

Bill of materials

Table 1. STDES-3KWTLCP bill of materials

Item	Q.ty	Ref.	Part/value	Description	Manufacturer	Order code
1	1	Table 2. Totem pole PFC	-	Totem pole PFC	ST	Not available for separate sale
2	1	Table 3. Full bridge LLC	-	Full bridge LLC	ST	Not available for separate sale

Table 2. Totem pole PFC bill of materials

Item	Q.ty	Ref.	Part/value	Description	Manufacturer	Order code
1	2	C101, C102	1 nF, radial, disc, 400 V _{AC} , ±20%	Ceramic capacitors	Kemet	C907U102MYVDBA7317
2	1	C103	1.5 µF, radial, 305 V _{AC} , ±20%	Ceramic capacitor	TDK Electronics Inc.	B32923C3155M000
3	4	C104, C105, C107, C108	10 nF, radial, 1500 Vdc, ±10%	Ceramic capacitors	TDK Electronics Inc.	B32022A3103K000
4	2	C106, C109	1.5 µF, radial, 305 V _{AC} , ±20%	Ceramic capacitors	TDK Electronics Inc.	B32923C3155M000
5	18	C110, C122, C128, C129, C132, C133, C136, C143, C144, C148, C149, C150, C153, C154, C158, C159, C608, C622	0.1 µF, 0603 (1608 metric), 25 V, ±10%	Ceramic capacitors	Kemet	C0603C104K3RACTU
6	2	C111, C118	27 pF, 0603 (1608 metric), 50 V, ±5%	Ceramic capacitors	Murata Electronics North America	GCM1885C1H270JA16D
7	6	C112, C119, C120, C123, C134, C138	0603 (1608 metric), SMD	Ceramic capacitors (not mounted)	-	-
8	1	C113	820 µF, radial, can - snap-in, 450 V, ±20%	Ceramic capacitor	Rubycon	450MXK820MEFCSN30X60
9	1	C114	560 µF, radial, can - snap-in, 450 V, ±20%	Ceramic capacitors	Rubycon	450MXK560MEFCSN30X45
10	3	C115, C116, C117	0.1 µF 630V, 1812 (4532 metric), 630 V, ±10%	Ceramic capacitors	Würth Elektronik	885342211006
11	5	C121, C130, C180, C609, C623	10 µF, 0805 (2012 metric), 16 V, ±20%	Ceramic capacitors	Würth Electronics Inc.	885012107014
12	7	C124, C127, C131, C139, C142, C146, C147	1 µF, 0603 (1608 metric), 25 V, ±10%	Ceramic capacitors	Würth Electronics Inc.	885012206076
13	4	C125, C126, C140, C141	220 pF, 0603 (1608 metric), 50 V, ±10%	Ceramic capacitors	Samsung Electro-Mechanics America, Inc.	CL10B221KB8NNNC

Item	Q.ty	Ref.	Part/value	Description	Manufacturer	Order code
14	1	C135	10 nF, 0603 (1608 metric), 50 V, ±10%	Ceramic capacitor	Murata Electronics North America	GRM188R71H103KA01D
15	5	C151, C155, C160, C165, C166	10 µF, 1206 (3216 metric), 50 V, ±10%	Ceramic capacitors	Samsung Electro-Mechanics America, Inc.	CL31B106KBHNNNE
16	2	C152, C162	100 pF, 0603 (1608 metric), 50 V, ±5%	Ceramic capacitors	Murata Electronics North America	GRM1885C1H101JA01D
17	1	C161	0.33 µF, 0603 (1608 metric), 50 V, ±10%	Ceramic capacitor	TDK Corporation	C1608X5R1H334K080AB
18	1	C163	220 µF, radial, can, 16 V, ±20%	Ceramic capacitor	Würth Electronics Inc.	860020373010
19	1	C181	2.2 µF, 0603 (1608 metric), 25 V, ±10%	Multilayer ceramic capacitors	Murata Electronics	GRM188B31E225KA12D
20	1	D101	800 V 3.9 A, 4-SIP, GBU	Bridge rectifier	Vishay Semiconductor Diodes Division	GBU8K-E3/45
21	2	D102, D104	STPS0560Z, SOD-123, 60 V, 0.5 A	60 V, 0.5 A power Schottky rectifier	ST	STPS0560Z
22	2	D103, D105	SOD123	Diodes	Any	Any
23	2	D106, D107	3.3 V, SOD-123	Zener diodes	ON Semiconductor	MMSZ4684T1G
24	12	D110, D111, D113, D114, D115, D116, D118, D119, D120, D121, D123, D124	STPS2L40ZFY, SOD-123F, 40 V, 2 A,	Automotive 40 V, 2 A low drop power Schottky rectifier	ST	STPS2L40ZFY
25	2	D112, D117	20 V, SOD-123, 20 V, 0.5 W	Zener diodes	ON Semiconductor	MMSZ5250BT1G
26	1	D122	12V, SOD-123, 12 V, 0.5 W	Zener diode	ON Semiconductor	MMSZ5242BT1G
27	1	D125	BAT54JFILM, SOD-323	40 V, 300 mA general purpose signal Schottky diode	ST	BAT54JFILM
28	1	D126	BAR43SFILM, SOT-23-3	30 V, 100 mA Vf 0.33 V at 2 mA SMD general purpose signal Schottky diode	ST	BAR43SFILM
29	2	D127, D128	20 V, SOD-123, 0.5 W	Zener diodes (not mounted)	ON Semiconductor	MMSZ5250BT1G
30	2	D129, D130	18 V, SOD-123, 0.5 W	Zener diodes (not mounted)	ON Semiconductor	MMSZ5248BT1G
31	1	F101	30 A, 3AB, 3AG, 1/4" x 1-1/4" (axial), 250 V	Fuse	Littelfuse Inc.	0324030.HXP
32	1	G101	B88069X0780S102, axial cylinder	GDT	EPCOS (TDK)	B88069X0780S102
33	1	HS1	TO-218, TO-220, TO-247	Heatsink	Taiwan Microloops Corp	TSM-001979-NN2
34	1	HS2	TO-218, TO-220, TO-247	Heatsink	Taiwan Microloops Corp	TSM-001979-NN1
35	6	H100, H101, H102, H103, H104, H105	SpacerM3X20	Brass spacers	Würth Elektronik	970200324

Item	Q.ty	Ref.	Part/value	Description	Manufacturer	Order code
36	1	J101	Con3_32A, 3P 9.52 mm 90DEG	Fixed terminal blocks	Phoenix Contact	1714984
37	2	J104, J105	WP-THRBU, M4 4-pin PCB	Terminals	Würth Elektronik	74650074R
38	2	J106, J107	CON4, WR-WTB 1.50 mm	Male vertical shrouded headers	Würth Electronics	64800411622
39	1	J108 NM	CON30, AMPMODU 2 mm, PCB mount receptacle, vertical, board-to-board, 30 position, 2 mm	Jumper (not mounted)	Te Connectivity	3-2314823-0
40	1	J110	con10-strip-female,	Jumper (not mounted)	-	-
41	1	J111	CON6, AMPMODU 2 mm, PCB mount receptacle, vertical, board-to-board, 6 position, 2 mm	Jumper (not mounted)	Te Connectivity	2314823-6
42	6	J112, J113, J114, J115, J116, J117	SelfTap_M3X18, self-tapping, M3, 18 mm	Screws	TR fastenings	3.018PRST30TC1D
43	2	L101, L102	ARCDC341831E202N2B, 34.00 mm x 18.00 mm, 10 KHz, 1.0 V	Common mode choke	Sunlord	ARCDC341831E202N2B
44	1	L103	ATWPEQ363533C432P	PFC inductor	Sunlord	ATWPEQ363533C432P
45	1	Q101	BSR14, SOT-23-3, 40 V, 0.8 A	Transistor	ON Semiconductor	BSR14
46	2	Q102, Q104	SCTW35N65G2V, HIP247 full pack	Silicon carbide power MOSFET 650 V, 55 mOhm typ., 45 A in an HIP247 package	ST	SCTW35N65G2V
47	2	Q103, Q105	STY139N65M5, TO-247-3	N-channel 650 V, 0.014 Ohm typ., 130 A MDmesh M5 Power MOSFET in Max247 package	ST	STY139N65M5
48	1	RL1	Relay 12 V 16 A	Relay	TE Connectivity Potter & Brumfield relays	RT314012F
49	1	RT101	10 kOhms, ±1%	NTC thermistor	Vishay/BC Components	NTCLE213E3103FLT1
50	1	RT102	B59451C1130B070, ±25%	ICL	TDK Electronics Inc.	B59451C1130B070
51	3	RV101, RV102, RV103	S14K385E2K1, disc 14 mm	Varistors	EPCOS (TDK)	B72214P2381K101
52	4	R102, R103, R106, R107	180 K, 1206 (3216 metric), 1/4 W, ±0.10%	Resistors	Panasonic Electronic Components	ERA-8AEB184V
53	1	R104	1 k, 0603 (1608 metric), 1/10 W, ±1%	Resistors	Yageo	RC0603FR-071KL
54	5	R105, R143, R144, R150, R151	4.7 k, 0603 (1608 metric), 1/10 W, ±1%	Resistors	Yageo	RC0603FR-074K7L
55	14	R108, R109, R110, R111, R112, R113, R114, R115, R121, R122, R127, R128, R129, R130	390K, 1206 (3216 metric), 1/4 W, ±1%	Resistors	Yageo	RC1206FR-07390KL

Item	Q.ty	Ref.	Part/value	Description	Manufacturer	Order code
56	9	R116, R117, R118, R131, R132, R133, R152, R156, R157	4.7, 1206 (3216 metric), 1/4 W, ±1%	Resistors	Yageo	RC1206FR-074R7L
57	8	R119, R125, R135, R138, R168, R169, R170, R171	10 k, 0603 (1608 metric), 1/10 W, ±1%	Resistors	Yageo	RC0603FR-0710KL
58	2	R120, R134	4.7, 1206 (3216 metric), 1/4 W, ±1%	Resistors (not mounted)	Yageo	RC1206FR-074R7L
59	2	R123, R136	4.7, 0805 (2012 metric), 1/8 W, ±1%,	Resistors	Yageo	RC0805FR-074R7L
60	2	R124, R137	4.7, 0805 (2012 metric), 1/8 W, ±1%	Resistors (not mounted)	Yageo	RC0805FR-074R7L
61	1	R126	0.003, 2512 (6432 metric), 3 W, ±1%	Resistor	TE Connectivity Passive Product	TLR3A30DR003FTDG
62	4	R139, R140, R145, R146	33, 0603 (1608 metric), 1/10 W, ±1%	Resistors	Yageo	9C06031A33R0FKHFT
63	2	R141, R142	7.5k, 0603 (1608 metric), 1/10 W, ±1%	Resistors (not mounted)	Panasonic Electronic Components	ERJ-3EKF7501V
64	1	R147	20, 0603 (1608 metric), 1/10 W, ±1%	Resistor	Yageo	RC0603FR-0720RL
65	5	R148, R149, R160, R162, R164	0, 0603 (1608 metric), 1/10 W	Resistors	Yageo	RC0603JR-070RL
66	2	R153, R158	100, 0603 (1608 metric), 1/10 W, ±1%	Resistors	Yageo	RC0603FR-07100RP
67	1	R154	10, 1210 (3225 metric), 1/2 W, ±1%	Resistor	Stackpole Electronics Inc.	RMCF1210FT10R0
68	2	R155, R159	3.9 k, 0603 (1608 metric), 1/10 W, ±1%	Resistors	Yageo	RC0603FR-073K9L
69	2	R163, R165	0, 0603 (1608 metric), 1/10 W	Resistors (not mounted)	Yageo	RC0603JR-070RL
70	2	R166, R167	11 K, 0603 (1608 metric), 1/10 W, ±1%	RES SMD 11K OHM 1% 1/10W 0603	Yageo	RC0603FR-0711KL
71	1	T601	WE_750344767	Transformer	Würth Electronics	750344767
72	2	U101, U102	STGAP2DMTR, 16-SOIC (0.154", 3.90 mm width)	Galvanically isolated 4 A half-bridge dual channel gate driver	ST	STGAP2DMTR
73	1	U103	AMC1301DWVR, 8-SOIC (0.295", 7.50 mm width)	IC amplifier	Texas Instruments	AMC1301DWVR
74	1	U105	PM8834, 8-SOIC (0.154", 3.90mm width)	4 A dual low side MOSFET driver	ST	PM8834
75	1	U601	LD2980ABM50TR, SC-74A, SOT-753, SOT23-5L	Ultra low drop voltage regulators compatible with low ESR output capacitors	ST	LD2980ABM50TR

Item	Q.ty	Ref.	Part/value	Description	Manufacturer	Order code
76	5	C201, C225, C231, C236, C237	10 nF, 0603 (1608 Metric), ±10 % X7R	Ceramic capacitors	Murata Electronics North America	GRM188R71H103KA01D
77	3	C202, C209, C263	1 µF, 0603 (1608 Metric), ±10 %	Ceramic capacitors	Würth Electronics Inc.	885012206076
78	1	C203	4.7 µF, 0603 (1608 Metric), ±20%	Ceramic capacitor	Würth Electronics Inc.	885012106012
79	23	C204, C205, C206, C207, C208, C217, C220, C224, C227, C228, C229, C234, C238, C240, C243, C245, C251, C252, C259, C260, C262, C264, C265	0.1 µF, 0603 (1608 Metric), ±10 %	Ceramic capacitors	Kemet	C0603C104K3RACTU
80	6	C210, C211, C212, C213, C216, C221	SMD 0603 (1608 metric)	Ceramic capacitors	Any	Any
81	2	C214, C215	18 pF, 0402 (1005 metric), ±5% C0G/NPO	Ceramic capacitors	Yageo	CC0402JRNPO9BN180
82	2	C218, C261	0603 (1608 metric)	Ceramic capacitors		
83	3	C219, C223, C235	2200 pF, 0603 (1608 Metric), ±10% X7R	Ceramic capacitors	TDK Corporation	CGA3E2X7R1H222K080AD
84	1	C222	100 pF, 0603 (1608 metric), ±5%	Ceramic capacitor	Murata Electronics North America	GRM1885C1H101JA01D
85	1	C226	22000 pF, 0603 (1608 metric), ±10% X7R	Ceramic capacitor	Würth Electronics Inc.	885012206067
86	8	C239, C241, C242, C244, C246, C247, C248, C249	10 µF, 0805 (2012 metric), ±20% X5R	Ceramic capacitors	Würth Electronics Inc.	885012107014
87	1	C253	1 nF, 0603 (1608 metric), ±10%	Ceramic capacitor	Samsung Electro-Mechanics	CL10B102KA8NNNC
88	1	C266	33 nF, 0603 (1608 Metric), ±10%	CAP CER 0.033UF 50V X7R 0603	Würth Electronics Inc.	885012206092
89	8	D201, D202, D203, D204, D209, D210, D211, D212	BAS70-04FILM, SOT-23-3	70 V, 70 mA RF and ultrafast switching signal Schottky diode	ST	BAS70-04FILM
90	2	D205, D206	SMD 0603 (1608 metric),	Green LEDs	Würth Electronics Inc.	150060VS75000
91	1	D207	SMD, 0603 (1608 metric)	Red LED	Würth Electronics Inc.	150060RS75000
92	1	D208	SMD, 0603 (1608 metric)	Yellow LED	Würth Electronics Inc.	150060YS75000
93	1	J201	Con15X2, 30 P, 2 mm, BRK HDR DRRT, 2.8, SN, TB	Board-to-board and mezzanine connectors	TE Connectivity	1-2842149-5

Item	Q.ty	Ref.	Part/value	Description	Manufacturer	Order code
94	1	J202	CON6, WR-WTB 1.25 mm	Male horizontal shrouded header	Würth Electronics	653006117322
95	1	J203	CON10, R/A 10POS 2.54 mm	Connector header	Samtec Inc.	TSW-105-08-T-D-RA
96	6	R201, R204, R231, R234, R249, R253	0, 0603 (1608 metric)	Resistors	Panasonic Electronic Components	ERJ-3GEY0R00V
97	7	R202, R203, R205, R206, R207, R250, R257 NM	SMD, 0603 (1608 metric), ±1%,	Chip resistors (not mounted)		
98	3	R208, R223, R259	10 k, 0603 (1608 metric), ±1%	Resistors	Yageo	RC0603FR-0710KL
99	1	R209	10 k, 0603 (1608 metric), ±1%	Resistor (not mounted)	Yageo	RC0603FR-0710KL
100	2	R210, R219	1.8 k, 0603 (1608 metric), ±1%	Resistors	Vishay Beyschlag	MCT06030C1801FP500
101	8	R211, R213, R215, R216, R218, R226, R227, R232	1 k, 0603 (1608 metric), ±1%	Resistors	Yageo	RC0603FR-071KL
102	2	R212, R220	4.99 k, 0603 (1608 metric), ±1%	Resistors	Vishay Dale	CRCW06034K99FKEA
103	2	R214, R217	100, 0603 (1608 metric), ±1%	Resistors	Yageo	RC0603FR-07100RP
104	1	R222	200 k, 0603 (1608 metric), ±1%	Resistor		
105	1	R228	20, 0603 (1608 metric), ±1% SMD	Resistor	Yageo	RC0603FR-0720RL
106	2	R229, R230	7.5 k, 0603 (1608 metric), ±1% SMD	Resistors	Panasonic Electronic Components	ERJ-3EKF7501V
107	1	R233	4.42 k, 0603 (1608 metric), ±1% SMD	Chip resistor	Any	Any
108	1	R235	1.5 k, 0603 (1608 metric), ±1% SMD	Resistor	Yageo	RC0603FR-071K5L
109	1	R238	470 R, 0603 (1608 metric), ±1% SMD	Chip resistor	Any	Any
110	3	R248, R251, R255	270, 0603 (1608 metric), ±1% SMD	Resistors	Yageo	9C06031A2700FKHFT
111	1	R252	390, 0603 (1608 metric), ±1% SMD	Resistor	Yageo	RC0603FR-07390RL
112	3	R254, R256, R258	3.9 k, 0603 (1608 Metric), ±1% SMD	Resistors	Yageo	RC0603FR-073K9L
113	1	U201	STM32G474RBT6, LQFP64 (10 x 10 mm)	Mainstream Arm® Cortex®-M4 MCU 170 MHz with 128 Kbytes of Flash memory, math accelerator, HR timer, high analog level integration	ST	STM32G474RBT6
114	1	U202	TSV994IDT, 14-SOIC (0.154", 3.90 mm width)	Wide bandwidth (20 MHz) rail-to-rail input/output 5 V CMOS op-amps, quad	ST	TSV994IDT
115	1	U203	LM393DT, 8-SOIC (0.154", 3.90 mm width)	Low power dual voltage comparator	ST	LM393DT

Item	Q.ty	Ref.	Part/value	Description	Manufacturer	Order code
116	1	U204	TS431BILT, SOT23-5	Adjustable shunt voltage reference IC	ST	TS431BILT
117	1	U205	LD2980ABM50TR, SOT23-5L	Ultra low drop voltage regulators compatible with low ESR output capacitors	ST	LD2980ABM50TR
118	1	U206	LD1117S33CTR, SOT223	Adjustable and fixed low drop positive voltage regulator	ST	LD1117S33CTR
119	1	U207	STLM20W87F, SOT-323-5	Analog temperature sensor, ultra-low current 2.4 V, high precision	ST	STLM20W87F
120	1	Y1	8 MHz, 4-SMD, no lead, 18 pF	Crystal	Abracon LLC	ABM8AIG-8.000MHZ-1Z-T
121	4	C601, C602, C603, C604	0.1 µF 630 V, 1812 (4532 metric), ±10 % X7R	Capacitors	Würth Elektronik	885342211006
122	1	C605	2.2 nF, 1206 (3216 metric), 1000 V, ±10%	Capacitor	Murata Electronics North America	GRM31BR73A222KW01L
123	4	C606, C610, C613, C620	0.1 µF, 0603 (1608 Metric), 25 V, ±10%	Capacitors	KEMET	C0603C104K3RACTU
124	3	C607, C611, C612	10 µF, 0805 (2012 Metric), 16 V, 20 %	Capacitors	Würth Electronics Inc.	885012107014
125	2	C614, C621	10 µF, 1206 (3216 Metric), 50 V, ±10%	Capacitors	Samsung Electro-Mechanics America, Inc.	CL31B106KBHNNNE
126	1	C615	220 µF, Radial, Can, 16 V, ±20%,	Capacitor	Würth Electronics Inc.	860020373010
127	1	C616	1000 pF, 0603 (1608 metric), 50 V, ±5%,C0G/NP0	Capacitor	Murata Electronics North America	GRM1885C1H102JA01J
128	1	C617	2.2 µF, 0603 (1608 Metric), 25 V, ±10%	Multilayer ceramic capacitor	Murata Electronics	GRM188B31E225KA12D
129	1	C619	0.22 µF, 0603 (1608 Metric), 50 V, ±10%	Capacitor	TDK Corporation	CGA3E3X7R1H224K080AD
130	1	C622	220P, 0805 (2012 metric), ±5%	Capacitor	Any	Any
131	3	D601, D603, D605	STPS0560Z, SOD-123, 60 V, 500 mA	60 V, 0.5 A power Schottky rectifier	ST	STPS0560Z
132	1	D602	S1M, DO-214AC, SMA, 1000 V, 1 A	General purpose diode	Diodes Incorporated	S1M-13-F
133	2	D604, D606	STPS2150A, DO-214AC, SMA, 150 V, 2 A	150 V, 2 A power Schottky rectifier	ST	STPS2150A
134	1	PC601	ACPL-217-50AE, 4-SOIC (0.173", 4.40 mm width)	Optoisolator	Broadcom Limited	ACPL-217-50AE
135	1	R601	0, 0603 (1608 metric), 1/10 W	Resistor	Yageo	RC0603JR-070RL
136	6	R602, R603, R604, R605, R606, R607	180K, 1206 (3216 Metric), 1/4 W, ±0.10 %	Resistors	Panasonic Electronic Components	ERA-8AEB184V
137	1	R609	4.3 k, 0603 (1608 metric), 1/10 W, ±1%	Resistor	Yageo	RC0603FR-074K3L

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138	1	R610	910, 0603 (1608 metric), 1/10 W, ±1%,	Resistor	Yageo	9C06031A9100FKHFT
139	2	R611, R613	18 k, 0402 (1005 metric), 1/16 W, ±1%	Resistors	Yageo	RC0402FR-0718KL
140	1	R612	4.7k, 0603 (1608 metric), 1/10 W, ±1%	Resistor	Yageo	RC0603FR-074K7L
141	1	R614	0, 0805 (2012 metric), 1/8 W	Resistor	Yageo	RC0805JR-070RL
142	1	R615	13 k, 0603 (1608 metric), 1/10 W, ±1%	Resistor	Yageo	RC0603FR-0713KL
143	1	R616	100, 1206 (3216 metric), 1/4 W, ±5%,	Chip resistor	Any	Any
144	1	T600	WE_750344753,	Würth-Trasformer ratio	Würth Electronics	750344753
145	1	U602	VIPER26HD, 16-SOIC (0.154", 3.90 mm width)	Fixed frequency VIPer plus family	ST	VIPER26HD
146	1	U603	TL431ACL3T, SOT-23-3	Adjustable micropower shunt voltage reference	ST	TL431ACL3T

Table 3. Full bridge LLC bill of materials

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1	4	C1-2 C24-25	47 pF, 0603, ±5%	Film capacitors	Murata	GRM1885C1H470JA01
2	2	C3 C6	1 µF/630 V, 7.0 mm*12.5 mm*17.5 mm, ±10%	Metallized polypropylene film capacitors	Panasonic	ECWFE2W105K
3	9	C4-5 C11 C27-28 C36-37 C43 C56	100 nF, 0603, ±10%,	SMD. Film cap 0603, 100nF/25V X7R	Murata	GRM188R71E104KA01
4	8	C7-10 C13-16	1206	Capacitors	-	-
5	2	C12 C51	100 nF, 0603, ±10 % SMD X7R	Film capacitors	Murata	GRM188R71E104KA01
6	4	C17-20	10 µF, 1206, ±10% X7R	Film capacitors	Murata	GRM31CR71E106KA12
7	4	C21-22 C47-48	1 µF, 0805, ±10%	Film capacitors	Murata	GCM21BR71E105KA56
8	2	C23 C32	68 µF/25 V, 5 mm*11 mm, ±20%	Aluminium electrolytic capacitors	Rubycon	25ZLH68MEFC5X11
9	12	C26 C29-31 C33-35 C38-39 C41 C52-53	560 µF/63 V, 12.5 mm*30 mm, ±20%	Aluminium electrolytic capacitors	Rubycon	63ZLH560MEFC12.5X30
10	2	C40 C54	0.1 µF/630 V, 2220, ±10% X7R	Film capacitors	Murata	GC355DD72J104KX01
11	3	C42 C45-46	10 nF, 1206, ±10% X7R	Film capacitors	Murata	GRM319R72A103KA01
12	2	C44 C55	1 µF, 0603, ±10%	Film capacitors	Murata	GRM185B31E105KA12
13	2	C49-50	1 nF, 1206, ±10% X7R	Film capacitors	Murata	GRM31BR73A102KW01
14	4	D1-2 D8-9	BAT54ZFILM, SOD-123	40 V, 300 mA general purpose signal Schottky diode	ST	BAT54ZFILM
15	4	D3-4 D11-12	STPS2L40ZFY, SOD-123	Automotive 40 V, 2 A low drop power Schottky rectifier	ST	STPS2L40ZFY
16	2	D5 D10	STTH1R06A, SMA,	Turbo 2 ultrafast high voltage rectifier, SMA	ST	STTH1R06A

Item	Q.ty	Ref.	Part/value	Description	Manufacturer	Order code
17	4	D6-7 D13-14	MMSZ4684-G, SOD123, 3.3 V, 0.5 W	Small signal Zener diodes	Vishay	MMSZ4684-G
18	2	H1/2, H3/4		Primary MOSFET heatsink	-	-
19	1	L1	PQ2620 core, Lr = 25 µH	Resonant inductor	-	-
20	2	P1-2	74650074R, 7 mm*7 mm, 50 A	WP-THRBU	Wurth	74650074R
21	1	P3	-	SR board connector	-	-
22	1	P4	-	PE	-	-
23	2	P5 P8	A2543WV-4P or A2543WR-4P, 2.54 mm, 4Pin,	Board-to-board connector	CJT	A2543WV-4P or A2543WR-4P
24	2	P6-7	74650094R, 10 mm*10 mm	WP-THRBU	Wurth	74650094R
25	1	P10	-	Resonant capacitor connector	-	-
26	1	P11	-	Control board connector	-	-
27	4	Q1-4	STW70N65DM6-4, TO247-4	N-channel 650 V, 36 mOhm typ., 68 A MDmesh DM6 Power MOSFET in a TO247-4 package	ST	STW70N65DM6-4
28	3	R1 R3 R18	0, 0603, ±1% SMD	Film resistors	Vageo	RC0603FR-070RL
29	4	R2 R4 R15-16	100, 0603, ±1% SMD	Film resistors	Vageo	RC0603FR-07100RL
30	4	R5 R8 R17 R20	3R3, 0805, ±1% SMD	Film resistors	Vageo	RC0805FR-073R3L
31	4	R6 R9 R21 R24	15, 0805, ±1% SMD	Film resistors	Vageo	RC0805FR-0715RL
32	5	R7 R10 R12 R22 R25	4R7, 0805, ±1% SMD	Film resistors	Vageo	AC0805FR-074R7L
33	3	R11 R27-28	0, 0805, ±1% SMD	Film resistors	Vageo	RC0805FR-070RL
34	5	R13-14 R23 R30-31	15k, 0603, ±1% SMD	Film resistors	Vageo	RC0603FR-0715KL
35	1	R19	NTC, ±1% SMD	NTC thermistor	Vishay	NTCLE213E3103FLT1
36	1	R23	3.9 k, 0603, ±1% SMD	Film resistor	Vageo	RC0603FR-073K9L
37	1	R29	0.3 mohms, 2512, 6 W, 2512, ±1% SMD	Current sensing resistor	shenzhenzhanye	ASR-M-3-0.3F
38	1	T1	Turn ratio = 50:1, EP10 core, Lm = 210 µH	Current transformer	Sunlord	-
39	2	T2-3	Turn ratio = 18:5, PQ3535 core	Main transformer	-	-
40	4	U1-4	STGAP2HSCMTR, SO-8W	Galvanically isolated 4 A single gate driver	ST	STGAP2HSCMTR
41	2	Thermal insulating pad of Q1, Q2, Q3, Q4 heatsinks	SP800-0.005-AC-1212, 45 mm*23 mm, 0.127 mm thickness	Isolation materials	Bergquist	SP800-0.005-AC-1212
42	4	Clips TO247	MAX03N, Clips TO247	Clips for TO247 MOSFET	AAVID Thermalloy	MAX03N
43	2	\	FFB03812HHN, PWM fan 12 V 0.57 A	PWM DC brushless fan	Delta	FFB03812HHN
44	1	C1	33 nF, 0603, ±10% X7R SMD	Capacitor	Murata	GRM188R71E333KA01
45	12	C2 C6-7 C11 C13 C36 C40	100 pF, 50 V C0G, 0603, ±5%	Film capacitors	Murata	GRM1885C1H101JA01

Item	Q.ty	Ref.	Part/value	Description	Manufacturer	Order code
		C58 C62 C64-66				
46	1	C3	220 pF, 1206, ±5%, SMDC0G	Film capacitor	Murata	GRM31A5C2J221JW01
47	1	C4	390 µF/25 V, 8 mm*16 mm, ±20%	Aluminium electrolytic capacitor	Rubycon	25ZLH390MEFC8X16
48	4	C5 C12 C20 C43	10 nF, 0603, ±5%	Film capacitors	Murata	GRM1885C1H103JA01
49	18	C8 C17 C28 C33-34 C41 C45 C48-56 C59-60	100 nF, 0603, ±10%, SMD	Film capacitors	Murata	GRM188R71E104KA01
50	5	C9 C15-16 C19 C22	1 µF, 0603, ±10% SMD X5R	Film capacitors	Murata	GRM185B31E105KA12
51	1	C10	10 nF/400 V _{AC} , 5 mm for bulk, ±20%	High voltage ceramic capacitors CS45-F2GA103M-NKA	TDK	CS45-F2GA103M-NKA
52	1	C14	150 µF/25 V, 6.3 mm*11 mm, ±20%	Aluminium electrolytic capacitor	Rubycon	25ZLH150MEFC6.3X11
53	2	C18 C57	100 nF, 1210, ±10%	Film capacitors	Murata	GRM32DR7LV104KW01
54	1	C23	22 pF, 50 V, 0603, ±5%, C0G	Film capacitor	Murata	GRM1885C1H220JA01
55	1	C24	22 µF, 6.3 V, 0805, ±20%, X7R	Film capacitor	Murata	GRM21BZ70J226ME44
56	1	C25	10 nF, 1206, ±10%, X7R	SMD. Film cap 1206, 10nF/100V	Murata	GRM319R72A103KA01
57	3	C26 C37 C39	-	Capacitors	Any	Any
58	2	C27 C32	470 pF, 0603, ±5%, C0G	Film capacitors	Murata	GRM1885C1H471JA01
59	1	C29	2.2µF, 0603, ±10%, X7R	Film capacitor	Murata	GRM188Z71C225KE43
60	2	C30 C35	220 pF, 0603, ±5%, C0G	Film capacitors	Murata	GRM1885C1H221JA01
61	3	C31 C42 C44	1 nF, 0603, ±5%, C0G	Film capacitors	Murata	GRM1885C1H102JA01
62	1	C38	10 nF, 0603, ±10%, X7R	Film capacitors	Murata	GRM188R72A103KA01
63	2	C46-47	20 pF, 0603, ±5%, C0G	Film capacitors	Murata	GRM1885C1H200JA01
64	2	C61 C63	10pF, 0603,±5%, C0G	Film capacitors	Murata	GRM1885C1H100JA01
65	1	C67	47µF/35 V, 5 mm*11 mm, ±20%,	Aluminium electrolytic capacitor	Rubycon	35ZLH47MEFC5X11
66	3	D1-2 D19	BAT54JFILM, SOD323	40 V, 300 mA general purpose signal Schottky diode	ST	BAT54JFILM
67	1	D3	STTH1L06A, SMA	600 V, 1 A low drop ultrafast diode	ST	STTH1L06A
68	1	D4	STPS5H100B, DPAK	100 V, 5 A power Schottky rectifier	ST	STPS5H100B
69	1	D5	STPS1150A, SMA	150 V, 1 A power Schottky rectifier	ST	STPS1150A
70	11	D6-16	BAT54SWFILM, SOT323	40 V, 300 mA general purpose signal Schottky diode	ST	BAT54SWFILM
71	1	D17	0603	Red LED	Würth Elektronik	150060RS75000
72	1	D18	LED Green, 0603, SMD	Green LED	Würth Elektronik	150060VS75000

Item	Q.ty	Ref.	Part/value	Description	Manufacturer	Order code
73	1	L1	744043470, 4.8 mm*4.8 mm, ±30%	47µH shielded power inductor	Würth Elektronik	744043470
74	1	L2	1 µH, 0805, 25.2 MHz 3 0.18 A 2.13 Ohm DCR 0805 T/R	5Q-factor ferrite	Vishay	IMC0805ER1R0J01
75	2	P1 P7	653006114822, 1.25 mm, 6Pin	Male vertical shrouded headers	Würth	653006114822
76	1	P2	A2005WR-25P, 2 mm*25Pin,	Board-to-board connector	CJT	A2005WR-25P
77	1	P5	-	Connector	-	-
78	1	P6	A2005WR-10P, 2 mm, 10Pin	Board-to-board connector	CJT	A2005WR-10P
79	1	R1	210 k, 0603, ±1%	Film resistor	Vageo	RC0603FR-07210KL
80	2	R2 R4	47 k, 0603, ±1%	Film resistors	Vageo	RC0603FR-0747KL
81	3	R3 R5 R65	150 k, 1210, ±5%	Film resistors	Vageo	RC1210JR-07150KL
82	18	R6-7 R9 R10 R12-14 R16-17 R40-41 R43 R57-59 R63-64 R68	100, 0603, ±1%	Film resistors	Vageo	RC0603FR-07100RL
83	7	R8 R15 R44-45 R47 R54 R66	10 k, 0603, ±1%, SMD, 1/16 W	Film resistors	Vageo	RC0603FR-0710KL
84	5	R11 R22 R26 R51 R53	-	Resistors	-	-
85	5	R18 R35-36 R49-50	1 k, 0603, ±1%, 1/16 W	Film resistors	Vageo	RC0603FR-071KL
86	1	R19	240 k, 0603, ±1%	Film resistor	Vageo	RC0603FR-07240KL
87	1	R20	15 k, 0603, ±1%	Film resistor	Vageo	RC0603FR-0715KL
88	1	R21	130 k, 0603, ±1%	Film resistor	Vageo	RC0603FR-07130KL
89	1	R23	680 k, 0603, ±1%, SMD	Film resistor	Vageo	RC0603FR-07680KL
90	1	R24	11.5 k, 0603, ±1%, SMD, 1/16 W	Film resistor	Vageo	RC0603FR-0711K5L
91	1	R25	4.22k, 0603, ±1%, SMD, 1/16 W	Film resistor	Vageo	RC0603FR-074K22L
92	1	R27	15 k, 0603, SMD, 1/16 W ±0.5%	Film resistor	Vageo	RC0603DR-0715KL
93	5	R28 R48 R62 R72-73	0, 0603, 1/16 W, ±1%	Film resistors	Vageo	RC0603FR-070RL
94	3	R29-30 R32	1M, 1206, 1/4 W, ±0.5%	Film resistors	Vageo	RC1206DR-071ML
95	2	R31 R52	200 k, 0603, 1/16 W, ±1%	Film resistors	Vageo	RC0603FR-07200KL
96	3	R33-34 R38	12, 0603, 1/4 W, ±0.5%	Film resistors	Vageo	SR0603DR-7T12RL
97	2	R37 R55	11 k, 0603, 1/16 W, ±0.5%	Film resistors	Vageo	RC0603DR-0711KL
98	2	R39 R56	220 k, 0603, 1/16 W, ±0.5%	Film resistors	Vageo	RC0603DR-07220KL
99	2	R42 R46	120k, 0603, 1/16 W, ±1%, SMD	Film resistors	Vageo	RC0603FR-07120KL
100	2	R60 R67	200, 0603, 1/16 W, ±1%, SMD	Film resistors	Vageo	RC0603FR-07200RL
101	1	R61	750 k, 0603, 1/16 W, ±1%, SMD	Film resistor	Vageo	RC0603FR-07750KL
102	1	R69	10, 1210, 1 W, ±1%, SMD	Film resistor	Vageo	AC1210FR-7W10RL
103	1	R71	150, 0603, 1/16 W, ±1%, SMD	Film resistor	Vageo	RC0603FR-07150RL
104	1	T1	-	Auxiliary transformer	Würth Elektronik	350344830

Item	Q.ty	Ref.	Part/value	Description	Manufacturer	Order code
105	1	U1	VIPER38LDTR, SO16N	VIPerPlus family: peak power fixed frequency high voltage converter	ST	VIPER38LDTR
106	1	U2	ISO7742 DW, SOIC (DW)	High-speed, robust-EMC reinforced and basic quad-channel digital isolator	TI	ISO7742 DW
107	1	U4	LTV1018TP-V-G, SMD-4, 5300 Vrms, CTR 100-200	Photocoupler	Liteon	LTV1018TP-V-G
108	1	U6	TS431BILT, SOT23-5	Adjustable shunt voltage reference IC	ST	TS431BILT
109	1	U7	PM6644TR, DFN10	350 mA adjustable step-down regulator	ST	PM6644TR
110	1	U9	LDK715M50R, SOT23-5L,	High input voltage 85 mA LDO linear regulator	ST	LDK715M50R
111	1	U10	ACPL-C870	Precision optically isolated voltage sensor	Avago	ACPL-C870
112	2	U11-12	TSX631ILT, SOT23-5	Micropower (60 μ A), rail-to-rail 16V CMOS op-amp, single, GBP 200 kHz	ST	TSX631ILT
113	1	U13	TS3011ILT, SOT23-5,	Rail-to-rail high-speed comparator, SOT23-5	ST	TS3011ILT
114	1	U14	STM32G4474RBT6, LQFP64,	Mainstream Arm Cortex-M4 MCU 170 MHz with 128 Kbytes of Flash memory, math accelerator, HR timer, high analog level integration	ST	STM32G474RBT6
115	1	Y1	ABM8AIG-8.000MHZ-1Z-T, 2.5 mm*3.2 mm, SMD crystal	Automotive and industrial grade ceramic base	ABRACON	ABM8AIG-8.000MHZ-1Z-T
116	4	C1-4	47 pF, 50 V C0G, 0603, SMD	Film capacitors	Murata	GRM1885C1H470JA01
117	4	C5-6 C11-12	0805	Capacitors	-	-
118	2	C7 C9	10 μ F, 0805, 25 V X7R	Film capacitors	Murata	GRM21BZ71E106KE15
119	4	C8 C10 C15-16	100 nF, 0603, X7R	SMD. Film cap 0603, 100nF/25V	Murata	GRM188R71E104KA01
120	2	C13-14	10 pF, 0603, 50 V C0G	Film capacitors	Murata	GRM1885C1H100JA01
121	4	D1-4	BAT54JFILM, SOD323	40 V, 300 mA general purpose signal Schottky diode	ST	BAT54JFILM
122	2	D7-8	BAT46JFILM, SOD323	100 V, 200 mA surface mount general purpose signal Schottky diode	ST	BAT41JFILM
123	2	D5-6	BAT46ZFILM, SOD123	100 V, 200 mA surface mount general purpose signal Schottky diode	ST	BAT41ZFILM
124	16	Q1-16	STL130N8F7, PowerFLAT 5*6,	N-channel 80 V, 3.0 mOhm typ., 120 A STRipFET F7 Power MOSFET	ST	STL130N8F7

Item	Q.ty	Ref.	Part/value	Description	Manufacturer	Order code
				in PowerFLAT 5x6 package		
125	6	R1-4 R27 R29	100, 0603, 1/16 W, ±1%	Film resistors	Vageo	RC0603FR-07100RL
126	4	R5-6 R25-26	0805	Film resistors	-	-
127	2	R7-8	3R3, 0805, 1/8 W, ±1%	Film resistors	Vageo	RC0805FR-073R3L
128	16	R9-24	2R2, 0603, 1/4 W, ±5%	Film resistors	Vageo	SR0603JR-7T2R2L
129	4	R28 R30 R32-33	1 k, 0603, 1/16 W, ±1%	Film resistors	Vageo	RC0603FR-071KL
130	2	R31 R34	270, 0603, 1/16 W, ±1%	Film resistors	Vageo	RC0603FR-07270RL
131	2	R35-36	2.7k, 0603, 1/16 W, ±1%	Film resistors	Vageo	RC0603FR-072K7L
132	2	U1-2	UCC27211, VSON (8)	4 A, 120 V half bridge gate driver with 8 V UVLO and TTL inputs	TI	UCC27211
133	2	U3-4	TS3011ILT, SOT23-5	Rail-to-rail high-speed comparator	ST	TS3011ILT
134	1	Thermal insulating pad of heatsink	SP800-0.005-AC-1212, 72 mm*35 mm, 0.127 mm thickness	Isolation materials	Bergquist	SP800-0.005-AC-1212
135	1	Heatsink	SR MOSFET heatsink	SR MOSFET heatsink	-	-
136	5	C1-5	15 nF/1000 Vdc, 5.0 mm *10.5 mm* 18.0 mm, P-P=15 mm	Metallized polypropylene film capacitors	Epcos	B32652A0153J

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For the European Regulation of the Evaluation Board, the applicable EU directives are considered, with a particular attention to the Low Voltage Directive (LVD) 2014/35/EU, the Electromagnetic Compatibility (EMC) Directive 2014/30/EU, and the Radio Equipment Directive (RED) 2014/53/EU. If the Evaluation Board is outside the scope of the foregoing Directives, then the General Product Safety Directive (GPSD) 2001/95/EC and Council Directive 93/68/EEC, amending Directive 73/23/EEC on electrical equipment designed for use within certain voltage limits, are applicable.

The Evaluation Board meets the requirements of the Restriction of Hazardous Substances (RoHS 2 or RoHS recast) Directive 2011/65/EU, Annex II, as amended by Directive 2015/863/EU.

Notice applicable to Evaluation Boards not FCC-Approved

This kit is designed to allow:

1. Product developers to evaluate electronic components, circuitry, or software associated with the kit to determine whether to incorporate such items in a finished product and
2. Software developers to write software applications for use with the end product.

This kit is not a finished product and when assembled may not be resold or otherwise marketed unless all required FCC equipment authorizations are first obtained. Operation is subject to the condition that this product not cause harmful interference to licensed radio stations and that this product accept harmful interference. Unless the assembled kit is designed to operate under part 15, part 18 or part 95 of 47 CFR, Chapter I ("FCC Rules"), the operator of the kit must operate under the authority of an FCC license holder or must secure an experimental authorization under part 5 of this chapter.

For Evaluation Boards annotated as FEDERAL COMMUNICATIONS COMMISSION (FCC) Part 15 Compliant

- **FCC Interference Statement for Class A Evaluation Boards:** This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.
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 - Reorient or relocate the receiving antenna.
 - Increase the separation between the equipment and receiver.
 - Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
 - Consult the dealer or an experienced radio/TV technician for help.
- This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

WARRANTY

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IN NO EVENT SHALL ST BE LIABLE TO YOU, WHETHER IN CONTRACT, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY, OR ANY OTHER LEGAL THEORY, FOR ANY INDIRECT, SPECIAL, CONSEQUENTIAL, INCIDENTAL, PUNITIVE, OR EXEMPLARY DAMAGES WITH RESPECT TO ANY MATTERS RELATING TO THIS AGREEMENT, REGARDLESS OF WHETHER ST HAS BEEN ADVISED OF THE POSSIBILITY OF THE SAME. IN NO EVENT SHALL ST'S LIABILITY ARISING OUT OF THIS AGREEMENT IN THE AGGREGATE EXCEED THE AMOUNT PAID BY YOU UNDER THIS AGREEMENT FOR THE PURCHASE OF THE EVALUATION BOARD, OR TEN UNITED STATES DOLLARS (\$10.00) IF NO PURCHASE PRICE WAS PAID.

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You shall indemnify ST and its Affiliates against and pay any resulting costs and damages finally awarded against ST or its Affiliates or agreed to in any settlement, provided that You have sole control of the defense and settlement of the claim or action, and ST cooperates in the defense and furnishes all related evidence under its control at Your expense. ST will be entitled to participate in the defense of such claim or action and to employ counsel at its own expense.

"Affiliates" means any corporation or other entity directly or indirectly controlled by, controlling or under common control with the entity in question, for so long as such ownership exists. "Control" means the direct or indirect beneficial ownership of more than fifty (50%) percent of the stock or other equity interests entitled to vote for the election of directors or an equivalent governing body. Any such corporation or other legal entity shall be deemed to be an Affiliate of such Party only as long as such Control exists.

TERMINATION

ST may terminate this Agreement without notice if You breach this Agreement. Upon termination, You shall immediately destroy or return all copies of the software, firmware, and documentation of the Evaluation Board to ST and certify in writing to ST that You have done so.

APPLICABLE LAW AND JURISDICTION

This Agreement shall be governed, construed and enforced in accordance with the laws of Switzerland, without regard to its conflict of laws rules. The UN Convention on Contracts for the International Sale of Goods shall not apply to this Agreement. In case of dispute and in the absence of an amicable settlement, the only competent jurisdiction shall be the Courts of Geneva, Switzerland. Any breach of this Agreement by You may result in irreparable damage to ST for which ST will not have an adequate remedy at law. Accordingly, in addition to any other remedies and damages available, You acknowledge and agree that ST may immediately seek enforcement of this Agreement in any jurisdiction by means of specific performance or injunction, without any requirement to post a bond or other security.

SEVERABILITY

If any provision of this agreement is or becomes, at any time or for any reason, unenforceable or invalid, no other provision of this agreement shall be affected thereby, and the remaining provisions of this agreement shall continue with the same force and effect as if such unenforceable or invalid provisions had not been inserted in this Agreement. In addition, any unenforceable or invalid provision shall be deemed replaced by a provision that is valid and enforceable and that comes closest to expressing the intention of the unenforceable or invalid provision.

WAIVER

The waiver by either party of any breach of any provision of this Agreement shall not operate or be construed as a waiver of any other or a subsequent breach of the same or a different provision.

RELATIONSHIP OF THE PARTIES

Nothing in this Agreement shall create, or be deemed to create, any joint venture, partnership, principal-agent, employer-employee or other relationship between the Parties, except that of independent contractors. Neither Party has the authority or power to bind, to contract in the name of, or to create a liability for the other in any way or for any purpose.

SURVIVAL

Any provision of this Agreement which imposes an obligation after termination of this Agreement shall survive the termination of this Agreement.

SECTION HEADINGS

Section headings are inserted for convenience only and shall not be used to interpret this Agreement.

WASTE AND RECYCLING

The Evaluation Board is not to be disposed of as urban waste. At the end of its life cycle, differentiated waste collection must be followed. Consult the local authorities for more information on the proper disposal channels. It is mandatory to separately collect the Evaluation Board and make sure it is delivered it to the appropriate waste management and recycling centers.

As of 15 August 2018, in all the countries belonging to the European Union, the Evaluation Board is subject to the WEEE Directive 2012/19/EU requirement; therefore, it is forbidden to dispose of the Evaluation Board as undifferentiated waste or with other domestic wastes. Consult the local authorities for more information on the proper recycling centers.

Disposing of the Evaluation Board incorrectly may cause damage to the environment and may be subject to fines based on specific countries' rules.

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