

## Bill of materials

Table 1. STEVAL-PLC001V1 bill of materials

Item	Q.ty	Ref.	Value	Description	Manufacturer	Part Number
1	1	BT1	3030TR	Battery holder (not mounted)	Keystone Electronics	3030TR
2	8	C1 C2 C3 C4 C53 C54 C55 C57	33 pF, 0402 (1005 Metric), 10 V, +/-5%, SMD	Ceramic capacitors	Würth Elektronik	885012005028
3	1	C5	4.7 $\mu$ F, 0805 (2012 Metric), 25 V, +/-20%, SMD	Ceramic capacitor	Würth Elektronik	885012107018
4	4	C6,C14,C31 C35	100 nF, 0402 (1005 Metric), 10 V, +/-20%, SMD	Ceramic capacitors	Würth Elektronik	885012105010
5	16	C7 C8 C9 C10 C12 C13 C17 C18 C47 C48 C49 C51 C52 C56 C58 C59	22 nF, 0402 (1005 Metric), 50 V, +/-5%, SMD	Ceramic capacitors	Murata Electronics	GCM155R71H223JA55D
6	1	C11	33 nF, 0402 (1005 Metric), 50 V, +/-10%, SMD	Ceramic capacitor	Murata Electronics	81-GCM155R71H333KE2D
7	43	C16 C24 C29 C41 C42 C44 C61 C67 C69 C70 C71 C72 C73 C74 C75 C76 C77 C78 C79 C80 C81 C82 C100 C103 C105 C106 C107 C108 C109 C112 C113 C114 C115 C116 C117 C118 C119 C120 C121 C122 C123 C126 C127	100 nF, 0402 (1005 Metric), 10 V/6.3 V, +/-10%, SMD	Ceramic capacitors	Würth Elektronik	885012205018
8	1	C15	10 $\mu$ F 0603, (1608 Metric), 6.3 V, +/-20%, SMD	Ceramic capacitors	Würth Elektronik	885 012 106 006
9	7	C19 C21 C25 C27 C62 C64 C97	10nF, 0402 (1005 Metric), 16 V/25 V, +/-10%, SMD	Ceramic capacitors	Würth Elektronik	885012205031/885012205050
10	1	C66	10 nF, 0402 (1005 Metric), 50 V, SMD	Ceramic capacitor (not mounted)	Würth Elektronik	
11	4	C20 C23 C26 C28	10 nF, 0402 (1005 Metric), 100 V, +/-10%, SMD	Ceramic capacitors	Yageo	CC0402KRX7R0BB103

Item	Q.ty	Ref.	Value	Description	Manufacturer	Part Number
12	5	C22 C30 C60 C83 C92	4.7 $\mu$ F, 0805 (2012 Metric), 6.3 V, +/-10%, SMD	Ceramic capacitors	Würth Elektronik	885012207002
13	4	C32 C33 C38 C39	1 pF, 0402 (1005 Metric), 10 V, SMD	Ceramic capacitors	Würth Elektronik	885012005001
14	2	C34 C86	1 $\mu$ F, 0402 (1005 Metric), 50 V, SMD	Ceramic capacitors	Taiyo Yuden	UMK105CBJ105KV-F
15	3	C36 C89 C128	100 nF, 0402 (1005 Metric), 50 V, SMD	Ceramic capacitors	Murata Electronics	GRM155R62A104KE14D
16	4	C37 C45 C85 C87	4.7 $\mu$ F, 2917 (7343 Metric), 63 V, +/-10%	Capacitors	Vishay / Sprague	293D475X9063D2TE3
17	3	C40 C43 C96	1 $\mu$ F, 0402 (1005 Metric), 10 V, SMD	Ceramic capacitors	Yageo	CC0402KRX5R6BB105
18	2	C46 C50	10 pF, 0402 (1005 Metric), 50 V, SMD	Ceramic capacitors	Würth Electronik	885012005055
20	1	C63	4.7 $\mu$ F, 0805(2012 Metric), 50 V, SMD	Ceramic capacitor	TDK	C2012X7R1H475K125AC
21	2	C65 C99	4.7 $\mu$ F, 0603 (1608 Metric), 25 V, SMD	Ceramic capacitors	Murata	GRM188R61E475KE11D
22	1	C68	4.7 $\mu$ F, SMD, 3216-12, 10 V, +/-20%	Capacitor	AVX	TAJS475M010RNJ
23	2	C84 C91	4n7/3kV, radial disc, +/-20%	Safety capacitors (not mounted)	Vishay / BC Components	VY1472M63Y5UQ63V0
25	1	C88	100 $\mu$ F, radial-SMD, 8x10mm, 50 V	Electrolytic aluminium capacitor (not mounted)	Würth Elektronik	-
27	1	C90	0402 (1005 Metric), 50V	Ceramic capacitor (not mounted)	Würth Elektronik	-
28	1	C93	330 nF, 0805 (2012 Metric), 50 V, SMD	Ceramic capacitor	Würth Elektronik	885012207101
29	1	C94	10 nF, 0402 (1005 Metric), 10 V, SMD	Ceramic capacitor	Würth Elektronik	885012205012
30	1	C95	10 $\mu$ F, 0805 (2012 Metric), 10 V, SMD	Ceramic capacitor	Würth Elektronik	885012107010
31	1	C98	10 $\mu$ F, 0402 (1005 Metric), 10 V, SMD	Ceramic capacitor	Yageo	CC0402MRX5R6BB106
32	2	C101 C102	2.2 $\mu$ F (low ESR), 0402 (1005 Metric), 6.3 V, SMD	Ceramic capacitors	TDK	C1005JB0J225M050BC
33	1	C110	220 $\mu$ F SMD, 6032-28, 10 V	Capacitor (not mounted)	Würth Elektronik	-
34	2	C104 C111	1 $\mu$ F, 0402 (1005 Metric), 6.3 V, SMD	Ceramic capacitors	Taiyo Yuden	JMK105BJ105KV8F
35	2	C124 C125	4.7 pF NPO +/-0.25 pF, 0402 (1005 Metric), 6.3 V, SMD	Ceramic capacitors	Yageo	CC0402CRNPO9BN4R7

Item	Q.ty	Ref.	Value	Description	Manufacturer	Part Number
36	1	C129	100 nF, 0402 (1005 Metric), 10 V, SMD	Ceramic capacitor (not mounted)	Wurth Elektronik	-
37	1	C130	1 nF 0603, (1608 Metric), 63 V, SMD	Ceramic capacitor	Kemet	C0603C102KMRECAUTO
38	25	D1 D2 D3 D4 D5 D6 D7 D8 D9 D10 D11 D12 D13 D14 D15 D16 D24 D25 D26 D28 D30 D31 D32 D33 D48	Green, 0603 (1608 Metric), 2 V, 5 mA, 30 mW	Standard LEDs	Lumex	SML-LXFP0603SUGCTR
39	1	D41	Green, 0603 (1608 Metric), 1.8 V, 2 mA	Standard LED	Kingbright	APT1608LZGCK
40	4	D17 D18 D19 D20	SC-90, SOD-323F, 23V, 1A	23 V, 1 A general purpose signal Schottky diode	ST	BAT20JFILM
41	3	D21 D22 D29	Red, 0603, (1608 Metric), 2 V (VF), 5 mA, 30 mW	LEDs	Lumex	SML-LXFP0603SIC-TR
42	1	D23	SMC30J22CA, DO-214AB, SMC, VRM, 22 V	3000 W, 22 V TVS in SMC	ST	SMC30J22CA
43	3	D27 D44 D49	ESDALC6V1-1M2, SOD-882, 50 W	Single line low capacitance Transil transient surge voltage suppressor (TVS) for ESD protection	ST	ESDALC6V1-1M2
44	3	D34 D37 D47	Amber, 0603 (1608 Metric), 2 V, 20 mA, 48 mW	Standard LEDs	Wurth Elektronik	150060AS75020
45	2	D36 D40	Blue, 0603 (1608 Metric), 2.8 V, 5 mA	Standard LEDs	Kingbright	APT1608VRCXF/A-5MAV
46	4	D50,D51,D52,D53	SOD-123, 900mv @ 10mA, 7.5uA @1.5 V, 500 mW	Zener diode (not mounted)	ON Semiconductor	MMSZ4684T1G
47	1	D35	STPS1L40M, DO-216AA, 460 mV @ 1 A	40 V, 1 A STmite low drop power Schottky rectifier	ST	STPS1L40M
48	1	D38	SMAJ15A-TR, DO-214AC, SMA, 400 W	400 W TVS in SMA	ST	SMAJ15A-TR
49	1	D39	SM15T33CA, DO-214AB, SMC	1500 W, 33 V TVS in SMC	ST	SMCJ33CA-TR
50	1	D42	SMA6F5.0A, DO-221AC, SMA Flat Leads, 5 V, 600 W	600 W, 5 V TVS in SMA Flat	ST	SMA6F5.0A

Item	Q.ty	Ref.	Value	Description	Manufacturer	Part Number
51	1	D43	ESDA7P120-1U1M, 0603 (1610 Metric), 1400 W, 1.4 kW	High-power transient voltage suppressor	ST	<a href="#">ESDA7P120-1U1M</a>
52	2	D45 D46	STPS5L25B-TR, TO-252-3, DPak (2 Leads + Tab), SC-63, 470 mV @ 5 A	25 V, 5 A low drop power Schottky rectifier	ST	<a href="#">STPS5L25B-TR</a>
53	1	F1	SF-0603HI700M-2 (7 A fuse), 0603 (1608 Metric), 32 V	High inrush multilayer	Bourns Inc.	SF-0603HI700M-2
54	2	J1 J14	CON8, 8P 5.0 8mm 90DEG	Fixed terminal blocks	Würth Elektronik	691244510008
55	2	J2 J4	3 pin jumper	CONN HEADER .100 STR 3POS	Würth Elektronik	613 003 111 21
56	2	J6 J7	CON6-2315	6-way PCB terminal block	Würth Elektronik	691231510006
57	4	J8 J9 J10 J12	2-pin jumper 2.54 mm	Jumpers	Würth Elektronik	61300211121
58	4	J11 J13 J19 J26	5.08 mm pitch, 250 V, 24 A	Fixed terminal blocks	Phoenix Contact	1711725
59	2	J17 J18	con38-2x19-strip-male (morpho)	Connector headers	Samtec Inc.	TSM-119-01-F-DV
60	1	J20	Surge test Pad	PCB PAD (not mounted)	Sullins Connector Solutions	PRPC001SAAN-RC
61	2	J22 J24	3-pin jumper, 2.54 mm	Connector headers	Würth Elektronik	61300311121
62	1	J23	CON10A	Connector header	CNC Tech	3220-10-0100-00
63	1	J25	5-pin 2.54 mm	Connector header	Würth Elektronik	691210910005
64	3	L1 L3 L6	600 Ohms, 0603 (1608 Metric), 400 mA	Ferrite beads	Fair-Rite	2506036017Y0
65	1	L2	4.7 $\mu$ H, 1210 (3225 Metric), 1 A	Fixed inductor	Murata	LQH32PN4R7NN0L
66	1	L4	100 Ohms, 3312 (8530 metric), 10 A, +/-25%	Ferrite bead	Würth Elektronik	74279225101
67	2	L5 L7	220 Ohms, 0805 (2012 Metric), 2 A	Ferrite beads	Murata	BLM21PG221SN1D
68	4	Q1 Q2 Q3 Q5	2STR1160-SOT23, TO-236-3, SC-59, SOT-23-3, 60V, 1A	Low voltage fast-switching NPN power transistor	ST	<a href="#">2STR1160</a>
69	1	Q4	STL42P6LLF6, 8-PowerVDFN, 100 W (Tc)	P-channel 60 V, 0.023 Ohm typ., 42 A STripFET F6 power MOSFET in a	ST	<a href="#">STL42P6LLF6</a>

Item	Q.ty	Ref.	Value	Description	Manufacturer	Part Number
				PowerFLAT 5x6 package		
70	10	R1 R2 R3 R4 R68 R69 R71 R74 R78 R82	220E, 0402 (1005 Metric), 50 V, 0.063 W, 1/16 W $\pm$ 1%	Chip resistors	Yageo	AC0402FR-07220RL
71	1	R5	15 K 0402 (1005 Metric), 50 V, 0.063 W, 1/16 W, +/- 1%	Chip resistor	Yageo	RC0402FR-1015KL
72	21	R6 R23 R24 R25 R26 R153 R156 R158 R159 R162 R164 R168 R173 R180 R185 R191 R197 R198 R199 R200 R205	0E 0402, (1005 Metric), 50 V, 0.063 W, 1/16 W, +/-1%	Chip resistors	Yageo	RC0402FR-070RL
73	8	R7 R9 R11 R12 R14 R17 R19 R22	2K2, 0402 (1005 Metric), 50 V, 0.125 W, 1/8 W, +/-1%	Chip resistors	Yageo	RC0402FR-7W2K2L
74	4	R8 R10 R64 R143	1K, 0402 (1005 Metric), 50 V, 0.063 W, 1/16 W, +/-1%	Chip resistors	Yageo	RC0402FR-7D1KL
75	1	R13	1K, 0805 (2012 Metric), 50 V, 5 W, +/-5%	Thick film resistor	Panasonic	ERJ-UP6J102V
76	1	R15	1M5, 0402 (1005 Metric), 50 V, 0.125 W, 1/8 W, +/-2%	Thick film resistor	KOA Speer	SG73P1ETTP155G
77	1	R16	120 K, 0402 (1005 Metric), 50 V, 0.125 W, 1/8 W, +/-1%	Thick film resistor	KOA Speer	SG73S1ETTP124J
78	2	R18 R130	120E, 0402 (1005 Metric), 50 V, 0.063 W, 1/16 W, +/-1%	Chip resistors (not mounted)	Yageo	RC0402FR-13120RL
79	3	R20 R21 R155	120E, 0402 (1005 Metric), 50 V, 0.063 W, 1/16 W, +/-1%	Chip resistor	Any	Any
80	17	R27 R28 R29 R30 R63 R66 R67 R70 R73 R77 R79 R80 R142 R201 R202 R203 R204	7.5K, 0402 (1005 Metric), 50 V, 0.125 W, 1/8 W, +/-1%	Chip resistors	Yageo	RC0402FR-7W7K5L
81	7	R31 R34 R39 R42 R94 R137 R149	330E, 0402 (1005 Metric), 50 V, 0.063 W, 1/16 W, +/-1%	Chip resistors	Yageo	RC0402FR-13330RL
82	4	R32 R36 R46 R48	510R, 0402 (1005 Metric), 50 V, 0.063 W, 1/16 W, +/-1%	Chip resistors	Yageo	RC0402FR-07510RL
83	4	R33 R35 R41 R43	5.1K, 0402 (1005 Metric), 50 V, 0.063 W, 1/16 W, +/-1%	Chip resistors	Yageo	RC0402FR-075K1L

Item	Q.ty	Ref.	Value	Description	Manufacturer	Part Number
84	4	R37 R38 R40 R45	56 k, 0402 (1005 Metric), 50 V, 0.063 W, 1/16 W, +/-1%	Chip resistors	Yageo	RT0402FRE0756KL
85	4	R84 R102 R141 R151	22 K, 0402 (1005 Metric), 50 V, 0.063 W, 1/16 W, +/-1%	Chip resistors	Yageo	RC0402FR-0722KL
86	1	R44	220 K, 0402 (1005 Metric), 50 V, 0.063 W, 1/16 W, +/-1%	Chip resistor	Yageo	RC0402FR-07220KL
87	1	R47	60.4 K, 0402 (1005 Metric), 50 V, 0.063 W, 1/16 W, +/-1%	Chip resistor	Yageo	RC0402FR-0760K4L
88	6	R49 R54 R55 R58 R59 R62	620 R, 0402 (1005 Metric), 50 V, 0.063 W, 1/16 W, +/-1%	Chip resistors	Yageo	RC0402FR-07620RL
89	6	R50 R53 R56 R57 R60 R61	200 R, 0402 (1005 Metric), 50 V, 0.063 W, 1/16 W, +/-1%	Chip resistors	Yageo	RC0402FR-13200RL
90	2	R51 R52	1 k, 0402 (1005 Metric), 50 V, 0.125 W, 1/8 W, +/-1%	Chip resistors	Yageo	RC0402FR-7W1KL
91	24	R65 R100 R101 R103 R107 R110 R111 R112 R114 R116 R117 R119 R120 R124 R125 R127 R128 R132 R133 R147 R171 R179 R182 R183	10 K, 0402 (1005 Metric), 50 V, 0.063 W, 1/16 W, +/-1%	Chip resistors	Yageo	RC0402FR-7D10KL
92	35	R72 R75 R95 R96 R98 R99 R104 R105 R106 R108 R109 R113 R115 R118 R121 R122 R123 R126 R129 R131 R134 R135 R136 R138 R139 R154 R157 R170 R181 R186 R187 R188 R189 R190 R192	0402 (1005 Metric), 50 V, 0.063 W, 1/16 W, +/-1%	Chip resistors	Yageo	NM
93	2	R76 R81	750 E, 0402 (1005 Metric), 50 V, 0.125 W, 1/8 W, +/-1%	Chip resistors	KOA Speer	SG73P1ETTP7500F
94	9	R83 R87 R88 R89 R90 R91 R92 R93 R193	4K7, 0402 (1005 Metric), 50 V, 0.063 W, 1/16 W, +/-1%	Chip resistors	Yageo	RC0402FR-7D4K7L
95	1	R85	100 K, 0402 (1005 Metric), 50 V, 0.063 W, 1/16 W, +/-1%	Chip resistor	Yageo	RC0402FR-10100KL

Item	Q.ty	Ref.	Value	Description	Manufacturer	Part Number
96	1	R86	10_1% 0402 (1005 Metric) 50 0.063 W, 1/16 W 1%	Anti sulphur chip resistor	Stackpole Electronics Inc	RMCS0402FT10R0
97	4	R97 R140 R146 R148	47 K 0402 (1005 Metric) 50 V 0.063 W, 1/16 W ±1%	Chip resistors	Yageo	RC0402FR-1347KL
98	1	R144	470 K 0402 (1005 Metric) 50 V 0.063 W, 1/16 W ±1%	Chip resistor	Yageo	RC0402FR-07470KL
99	1	R145	330K 0402 (1005 Metric) 50 V 0.063 W, 1/16 W ±1%	Chip resistor	Yageo	RC0402FR-07330KL
100	1	R150	470 0603 (1608 Metric) 50 V 0.1 W, 1/10 W ±5%	Chip resistor	Yageo	RC0603JR-07470RL
101	6	R152 R160 R161 R163 R184 R206	0 0402 (1005 Metric) 50 0.063 W, 1/16 W ±1%	Chip resistors (not mounted)	Yageo	RC0402FR-070RL
102	1	R172	51E, 0402 (1005 Metric), 50 V, 0.063 W, 1/16 W, +/-1%	Chip resistor	Yageo	AF0402FR-0751RL
103	4	R165 R178 R177 R176	100E, 0402 (1005 Metric), 50 V, 0.0125 W, 1/8 W, +/-1%	Chip resistors	Yageo	RC0402FR-7D100RL
104	2	R174 R175	200, 0402 (1005 Metric), 50 V, 0.063 W, 1/16 W, +/-1%	Chip resistors	Yageo	RC0402FR-07200RL
105	2	R167 R169	2K7, 0402 (1005 Metric), 50 V, 0.063 W, 1/16 W, +/-1%	Chip resistors	Yageo	RC0402FR-132K7L
106	2	R170 R181	10K, 0402 (1005 Metric), 50V, 0.063W, 1/16W, +/-1%	Chip resistors (not mounted)	Yageo	RC0402FR-7D10KL
107	2	R194 195	0603 (1608 Metric), 50 V, 0.063 W, 1/10 W, +/-1%	Chip resistors	Yageo	RC0603JR-070RL
108	2	SW1 SW2	434121043836, 6.00mm x 3.50mm	Tactile switches	TE Connectivity / Alcoswitch	1437566-3
109	15	TP1 TP2 TP3 TP4 TP5 TP6 TP7 TP8 TP9 TP10 TP11 TP12 TP13 TP14 TP18	con1-strip-female	Test points (not mounted)	Keystone	5002
110	2	TP15 TP17	con1-strip-female	Test points	Keystone	5002
111	1	U1	CLT01-38SQ7-TR, 48-VFQFN Exposed Pad	High speed digital input current limiter	ST	<a href="#">CLT01-38SQ7-TR</a>
112	1	U2	SI8661BD-B-IS, 16-SOIC (0.295", 7.50 mm width)	General purpose digital isolator	Silicon Labs	SI8661BD-B-IS
113	1	U27	STM32F746ZGT7, 144-LQFP	High-performance and DSP with FPU Arm	ST	<a href="#">STM32F746ZGT7</a>

Item	Q.ty	Ref.	Value	Description	Manufacturer	Part Number
				Cortex-M7 MCU		
114	7	U3 U6 U7 U9 U10 U11 U12	ACPL-024L-000E, 8-SOIC (0.154", 3.90mm Width), 2.7 V ~ 5.5 V	Opto-isolators	Broadcom Limited	ACPL-024L-000E
115	2	U4 U5	CLT03-2Q3	Self powered digital input current limiter	ST	CLT03-2Q3
116	1	U8	IPS4260L, 20- TSSOP (0.173", 4.40mm Width)	Quad low-side intelligent power switch	ST	IPS4260L
117	1	U13	ISO8200AQ, TFQFPN32	Galvanic isolated octal high side smart power solid state relay with SPI interface	ST	ISO8200AQ
118	1	U14	STLD40DPUR, 8- VDFN Exposed Pad	White LED power supply for large display back- light	ST	STLD40DPUR
119	1	U15	FH12S-40S-05SH55	Connector	Hirose Electric Co Ltd	FH12S-40S-0.5SH(55)
120	3	U16 U17 U18	EMIF08-LCD04M16, 0.130" L x 0.053" W (3.30 mm x 1.35 mm)	8-line L-C EMI filter and ESD protection for display interfaces	ST	EMIF08-LCD04M16
121	1	U19	IS42S32400F-7TLI- TR, 86-TFSOP (0.400", 10.16 mm Width)	SDRAM memory	Integrated Silicon Solution Inc	IS42S32400F-7TLI-TR
122	1	U20	W25X10CLSNIG, 8- SOIC (0.154", 3.90 mm Width)	Serial Flash memory	Winbond Electronics	W25X10CLSNIG
123	1	U21	STMPS2151STR, SC-74A, SOT-753, SOT23-5L	Enhanced single channel power switches (not mounted)	ST	STMPS2151STR
124	1	U22	USB_micro_AB	Connector receptacle	Molex	0475900001
125	1	U23	LM7805-d2pak, TO-263-3, D <sup>2</sup> Pak (2 leads + tab), TO-263AB	Positive voltage regulator IC	ST	L7805CD2T-TR
126	1	U24	NCS1S2405SC, 0.86" L x 0.32" W x 0.45" H (21.9 mm x 8.2 mm x 11.3 mm)	DC-DC converter	Murata Power Solutions Inc.	NCS1S2405SC
127	1	U25	ECMF02_2AMX6, 6-UFQFN, 200 mA	Common- mode filter and ESD protection for USB 2.0 and MIPI/MDDI	ST	ECMF02-2AMX6



Item	Q.ty	Ref.	Value	Description	Manufacturer	Part Number
				interfaces (not mounted)		
128	1	U26	LDK220M33R, SC-74A, SOT-753, SOT23-5L	200 mA low quiescent current and low noise LDO	ST	LDK220M33R
129	1	U28	ILD207T, 8-SOIC (0.154", 3.90 mm Width)	Opto-isolator	Vishay Semiconductor Opto Division	ILD207T
130	1	U29	REM2-2405S, 0.86" L x 0.32" W x 0.45" H (21.9 mm x 8.2 mm x 11.3 mm), 400 mA	DC DC CONVERTER 5V /2W (not mounted)	RECOM	REM2-2405S
131	1	Y1	NX3215SA-32.768K , 2-SMD, no lead	Crystal	NDK America, Inc.	NX3215SA-32.768K-EXS00A-MU00003
132	1	Y2	ECS-2520MV-250-BN-TR 4-SMD, No lead	Standard clock oscillator	ECS Inc.	ECS-2520MV-250-CN-TR
133	1	None ( Not shown in Schematic)	RK035HQ02-CT814B, 3.5" LCD TFT	3.5" LCD TFT connected via U15	Rocktech Displays Limited	RK035HQ02-CT814B
134	6	None ( Not shown in Schematic)	WR-PHD 2.54 mm jumper with test point	Headers and wire housings	Würth Elektronik	60900213421
135	8	None ( Not shown in Schematic)	M3 thread	Nylon stand-off	Keystone Electronics	25505
136	8	None ( Not shown in Schematic)	M3 Nylon Nut	Screws and fasteners	Keystone Electronics	4688

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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,

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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 – PLEASE READ CAREFULLY**

STMicroelectronics NV and its subsidiaries (“ST”) reserve the right to make changes, corrections, enhancements, modifications, and improvements to ST products and/or to this document at any time without notice. Purchasers should obtain the latest relevant information on ST products before placing orders. ST products are sold pursuant to ST’s terms and conditions of sale in place at the time of order acknowledgement.

Purchasers are solely responsible for the choice, selection, and use of ST products and ST assumes no liability for application assistance or the design of Purchasers’ products.

No license, express or implied, to any intellectual property right is granted by ST herein.

Resale of ST products with provisions different from the information set forth herein shall void any warranty granted by ST for such product.

ST and the ST logo are trademarks of ST. For additional information about ST trademarks, please refer to [www.st.com/trademarks](http://www.st.com/trademarks). All other product or service names are the property of their respective owners.

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