

Bill of materials

Table 1. STEVAL-TTPPFC01 bill of materials

Item	Q.ty	Ref.	Part/Value	Description	Manufacturer	Order code
1	1	-	Table 2. STEVAL\$ TTPPFC01P	Power board	ST	Not available for separate sale
2	1	-	Table 3. STEVAL\$ TTPPFC01C	Control board	ST	Not available for separate sale
3	1	-	Table 4. STEVAL\$ TTPPFC01X	Auxiliary board	ST	Not available for separate sale
4	3	-	Table 5. STEVAL\$ TTPPFC01H	High-frequency Half-bridge board	ST	Not available for separate sale
5	1	-	Table 6. STEVAL\$ TTPPFC01L	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, Radial, %, %	CAP FILM 0.33UF 20% 305VAC RAD	EPCOS (TDK)	B32922C3334M000
2	1	C101	4.7uF, Radial, %, %	CAP FILM 4.7UF 20% 630VDC RADIAL	EPCOS - TDK Electronics	B32924H3475M
3	2	C102 C103	100pF, 0603 (1608 Metric), V, %, %	CAP CER 100PF 50V C0G/NP0 0603	Murata Electronics North America	GRM1885C1H101JA01D
4	6	C133 C134 C143 C144 C153 C154	*, 0603 (1608 Metric), V, %, %	CAPACITOR CERAMIC SMD 0603 (not mounted)	ANY	ANY
5	6	C105 C106 C107 C108 C109 C110	330uF, Radial, Can - Snap-In, V, %, %	CAP ALUM 330UF 20% 450V SNAP	EPCOS - TDK Electronics	B43548A5337M060
6	4	C111 C117 C121 C127	1uF, V, %, %	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, 1812 (4532 Metric), V, %, %	CAP CER 100PF 630V C0G/NP0 1812 (not mounted)	AVX Corporation	1812CA101JAT2A
8	5	C114 C115 C135 C145 C155	10nF, 0603 (1608 Metric), V, %, %	CAPACITOR CERAMIC SMD 0603 X7R	ANY	ANY
9	4	C125 C158 C159 C160	1000pF, 0603 (1608 Metric), V, %, %	CAP CER 1000PF 25V C0G/NP0 0603	Würth Elektronik	885012006044
10	10	C126 C128 C129 C136 C138 C139	0.1uF, 0603 (1608 Metric), V, %, %	CAP CER 0.1UF 50V X7R 0603	KEMET	C0603C104J5RACTU

Item	Q.ty	Ref.	Part/Value	Description	Manufacturer	Order code
		C146 C148 C149 C156				
11	3	C130 C140 C150	2.2nF, 0603 (1608 Metric), V, %,	CAPACITOR CERAMIC SMD 0603 X7R	ANY	ANY
12	3	C131 C141 C151	10uF, 0805 (2012 Metric), V, %,	CAP CER 10UF 16V X5R 0805	Würth Electronics Inc.	885012107014
13	3	C132 C142 C152	10pF, 0603 (1608 Metric), V, %,	CAPACITOR CERAMIC SMD 0603 C0G	ANY	ANY
14	3	C137 C147 C157	1uF, 0603 (1608 Metric), V, %,	CAPACITOR CERAMIC SMD 0603	ANY	ANY
15	1	D100	STPS1L30A, SMA	30 V, 1 A low drop power Schottky rectifier	ST	STPS1L30A
16	2	D101 D102	BAS70-04FILM, SOT23	DIODE ARRAY SCHOTTKY 70V SOT23-3	ST	BAS70-04FILM
17	1	D103	STPS1L30A, SMA	30 V, 1 A low drop power Schottky rectifier (not mounted)	ST	STPS1L30A
18	1	F100	20A 250Vac, 2- SMD, Square End Block, V,	FUSE BOARD MNT 20A 250VAC 72VDC	Bel Fuse Inc.	0678L9200-02
19	1	FAN100	DC FAN, V, W,	DC Fans DC Fan, 40x10mm, 12VDC, 7CFM, 0.48W, 20.6dBA, 5800RPM, 0.12inch H2O, Vapo Bearing, MagLev Motor	Sunon	MF40101V2-1000U-A99
20	3	FIDUCIAL100 FIDUCIAL101 FIDUCIAL102	Fiducial,	Fiducial circle 0.3mm - 1.00mm - 1.50mm - square 1.00mm		
21	1	GT100	B88069X0780S10 2, Axial Cylinder,	GDT 540V 5KA THROUGH HOLE	EPCOS (TDK)	B88069X0780S102
22	1	J100	1717033,	SCREW TERM BLOCK PCB 3POS 7.5MM GREEN	Phoenix Contact	1717033
23	1	J101	AUX-PS,			
24	1	J102	VOUT,	SCREW TERM BLOCK PCB 2POS 7.62MM	RS Pro	7901130
25	4	J103 J116 J129 J143	CON10F,	CONN RCPT 10POS 0.079 GOLD SMD	Samtec Inc.	CLT-105-02-L-D-BE-A-K-TR
26	48	J104 J105 J106 J107 J108 J109 J110 J111 J112 J113 J114 J115 J117 J118 J119	CON1,	ZERO PROFILE RECEPTACLE WITH EAR	Mill-Max Manufacturing Corp.	0640-0-15-15-48-27-10-0

Item	Q.ty	Ref.	Part/Value	Description	Manufacturer	Order code
		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				
27	1	J142	con70-2x35-strip-female,	CONN HEADER FEMALE .100 DUAL STR 70POS		
28	1	L100	2x4.5mH, Vertical, 4 PC Pin, A,	CMC 4.5MH 18A 2LN TH	Würth Electronics Inc.	7448051804
29	3	L101 L102 L103	1891.0010,	PFC INDUCTOR 1891 SERIES	MAGNETICA	1891.0010
30	4	M100 M101 M102 M103	HF0,	not mounted		
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	N-channel 20 V, 30 mOhm typ., 6 A, 2.7 V drive STripFET II power MOSFET in an SO-8 package	ST	STS6NF20V
33	1	Q101	STS6NF20V, SO-8	N-channel 20 V, 30 mOhm typ., 6 A, 2.7 V drive STripFET II power MOSFET in an SO-8 package (not mounted)	ST	STS6NF20V
34	3	R100 R101 R102	330k, 1206 (3216 Metric), W, %,	CHIP RESISTOR SMD 5% 1/4W 1206 (not mounted)	ANY	ANY
35	1	R103	150, Radial, W, %,	RES 150 OHM 5% 7W RADIAL	TE Connectivity Passive Product	SQMW7150RJ
36	3	R145 R161 R177	10k, 0603 (1608 Metric), W, %,	CHIP RESISTOR SMD 1% 1/10W 0603	ANY	ANY
37	6	R105 R106 R107 R108 R114 R115	470k, 1206 (3216 Metric), W, %,	CHIP RESISTOR SMD 1% 1/4W 1206	ANY	ANY
38	1	R109	1k, 0603 (1608 Metric), W, %,	CHIP RESISTOR SMD 1% 1/10W 0603	ANY	ANY
39	1	R110	0, 0805 (2012 Metric), W, %,	CHIP RESISTOR SMD 1% 1/8W 0805 (not mounted)	ANY	ANY
40	1	R111	33k, 0603 (1608 Metric), W, %,	CHIP RESISTOR SMD 1% 1/10W 0603	ANY	ANY

Item	Q.ty	Ref.	Part/Value	Description	Manufacturer	Order code
41	1	R112	0, 0805 (2012 Metric), W, %,	CHIP RESISTOR SMD 1% 1/8W 0805	ANY	ANY
42	2	R113 R116	11k, 0603 (1608 Metric), W, %,	RES SMD 11K OHM 0.1% 1/10W 0603	Panasonic Electronic Components	ERA-3AEB113V
43	6	R150 R151 R166 R167 R182 R183	10, 0603 (1608 Metric), W, %,	RES SMD 10 OHM 0.1% 1/10W 0603	Bourns Inc.	CRT0603-BY-10R0ELF
44	3	R119 R121 R124	1M, 1206 (3216 Metric), W, %,	CHIP RESISTOR SMD 1% 1/4W 1206	ANY	ANY
45	1	R120	6m, 2512 (6432 Metric), W, %,	RES 0.006 OHM 1% 3W 2512	Panasonic Electronic Components	ERJ-MS4HF6M0U
46	2	R122 R123	100, 0603 (1608 Metric), W, %,	RES SMD 100 OHM 0.1% 1/10W 0603	Yageo	RT0603BRD07100RL
47	1	R125	20k, 0603 (1608 Metric), W, %,	RES SMD 20K OHM 0.1% 1/10W 0603	Yageo	RT0603BRD0720KL
48	2	R126 R127	1.5k, 0603 (1608 Metric), W, %,	RES SMD 1.5K OHM 0.1% 1/10W 0603	Yageo	RT0603BRD071K5L
49	2	R128 R131	75k, 0603 (1608 Metric), W, %,	RES SMD 75K OHM 0.1% 1/10W 0603	Panasonic Electronic Components	ERA-3AEB753V
50	1	R132	1k, 0603 (1608 Metric), W, %,	CHIP RESISTOR SMD 1% 1/10W 0603 (not mounted)	ANY	ANY
51	1	R134	33k, 0603 (1608 Metric), W, %,	CHIP RESISTOR SMD 1% 1/10W 0603 (not mounted)	ANY	ANY
52	15	R138 R146 R147 R148 R152 R154 R162 R163 R164 R168 R170 R178 R179 R180 R184	10k, 0603 (1608 Metric), W, %,	RES SMD 10K OHM 0.1% 1/10W 0603	Panasonic Electronic Components	ERA-3AEB103V
53	3	R139 R155 R171	47k, 0603 (1608 Metric), W, %,	CHIP RESISTOR SMD 1% 1/10W 0603	ANY	ANY
54	12	R140 R144 R149 R153 R156 R160 R165 R169 R172 R176 R181 R185	0, 0603 (1608 Metric), W, %,	CHIP RESISTOR SMD 1% 1/10W 0603	ANY	ANY
55	3	R141 R157 R173	100, 0603 (1608 Metric), W, %,	CHIP RESISTOR SMD 1% 1/10W 0603	ANY	ANY
56	3	R142 R158 R174	0, 0603 (1608 Metric), W, %,	CHIP RESISTOR SMD 1% 1/10W 0603 (not mounted)	ANY	ANY

Item	Q.ty	Ref.	Part/Value	Description	Manufacturer	Order code
57	1	RL100	250Vac-16A,	RELAY GEN PURPOSE SPDT 16A 18V	TE Connectivity Potter & Brumfield Relays	RT314018
58	1	RT100	16, Diameter 8.5mm, %,	ICL 16 OHM 20% 1.7A 8.5MM (not mounted)	EPCOS (TDK)	B57153S0160M000
59	4	RV100 RV101 RV102 RV103	S14K385E2K1, Disc 14mm,	VARISTOR 620V 6KA DISC 14MM	EPCOS (TDK)	B72214P2381K101
60	6	S4 S5 S6 S7 S8 S9	SPACER M3x20,	HEX STANDOFF M3 NYLON 20MM	Keystone Electronics	25505
61	3	T104 T105 T106	B82801B0504A05 0, 0.280" L x 0.320" W (7.11mm x 8.13mm)	CURR SENSE XFMR 1:50 SMD	EPCOS - TDK Electronics	B82801B0504A050
62	1	U100	TSV911ILT, SOT23-5L	Wide-bandwidth (8MHz) rail to rail input/output 5V CMOS Op-Amp, single	ST	TSV911ILT
63	4	U101 U102 U105 U108	ACHS-7122-000E, 8-SOIC (0.154", 3.90mm Width)	HALL EFFECT IC LF	Broadcom Limited	ACHS-7122-000E
64	3	U103 U106 U109	LMV358IDT, SO-8	Low power rail-to-rail input/output op-amp	ST	LMV358IDT
65	3	U104 U107 U110	TSV911AILT, SOT23-5L	Wide-bandwidth (8MHz) rail to rail input/output 5V CMOS Op-Amp, small offset, single	ST	TSV911AILT
66	4	Y100 Y101 Y102 Y103	2.2nF, Radial, Disc	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	Ceramic Capacitor 4.7UF 16V X5R 0805 20%	Würth Electronics Inc.	885012107013
2	18	C301 C302 C303 C304 C305 C306 C307 C308 C309 C312 C331 C336 C346 C348 C349 C350 C351 C352	100nF	CERAMIC CAPACITOR SMD 0603 10% 16V	Würth Electronics Inc.	885012206046
3	3	C310 C313 C347	1 uF	Ceramic Capacitor 1UF 16V X7R 0603 10%	Würth Electronics Inc.	885012206052
4	1	C311	10nF	CERAMIC CAPACITOR SMD 0603 10% 16V	Würth Electronics Inc.	885012206040
5	2	C314 C315	4.3pF	Ceramic Capacitor 4.3PF 50V C0G/NP0 0603 0.25pF		
6	2	C316 C325	8pF	Ceramic Capacitor 8PF 50V		

Item	Q.ty	Ref.	Part/Value	Description	Manufacturer	Order code
				C0G/NPO 0603 0.5pF		
7	1	C317	470pF	CERAMIC CAPACITOR SMD 0603 X7R 10% 25V		
8	4	C319 C322 C326 C353	22pF	CERAMIC CAPACITOR SMD 0603 10% 25V NOT MOUNTED		
9	1	C320	10uF	Ceramic Capacitor 10UF 16V X5R 0805 20%	Würth Electronics Inc.	885012107014
10	3	C321 C323 C324	0.1uF	Ceramic Capacitor 0.1UF 50V X7R 0603 10%	Würth Electronics Inc.	885012206095R
11	1	C332	10nF	CERAMIC CAPACITOR X7R SMD 0603 10% 50V	Würth Electronics Inc.	885012206089
12	5	C333 C338 C339 C340 C341	220nF	CERAMIC CAPACITOR X7R SMD 0603 10% 16V	Würth Electronics Inc.	885012206048
13	2	C334 C335	1nF	CERAMIC CAPACITOR X7R SMD 0603 10% 50V	Würth Electronics Inc.	885012206083
14	4	C342 C343 C344 C345	22pF	CERAMIC CAPACITOR C0G SMD 0603 10% 25V	Würth Electronics Inc.	885012006034
15	2	D300 D301	BAS70-05FILM	DIODE ARRAY SCHOTTKY 70V SOT23-3 NOT MOUNTED	STMicroelectronic s	BAS70-05FILM
16	3	D302 D303 D304	BAS70-05FILM, SOT23	70 V, 70 mA RF and Ultrafast Switching Signal Schottky Diode	ST	BAS70-05FILM
17	1	D306	RED 2mA	LED RED DIFFUSED 0603 SMD	Würth Electronics Inc.	150060RS55040
18	1	D307	YELLOW 2mA	LED YELLOW DIFFUSED 0603 SMD	Würth Electronics Inc.	150060YS55040
19	1	D308	GREEN 2mA	LED GREEN DIFFUSED 0603 SMD	Würth Electronics Inc.	150060VS55040
20	2	J300 J304	con3-strip-male	CONN HEADER .100 STR 3POS		
21	1	J301	con70-2x35-strip- male-R/A	CONN HEADER R/A 70POS (2x35) 2.54MM		

Item	Q.ty	Ref.	Part/Value	Description	Manufacturer	Order code
22	1	J302	CONN 10	CONN HEADER SMD 10POS 1.27MM		FTSH-105-01-L-DV-K-TR
23	1	J303	con4-strip-male	CONN HEADER .100 STR 4POS		
24	-	-	-	-	-	-
25	1	L300	600Ohm@100MH z	FERRITE BEAD 600 OHM 0603	Würth Electronics Inc.	742863160
26	10	R301 R302 R328 R334 R338 R341 R342 R343 R352 R413	0	RESISTOR SMD 1% 1/10W 0603		
27	1	R303	*	RESISTOR SMD 1% 1/10W 0603 NOT MOUNTED		
28	5	R304 R329 R330 R331 R332	10k	RESISTOR SMD 1% 1/10W 0603		
29	1	R305	470	RESISTOR SMD 1% 1/10W 0603		
30	6	R307 R308 R320 R321 R372 R374	0	0 OHM JUMPER 0603		
31	14	R309 R310 R377 R378 R381 R382 R385 R386 R389 R390 R393 R394 R397 R398	10k	RESISTOR SMD 10K OHM 0.1% 1/10W 0603		
32	7	R311 R353 R354 R355 R356 R357 R358	100	RESISTOR SMD 1% 1/10W 0603		
33	3	R313 R314 R315	1k	RESISTOR SMD 1% 1/10W 0603 NOT MOUNTED		
34	1	R316	75	RESISTOR SMD 1% 1/10W 0603		
35	4	R326 R336 R339 R344	100k	RESISTOR SMD 1% 1/10W 0603		
36	5	R327 R337 R340 R345 R409	1k	RESISTOR SMD 1% 1/10W 0603		
37	5	R359 R360 R361 R362 R363	680	RESISTOR SMD 1% 1/10W 0603		
38	2	R373 R375	0	0 OHM JUMPER 0603 NOT MOUNTED		
39	12	R376 R379 R380 R383 R384 R387 R388 R391 R392 R395 R396 R399	15k	RESISTOR SMD 15K OHM 0.1% 1/10W 0603		
40	4	R400 R401 R402 R403	1.5k	RESISTOR SMD 1.5K OHM 0.1% 1/10W 0603		
41	4	R404 R405 R406 R407	3k	RESISTOR SMD 3K OHM 0.1% 1/10W 0603		

Item	Q.ty	Ref.	Part/Value	Description	Manufacturer	Order code
42	1	R408	100k	RESISTOR SMD 1% 1/10W 0603 NOT MOUNTED		
43	1	SW300	Switch- WE-43048302581 6	SWITCH TACTILE SPST-NO 0.05A 12V	Würth Electronics Inc.	430483025816
44	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	5001
45	1	U205	STLM20W87F, SOT323-5L	Analog temperature sensor, ultra-low current 2.4 V, high precision	ST	STLM20W87F
46	1	U300	STM32G474QET6 , LQFP 128 14x14x1.4 mm	Mainstream Arm Cortex-M4 MCU 170 MHz with 512 Kbytes of Flash memory, Math Accelerator, HR Timer, High Analog level integration	ST	STM32G474QET6
47	3	U302 U305 U306	TSV912IDT, SO-8	Wide-bandwidth (8MHz) rail to rail input/output 5V CMOS Op-Amps, dual	ST	TSV912IDT
48	3	U303 U304 U307	TSV911ILT, SOT23-5L	Wide-bandwidth (8MHz) rail to rail input/output 5V CMOS Op-Amp, single	ST	TSV911ILT
49	1	U308	LMV321RILT, SOT23-5L	Low power rail-to- rail input/output op-amp	ST	LMV321RILT
50	1	Y300	32.768kHz	CRYSTAL 32.7680KHZ 12.5PF SMD NOT MOUNTED		TFE322P32K7680R
51	1	Y301	24MHz	CRYSTAL 24.0000MHZ 9PF SMD	Würth Electronics Inc.	830107006509

Table 4. Auxiliary power supply board bill of materials

Item	Q.ty	Ref.	Part/Value	Description	Manufacturer	Order code
1	1	C1	1nF	Ceramic Capacitor 1000PF 760VAC Y5U RADIAL 20%		VY1102M35Y5UG63V0
2	1	C3	220pF	Ceramic Capacitor 220PF 1KV C0G/NP0 1206 5%		GRM31A5C3A221JW01D

Item	Q.ty	Ref.	Part/Value	Description	Manufacturer	Order code
3	2	C6 C19	10uF	CERAMIC CAPACITOR SMD 0805 20% 25V		
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	C10	10uF	Ceramic Capacitor 10UF 35V X5R 0805 10%		GMK212BBJ10206KG-T
7	1	C13	1nF	CERAMIC CAPACITOR X7R SMD 0603 10% 16V	Würth Electronics Inc.	885012206034
8	1	C14	33nF	CERAMIC CAPACITOR X7R SMD 0603 10% 16V	Würth Electronics Inc.	885012206043
9	2	C15 C24	100nF	CERAMIC CAPACITOR X7R SMD 0603 10% 50V	Würth Electronics Inc.	885012206095
10	1	C18	1uF	CERAMIC CAPACITOR X7R SMD 0603 10% 25V	Würth Electronics Inc.	885012206076
11	2	C22 C23	10uF	10 µF Tantalum Capacitors 16 V 0805 20%		F981C106MSUAJ6
12	1	C25	22uF	CAP ALUM 22UF 20% 400V RADIAL	Würth Electronics Inc.	860021378013
13	1	C27	22nF	CERAMIC CAPACITOR X7R SMD 0603 10% 50V	Würth Electronics Inc.	885012206091
14	1	D1	STPS6M100DEE-TR, PowerFLAT	100 V, 6 A PowerFLAT Power Schottky Rectifier	ST	STPS6M100DEE-TR
15	1	D2	800V 2.2A	BRIDGE RECT 1PHASE 800V 2.2A YBS		YBS2206G RAG
16	1	D3	STTH1R06A, SMA	600 V, 1 A Turbo 2 Ultrafast Diode	ST	STTH1R06A
17	2	D4 D6	BAT41ZFILM, SOD-123	100 V, 200 mA Surface Mount General Purpose Signal Schottky Diode	ST	BAT41ZFILM
18	1	D7	18V	DIODE ZENER 18V 500MW SOD80 NOT MOUNTED		BZT55C18-GS08

Item	Q.ty	Ref.	Part/Value	Description	Manufacturer	Order code
19	1	D8	STPS1L60A, SMA	60 V, 1 A Low Drop Power Schottky Rectifier	ST	STPS1L60A
20	1	F2	2.5A 250V	FUSE 250VAC SMD		047602.5MR
21	1	ISO1	SFH6106-2T	OPTOISOLATOR 5.3KV TRANS SMD		SFH6106-2T
22	1	J10200	CON2	CONN HEADER R/A 2POS 5.08MM		TSW-202-08-T-S-RA
23	1	J4	CON4	CONN HEADER R/A 4POS 2.54MM		TSW-104-08-T-S-RA
24	1	L2	3.3uH	FIXED IND 3.3UH 4.7A 25 MOHM TH	Würth Electronics Inc.	7447462033
25	2	R2 R3	100k	RESISTOR SMD 5% 1/4W 1206		
26	1	R5	0	RESISTOR SMD 5% 1/4W 1206		
27	1	R6	4.7	RESISTOR SMD 5% 1/4W 1206		
28	1	R14	620k	RESISTOR SMD 1% 1/10W 0603		
29	1	R15	82k	RESISTOR SMD 1% 1/10W 0603		
30	1	R16	22k	RESISTOR SMD 1% 1/10W 0603		
31	1	R17	33k	RESISTOR SMD 1% 1/10W 0603		
32	1	R18	3.9	RESISTOR SMD 1% 1/10W 0603		
33	1	R19	1k	RESISTOR SMD 1% 1/10W 0603		
34	1	R20	100k	RESISTOR SMD 1% 1/10W 0603		
35	1	R21	200k	RESISTOR SMD 1% 1/10W 0603		
36	1	R22	130k	RESISTOR SMD 1% 1/10W 0603		
37	1	R23	15k	RESISTOR SMD 1% 1/10W 0603		
38	1	R24	12k	RESISTOR SMD 1% 1/8W 0805		
39	1	T1	750319460R01	TRANSFORMER	WURTH ELEKTRONIK	750319460R01
40	1	U1	LD29080DT50R, DPAK	800 mA fixed and adjustable output very low drop voltage regulator	ST	LD29080DT50R

Item	Q.ty	Ref.	Part/Value	Description	Manufacturer	Order code
41	1	U2	VIPER35LD, SO-6	Quasi-resonant high performance off line high voltage converter	ST	VIPER35LD
42	1	U3	LD29080S33R, SOT-223	800 mA fixed and adjustable output very low drop voltage regulator	ST	LD29080S33R
43	1	U4	TS432ILT, SOT23	1.24 V adjustable shunt voltage reference	ST	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	Ceramic Capacitor 0.1UF 50V X7R 0603 10%	Würth Electronics Inc.	885012206095R
2	5	C2 C4 C8 C10 C14	1uF	CERAMIC CAPACITOR SMD X7R 0805 10% 50V	Würth Electronics Inc.	885012207103
3	2	C5 C11	*	CERAMIC CAPACITOR SMD 0603 * NOT MOUNTED		
4	2	C7 C12	100pF	CERAMIC CAPACITOR SMD 0603 * NOT MOUNTED		
5	12	J102 J10200 J3 J4 J5 J7 J8 J9 J1020 J1021 J1022 J1023	CON1	CONN PC PIN CIRC 0.040DIA GOLD		3301-2-14-21-00-00-08-0
6	1	J6	CON10	CONN HEADER SMD R/A 10POS 2MM		10112690-G03-05ULF
7	1	Q1	STR2N2VH5, SOT-23	N-channel 20 V, 0.025 Ohm typ., 2.3 A STripFET H5 Power MOSFET in SOT-23 package	ST	STR2N2VH5
8	2	Q2 Q3	STW70N60DM6, TO-247	N-channel 600 V, 36 mOhm typ., 62 A MDmesh DM6 Power MOSFET in a TO-247 package	ST	STW70N60DM6
9	2	R1 R2	10k	RESISTOR SMD 1% 1/10W 0603		
10	1	R3	0	RESISTOR SMD 1% 1/8W 0805		
11	2	R4 R11	*	RESISTOR SMD 1% 1/10W 0603 NOT MOUNTED		

Item	Q.ty	Ref.	Part/Value	Description	Manufacturer	Order code
12	2	R5 R12	22	RESISTOR SMD 5% 1/4W 1206		
13	1	R6	0	RESISTOR SMD 1% 1/8W 0805 NOT MOUNTED		
14	4	R7 R9 R13 R15	0	RESISTOR SMD 1% 1/10W 0603		
15	2	R8 R14	4.7	RESISTOR SMD 5% 1/4W 1206		
16	2	R10 R16	6.8k	RESISTOR SMD 1% 1/10W 0603		
17	1	U1	ISE1212A	DC DC CONVERTER 12V 1W		ISE1212A
18	2	U2 U3	STGAP2SM, SO-8	Galvanically isolated 4 A single gate driver	ST	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	Ceramic Capacitor 0.1UF 50V X7R 0603 10%	Wurth Electronics Inc.	885012206095R
2	5	C2 C4 C8 C10 C14	1uF	CERAMIC CAPACITOR SMD X7R 0805 10% 50V	Wurth Electronics Inc.	885012207103
3	2	C5 C11	*	CERAMIC CAPACITOR SMD 0603 * NOT MOUNTED		ANY
4	2	C7 C12	100pF	CERAMIC CAPACITOR SMD 0603 * NOT MOUNTED		ANY
5	12	J102 J10200 J3 J4 J5 J7 J8 J9 J1020 J1021 J1022 J1023	CON1	CONN PC PIN CIRC 0.040DIA GOLD		3301-2-14-21-00-00-08-0
6	1	J6	CON10	CONN HEADER SMD R/A 10POS 2MM		10112690-G03-05ULF
7	1	Q1	STR2N2VH5, SOT-23	N-channel 20 V, 0.025 Ohm typ., 2.3 A STripFET H5 Power MOSFET in SOT-23 package	ST	STR2N2VH5
8	2	Q2 Q3	STY145N65M5, Max247	N-channel 650 V, 0.012 Ohm typ., 138 A MDmesh M5 Power MOSFET in a Max247 package	ST	STY145N65M5

Item	Q.ty	Ref.	Part/Value	Description	Manufacturer	Order code
9	2	R1 R2	10k	RESISTOR SMD 1% 1/10W 0603		
10	1	R3	0	RESISTOR SMD 1% 1/8W 0805		
11	2	R4 R11	*	RESISTOR SMD 1% 1/10W 0603 NOT MOUNTED		
12	2	R5 R12	1k	RESISTOR SMD 5% 1/4W 1206		
13	1	R6	0	RESISTOR SMD 1% 1/8W 0805 NOT MOUNTED		
14	4	R7 R9 R13 R15	0	RESISTOR SMD 1% 1/10W 0603		
15	2	R8 R14	33	RESISTOR SMD 5% 1/4W 1206		
16	2	R10 R16	6.8k	RESISTOR SMD 1% 1/10W 0603		
17	1	U1	ISE1212A	DC DC CONVERTER 12V 1W		ISE1212A
18	2	U2 U3	STGAP2SM, SO-8	Galvanically isolated 4 A single gate driver	ST	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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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 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.

IMPORTANT NOTICE – READ CAREFULLY

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