

Bill of materials

Table 1. STEVAL-TTPPFC01 bill of materials

Item	Q.ty	Ref.	Part/Value	Description	Manufacturer	Order code
1	1	-	Table 2	Power board	ST	Not available for separate sale
2	1	-	Table 3	Control board	ST	Not available for separate sale
3	1	-	Table 4	Auxiliary board	ST	Not available for separate sale
4	3	-	Table 5	High-frequency Half-bridge board	ST	Not available for separate sale
5	1	-	Table 6	Low-frequency Half-bridge board	ST	Not available for separate sale

Table 2. Power board bill of materials

Item	Q.ty	Ref.	Part/Value	Description	Manufacturer	Order code
1	1	C100	0.33uF	CAP FILM 0.33UF 20% 305VAC RAD	EPCOS (TDK)	B32922C3334M000
2	1	C101	4.7uF	CAP FILM 4.7UF 20% 630VDC RADIAL	EPCOS - TDK Electronics	B32924H3475M
3	2	C102 C103	100pF	CAP CER 100PF 50V C0G/NP0 0603	Würth Elektronik	885012006057
4	10	C104 C116 C120 C124 C133 C134 C143 C144 C153 C154	*	CAPACITOR CERAMIC SMD 0603		
5	6	C105 C106 C107 C108 C109 C110	330uF	CAP ALUM 330uF 20% 450V SNAP	EPCOS - TDK Electronics	B43548B5337M060
6	4	C111 C117 C121 C127	1uF	Film Capacitors FILM CAP MKP PFC 1.0F 10% 630Vdc LS 22.5mm	EPCOS / TDK	B32673P6105K289
7	6	C112 C113 C118 C119 C122 C123	100pF	CAP CER 100PF 630V C0G/NP0 1812	AVX Corporation	1812CA101JAT2A
8	5	C114 C115 C135 C145 C155	10nF	CAP CER 10000PF 25V X7R 0603	Würth Elektronik	885012206065
9	4	C125 C158 C159 C160	1000pF	CAP CER 1000PF 25V C0G/NP0 0603	Würth Elektronik	885012006044
10	10	C126 C128 C129 C136 C138 C139 C146 C148 C149 C156	0.1uF	CAP CER 0.1UF 25V X7R 0603	Würth Elektronik	885012206071
11	3	C130 C140 C150	2.2nF	CAP CER 2200PF 25V X7R 0603	Würth Elektronik	885012206061
12	3	C131 C141 C151	10uF	CAP CER 10UF 16V X5R 0805	Würth Electronics Inc.	885012107014
13	3	C132 C142 C152	10pF	CAP CER 10PF 50V C0G/NP0 0603	Würth Elektronik	885012006051
14	3	C137 C147 C157	1uF	CAP CER 1UF 16V X7R 0603	Würth Elektronik	885012206052

Item	Q.ty	Ref.	Part/Value	Description	Manufacturer	Order code
15	1	D100	STPS1L30A, SMA	DIODE SCHOTTKY 30V 1A SMA	STMicroelectronics	STPS1L30A
16	2	D101 D102	BAS70-04FILM, SOT23	DIODE ARRAY SCHOTTKY 70V SOT23-3	STMicroelectronics	BAS70-04FILM
17	1	D103	STPS1L30A, SMA	DIODE SCHOTTKY 30V 1A SMA	STMicroelectronics	STPS1L30A
18	1	F100	20A 250Vac	FUSE BOARD MNT 20A 250VAC 72VDC	Bel Fuse Inc.	0678L9200-02
19	1	FAN100	DC FAN	DC Fans DC Fan, 40x10mm, 12VDC, 7CFM, 0.48W, 20.6dBA, 5800RPM, 0.12inch H2O, Vapo Bearing, MagLev Motor	Sunon	MF40101V2-1000U-A99
20	1	GT100	B88069X0780S102	GDT 540V 5KA THROUGH HOLE	EPCOS (TDK)	B88069X0780S102
21	1	J100	1717033	SCREW TERM BLOCK PCB 3POS 7.5MM GREEN	Phoenix Contact	1717033
22	1	J101	AUX-PS			
23	1	J102	VOUT	SCREW TERM BLOCK PCB 2POS 7.62MM	RS Pro	7901130
24	4	J103 J116 J129 J143	CON10F	CONN RCPT 10POS 0.079 GOLD SMD	Samtec Inc.	CLT-105-02-L-D-BE-A-K-TR
25	48	J104 J105 J106 J107 J108 J109 J110 J111 J112 J113 J114 J115 J117 J118 J119 J120 J121 J122 J123 J124 J125 J126 J127 J128 J130 J131 J132 J133 J134 J135 J136 J137 J138 J139 J140 J141 J144 J145 J146 J147 J148 J149 J150 J151 J152 J153 J154 J155	CON1	ZERO PROFILE RECEPTACLE WITH EAR	Mill-Max Manufacturing Corp.	0640-0-15-15-48-27-10-0
26	1	J142	con70-2x35-strip-female	CONN HEADER FEMALE .100 DUAL STR 70POS	SAMTEC	SSW-135-01-F-D
27	1	L100	2x4.5mH	CMC 4.5MH 18A 2LN TH	Wurth Electronics Inc.	7448051804
28	3	L101 L102 L103	1891.0010	PFC INDUCTOR 1891 SERIES	MAGNETICA	1891.0010
29	3	M100 M101 M102	HF	HF HALF BRIDGE MODULES		
30	1	M103	LF	LF HALF BRIDGE MODULE		
31	6	N1 N2 N3 N4 N5 N6	NUT M3	HEX NUT 0.217" NYLON M3	Keystone Electronics	4688
32	1	Q100	STS6NF20V, SO-8	MOSFET N-CH 20V 6A 8SOIC	STMicroelectronics	STS6NF20V
33	1	Q101	STS6NF20V, SO-8	MOSFET N-CH 20V 6A 8SOIC	STMicroelectronics	STS6NF20V
34	4	Q102 Q103 Q104 Q105	STR2N2VH5, SOT-23	MOSFET N-CH 20V 2.3A SOT-23	STMicroelectronics	STR2N2VH5

Item	Q.ty	Ref.	Part/Value	Description	Manufacturer	Order code
35	3	R100 R101 R102	330k	RES 330K OHM 5% 1/4W 1206	YAGEO	RC1206JR-07330KL
36	1	R103	150	RES 150 OHM 5W 5% RADIAL	TE Connectivity Passive Product	SQMW5150RJ
37	8	R104 R186 R187 R188 R189 R190 R194 R195	10k	RES SMD 10K OHM 1% 1/10W 0603	Yageo	RC0603FR-0710KL
38	6	R105 R106 R107 R108 R114 R115	470k	RES SMD 470K OHM 1% 1/4W 1206	Yageo	RC1206FR-07470KL
39	1	R109	1k	RES SMD 1K OHM 1% 1/10W 0603	Yageo	RC0603FR-071KL
40	1	R110	0	RES SMD 0 OHM JUMPER 1/8W 0805	Yageo	RC0805JR-070RL
41	1	R111	33K	RES SMD 33K OHM 1% 1/10W 0603	Yageo	RC0603FR-0733KL
42	1	R112	0	RES SMD 0 OHM JUMPER 1/8W 0805	Yageo	RC0805JR-070RL
43	2	R113 R116	11k	RES SMD 11K OHM 0.1% 1/10W 0603	Panasonic Electronic Components	ERA-3AEB113V
44	14	R117 R118 R129 R130 R133 R135 R136 R137 R150 R151 R166 R167 R182 R183	10	RES SMD 10 OHM 0.1% 1/10W 0603	Bourns Inc.	CRT0603-BY-10R0ELF
45	3	R119 R121 R124	1M	RES 1M OHM 1% 1/4W 1206	YAGEO	RC1206FR-071ML
46	1	R120	6m	RES 0.006 OHM 1% 3W 2512	Panasonic Electronic Components	ERJ-MS4HF6M0U
47	2	R122 R123	100	RES SMD 100 OHM 0.1% 1/10W 0603	Yageo	RT0603BRD07100RL
48	1	R125	20k	RES SMD 20K OHM 0.1% 1/10W 0603	Yageo	RT0603BRD0720KL
49	2	R126 R127	1.5k	RES SMD 1.5K OHM 0.1% 1/10W 0603	Yageo	RT0603BRD071K5L
50	2	R128 R131	75k	RES SMD 75K OHM 0.1% 1/10W 0603	Panasonic Electronic Components	ERA-3AEB753V
51	1	R132	1k	RES SMD 1K OHM 1% 1/10W 0603	Yageo	RC0603FR-071KL
52	1	R134	33K	RES SMD 33K OHM 1% 1/10W 0603	Yageo	RC0603FR-0733KL
53	15	R138 R146 R147 R148 R152 R154 R162 R163 R164 R168 R170 R178 R179 R180 R184	10k	RES SMD 10K OHM 0.1% 1/10W 0603	Panasonic Electronic Components	ERA-3AEB103V
54	3	R139 R155 R171	47k	RES SMD 47K OHM 1% 1/10W 0603	Yageo	RC0603FR-0747KL
55	16	R140 R144 R149 R153 R156 R160 R165 R169 R172 R176 R181 R185 R191 R192 R193 R196	0	RES 0 OHM JUMPER 1/10W 0603	YAGEO	RC0603FR-070RL

Item	Q.ty	Ref.	Part/Value	Description	Manufacturer	Order code
56	3	R141 R157 R173	100	RES SMD 100 OHM 1% 1/10W 0603	Yageo	RC0603FR-07100RP
57	3	R142 R158 R174	0	CHIP RESISTOR SMD 1% 1/10W 0603	YAGEO	RC0603FR-070RL
58	3	R145 R161 R177	10k	RES SMD 10K OHM 1% 1/10W 0603	Yageo	RC0603FR-0710KL
59	1	RL100	250Vac-16A	RELAY GEN PURPOSE SPDT 16A 18V	TE Connectivity Potter & Brumfield Relays	RT314018
60	1	RT100	16	ICL 16 OHM 20% 1.7A 8.5MM	EPCOS (TDK)	B57153S0160M000
61	4	RV100 RV101 RV102 RV103	S14K385E2K1	VARISTOR 620V 6KA DISC 14MM	EPCOS (TDK)	B72214P2381K101
62	6	S4 S5 S6 S7 S8 S9	SPACER M3x20	HEX STANDOFF M3 NYLON 20MM	Keystone Electronics	25505
63	7	T100 T101 T102 T103 T104 T105 T106	B82801B0504A050	CURR SENSE XFMR 1:50 SMD	EPCOS - TDK Electronics	B82801B0504A050
64	1	U100	TSV911ILT	IC OPAMP GP 8MHZ RRO SOT23-5	STMicroelectronics	TSV911ILT
65	4	U101 U102 U105 U108	ACHS-7122-000E	HALL EFFECT IC LF	Broadcom Limited	ACHS-7122-000E
66	3	U103 U106 U109	LMV358IDT, SO-8	Low cost, low power, input/output rail-to-rail operational amplifiers	STMicroelectronics	LMV358IDT
67	3	U104 U107 U110	TSV911AILT, SOT23-5L	IC OPAMP GP 1 CIRCUIT SOT23-5	STMicroelectronics	TSV911AILT
68	4	Y100 Y101 Y102 Y103	2.2nF	CAP CER 2200PF 250VAC RADIAL	Murata Electronics North America	DE2E3KY222MA3BM02F

Table 3. Control board bill of materials

Item	Q.ty	Ref.	Part/Value	Description	Manufacturer	Order code
1	1	C300	4.7uF	CAP CER 4.7UF 16V X5R 0805	Würth Electronics Inc.	885012107013
2	21	C301 C302 C303 C304 C305 C306 C307 C308 C309 C312 C321 C323 C324 C331 C336 C346 C348 C349 C350 C351 C352	0.1uF	CAP CER 0.1UF 25V X7R 0603	Würth Elektronik	885012206071
3	3	C310 C313 C347	1 uF	CAP CER 1UF 16V X7R 0603	Würth Electronics Inc.	885012206052
4	2	C311 C332	10000pF	CAP CER 10000PF 25V X7R 0603	Würth Elektronik	885012206065
5	2	C314 C315	4.3pF	CAP CER 4.3PF 50V C0G/NP0 0603	Murata Electronics	GRM1885C1H4R3CA01D
6	2	C316 C325	8pF	CAP CER 8PF 50V C0G/NP0 0603	Yageo	CC0603DRNP09BN8R0

Item	Q.ty	Ref.	Part/Value	Description	Manufacturer	Order code
7	1	C317	470pF	CAP CER 470PF 25V C0G/NP0 0603	Würth Elektronik	885012006042
8	4	C319 C322 C326 C353	22pF	CAP CER 22PF 25V C0G/NP0 0603	Würth Elektronik	885012006034
9	1	C320	10uF	CAP CER 10UF 16V X5R 0805	Würth Electronics Inc.	885012107014
10	5	C333 C338 C339 C340 C341	0.22uF	CAP CER 0.22UF 25V X7R 0603	Würth Elektronik	885012206073
11	2	C334 C335	1000pF	CAP CER 1000PF 25V C0G/NP0 0603	Würth Elektronik	885012006044
12	4	C342 C343 C344 C345	22pF	CAP CER 22PF 25V C0G/NP0 0603	Würth Elektronik	885012006034
13	2	D300 D301	BAS70-05FILM, SOT23	DIODE ARRAY SCHOTTKY 70V SOT23-3	STMicroelectronics	BAS70-05FILM
14	3	D302 D303 D304	BAS70-05FILM, SOT23	DIODE ARRAY SCHOTTKY 70V SOT23-3	STMicroelectronics	BAS70-05FILM
15	1	D306	RED 2mA	LED RED DIFFUSED 0603 SMD	OSRAM Opto Semiconductors Inc.	LS L29K-G1J2-1-Z
16	1	D307	YELLOW 2mA	LED YELLOW DIFFUSED 0603 SMD	OSRAM Opto Semiconductors Inc.	LY L29K-J1K2-26-Z
17	1	D308	GREEN 2mA	LED GREEN DIFFUSED 0603 SMD	OSRAM Opto Semiconductors Inc.	LG L29K-G2J1-24-Z
18	2	J300 J304	con3-strip-male	CONN HEADER VERT 3POS 2.54MM	Amphenol ICC (FCI)	68001-203HLF
19	1	J301	con70-2x35-strip-male- R/A	CONN HEADER R/A 70POS 2.54MM	Amphenol ICC (FCI)	68020-172HLF
20	1	J302	CONN 10	CONN HEADER SMD 10POS 1.27MM	Samtec Inc.	FTSH-105-01-L-DV-K-TR
21	1	J303	con4-strip-male	CONN HEADER .100 STR 4POS	Amphenol ICC (FCI)	68001-204HLF
22	1	JP1	SHORT	2 PIN SHORTED TO CONNECT DIFFERENT NETS		
23	1	L300	600Ohm@100MHz	FERRITE BEAD 600 OHM 0603 1LN	Würth Electronics Inc.	742863160
24	10	R301 R302 R328 R334 R338 R341 R342 R343 R352 R413	0	RES 0 OHM JUMPER 1/10W 0603	YAGEO	RC0603FR-070RL
25	1	R303	*	CHIP RESISTOR SMD 1% 1/10W 0603		
26	5	R304 R329 R330 R331 R332	10k	RES SMD 10K OHM 1% 1/10W 0603	Yageo	RC0603FR-0710KL
27	1	R305	470	RES 470 OHM 1% 1/10W 0603	YAGEO	RC0603FR-10470RL
28	6	R307 R308 R320 R321 R372 R374	0	0 OHM JUMPER 0603	YAGEO	RC0603FR-070RL
29	14	R309 R310 R377 R378 R381 R382	10k	RES SMD 10K OHM 0.1% 1/10W 0603	Panasonic Electronic Components	ERA-3AEB103V

Item	Q.ty	Ref.	Part/Value	Description	Manufacturer	Order code
		R385 R386 R389 R390 R393 R394 R397 R398				
30	7	R311 R353 R354 R355 R356 R357 R358	100	RES SMD 100 OHM 1% 1/10W 0603	Yageo	RC0603FR-07100RP
31	3	R313 R314 R315	1k	RES SMD 1K OHM 1% 1/10W 0603	Yageo	RC0603FR-071KL
32	1	R316	75	RES 75 OHM 1% 1/10W 0603	YAGEO	RC0603FR-0775RL
33	4	R326 R336 R339 R344	100K	RES SMD 100K OHM 1% 1/10W 0603	Yageo	RC0603FR-07100KL
34	5	R327 R337 R340 R345 R409	1k	RES SMD 1K OHM 1% 1/10W 0603	Yageo	RC0603FR-071KL
35	5	R359 R360 R361 R362 R363	680	RES 680 OHM 1% 1/10W 0603	YAGEO	RC0603FR-10680RL
36	2	R373 R375	0	0 OHM JUMPER 0603	YAGEO	RC0603FR-070RL
37	12	R376 R379 R380 R383 R384 R387 R388 R391 R392 R395 R396 R399	15k	RES SMD 15K OHM 0.1% 1/10W 0603	Panasonic Electronic Components	ERA-3AEB153V
38	4	R400 R401 R402 R403	1.5k	RES SMD 1.5K OHM 0.1% 1/10W 0603	Yageo	RT0603BRD071K5L
39	4	R404 R405 R406 R407	3k	RES SMD 3K OHM 0.1% 1/10W 0603	Panasonic Electronic Components	ERA-3AEB302V
40	1	R408	100K	RES SMD 100K OHM 1% 1/10W 0603	Yageo	RC0603FR-07100KL
41	1	SW300	Switch- WE-430483025816	SWITCH TACTILE SPST-NO 0.05A 12V	Würth Electronics Inc.	430483025816
42	15	TP300 TP301 TP304 TP308 TP311 TP314 TP323 TP324 TP325 TP326 TP327 TP331 TP332 TP333 TP334	5001	TEST POINT PC MINI .040"D BLACK	Keystone Electronics	5001
43	1	U205	STLM20W87F, SOT323-5L	SENS TEMP ANLG VOLT SOT-323-5	STMicroelectronics	STLM20W87F
44	1	U300	STM32G474QET6, LQFP 128 14x14x1.4 mm	MAINSTREAM ARM CORTEX-M4 CORE WI	STMicroelectronics	STM32G474QET6
45	3	U302 U305 U306	TSV912IDT, SO-8	IC OPAMP GP 8MHZ RRO 8SO	STMicroelectronics	TSV912IDT
46	3	U303 U304 U307	TSV911ILT, SOT23-5L	IC OPAMP GP 8MHZ RRO SOT23-5	STMicroelectronics	TSV911ILT
47	1	U308	LMV321RILT, SOT23-5L	IC OPAMP GP 1 CIRCUIT SOT23-5	STMicroelectronics	LMV321RILT

Item	Q.ty	Ref.	Part/Value	Description	Manufacturer	Order code
48	1	Y300	32.768kHz	CRYSTAL 32.7680KHZ 12.5PF SMD	CTS-Frequency Controls	TFE322P32K7680R
49	1	Y301	24MHz	CRYSTAL 24.0000MHZ 9PF SMD	IQD Frequency Products	LFXTAL071177REEL

Table 4. Auxiliary power supply board bill of materials

Item	Q.ty	Ref.	Part/Value	Description	Manufacturer	Order code
1	1	C1	1nF	CAP CER 1000PF 760VAC Y5U RADIAL	Vishay BC Components	VY1102M35Y5UG63V0
2	1	C3	220pF	CAP CER 220PF 1KV C0G/NP0 1206	Murata Electronics	GRM31A5C3A221JW01D
3	3	C6 C10 C19	10uF	CAP CER 10UF 35V X5R 0805	Murata Electronics	GRM21BR6YA106KE43K
4	3	C7 C26 C28	220uF	CAP ALUM 220UF 20% 16V RADIAL	Würth Electronics Inc.	860020373010
5	1	C9	0.1uF	CAP FILM 0.1UF 20% 305VAC RADIAL	EPCOS (TDK)	B32921C3104M000
6	1	C13	1000pF	CAP CER 1000PF 25V C0G/NP0 0603	Würth Elektronik	885012006044
7	1	C14	33nF	CAP CER 0.033UF 25V X7R 0603	Würth Elektronik	885012206068
8	2	C15 C24	0.1uF	CAP CER 0.1UF 50V X7R 0603	Würth Elektronik	885012206095
9	1	C18	1uF	CAP CER 1UF 50V X7R 0805	Würth Elektronik	885012207103
10	2	C22 C23	10uF	10 µF Tantalum Capacitors 16 V 0805 20%	KYOCERA AVX	F981C106MSUAJ6
11	1	C25	22uF	CAP ALUM 22UF 20% 400V RADIAL	Rubycon	400PX22MEFCG412.5X20
12	1	C27	22nF	CAP CER 0.022UF 25V X7R 0603	Würth Elektronik	885012206067
13	1	D1	STPS6M100DEE, PowerFLAT™	DIODE SCHOTTKY 100V 6A POWERFLAT	STMicroelectronics	STPS6M100DEE-TR
14	1	D2	800V 2.2A	BRIDGE RECT 1PHASE 800V 2.2A YBS	Taiwan Semiconductor Corporation	YBS2206G RAG
15	1	D3	STTH1R06A, SMA	DIODE GEN PURP 600V 1A SMA	STMicroelectronics	STTH1R06A
16	2	D4 D6	BAT41ZFILM, SOD-123	DIODE SCHOTTKY 100V 200MA SOD123	STMicroelectronics	BAT41ZFILM
17	1	D7	18V	DIODE ZENER 18V 500MW SOD80	Vishay Semiconductor Diodes Division	BZT55C18-GS08
18	1	D8	STPS1L60A	DIODE SCHOTTKY 60V 1A SMA	STMicroelectronics	STPS1L60A
19	1	F2	2.5A 250V	FUSE BRD MNT 250VAC/125VDC SMD	Littelfuse Inc.	047602.5MR
20	1	ISO1	SFH6106-2T	OPTOISOLATOR 5.3KV TRANS 4- SMD	Vishay Semiconductor Opto Division	SFH6106-2T
21	1	J2	CON2	CONN HEADER R/A 2POS 5.08MM	Samtec Inc.	TSW-202-08-T-S-RA
22	1	J4	CON4	CONN HEADER R/A 4POS 2.54MM	Samtec Inc.	TSW-104-08-T-S-RA
23	1	L2	3.3uH	FIXED IND 3.3UH 4.7A 25 MOHM TH	Würth Electronics Inc.	7447462033
24	2	R2 R3	100k	RES 100K OHM 5% 1/4W 1206	YAGEO	RC1206JR-07100KL
25	1	R5	0	RES 0 OHM JUMPER 1/4W 1206	YAGEO	RC1206JR-070RL
26	1	R6	4.7	RES 4.7 OHM 5% 1/4W 1206	YAGEO	RC1206JR-074R7L
27	1	R14	620k	RES 620K OHM 1% 1/10W 0603	YAGEO	RC0603FR-07620KL

Item	Q.ty	Ref.	Part/Value	Description	Manufacturer	Order code
28	1	R15	82k	RES 82K OHM 1% 1/10W 0603	YAGEO	RC0603FR-0782KL
29	1	R16	22k	RES SMD 22K OHM 1% 1/10W 0603	Yageo	RC0603FR-0722KL
30	1	R17	33K	RES SMD 33K OHM 1% 1/10W 0603	Yageo	RC0603FR-0733KL
31	1	R18	3.9	RES 3.9 OHM 1% 1/10W 0603	YAGEO	RC0603FR-073R9L
32	1	R19	1k	RES SMD 1K OHM 1% 1/10W 0603	Yageo	RC0603FR-071KL
33	1	R20	100K	RES SMD 100K OHM 1% 1/10W 0603	Yageo	RC0603FR-07100KL
34	1	R21	200k	RES 200K OHM 1% 1/10W 0603	YAGEO	RC0603FR-07200KL
35	1	R22	130k	RES 130K OHM 1% 1/10W 0603	YAGEO	RC0603FR-07130KL
36	1	R23	15k	RES SMD 15K OHM 1% 1/10W 0603	Yageo	RC0603FR-0715KL
37	1	R24	12k	RES 12K OHM 5% 1/8W 0805	YAGEO	RC0805JR-0712KL
38	1	T1	750319460R01	TRANSFORMER REV.01	WURTH ELEKTRONIK	750319460
39	1	U1	LD29080DT50R	IC REG LINEAR 5V 800MA DPAK	STMicroelectronics	LD29080DT50R
40	1	U2	VIPER35LD, SO-16	IC OFFLINE SWITCH FLYBACK 16SO	STMicroelectronics	VIPER35LD
41	1	U3	LD29080S33R, SOT-223	IC REG LINEAR 3.3V 800MA SOT223	STMicroelectronics	LD29080S33R (Contact our sales office)
42	1	U4	TS432ILT, SOT23	IC VREF SHUNT 10V 1% SOT23-3	STMicroelectronics	TS432ILT

Table 5. High-frequency half-bridge board bill of materials

Item	Q.ty	Ref.	Part/Value	Description	Manufacturer	Order code
1	5	C1 C3 C6 C9 C13	0.1uF	CAP CER 0.1UF 50V X7R 0603	Würth Elektronik	885012206095
2	5	C2 C4 C8 C10 C14	1uF	CAP CER 1UF 50V X7R 0805	Würth Elektronik	885012207103
3	2	C5 C11	*	CAPACITOR CERAMIC SMD 0603		
4	2	C7 C12	100pF	CAP CER 100PF 50V C0G/NP0 0603	Würth Elektronik	885012006057
5	12	J1 J2 J3 J4 J5 J7 J8 J9 J10 J11 J12 J13	CON1	CONN PC PIN CIRC 0.040DIA GOLD	Mill-Max Manufacturing Corp.	3301-2-14-21-00-00-08-0
6	1	J6	CON10	CONN HEADER SMD R/A 10POS 2MM	Amphenol ICC (FCI)	10112690-G03-05ULF
7	1	Q1	STR2N2VH5, SOT-23	MOSFET N-CH 20V 2.3A SOT-23	STMicroelectronics	STR2N2VH5
8	2	Q2 Q3	STW70N60DM6, TO-247	MOSFET N-CH 600V 62A TO247	STMicroelectronics	STW70N60DM6
9	2	R1 R2	10k	RES SMD 10K OHM 1% 1/10W 0603	Yageo	RC0603FR-0710KL
10	1	R3	0	RES SMD 0 OHM JUMPER 1/8W 0805	Yageo	RC0805JR-070RL
11	2	R4 R11	*	CHIP RESISTOR SMD 1% 1/10W 0603		
12	2	R5 R12	22	RES 22 OHM 5% 1/4W 1206	YAGEO	RC1206JR-0722RL
13	1	R6	0	RES SMD 0 OHM JUMPER 1/8W 0805	Yageo	RC0805JR-070RL

Item	Q.ty	Ref.	Part/Value	Description	Manufacturer	Order code
14	4	R7 R9 R13 R15	0	RES 0 OHM JUMPER 1/10W 0603	YAGEO	RC0603FR-070RL
15	2	R8 R14	4.7	RES 4.7 OHM 5% 1/4W 1206	YAGEO	RC1206JR-074R7L
16	2	R10 R16	6.8k	RES 6.8K OHM 1% 1/10W 0603	YAGEO	RC0603FR-076K8L
17	1	U1	ISE1212A	DC DC CONVERTER 12V 1W	XP Power	ISE1212A
18	2	U2 U3	STGAP2SM, SO-8	DGTL ISO 4A single Gate Drive	STMicroelectronics	STGAP2SMTR

Table 6. Low-frequency half-bridge board bill of materials

Item	Q.ty	Ref.	Part/Value	Description	Manufacturer	Order code
1	5	C1 C3 C6 C9 C13	0.1uF	CAP CER 0.1UF 50V X7R 0603	Würth Elektronik	885012206095
2	5	C2 C4 C8 C10 C14	1uF	CAP CER 1UF 50V X7R 0805	Würth Elektronik	885012207103
3	2	C5 C11	*	CAPACITOR CERAMIC SMD 0603		
4	2	C7 C12	100pF	CAP CER 100PF 50V C0G/NP0 0603	Würth Elektronik	885012006057
5	12	J1 J2 J3 J4 J5 J7 J8 J9 J10 J11 J12 J13	CON1	CONN PC PIN CIRC 0.040DIA GOLD	Mill-Max Manufacturing Corp.	3301-2-14-21-00-00-08-0
6	1	J6	CON10	CONN HEADER SMD R/A 10POS 2MM	Amphenol ICC (FCI)	10112690-G03-05ULF
7	1	Q1	STR2N2VH5, SOT-23	MOSFET N-CH 20V 2.3A SOT-23	STMicroelectronics	STR2N2VH5
8	2	Q2 Q3	STY145N65M5, Max247	MOSFET N-CH 650V 138A MAX247	STMicroelectronics	STY145N65M5
9	2	R1 R2	10k	RES SMD 10K OHM 1% 1/10W 0603	Yageo	RC0603FR-0710KL
10	1	R3	0	RES SMD 0 OHM JUMPER 1/8W 0805	Yageo	RC0805JR-070RL
11	2	R4 R11	*	CHIP RESISTOR SMD 1% 1/10W 0603		
12	2	R5 R12	1k	RES 1K OHM 5% 1/4W 1206	YAGEO	RC1206JR-101KL
13	1	R6	0	RES SMD 0 OHM JUMPER 1/8W 0805	Yageo	RC0805JR-070RL
14	4	R7 R9 R13 R15	0	RES 0 OHM JUMPER 1/10W 0603	YAGEO	RC0603FR-070RL
15	2	R8 R14	33	RES 33 OHM 5% 1/4W 1206	YAGEO	RC1206JR-0733RL
16	2	R10 R16	6.8k	RES 6.8K OHM 1% 1/10W 0603	YAGEO	RC0603FR-076K8L
17	1	U1	ISE1212A	DC DC CONVERTER 12V 1W	XP Power	ISE1212A
18	2	U2 U3	STGAP2SM, SO-8	DGTL ISO 4A single Gate Drive	STMicroelectronics	STGAP2SMTR

Evaluation board license agreement

Important: All information on this document is subject to this Evaluation Board License Agreement.

By using this evaluation board or kit (together with all related software, firmware, components, and documentation provided by ST, "Evaluation Board"), You ("You") are agreeing to be bound by the terms and conditions of this Evaluation Board License Agreement ("Agreement"). Do not use the Evaluation Board until You have read and agreed to this Agreement. Your use of the Evaluation Board constitutes Your acceptance of this Agreement.

LICENSE

STMicroelectronics ("ST") grants You the right to use the enclosed Evaluation Board offering limited features only to evaluate and test ST products solely for Your evaluation and testing purposes in a research and development setting. The Evaluation Board shall not be, in any case, directly or indirectly assembled as a part in any production of Yours as it is solely developed to serve evaluation purposes and has no direct function and is not a finished product. If software and/or firmware is accompanied by a separate end user license agreement ("EULA"), then such software and/or firmware shall be governed by such EULA.

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The Evaluation Board offers limited features allowing You only to evaluate and test the ST products. The Evaluation Board is not intended for consumer or household use. You are not authorized to use the Evaluation Board in any production system, and it may not be offered for sale or lease, or sold, leased or otherwise distributed for commercial purposes. If the Evaluation Board is incorporated in an evaluation system, the evaluation system may be used by You solely for Your evaluation and testing purposes. Such evaluation system may not be offered for sale or lease or sold, leased or otherwise distributed for commercial purposes and must be accompanied by a conspicuous notice as follows: "This device is not, and may not be, offered for sale or lease, or sold or leased or otherwise distributed for commercial purposes".

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Title to the Evaluation Board remains with ST and/or its licensors. You may not remove any copyright or other proprietary rights notices without prior written authorization from ST. You may make one copy of the software and/or firmware of the Evaluation Board for back up or archival purposes provided that You reproduce and apply to such copy any copyright or other proprietary rights notices included on or embedded in the software and/or firmware. You agree to prevent any unauthorized copying in whole or in part of the Evaluation Board.

RESTRICTIONS AND WARNINGS

Before You handle or use the Evaluation Board, You must carefully review any related documentation provided by ST. Such documentation may contain important warnings. You shall comply with all such warnings and other instructions and employ reasonable safety precautions in using the Evaluation Board. Failure to do so may result in death, personal injury, or property damage. If You have any questions regarding the safe usage of the Evaluation Board, You should contact ST for guidance.

You may not sell, assign, sublicense, lease, rent or otherwise distribute the Evaluation Board for commercial purposes, in whole or in part, or use Evaluation Board in a production system, with the exception that if You are an authorized ST distributor, You may resell the Evaluation Board in compliance with the applicable terms and conditions. Except as provided in this Agreement or as explicitly permitted in the documentation of the Evaluation Board, You may not reproduce the Evaluation Board or modify,

reverse engineer, de-compile or disassemble its software and/or firmware, in whole or in part.

You shall not use the Evaluation Board in any safety critical or functional safety testing, including but not limited to testing of life supporting, military or nuclear applications. ST expressly disclaims any responsibility for such usage which shall be made at Your sole risk, even if ST has been informed in writing of such usage. Unless expressly designated in writing by ST as suitable for use in testing automotive or aerospace applications, You shall not use the Evaluation Board in such testing.

Notice applicable to Evaluation Boards according to European Regulation

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.
- **FCC Interference Statement for Class B Evaluation Boards:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
 - 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

ST WARRANTS THAT IT HAS THE RIGHT TO PROVIDE THE EVALUATION BOARD TO YOU. THIS WARRANTY IS PROVIDED BY ST IN LIEU OF ALL OTHER WARRANTIES, WRITTEN OR ORAL, STATUTORY, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY AS TO MERCHANTABILITY, NON-INFRINGEMENT, FITNESS FOR ANY PARTICULAR PURPOSE, OR UNINTERRUPTED OR ERROR-FREE OPERATION, ALL OF WHICH ARE EXPRESSLY DISCLAIMED. THE EVALUATION BOARD IS PROVIDED "AS IS".

YOU WARRANT TO ST THAT YOU WILL ENSURE THE EVALUATION BOARD IS USED ONLY BY ELECTRONICS EXPERTS WHO UNDERSTAND THE DANGERS OF HANDLING AND USING SUCH ITEMS, YOU ASSUME ALL RESPONSIBILITY AND LIABILITY FOR ANY IMPROPER OR UNSAFE HANDLING OR USE OF THE EVALUATION BOARD BY YOU, YOUR EMPLOYEES, AFFILIATES, CONTRACTORS, AND DESIGNEES.

LIMITATION OF LIABILITIES

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.

INDEMNIFICATION

You shall, at Your expense, defend ST and its Affiliates against a claim or action brought by a third party for infringement or misappropriation of any patent, copyright, trade secret or other intellectual property right of a third party to the extent resulting from (1) Your combination of the Evaluation Board with any other component, system, software, or firmware, (2) Your modification of the Evaluation Board, or (3) Your use of the Evaluation Board in a manner not permitted under this Agreement.

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 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.

IMPORTANT NOTICE – READ CAREFULLY

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