

Item	Quantity	Reference	Value	MPN	Footprint	Description
1	30	C1,C4,C6,C9,C11,C12,C15,C17,C20,C22,C23,C26,C28,C31,C33,C34,C37,C39,C42,C44,C46,C50,C99,C100,C102,C103,C105,C110,C162,C163	100nF,50V	06035C104K4T2A	CAPC1608X90N	AVX 100nF  10% 50 V dc X7R Dielectric SMD Ceramic Multilayer Capacitor 0603
2	33	C2,C3,C5,C7,C8,C10,C13,C14,C16,C18,C19,C21,C24,C25,C27,C29,C30,C32,C35,C36,C38,C40,C41,C43,C45,C49,C51,C101,C107,C109,C161,C164,C165	1uF, 50V	C1608X5R1H105M080AB	CAPC1608X80N	Multilayer Ceramic Capacitors MLCC - SMD/SMT 1uF 20% 50Volts
3	18	C47,C111,C128,C135,C136,C137,C138,C139,C140,C141,C142,C143,C144,C145,C147,C148,C156,C159	100nF, 25V	06033G104ZAT2A	CAPC1608X90N	0603 Y5V ceramic capacitor,100nF 25V AVX 0603 Standard 100nF Ceramic Multilayer Capacitor, 25 V dc, +85  C, Y5V Dielectric SMD
4	10	C48,C125,C133,C146,C149,C150,C151,C152,C153,C160	1uF, 25V	06033C105KAT2A	CAPC1608X90N	Multilayer Ceramic Capacitors MLCC - SMD/SMT 25V 1uF X7R 0603 10% Tol
5	26	C52,C54,C56,C58,C60,C62,C64,C66,C68,C70,C72,C74,C79,C80,C157,C158,C166,C167,C168,C169,C170,C171,C172,C173,C174,C175	15pF	GRM1555C1H150JZ01D	CAPC1005X55N	Murata 15pF  -5% 50 V dc C0G Dielectric SMD Ceramic Multilayer Capacitor 0402
6	18	C53,C57,C59,C63,C65,C69,C71,C75,C76,C77,C78,C81,C82,C83,C84,C85,C86,C87	100nF	C0402C104K8RACTU	CAPC1005X55N	Capacitor Ceramic X7R 0402 10V 100nF KEMET 100nF Multilayer Ceramic Capacitor (MLCC) 10 V  10% X7R dielectric C SMD max op. temp. +125  C
7	5	C88,C93,C94,C123,C124	100uF	C3216X5R1A107M160AC	CAPC3216X180N	1206 X5R ceramic capacitor 100uF 10V TDK 1206 C 100uF Ceramic Multilayer Capacitor, 10 V dc, +85degC, X5R Dielectric,  -20% SMD
8	1	C89	47uF	CL31A476MPHNNNE	CAPC3216X180N	Cap Ceramic 47uF 10V X5R 20% Pad SMD 1206 85  C T/R
9	6	C90,C122,C126,C127,C154,C155	10uF	CC0402FRNPO9BN180	CAPC1005X55N	Multilayer Ceramic Capacitors MLCC - SMD/SMT 18pF 50V NPO 1%
10	2	C91,C95	4.7uF	CC0603KRX5R6BB475	CAPC1608X90N	YAGEO (PHYCOMP) - CC0603KRX5R6BB475 - CAP, MLCC, X5R, 4.7UF, 10V, 0603
11	4	C98,C104,C106,C108	10nF	C0603C123J3GACTU	CAPC1608X85N	CAPACITOR, 0603 12nF  5% 25V
12	10	D2,D3,D4,D5,D6,D7,D8,D9,D10,D11	BZX384B3V6	BZX384B3V6	SODFL3516X85N	PANASONIC ELECTRONIC COMPONENTS - DZ2W03300L - DIODE, ZENER, 1W, 3.3V, MINI2-F3-B
13	11	D13,D14,D15,D20,D21,D22,D25,D26,D27,D28,D29	MBR140SFT1G	MBR140SFT1G	SODFL3616X98N	Diode Schottky 40V 1A SOD-123FL ON Semiconductor MBR140SFT1G Schottky Diode, 1A, 40V, 2-Pin SOD-123FL
14	1	D16	SMAJ30CA-13-F	SMAJ30CA-13-F	DIONM5226X230N	ESD Suppressors / TVS Diodes 400W 30V
15	1	D17	SZNUP3105LT3G	SZNUP3105LT3G	SOT96P237X111-3N	ESD Suppressors / TVS Diodes SOT-23 27 CAN BUS
16	2	D18,D24	D55V0M1B2WSQ-7	DF2S6P2FU,H3F	SOD2513X115N	ESD Suppressors / TVS Diodes Uni-Directional ESD protection diode VRWM:5.5V IPP: 80A Vesd:+/ -30kV
17	1	D19	DF2S6P2FU_H3F	DF2S6P2FU,H3F	SOD2513X115N	ESD Suppressors / TVS Diodes Uni-Directional ESD protection diode VRWM:5.5V IPP: 80A Vesd:+/ -30kV

18	1	D23	D55V0M1B2WSQ-7	D55V0M1B2WSQ-7	SOD2513X115N	ESD Suppressors / TVS Diodes Uni-Directional ESD protection diode VRWM:5.5V IPP: 80A Vesd:+/-30kV
19	24	FB13,FB14,FB15,FB16,FB28, FB29,FB30,FB31,FB32,FB33, FB34,FB35,FB36,FB37,FB38, FB39,FB40,FB41,FB42,FB43, FB44,FB45,FB46,FB47	BKP1005HS121-T		RESC1005X35N	IND -- 0.039UH@100MHZ 250MA 5% 0402
20	11	FB17,FB18,FB19,FB20,FB21, FB22,FB23,FB24,FB25,FB26, FB27	MMZ1005F221ET000	MMZ1005F221ET000	RESC1005X55N	Ferrite Beads 0402 220ohms 25% General Signal Line
21	2	FL1,FL2	ACM1211-102-2PL-TL01	ACM1211-102-2PL-TL01	ACM1211	TDK - ACM1211-102-2PL-TL01 - FILTER, COMMON MODE, POWER LINE, SMD
22	6	F1,F2,F3,F4,F12,F13	1812L010DR	1812L010DR	FUSC4632X125N	LITTELFUSE - 1812L010DR - POLYFUSE, PTC, 1812, 0.1A
23	5	F5,F6,F7,F9,F10	2016L100_33DR	2016L100/33DR	FUSC5141X75N	PTC 33V POLYFUSE SURF MOUNT 2016 1.10A Littelfuse 1.1A Resettable Surface Mount Fuse, 33 V dc
24	1	F8	1812L110_24DR	1812L110/24DR	FUSC4632X107N	Resettable Fuses - PPTC PTC 24V POLY 1812 HALOGEN-FREE 1.10A
25	12	IC1,IC2,IC3,IC6,IC7,IC8,IC11, IC12,IC13,IC16,IC17,IC19	OPA192QDGKRQ1	OPA192QDGKRQ1	SOP65P490X110-8N	Automotive High-Voltage Rail-to-Rail Input/Output Precision Op Amp E- Trim™ Series
26	4	IC5,IC10,IC15,IC20	MUX36S08IRUMR	MUX36S08IRUMR	QFN16	MUX36xxx 36-V, Low-Capacitance, Low-Leakage-Current, Precision, Analog Multiplexers
27	2	IC21,IC52	LT3461AES6TRMPBF	LT3461AES6TRMPBF	SOT95P280X100-6N	DC/DC Converter
28	2	IC22,IC53	LM317LDR2G	LM317LDR2G	SOIC127P600X175-8N	ON Semiconductor, 1.2 37 V Linear Voltage Regulator, 100mA, 1- Channel, Adjustable,  4% 8-Pin, SOIC LM317LDR2G
29	4	IC23,IC25,IC27,IC29	OPA340NA_250	OPA340NA/250	SOT95P280X145-5N	Single-Supply, Rail-to-Rail Operational Amplifiers MicroAmplifier™ Series
30	4	IC24,IC26,IC28,IC30	INA168NA_250	INA168NA/250	SOT95P280X145-5N	60V, High-Side, Current Output Current Sense Amplifier
31	1	IC31	FT232HL-REEL	FT232HL-REEL	QFP50P900X900X160-48N	USB 2.0 to UART/FIFO Interface, LQFP48 FTDI Chip FT232HL-REEL Universal Asynchronous Receiver & Transmitter RS232, RS422, RS485 UART 12Mbit/s, 1.8 V, 3.3 V
32	1	IC32	93LC56BT-I_OT	93LC56BT-I/OT	SOT95P270X145-6N	2K,128 X 16,Serial EE,SOT23
33	1	IC33	BSS84P	BSS84P	SOT95P260X110-3N	MOSFET P-Channel 60V 0.17A SOT23 Infineon BSS84P P-channel MOSFET Transistor, 0.17 A, 60 V, 3-Pin SOT-23
34	1	IC34	LM2595S-3.3	LM2595S-3.3	KTT0005B	Stepdown switching regulator,LM2595S-3.3
35	1	IC35	SN65HVD233D	SN65HVD233D	SOIC127P600X175-8N	Texas Instruments SN65HVD233D, CAN Transceiver 1Mbit/s 1-channel ISO 11898, 8-Pin SOIC
36	1	IC37	MAX3221CPWR	MAX3221CPWR	SOP65P640X120-16N	3-V to 5.5-V Single-Channel RS-232 Line Driver/Receiver
37	1	IC38	ADM2582EBRWZ	ADM2582EBRWZ	SOIC127P1032X265-20N	ADM2582EBRWZ, Line Transceiver 16Mbit/s Differential, 3.3 V, 5 V, 20- Pin SOIC W
38	8	IC39,IC41,IC42,IC44,IC45, IC46,IC47,IC49	ADG719BRTZ	ADG719BRTZ	SOT95P280X145-6N	2:1 Mux
39	3	IC40,IC43,IC48	PCAL9555APW_118	PCAL9555APW,118	SOP65P640X110-24N	NXP - PCAL9555APW,118 - I/O EXPANDER, 16BIT, 400KHZ, TSSOP-24
40	1	IC50	STMPS2151STR	STMPS2151STR	SOT95P280X145-5N	STMICROELECTRONICS - STMPS2151STR - POWER SWITCH, 1CH, 500MA, SOT23-5
41	1	IC51	LM2595S-5.0	LM2595S-5.0	TO170P1435X457-6N	SIMPLE SWITCHER  Power Converter
42	24	J1,J2,J3,J4,J5,J7,J9,J11,J14, J15,J16,J17,J18,J19,J24,J25, J29,J32,J34,J52,J57,J58,J63, J67	282857-2	282857-2	SHDR2W110P0X508_1X2_1016X1000X1925P	TERMI-BLOK 5.08mm PCB terminal block, 2P TE Connectivity Buchanan Series 5.08mm Pitch Vertical PCB Terminal Block with Clamping Screw Termination, PCB Mount
43	1	J13	1-826656-2	1-826656-2	HDRV24W85P254_2X12_3048X500X900P	2x12 straight pin header gold Mod II

44	1	J20A	1717831-1	1717831-1	17178311	Mini PCI Express Card Socket,52way
45	1	J26	PRT-00119	PRT-00119	PRT00119	SparkFun Accessories DC Barrel Power Jack/Connector
46	3	J31,J33,J35	5747840-6	5747840-6	TE-5747840-6	9 way r/a PCB D plug w/screw lock,6A
47	2	J42,J43	PH-1X3SG	PH-1X3SG	HDRV3W66P0X254_1X3_762X250X880P	2.54mm x 2.54mm Pin Header Strip, 3 pin
48	13	J44,J47,J48,J49,J50,J51,J61,J62,J64,J66,J68,J69,J70	BBS-102-T-B	BBS-102-T-B	HDRV2W46P0X254_1X2_508X254X1169P	SAMTEC - BBS-102-T-B - HEADER, 2.54MM, PCB, 1X2WAY
49	1	J53	D55V0M1B2WSQ-7		WR-COM_USB_614105150621	
50	1	J54	614105150621		WR-COM_USB_614105150621	
51	2	J55,J56	615006143221		WR-MJ_615006143221	
52	2	LED1,LED2	LTST-C190KSKT	LTST-C190KSKT	LEDC1608X90N	Lite-On LTST-C190KSKT Yellow LED, 587 nm, 1608 (0603), Rectangle Lens SMD Package
53	2	L1,L6	LQH32CN470K23L	LQH32CN470K23L	LQH32DN100K23L	LQH32CN_23 Series Inductor 47 μ H \pm 10% 1210 (3225)
54	2	L2,L4	SRR1260-680M	SRR1260-680M	INDPM125125X650N	Power inductor SMD shielded 68uH 2.1A Bourns SRR1260 Series Shielded Wire-wound SMD Inductor with a Ferrite Core, 68 μ H \pm 20% 2.1A Idc Q:22
55	2	L3,L5	744233670	744233670	WE-CNSW_08059	SMD Common Mode Noise Suppressor WE-CNSW HF
56	1	Q1	SSM3J332R_LF	SSM3J332R,LF	2-3Z1S_SOT-23F_	MOSFET SM Sig P-CH MOS 12V VGSS -6A -30VDSS
57	24	R1,R4,R5,R6,R8,R9,R21,R24,R25,R26,R28,R29,R41,R44,R45,R46,R48,R49,R61,R64,R65,R66,R67,R69	100k	CRCW0603100KFKEA	RESC1608X50N	CRCW0603 Resistor T/R 0.10W,1%,100K Vishay CRCW Series Thick Film Surface Mount Resistor 0603 Case 100kOhm \pm 1% 0.1W \pm 100ppm/ $^{\circ}$ C
58	20	R2,R7,R22,R27,R42,R47,R62,R68,R124,R129,R142,R143,R144,R145,R148,R149,R150,R151,R166,R170	0R	CRCW06030000Z0EB	RESC1608X50N	CRCW0603 Surface Mount Resistor 0R0 Vishay CRCW Series Thick Film Surface Mount Resistor 0603 Case 0 Ω \pm 1% 0.1W
59	18	R3,R10,R11,R12,R23,R31,R43,R50,R51,R52,R63,R70,R71,R72,R84,R157,R158,R186	200k	ERJ3GEYJ204V	RESC1608X55N	Panasonic ERJ3G Series Thick Film Surface Mount Fixed Resistor 0603 Case 200k Ω \pm 5% 0.1W \pm 200ppm/ $^{\circ}$ C
60	8	R13,R53,R73,R147,R155,R156,R159,R163	300k	ERJ3RED3003V	RESC1608X55N	Panasonic Thick Film Surface Mount Resistor 0603 Case 300k Ω \pm 0.5% 0.1W \pm 100ppm/ $^{\circ}$ C
61	30	R17,R18,R19,R20,R37,R38,R39,R40,R57,R58,R59,R60,R77,R78,R79,R80,R90,R94,R99,R103,R126,R127,R130,R131,R132,R133,R134,R135,R136,R137	499k	CRCW0603499KFKEA	RESC1608X50N	CRCW0603 Resistor T/R 0.10W,1%,499K Vishay CRCW Series Thick Film Surface Mount Resistor 0603 Case 499kOhm \pm 1% 0.1W \pm 100ppm/ $^{\circ}$ C
62	19	R81,R85,R106,R108,R110,R111,R112,R113,R114,R115,R116,R120,R121,R125,R138,R139,R140,R172,R176	10k	CRCW040210K0FKED	RESC1005X40N	CRCW0402 Resistor T/R 0.063W,1%,10K Vishay CRCW Series Thick Film Surface Mount Resistor 0402 Case 10k Ω \pm 1% 0.063W \pm 100ppm/ $^{\circ}$ C
63	1	R82	33k	CRCW060333K0JNEA	RESC1608X50N	Vishay CRCW Series Thick Film Surface Mount Resistor 0603 Case 33k Ω \pm 5% 0.1W \pm 200ppm/K
64	5	R83,R92,R96,R100,R104	49.9k	ERA3AEB4992V	RESC1608X55N	Panasonic ERA Series Thin Film Surface Mount Resistor 0603 Case 49.9k Ω \pm 0.1% 0.1W \pm 25ppm/ $^{\circ}$ C
65	3	R86,R177,R185	240R	CRCW0603240RFKEA	RESC1608X50N	Vishay CRCW Series Thick Film Surface Mount Resistor 603 Case 240 Ω \pm 1% 0.1W \pm 100ppm/ $^{\circ}$ C

66	1	R87	330R	CRCW0603330RJNEA	RESC1608X50N	Thick Film;Res 330 R;0.1W; 5%;SMT;0603 Vishay CRCW Series Thick Film Surface Mount Resistor 0603 Case 330R ±1% 5% 0.25W ±200ppm/K
67	1	R88	6.2k		RESC1608X55N	Panasonic ERA Series Thin Film Surface Mount Resistor 0603 Case 6.2k ±1% 0.1% 0.1W ±25ppm/°C
68	4	R89,R93,R98,R102	500R	RT0603BRC07500RL	RESC1608X55N	Thin Film Resistors - SMD 500 ohm 0.1% 15ppm High Stability
69	4	R91,R95,R97,R101	1R	CRCW12061R00FKEA	RESC3216X60N	Vishay CRCW Series Thick Film Surface Mount Resistor 1206 Case 1R ±1% 0.25W ±100ppm/°C
70	1	R105	510		RESC1005X35N	RES MF 510 OHM 1/16W 10% 0402
71	1	R107	12k 1%	CRCW040212K0FKED	RESC1005X40N	Vishay CRCW Series Thick Film Surface Mount Resistor 0402 Case 12k ±1% 0.063W ±100ppm/°C
72	5	R109,R117,R118,R183,R184	2k	CPF0402B2K0E1	RESC1005X35N	TE Connectivity CPF Series Precision Thin Film Surface Mount Resistor 402 Case 2k ±1% 0.1% 0.063W ±25ppm/°C
73	2	R122,R123	60.4R	CRCW060360K4FKEA	RESC1608X50N	Vishay CRCW Series Thick Film Surface Mount Resistor 603 Case 60.4k ±1% 0.1W ±100ppm/°C
74	1	R128	120R	ERA3AEB121V	RESC1608X55N	Panasonic ERA Series Thin Film Surface Mount Fixed Resistor 0603 Case 120R ±1% 0.1% 0.1W ±25ppm/°C
75	6	R152,R153,R154,R160,R161,R162	1M		RESC1005X40N	CRCW0402 Resistor T/R 0.063W,1%,10K Vishay CRCW Series Thick Film Surface Mount Resistor 0402 Case 10k ±1% 0.063W ±100ppm/°C
76	4	R164,R165,R169,R171	Do Not Mount	CRCW06030000Z0EB	RESC1608X50N	CRCW0603 Surface Mount Resistor 0R0 Vishay CRCW Series Thick Film Surface Mount Resistor 0603 Case 0R ±1% 0.1W
77	4	R189,R190,R191,R192	1k	HRG3216P-1001-B-T5	RESC3216X60N	1k 1W resistor 1206
78	10	R194,R195,R196,R197,R198,R199,R200,R201,R202,R203	100R	RT0603BRC07100RL	RESC1608X55N	Thin Film Resistors - SMD 500 ohm 0.1% 15ppm High Stability
79	1	S1	1301.9314	1301.9314	13019319	IP40 Black Button Tactile Switch, Single Pole Single Throw (SPST) 0.7mm Surface Mount
80	1	TP3	1508-0-00-15-00-00-03-0	1508-0-00-15-00-00-03-0	1.51E+15	IC & Component Sockets 1P SMT PIN,TESTPOINT LOOSE
81	1	Y1	LFXTAL069944Reel	LFXTAL069944Reel	LFXTAL059575Cutt	Crystals 12MHz 15pF -40C 85C
82	4	Z2,Z6,Z10,Z14	BZX384C3V6-E3-08	DZ2W03300L	SODFL3516X85N	PANASONIC ELECTRONIC COMPONENTS - DZ2W03300L - DIODE, ZENER, 1W, 3.3V, MINI2-F3-B
83	4	Z3,Z7,Z11,Z15	BZD27C36P-E3-08	BZD27C36P-E3-08	SODFL3718X108N	Vishay BZD27C36P-E3-08 Zener Diode, 36V 6% 2.3 W SMT 2-Pin DO-219AB
84	4	Z17,Z18,Z19,Z20	MMSZ5264BT1G	MMSZ5264BT1G	SOD3716X135N	ON Semiconductor MMSZ5264BT1G Zener Diode, 60V 5% 500 mW SMT 2-Pin SOD-123