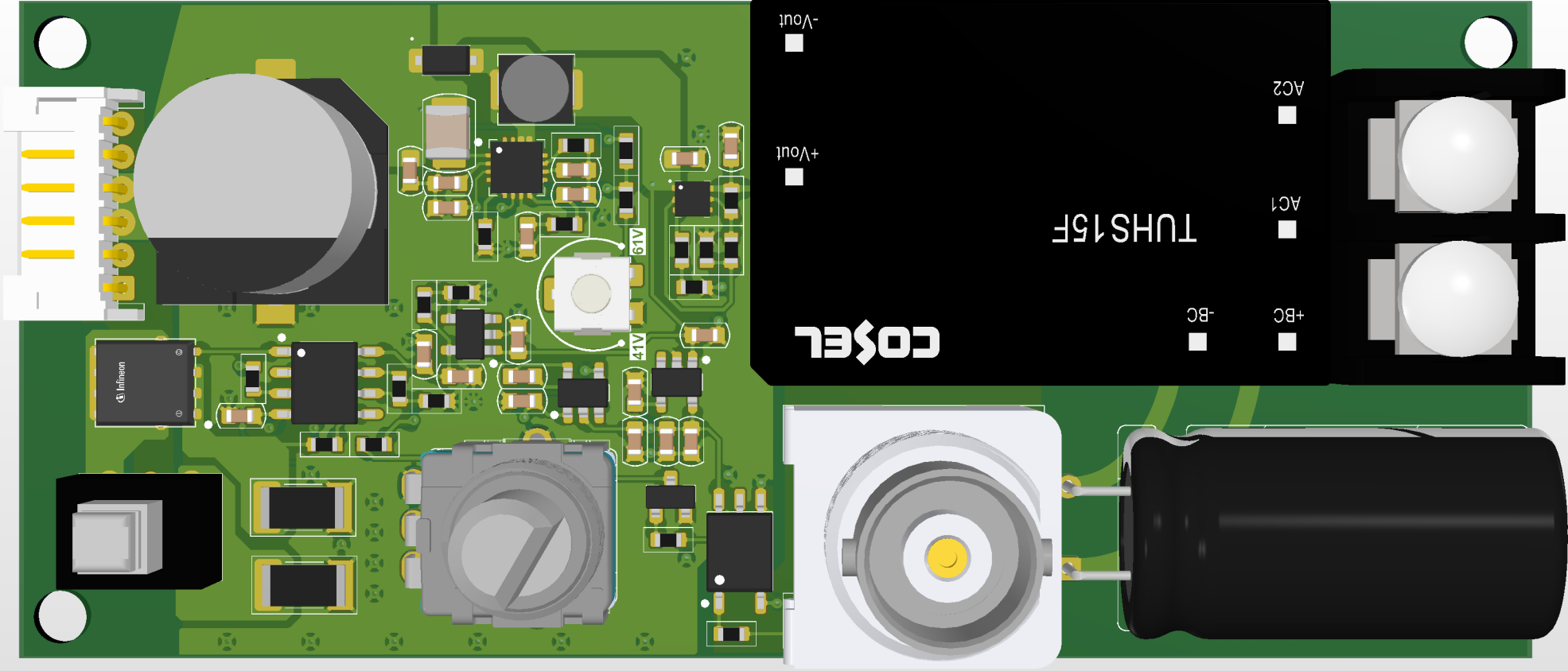
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Drill Table (Top - Bot)

Symbol	Count	Hole Size	Plated	Hole Tolerance
⊕	7	0.2000mm	Plated	
✧	55	0.3048mm	Plated	
☆	6	0.7200mm	Plated	
▽	5	0.8000mm	Plated	
◇	6	0.9000mm	Plated	
□	4	1.0000mm	Plated	
☆	1	1.2000mm	Non-Plated	
○	6	1.5000mm	Plated	
▽	2	1.9000mm	Plated	
✳	2	2.6400mm	Plated	
⊗	3	3.2000mm	Non-Plated	
	97 Total			

Drill Drawing View (Top - Bot)





Designator	Quantity	Value	PartNumber	Comment	Description	Footprint	LCSC Part N.
C1, C8, C19, C21, C22	5	100nF	CC0603KRX7R9BB104	C0603-100nF-50V	0603 Multilayer Ceramic Capacitors MLCC	CAP_CHIP_0603	C14663
C2	1	33µF	450BXW33MEFR12.5X25	EC125-33uF-450V	Aluminum Electrolytic Capacitor, Polarized, Aluminum (wet), 450V, 20%+Tol, 20%-Tol, 33uF, Through Hole Mount	ECAP_DIP_12.5_90	C1589601
C3	1	220uF	EEEFK1J221AQ	EC125-220uF-63V	Radial Can - SMD ALUMINUM ELECTROLYTIC CAPACITOR FK63V220muF20%0.492Dia 12.50mm	ECAP_SMD_D12.5_13.5L	C215762
C4, C5, C12, C15, C16, C17, C18	7	1µF	CL10A105KB8NNNC	C0603-1uF-50V	0603 Multilayer Ceramic Capacitors MLCC	CAP_CHIP_0603	C15849
C6	1	100nF	CC0603KRX7R0BB104	C0603-100nF-100V	0603 0.1 uF 100 V±10% Tolerance X7R Multilayer Ceramic Capacitor	CAP_CHIP_0603	C113803
C7	1	10uF	GRM32ER71J106KA12L	C1210-10uF-63V	Multilayer Ceramic Capacitors MLCC - SMD/SMT 1210 10uF63volts * Derate Voltage/Temp	CAP_CHIP_1210	C437568
C9	1	470pF	CC0603KRX7R8BB471	C0603-470pF-25V	25V 470pF X7R±10% 0603 Multilayer Ceramic Capacitors MLCC - SMD/SMT ROHS	CAP_CHIP_0603	C519413
C10	1	33nF	CL10B333KB8NNNC	C0603-33nF-50V	0603 Multilayer Ceramic Capacitors MLCC	CAP_CHIP_0603	C21117
C11, C13, C14	3	10µF	CL10A106MA8NRNC	C0603-10uF-25V	0603 Multilayer Ceramic Capacitors MLCC	CAP_CHIP_0603	C96446
C20	1	10nF	0603B103K500NT	C0603-10nF-50V	0603 Multilayer Ceramic Capacitors MLCC	CAP_CHIP_0603	DNP
CN1	1		4DB-P108-02	AC IN	CONN BARRIER STRIP 2CIRC 0.325"	BT-8.26-1X2P	C5902324
CN2	1		X2016WR-06-46SN	BACKLIGHT PANEL	Wire-To-Board Connector, Right Angle, 2 mm, 2 Contacts, Header, PH Series	PH_DIP_90_1X6P	C696999
CN3	1		5227222-3	LIGHT TRIGGER	RF BNC Connector, Female, Panel Mount, Board Mount, Solder Terminal, Jack	BNC-TE-5227222	C3175614
D1	1		PMEG10010ELRX	PMEG10010ELR	On a Reel of 3000, Nexperia 100V 1.4A, Schottky Diode, 2-Pin SOD-123W PMEG10010ELRX	SOD123	C179426
L1	1	10uH	SPM4015T-100M-LR	L-PWR-10uH-1.5A	Inductor Power Shielded Wirewound 10uH 20% 100KHz Metal 1.5A 0.345Ohm DCRT/R	IND_PWR_0404	C695172
Q1	1		BSC070N10NS5	BSC070N10NS5	MOSFET Power-Transistor, 100V/ Superior thermal resistance	TDSON-8	C534364
Q2	1		AO3400A	AO3400A	30V 5.7A 26.5mQ@10V, 5.7A 1.4W 1.5V@250uA 1 NChannel SOT-23-3L MOSFETs	SOT23	C20917
R1	1	47R	RC2010FK-0747RL	R2010-47R	Res Thick Film 2010 47 Ohm 1% 3/4W±100ppm/°C Molded SMD SMD Embossed T/R	RES_CHIP_2010	C877463
R2, R8, R13, R23	4	10k	0603WAF1002T5E	R0603-10K	100mW Thick Film Resistors 75V±100ppm/°C ±1% 0603 Chip Resistor	RES_CHIP_0603	C25804
R3	1	10k	RK09L114001T	BRIGHTNESS	Potentiometer, 0.05W, 10000ohm, 10V, 20%+/-Tol, 1 Turn(s), 4845	RK09L1140	C470463
R4	1	470	0603WAF4700T5E	R0603-470R	100mW Thick Film Resistors 75V±100ppm/°C ±1% 0603 Chip Resistor	RES_CHIP_0603	C23179
R5	1	120k	0603WAF1203T5E	R0603-120K	100mW Thick Film Resistors 75V±100ppm/°C ±1% 0603 Chip Resistor	RES_CHIP_0603	C25808
R6	1	2k	0603WAF2001T5E	R0603-2K	100mW Thick Film Resistors 75V±100ppm/°C ±1% 0603 Chip Resistor	RES_CHIP_0603	C22975
R7	1	100k	0603WAF1003T5E	R0603-100K	100mW Thick Film Resistors 75V±100ppm/°C ±1% 0603 Chip Resistor	RES_CHIP_0603	C25803
R9	1	1k	3314J1-102E	VR-SMD-1K-B	Trimmer, Cermet, 0.25W, 1000ohm, 300V, 20%+/-Tol, -100, 100ppm/Cel, 1 Turn(s), 2018	VR_SMD_4.5mm	C124640
R10, R18, R19, R20	4	1k	0603WAF1001T5E	R0603-1K	100mW Thick Film Resistors 75V±100ppm/°C ±1% 0603 Chip Resistor	RES_CHIP_0603	C21190
R11	1	470k	0603WAF4703T5E	R0603-470K	100mW Thick Film Resistors 75V±100ppm/°C ±1% 0603 Chip Resistor	RES_CHIP_0603	C23178
R12	1	39k	0603WAF3902T5E	R0603-39K	100mW Thick Film Resistors 75V±100ppm/°C ±1% 0603 Chip Resistor	RES_CHIP_0603	C23153
R14	1	2.2k	0603WAF2201T5E	R0603-2K2	100mW Thick Film Resistors 75V±100ppm/°C ±1% 0603 Chip Resistor	RES_CHIP_0603	C4190
R15, R17	2	47k	0603WAF4702T5E	R0603-47K	100mW Thick Film Resistors 75V±100ppm/°C ±1% 0603 Chip Resistor	RES_CHIP_0603	C25819
R16	1	390k	0603WAF3903T5E	R0603-390K	100mW Thick Film Resistors 75V±100ppm/°C ±1% 0603 Chip Resistor	RES_CHIP_0603	C23150
R21	1	200mR	WSL2010R2000FEA18	R2010-0R2	Res Metal Strip 2010 0.2 Ohm 1% 1W±75ppm/°C Molded SMD SMD Embossed Plastic T/R	RES_CHIP_2010	C2073579
R22	1	240k	AO603DR-07240KL	R0603-240K	100mW Thick Film Resistors 75V±100ppm/°C ±1% 0603 Chip Resistor	RES_CHIP_0603	C227471
SW1	1		SPPH410100	FORCE ON	Switch Push Button N.O./N.C. DPDT Plunger 0.1A 30VDC Latching PC Pins Thru-Hole Bulk	SW_LOCK_SPPH410100	C370973
U1	1		TUHS15F12	TUHS15F12	AC/DC 15W 12V Single Output Power Supply, Encapsulated Board Mount Module	TUHS15F12	C3031238
U2	1		TLP2361(TPL,E(T	TLP2361	Logic IC Output Optocoupler, 1-Channel, 1-Element, 3750V Isolation, 20Mbps	SO5	C107626
U3	1		LM5158QRTERQ1	LM5158	5-A, 40-V, wide VIN boost, flyback, & SEPIC converter 16-WQFN -40 to 150	QFN16_3X3_0.5E_EP	C3188431
U4	1		TPS25961DRVR	TPS25961	2.7-V-19-V, 106-mQ, eFuse With Adjustable Current Limit and Short-Circuit	WSON6	C5571272
U5	1		SPX3819M5-L	SPX3819-ADJ	Adjustable Positive LDO Regulator, 0.7V Dropout, PDSO5	SOT23-5	C9056
U6	1		TPS60403DBVR	TPS60403	60mA Charge Pump Voltage Inverter with Fixed 250kHz Operation 5-SOT-23 -40 to 85	SOT23-5	C11338
U7	1		TPS70933DBVR	TPS70933	LDO Regulator Pos 3.3V 0.15A 5-Pin SOT-23 T/R	SOT23-5	C89347
U8	1		OPA2197IDR	OPA2197	10MHz 5pA Dual channel SOIC-8 Precision Op Amps	SOIC8	C139363