

BUCK CONVERTER

29/10/2025

Variant: No variant

DRAFT 20-09-2025

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DESIGN CONSIDERATIONS

DESIGN NOTE:
Example text for informational
design notes.

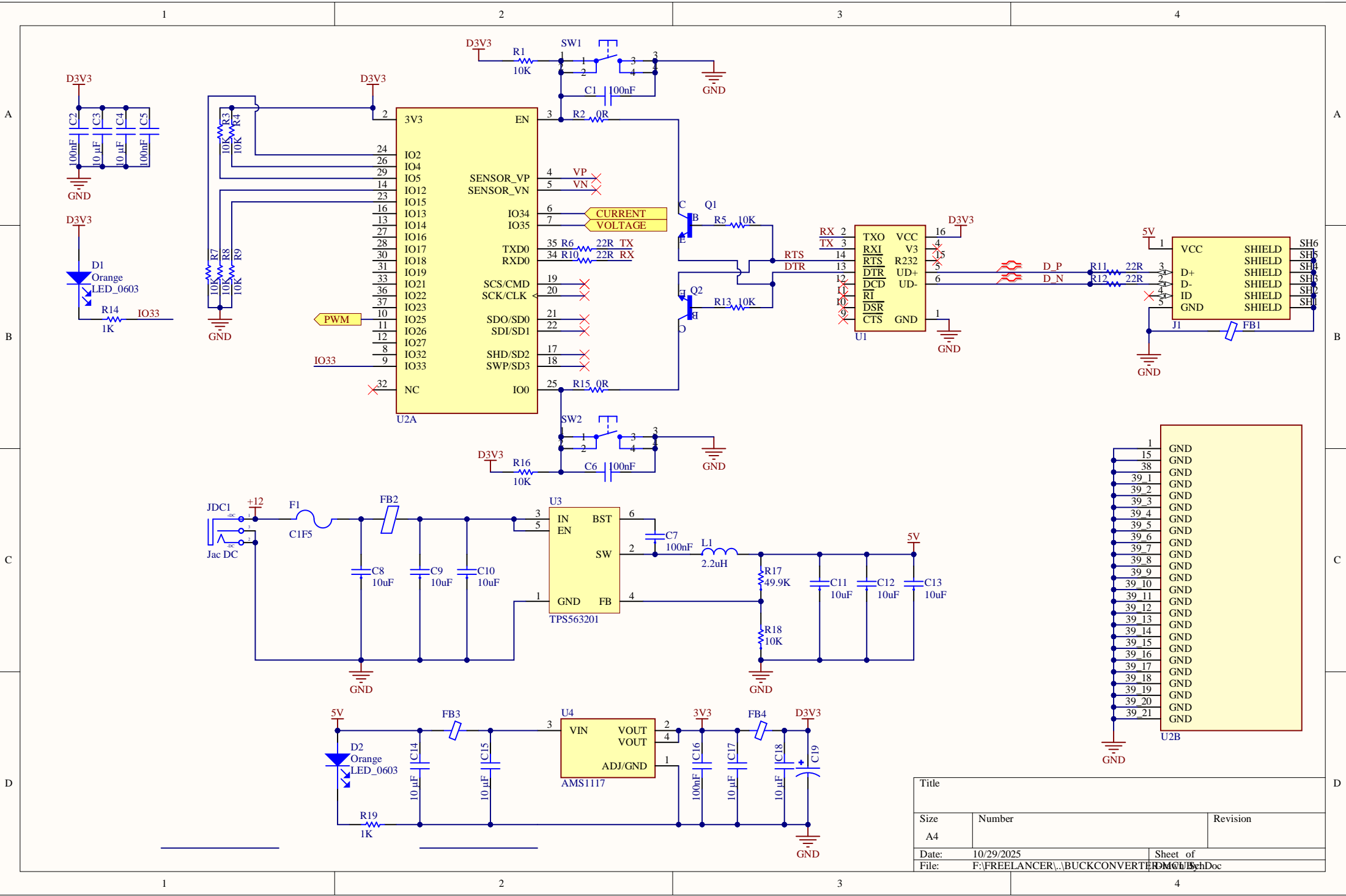
DESIGN NOTE:
Example text for cautionary
design notes.

DESIGN NOTE:
Example text for debug notes.

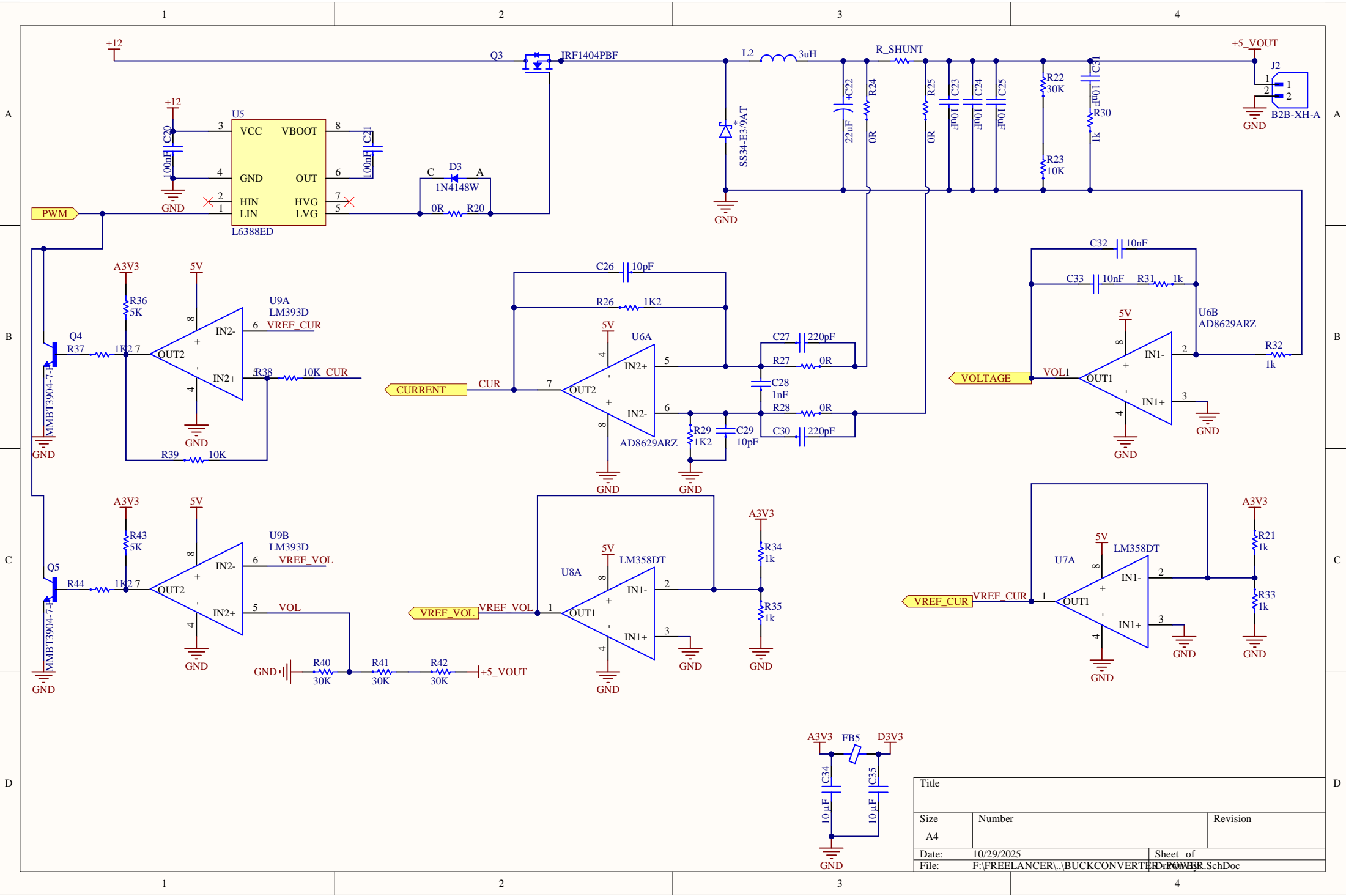
DESIGN NOTE:
Example text for critical
design notes.

LAYOUT NOTE:
Example text for critical
layout guidelines.

Title		
Size A3	Number	Revision
Date: 10/29/2025	Sheet of	
File: F:\FREELANCER\...\COVER PAGE.Sch	Drawn By:	



Title			
Size	Number		Revision
A4			
Date:	10/29/2025		Sheet of
File:	F:\FREELANCER\BUCK CONVERTER\BUCK CONVERTER.DOC		1 of 1



Title		
Size	Number	Revision
A4		
Date:	10/29/2025	Sheet of
File:	F:\FREELANCER\BUCK CONVERTER POWER	SchDoc

1	2	3	4
A			A
B			B
C			C
D			D
1	2	3	4

Title		
Size A4	Number	Revision
Date:	10/29/2025	Sheet of
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Comment	Description	Designator	Footprint	Libref	Quantity
SS34-E3/WAT	Rectifier Diode, Schottky, 1 Phase, 1 Element, 3A, 40V Vf180mV, Silicon, DGS 11448		SS34	SS34-E3/WAT	1
100pf	CAP0603 X7R 100pF 10% 10V	C1, C2, C3, C4, C16	CAP 0603	QW-100V7R100M100T	5
100pf	CAP0603 X7R 100pF 10% 10V	C3, C4, C14, C15, C17, C18, C14, C15	CAP 0603	QW-100V7R100M100T	8
1000pf	CAP CER 1000pF 10% 50V X7R 0603 SMD	C7	CAP-CER0603-0.0H	CAP-CER0603 1000pF 10% 50V X7R 0603 SMD	1
100uF	CAP CER 100uF 20% 6.3V X5R 0402 SMD	C8, C9, C10, C11, C12, C13	CAP-CER0402-200mH	CAP-CER0402 100uF 20% 6.3V X5R 0402 SMD	4
ECATONH331	Cap Aluminum 330uF 16V 20% (8 X 11.5mm) Radial Aluminum Cylindrical Can 3.5mm 360mA 600V 1700 Bulk	C19	330uF-5mm	ECATONH331	1
1000pf	CAP CER 1000pF 20% 6.3V X5R 0402 SMD	C20, C21	CAP-CER0402-200mH	CAP-CER0402 100uF 20% 6.3V X5R 0402 SMD	2
22uF		222	100uF-5mm	CAP 43uF 63V 1	1
10uF	SMD Multilayer Ceramic Capacitor, 10 uF, 25 V, 0603 (1608 Metric), 1/4% 20%, X5R	C22, C24, C25	Cap cer 0603	GR1188R16V10M6E13 0	3
100pF	CAP CER 220pF 10% 50V X7R 0603 SMD	C26, C29	CAP-CER0603-0.0H	CAP-CER0603 220pF 10% 50V X7R 0603 SMD	2
220pF	CAP CER 220pF 10% 50V X7R 0603 SMD	C27, C30	CAP-CER0603-0.0H	CAP-CER0603 220pF 10% 50V X7R 0603 SMD	2
1uF	CAP CER 220pF 10% 50V X7R 0603 SMD	C28	CAP-CER0603-0.0H	CAP-CER0603 220pF 10% 50V X7R 0603 SMD	1
10uF	SMD Multilayer Ceramic Capacitor, 10 uF, 25 V, 0603 (1608 Metric), 1/4% 20%, X5R	C31, C32, C33	Cap cer 0603	GR1188R16V10M6E13 0	3
Orange	LED SMD RHTLED ORANGE 600NM 0603	D1, D2	LED	LED ORANGE 600NM 0603	2
10u4148W	Small Signal Diode, Single, 100V, 300mA, 1.25 V, 4Nv, 2 A Rctrs Component	D3	10u4148	10u4148W-7-F	1
CT15	Fuse Chip Fast Acting 5A 125V SMD Solider Pad 1206 3.2 x 1.5 x 0.8 0.13mm	F1	FUSE CT15	CT15	1
320 Ohms @ 100 MHz	100 Ohm Resistor 320 0.6W 0603 1% N	F81, F83, F84, F85	F8_0603	BLM108PC3315H1D	4
100MHz 2A 50mOhm	Permitt Resistor Multi- layer 500mW 20% 100MHz 2A 50mOhm 0.6W 0603 Package 1% N	F82	F8_0603	BLM108PC1215H1D	1
Micro B		B	Micro B	Micro B	1
0603_081A		B	0603_081A	0603_081A	1
0603_081A	0603_081A	0603_081A	0603_081A	0603_081A	1
2.2uF	IND MGR T102T 2.2uH 20% 5A 0402 SMD	L1	IND 0402-2R2	IND0402016 T102T 2.2uH 20% 5A 0402 SMD	1
3uH	IND MGR T102T 1.5uH 20% 1A 0402 SMD	L2	IND 0402-3uH	IND0402013 T102T 1.5uH 20% 1A 0402 SMD	1
MM25	MMBT3904 Series 40 V CE Breakdown 0.2A NPN General Purpose Amplifier - SOT-23	C1, C2	SOT23-3	MMBT3904	2
081740MPRF	Single N-Channel 40 V 0.004 Ohm 196 mC 40V 17" Power Mosfet - TO-262-3	C3	TO220 AB	081740MPRF	1
MMBT3904-7-F	Transistor General Purpose BJT NPN 40 Volt 0.2A Automotive 3-Pin SOT-23	C4, C5	MMBT3904	MMBT3904-7-F	2
10K	Res Thick Film 0603 2.2K Ohm 5% 1/10W +200ppm/C Molded SMD SMD Package 1/6	R1, R3, R4, R5, R7, R8, R9, R13, R16	Res 0603	Resistor 2.2K	6
0R	Res Thick Film 0603 2.2K Ohm 5% 1/10W +200ppm/C Molded SMD SMD Package 1/6 Res Thick Film 0603 0 Ohm 5% 0.25W	R2, R15, R20	Res 0603	Resistor 2.2K Resistor 0R	3
22R	Res Thick Film 0603 2.2K Ohm 5% 1/10W +200ppm/C Molded SMD SMD Package 1/6	R6, R10, R11, R12	Res 0603	Resistor 2.2K	4
1K	Res Thick Film 0603 2.2K Ohm 5% 1/10W +200ppm/C Molded SMD SMD Package 1/6	R14, R19	Res 0603	Resistor 2.2K	2
4K 9K	RES CHIP 3K7 1% 1/10W 0603 SMD	R17	RES-CHIP0603-0.49H- 27Z	RES-CHIP01095 3K7 1% 0603 SMD	1
10K	RES CHIP 2K7 1% 1/10W 0603 SMD	R18, R38, R39	RES-CHIP0603-0.49H- 27Z	RES-CHIP01095 2K7 1% 0603 SMD	3
1u	RES CHIP 33K 1% 1/1W 0603 SMD	R21, R34, R31, R32, R33, R34, R35	RES-CHIP0402-0.39H	RES-CHIP0085 33K 1% 0603 SMD	3
30K	RES CHIP 33K 1% 1/1W 0402 SMD	R32, R40, R41, R42	RES-CHIP0402-0.39H	RES-CHIP0085 33K 1% 0402 SMD	4
10K	RES CHIP 33K 1% 1/1W 0402 SMD	R23	RES-CHIP0402-0.39H	RES-CHIP0085 33K 1% 0402 SMD	1
0R	RES CHIP 3K7 1% 1/10W 0603 SMD	R24, R26, R27, R28	RES-CHIP0603-0.49H- 27Z	RES-CHIP01095 3K7 1% 0603 SMD	4
1K2	RES CHIP 2K7 1% 1/10W 0603 SMD	R29, R29, R37, R44	RES-CHIP0603-0.49H- 27Z	RES-CHIP01095 2K7 1% 0603 SMD	4
5K	RES CHIP 2K7 1% 1/10W 0603 SMD	R36, R43	RES-CHIP0603-0.49H- 27Z	RES-CHIP01095 2K7 1% 0603 SMD	2
0.01R		0-SH00T	0-SH00T	0-SH00T	1
SW2	Switch Button 4-pin	SW1, SW2	SWITCH	SW2	2
ESP32		D1	ESP32C	ESP32C	1
ESP32-WROOM-32UE N8	Multi-protocol Modules SMD module ESP32 WROOM-32UE, ESP32 WROOM-V1, ESP32-V1, V2	L2	ESP32S	ESP32-WROOM-32UE N8	1
TPS5A2001	RES DC/DC TPS5A2001 3A SOT23-5 SMD	L3	SOT23-6	IC50C00001 B00 TPS5A2001 3A SOT23- 6 SMD	1
AMS1117	ALOW DROPOUT VOLTAGE REGULATOR SOT-223	L4	AMS1117	AMS1117	1
LA388ED	Driver 2-OUT High- and-Low-Side Half Bridge 8-Pin SO N Tube P-C 50V 0.6A 10-0 SIDE HV 8-SOIC	L5	SOIC 8	LA388ED	1
AD629ARZ	IC OPAMP 2BIPO DIFF 1.2CMC 8SOIC Zero-Drift Amplifier 2- Channel Rail-to-Rail 0- SOIC	U6	AD629ARZ	AD629ARZ	1
LMC590T	Operational Amplifier, 2, Channels, 1.1 MHz, 1.4 V/Vic, 3V to 30V, 8 Pins, SOIC	U7, U8	LMC590	LMC590T	2
LM393D	LM393 Series Dual 3K V 250 uA SMT Low Power Voltage Comparator, SOIC-8	L9	LMY3	LM393D	1