

Bill of materials
Table 1. STDES-60KWLLCWR bill of materials

Item	Q.ty	Ref.	Part / Value	Description	Manufacturer	Order code
1	1	-	Table 2. STDES-60KWLLCWRP	-	ST	Not available for separate sale
2	1	-	Table 3. STDES-60KWLLCWRC	-	ST	Not available for separate sale
3	1	-	Table 4. STDES-60KWLLCWRR	-	Samtec	Not available for separate sale

Table 2. STDES-60KWLLCWRP bill of materials

Item	Q.ty	Ref.	Part / Value	Description	Manufacturer	Order code
1	2	C1,C310	0.01UF 630V	Ceramic capacitor	Murata	GRM31C5C2J103JWA3
2	2	C4,C309	470UF 25V	Alum-Electrolytic Capacitor	Rubycon	25ZLH470MEFCT810X12.5
3	53	C6,C7,C8,C10,C65,C71,C77,C80,C91,C92,C103,C106,C116,C123,C130,C136,C307,C322,C328,C335,C337,C345,C348,C358,C363,C372,C374,C383,C386,C401,C407,C414,C416,C424,C427,C437,C442,C451,C453,C462,C465,C470,C473,C478,C479,C486,C489,C494,C497,C502,C504,C510,C513	10UF 50V	Ceramic capacitor	Samsung Electro-Mechanics America, Inc.	CL31B106KBHNNNE
4	3	C9,C11,C12	0.1UF 50V	Ceramic capacitor	KEMET	C0805C104K5RACTU
5	1	C13	10PF 50V	Ceramic capacitor	TDK Corporation	CGA3E2C0G1H100D080AD
6	15	C20,C66,C93,C117,C272,C276,C323,C349,C366,C402,C428,C445,C516,C523,C530	1UF 25V	Ceramic capacitor	Wurth Electronics Inc.	8.85012E+11
7	2	C21,C306	0.1UF 50V	Ceramic capacitor	KEMET	C0603C104J5RACTU
8	8	C24,C49,C52,C55,C57,C61,C395,C398	100PF 50V	Ceramic capacitor	Murata Electronics North America	GRM1885C1H101JA01D
9	31	C27,C29,C32,C82,C86,C109,C111,C125,C138,C269,C288,C297,C299,C330,C342,C354,C365,C378,C388,C409,C421,C433,C444,C457,C467,C	0.47UF 50V	Ceramic capacitor	AVX Corporation	08055C474KAT2A

Item	Q.ty	Ref.	Part / Value	Description	Manufacturer	Order code
		475,C483,C491,C499,C507,C515				
10	7	C28,C30,C33,C268,C289,C296,C298	10UF 35V	Ceramic capacitor	Taiyo Yuden	GMK212BBJ106KG-T
11	92	C63,C69,C75,C78,C81,C85,C89,C96,C101,C104,C107,C110,C115,C121,C124,C128,C134,C137,C320,C326,C329,C333,C338,C341,C343,C346,C353,C356,C361,C364,C370,C375,C377,C381,C384,C387,C399,C405,C408,C412,C417,C420,C422,C425,C432,C435,C440,C443,C449,C454,C456,C460,C463,C466,C468,C471,C474,C476,C480,C482,C484,C487,C490,C492,C495,C498,C500,C505,C506,C508,C511,C514	2.2UF 50V	Ceramic capacitor	TDK Corporation	C2012X7R1H225K125AC
12	48	C64,C70,C76,C79,C90,C97,C102,C105,C120,C122,C129,C135,C321,C327,C334,C339,C344,C347,C357,C362,C371,C373,C382,C385,C400,C406,C413,C418,C423,C426,C436,C441,C450,C452,C461,C464,C469,C472,C477,C481,C485,C488,C493,C496,C501,C503,C509,C512	1000PF 50V	Ceramic capacitor	AVX Corporation	06035C102KAT2A
13	18	C67,C94,C118,C273,C277,C324,C350,C367,C389,C391,C393,C396,C403,C429,C446,C517,C524,C531	0.1UF 16V	Ceramic capacitor	Wurth Electronics Inc.	8.85012E+11
14	16	C68,C95,C119,C325,C351,C368,C390,C392,C394,C397,C404,C430,C447,C518,C525,C532	1000PF 25V	Ceramic capacitor	Samsung Electro-Mechanics	CL10B102KA8NNNC
15	24	C84,C88,C112,C114,C127,C140,C332,C340,C355,C360,C376,C380,C411,C419,C434,C439,C455,C459,C52	220PF 50V	Ceramic capacitor	Samsung Electro-Mechanics America, Inc.	CL10B221KB8NNNC

Item	Q.ty	Ref.	Part / Value	Description	Manufacturer	Order code
		0,C522,C527,C529,C534,C536				
16	6	C141,C142,C146,C147,C559,C557	4.7uF 630V	Film capacitor	FARA	C352J475-BS**
17	2	C144,C149	150uF 550V	Alum-Electrolytic Capacitor	EPCOS / TDK	B43544C7157M0*#
18	2	C165,C174	68UF 550V	Alum-Electrolytic Capacitor	EPCOS	B43544C7826M0*#
19	2	C259,C261	1UF 100V	Ceramic capacitor	TDK Corporation	C3216X7R2A105K160AA
20	2	C260,C262	0.1UF 100V	Ceramic capacitor	Würth Elektronik	8.85012E+11
21	1	C263	1000PF 100V	Ceramic capacitor	Würth Elektronik	8.85012E+11
22	4	C270,C271,C555,C556	220UF 450V	Alum-Electrolytic Capacitor	Nichicon	LGM2W221MELZ35
23	3	C274,C275,C278	100PF 25V	Ceramic capacitor	Würth Elektronik	8.85012E+11
24	6	C279,C280,C282,C283,C285,C286	0.1UF 1000V	Ceramic capacitor	MURATA	GCJ55DR73A104KXJ1L
25	24	C290,C291,C292,C293,C294,C295,C314,C315,C316,C317,C318,C319,C537,C538,C539,C540,C541,C542,C543,C544,C545,C546,C547,C548	220PF 2000V	Ceramic capacitor	Würth Elektronik	8.85342E+11
26	12	C300,C301,C302,C303,C304,C305,C549,C550,C551,C552,C553,C554	0.47UF450V	Film capacitor	FARA	C352S474-4S
27	1	C308	4.7UF 25V	Ceramic capacitor	AVX Corporation	08053C475KAT2A
28	1	C313	1000PF 50V	Ceramic capacitor	Murata Electronics North America	GRM1885C1H102JA01J
29	24	DC1,DC2,DC3,DC4,DC5,DC6,DC7,DC8,DC9,DC10,DC11,DC12,DC13,DC14,DC15,DC16,DC17,DC18,DC19,DC20,DC21,DC22,DC23,DC24	CONV DC/DC 2W 0.77" L x 0.39" W x 0.49" H (19.5mm x 9.8mm x 12.5mm)	DC/DC Converter, 12VIN +20/-5VOUT	Recom Power	R12P22005D
30	1	D4	SCHOTTKY 60V 1A, SMA	60V,1A,Power Schottky Diode	ST	STPS1L60A
31	1	D6	SCHOTTKY 60V 5A, SMB	60V,5A,Power Schottky Diode	ST	STPS5L60U
32	1	D7	SCHOTTKY 40V 350MA, SOD323	40 V,350 mA,General purpose Signal Schottky Diode	ST	BAT48JFILM
33	40	D11,D12,D13,D22,D26,D28,D30,D34,D36,D38,D40,D44,D72,D76,D78,D82,D83,D86,D89,D90,	LED GREEN	LED GREEN	Lite-On Inc.	LTST-C171GKT

Item	Q.ty	Ref.	Part / Value	Description	Manufacturer	Order code
		D94,D96,D97,D99, D103,D104,D107, D110,D111,D115,D 117,D118,D119,D1 20,D121,D122,D1 23,D124,D129,D1 34				
34	24	D24,D25,D32,D33, D39,D43,D77,D80, D84,D87,D91,D93, D98,D101,D105,D 108,D112,D114,D1 25,D127,D130,D1 32,D135,D137	DIODE ZENER 20V 500MW	Zenner diode, 20V	ON Semiconductor	MMSZ5250BT1G
35	24	D27,D29,D35,D37, D41,D45,D79,D81, D85,D88,D92,D95, D100,D102,D106, D109,D113,D116, D126,D128,D131, D133,D136,D138	DIODE ZENER 6.2V 500MW	Zenner diode, 6.2V	ON Semiconductor	MMSZ4688T1G
36	6	D49,D50,D54,D55, D56,D60	DIODE SCHOTTKY 60V 500MA, SOD-123	60V, 0.5A Power Schottky Rectifier	ST	STPS0560Z
37	1	D69	DIODE GEN PURP 75V 150MA	Fast Switching Diode	Fairchild/ON Semiconductor	1N4148WS
38	1	D70	DIODE ZENER 15V 250MW	Zenner diode, 15V	Nexperia USA Inc.	BZX84-A15,215
39	1	D73	DIODE SCHOTTKY 30V 1A, SMA	30V,1A,Power Schottky Diode	ST	STPS1L30A
40	1	D74	DIODE GEN PURP 200V 1A, SMA	200V,1A,Ultrafast Recovery Diode	ST	STTH102A
41	1	D75	DIODE ZENER 4.7V 500MW	4.7V,500mW Schottky Diode	ON Semiconductor	MMSZ4688T1G
42	79	L1,FB1,L2,FB2,L3, L4,FB4,L5,L6,FB1 3,L15,FB15,L16,F B16,L17,FB17,L18 ,L19,FB19,L20,FB 20,L21,FB21,L22, FB22,L23,L24,FB2 4,L25,L26,L27,FB 27,L28,FB28,L29, FB29,L30,FB30,L3 1,L32,FB32,FB33, FB34,FB35,FB36, FB37,FB38,FB39, FB40,FB41,FB42, FB43,FB44,FB45, FB46,FB47,FB48, FB49,FB50,FB51, FB52,FB53,FB54, FB55,FB56,FB57, FB58,FB59	FERRITE BEAD 30 OHM	Ferrite Bead	TDK Corporation	MPZ2012S300AT000
43	4	Fan1,Fan2,Fan3,F an4	PFB0812DHE 12v 3.3A	FAN	Delta	PFB0812DHE
44	12	HS1,HS2,HS3,HS 4,HS5,HS6,HS7,H	-	Heatsink	-	-

Item	Q.ty	Ref.	Part / Value	Description	Manufacturer	Order code
		S8,HS9,HS10,HS11,HS12				
45	10	JP1,JP2,JP3,JP4,JP5,JP6,JP7,JP8,JP9,JP10	CONN TERM BLOCK 2POS 5.08MM	Connector	Phoenix Contact	1715721
46	1	J1	Digital Power	Connector Erni 284166 32X2	ERNI	284166 32X2
47	2	J2,J3	Switch SPDT 500mA 12V 10mmx2.5mm opposite side connect	Straight mini Slide Switch	Würth Electronics Inc.	4.50301E+11
48	6	J4,J5,J6,J7,J8,J9	Power to the Board 10MM 40A SOLDER SCREW M4	Power to the Board 10MM 40A SOLDER SCREW M4	ERNI	214786
49	3	LS1,LS2,LS3	Relay power latching 90A 250VAC	Relay	Hongfa	HFE19-9012HT22-R
50	6	L7,L8,L9,L12,L13,L14	ATWPPQ504736B 100T	LLC Resonate inductor	Sunlord	ATWPPQ504736B100T
51	1	L11	FIXED IND 47UH 1A 272 MOHM	SMT Semi-Shielded Power Inductor	Würth Elektronik	74404054470
52	4	P1,P2,P3,P4	PowerCon 9mmx 9.5mmx 3.5mm M5	Power Connector	Würth	7460408
53	12	Q11,Q12,Q13,Q14,Q15,Q16,Q17,Q18,Q19,Q20,Q21,Q22	SCT025W120G3-4 AG HiP247-4 1200V 100A, HiP247-4	Silicon carbide Power MOSFET 1200 V, 18.5 mOhm typ., 100 A in an HiP247-4 package	ST	SCT025W120G3-4AG
54	2	Q43,Q44	STS7NF60L SOIC-8 60V 7A, SO-8	N-CHANNEL 60V - 0.017Ohm - 7.5A SO-8 STripFET™ II MOSFET	ST	STS7NF60L
55	1	Q45	STW8N120K5 TO-247 1200V 6A, TO-247	N-channel 1200V, 1.65Ohm typ., 6A MDmesh K5 Power MOSFET in a TO-247 package	ST	STW8N120K5
56	1	Q47	STD20NF20 TO-252-3 200V 20A, DPAK	N-channel 200V, 0.10Ohm typ., 18A StripFET Power MOSFET in DPAK package	ST	STD20NF20
57	1	Q48	2STR1160 SOT-23 60V 1A, SOT-23	Low voltage fast-switching NPN power transistor	ST	2STR1160
58	1	Q51	MOSFET 60V 240mA 0.35W 3.0ohm@10V	N-Channel 60V MOSFET	Vishay Semiconductors	2N7002E-T1-GE3
59	12	Q52,Q53,Q54,Q55,Q56,Q57,Q58,Q59,Q60,Q61,Q62,Q63	SCT012W90G3-4 AG, HiP247-4	Silicon carbide Power MOSFET 900 V, 12 mOhm typ., 110 A in an HiP247-4 package	ST	SCT012W90G3-4AG
60	1	RT1	NTC THERMISTOR 10K OHM 1%	Resistor	Vishay BC Components	NTCALUG01A103F

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61	2	R1,R7	20K OHM 1%	Resistor	Yageo	RC0805FR-0720KL
62	2	R2,R5	3.3K OHM 1%	Resistor	Yageo	RC0805FR-073K3L
63	8	R3,R4,R6,R8,R28 1,R282,R283,R28 4	22K OHM 1%	Resistor	Vishay Dale	CRCW120622K0F0EA
64	1	R9	7.5K OHM 1%	Resistor	Panasonic Electronic Components	ERJ-3EKF7501V
65	1	R12	360K OHM 1%	Resistor	Yageo	RC0603FR-07360KL
66	3	R21,R244,R294	0.0OHM	Resistor	Yageo	RC0603JR-070RL
67	2	R22,R242	10 OHM 0.1%	Resistor	Yageo	RT1206BRD0710RL
68	1	R24	4.7K OHM 1%	Resistor	Yageo	RC0603FR-074K7L
69	1	R25	24 OHM 1%	Resistor	Yageo	RC1206FR-0724RL
70	1	R27	220 OHM 1%	Resistor	Yageo	RC0603FR-07220RL
71	1	R28	15K OHM 1%	Resistor	Yageo	RC0603FR-0715KL
72	1	R30	330 mOHM 1%	Resistor	Vishay Dale	WSL2512R3300FEA
73	1	R31	5.1K OHM 1%	Resistor	Yageo	RC0603FR-075K1L
74	1	R32	10K OHM 1%	Resistor	TE Connectivity Passive Product	CRG0603F10K/10
75	4	R33,R34,R36,R25 0	750 OHM 1%	Resistor	Yageo	RC0603FR-07750RL
76	4	R40,R226,R249,R 261	0 OHM	Resistor	Yageo	RC1206JR-070RL
77	25	R41,R120,R121,R 136,R137,R149,R 165,R314,R321,R 328,R336,R343,R 351,R361,R368,R 375,R383,R390,R 398,R411,R418,R4 24,R431,R437,R4 44	1 OHM 5%	Resistor	Panasonic Electronic Components	ERJ-6GEYJ1R0V
78	28	R79,R80,R110,R1 13,R126,R128,R1 44,R156,R312,R3 17,R326,R333,R3 42,R346,R353,R3 54,R359,R364,R3 74,R380,R389,R3 93,R409,R414,R4 23,R428,R436,R4 40	100 OHM 1%	Resistor	Yageo	AT0603FRE07100RL
79	36	R85,R86,R88,R89, R91,R92,R98,R99, R100,R101,R102, R103,R166,R168, R170,R174,R176, R179,R182,R183, R184,R185,R186, R187,R228,R229, R230,R231,R232, R233,R475,R476,	390K OHM 0.1%	Resistor	Panasonic Electronic Components	ERA-8AEB394V

Item	Q.ty	Ref.	Part / Value	Description	Manufacturer	Order code
		R477,R478,R479, R480				
80	3	R87,R90,R93	390K OHM 1%	Resistor	Yageo	RC1206FR-07390KL
81	3	R95,R97,R104	6.49K OHM 1%	Resistor	Yageo	RC0603FR-076K49L
82	45	R106,R118,R119, R122,R134,R135, R138,R148,R160, R224,R225,R227, R234,R235,R257, R262,R298,R308, R310,R322,R323, R329,R337,R338, R349,R352,R355, R357,R369,R370, R376,R384,R385, R396,R399,R400, R401,R402,R403, R404,R405,R406, R419,R432,R505	1K OHM 1%	Resistor	Yageo	RC0603FR-071KL
83	48	R108,R109,R114, R116,R124,R125, R127,R132,R141, R146,R155,R158, R311,R313,R316, R318,R325,R327, R331,R332,R340, R341,R345,R347, R358,R360,R363, R365,R371,R373, R378,R379,R387, R388,R392,R394, R408,R410,R413, R415,R421,R422, R426,R427,R434, R435,R439,R441	4.7 OHM 1%	Resistor	Stackpole Electronics Inc.	RMCF1210FT4R70
84	52	R111,R112,R115,R 117,R129,R130,R1 31,R133,R145,R1 47,R157,R159,R2 20,R222,R241,R2 45,R309,R315,R3 19,R320,R324,R3 30,R334,R335,R3 39,R344,R348,R3 50,R356,R362,R3 66,R367,R372,R3 77,R381,R382,R3 86,R391,R395,R3 97,R407,R412,R4 16,R417,R420,R4 25,R429,R430,R4 33,R438,R442,	10K OHM 1%	Resistor	Yageo	RC0603FR-0710KL
85	8	R177,R178,R180, R181,R192,R193, R506,R507	0.001 OHM	Resistor	Bourns Inc.	CRE2512-FZ-R001E-3
86	42	R188,R189,R191, R197,R198,R199, R263,R264,R265, R266,R267,R268, R269,R270,R271, R272,R273,R274, R275,R276,R277, R278,R279,R280, R457,R458,R459,	1M OHM 1%	Resistor	-	-

Item	Q.ty	Ref.	Part / Value	Description	Manufacturer	Order code
		R460,R461,R462, R463,R464,R465, R466,R467,R468, R469,R470,R471, R472,R473,R474				
87	4	R200,R201,R223, R259	2.2K OHM 1%	Resistor	Yageo	RC0603FR-072K2L
88	2	R202,R203	100 OHM 1%	Resistor	Yageo	RC0603FR-07100RP
89	30	R204,R205,R206, R207,R236,R237, R481,R482,R483, R484,R485,R486, R487,R488,R489, R490,R491,R492, R493,R494,R495, R496,R497,R498, R499,R500,R501, R502,R503,R504	0 OHM	Resistor	Panasonic Electronic Components	ERJ-3GEY0R00V
90	2	R216,R221	20 OHM 1%	Resistor	Yageo	RC0603FR-0720RL
91	3	R238,R239,R240	330 OHM 5%	High power resistor	TE Connectivity Passive Product	SQMR5330RJ
92	2	R243,R293	10 OHM 1%	Resistor	YAGEO	RC0603FR-0710RP
93	24	R251,R252,R253, R254,R255,R256, R302,R303,R304, R305,R306,R307, R508,R509,R510, R511,R512,R513, R514,R515,R516, R517,R518,R519	20 OHM 1%	Resistor	Stackpole Electronics Inc.	RMCF1210FT20R0
94	12	R445,R446,R447, R448,R449,R450, R451,R452,R453, R454,R455,R456	10 OHM 1%	Resistor	Stackpole Electronics Inc.	RMCF1210FT10R0
95	2	R291,R292	0 OHM	Resistor	Yageo	RC0805JR-070RL
96	4	R295,R299,R300, R301	2.2K OHM 1%	Resistor	Vishay Dale	CRCW12062K20FKEAHP
97	4	TP42,TP43,TP44, TP45	Test_point 0.100" Dia x 0.180" L (2.54mm x 4.57mm)	Test_point	Keystone Electronics	5000
98	12	TW1,TW2,TW3,T W4,TW5,TW6,TW 7,TW8,TW9,TW10 ,TW11,TW12	Support M3X40	PCB support M3 High 40mm	Essentra	TCBN-T1-M3-8-40
99	1	T1	ATWPEF252815B 413T	Auxiliary power transformer	Sunlord	ATWPEF252815B413T
100	6	T5,T6,T7,T12,T13, T14	ATWPPQ657667C 200P	LLC transformer	Sunlord	ATWPPQ657667C200P
101	1	T11	ARCDC522849E1 52N2B	Output CM inductor	Sunlord	ARCDC522849E152N2B
102	2	U4,U28	LD29080DT33R, DPAK	800mA fixed and adjustable output very	ST	LD29080DT33R

Item	Q.ty	Ref.	Part / Value	Description	Manufacturer	Order code
				low drop voltage regulator		
103	2	U5,U6	LD29080DT50R , DPAK	800mA fixed and adjustable output very low drop voltage regulator	ST	LD29080DT50R
104	12	U16,U17,U18,U30,U31,U32,U37,U38,U39,U40,U41,U42	STGAP2SiCD, SSOP 32 LEAD 300 MIL PKG .0315 P	Galvanically isolated 4 A dual gate driver	ST	STGAP2SiCD
105	1	U25	AMC1301DWVR	IC amplifier	Texas Instruments	AMC1301DWVR
106	1	U26	ISO1050	Isolated 5-V CAN transceiver	Texas Instruments	ISO1050
107	1	U27	L6565D, SO-8	Quasi-resonant Controller	ST	L6565D
108	1	U29	FOD817ASD	4-Pin High Operating Temperature Phototransistor Optocouplers	ON Semiconductor	FOD817ASD
109	4	U33,U34,U35,U36	CZ-3A05	CZ-3A05	AKM	CZ-3A05

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Item	Q.ty	Ref.	Part / Value	Description	Manufacturer	Order code
1	1	CN56	Jtag_SWD_Adapter	Vertical Pin Header	Samtec	FTSH-105-01-F-D-K
2	19	C1,C5,C7,C23,C49,C51,C52,C53,C59,C61,C62,C134,C267,C268,C269,C270,C271,C272,C273	100nF 16V	Ceramic Capacitor	ANY	ANY
3	5	C10,C15,C29,C135,C266	220nF 50V	Ceramic Capacitor	ANY	ANY
4	12	C11,C12,C13,C14,C20,C21,C22,C24,C30,C31,C32,C33	100pF 50V	Ceramic Capacitor	ANY	ANY
5	1	C18	470nF	Ceramic Capacitor	Murata	ANY
6	9	C37,C46,C142,C143,C148,C150,C288,C291,C294	0.1UF 16V	Ceramic Capacitor	Wurth Electronics Inc.	8.85012E+11
7	9	C39,C47,C54,C60,C141,C144,C289,C292,C295	1UF 25V	Ceramic Capacitor	Wurth Electronics Inc.	8.85012E+11
8	2	C41,C44	0.047UF 50V	Ceramic Capacitor	Murata Electronics North America	GCM188R71H473KA55D
9	2	C50,C58	1µF 25V	Ceramic Capacitor	ANY	ANY
10	3	C56,C149,C151	4700PF 25V	Ceramic Capacitor	Wurth Electronics Inc.	8.85012E+11
11	1	C133	10UF 16V	Alum-electrolytic capacitor	Panasonic Electronic Components	EEE-FC1C100R

Item	Q.ty	Ref.	Part / Value	Description	Manufacturer	Order code
12	4	C137,C138,C139,C297	10000PF 50V	Ceramic Capacitor	Murata Electronics North America	GRM188R71H103KA01D
13	6	C274,C275,C276,C277,C278,C279	1000PF 50V	Ceramic Capacitor	Würth Elektronik	8.85012E+11
14	4	C280,C290,C293,C296	15PF 50V	Ceramic Capacitor	Würth Elektronik	8.85012E+11
15	2	C283,C286	100PF 50V	Ceramic Capacitor	Murata Electronics North America	GRM1885C1H101JA01D
16	2	C284,C285	1000PF 50V	Ceramic Capacitor	Murata Electronics North America	GRM1885C1H102JA01J
17	1	C287	2.2UF 25V	Ceramic Capacitor	Würth Elektronik	8.85012E+11
18	1	D2	GREEN SMD	Green LED	ANY	ANY
19	2	D7,D19	RED SMD	Red LED	Würth Electronics Inc.	150060RS75000
20	1	D10	SMAJ5.0A-TR, SMA	TVS Diode	ST	SMAJ5.0A-TR
21	1	D13	GREEN SMD	Green LED	Würth Elektronik	150060GS75000
22	1	D20	YELLOW SMD	YELLOW LED	Würth Electronics Inc.	150060YS75000
23	4	D21,D22,D23,D24	DIODE ZENER 3.3V	Zenner diode	ON Semiconductor	MMSZ4684T1G
24	3	FB8,FB11,FB12	30Ohm@100MHz 0805 1LN	FERRITE BEAD	TDK Corporation	MPZ2012S300AT000
25	1	JP2	2 Way, 3 Row, Straight Pin Header,2.54mm	Straight Pin Header	Würth Electronics Inc.	
26	1	J1	4 way, 1 row, Straight Pin Header 2.54mm, 3A	Straight Pin Header	ANY	ANY
27	1	J2	4 way, 1 row, Straight Pin Header 2.54mm, 3A	Straight Pin Header	ANY	ANY
28	1	J3	4 way, 1 row, Straight Pin Header 2.54mm, 3A	Straight Pin Header	ANY	ANY
29	1	L1	Bead,0603(1608 Metric),120ohm	Ferrite Bead	WE	74279262
30	1	P1	CON32x2, R/A 64POS 2.54 mm,male	Digital Power Connector	ERNI	533406
31	29	R2,R4,R10,R13,R16,R19,R45,R50,R54,R55,R72,R94,R96,R105,R125,R128,R129,R130,R207,R223,R224,R2	RES SMD 100 OHM 1%	Resistor	Yageo	RC0603FR-07100RP

Item	Q.ty	Ref.	Part / Value	Description	Manufacturer	Order code
		30,R234,R253,R254,R264,R273,R282,R290				
32	3	R5,R44,R250	10k ±1%	Resistor	ANY	ANY
33	15	R8,R126,R127,R134,R135,R225,R226,R228,R229,R231,R232,R251,R252,R291,R292	0ohm	Resistor	ANY	ANY
34	5	R17,R46,R56,R131,R133	1k ±1%	Resistor	ANY	ANY
35	4	R42,R47,R209,R211	75K 1%	Resistor	Yageo	RC0603FR-0775KL
36	20	R43,R52,R66,R208,R210,R218,R219,R220,R222,R257,R258,R260,R261,R267,R269,R270,R276,R278,R279,R285	1K 1%	Resistor	Yageo	RC0603FR-071KL
37	8	R48,R49,R204,R205,R241,R265,R274,R283	10K 1%	Resistor	Yageo	RC0603FR-0710KL
38	4	R62,R263,R272,R281	22K 1%	Resistor	Yageo	RC0603FR-0722KL
39	12	R68,R78,R262,R266,R271,R275,R280,R284,R286,R287,R288,R289	0ohm	Resistor	Stackpole Electronics Inc	RMCF0402ZT0R00
40	2	R202,R203	7.5k 1%	Resistor	Panasonic Electronic Components	ERJ-3EKF7501V
41	12	R212,R213,R214,R215,R216,R217,R235,R236,R237,R238,R239,R240	0ohm	Resistor	Panasonic Electronic Components	ERJ-3GEY0R00V
42	4	R245,R259,R268,R277	4.7ohm 1%	Resistor	Yageo	RC0805FR-074R7L
43	1	R246	0ohm	Resistor	YAGEO	RC0603FR-070RL
44	2	R248,R249	10ohm 1%	Resistor	YAGEO	RC0603FR-0710RP
45	1	S2	SWITCH TACTILE SPST-NO 0.05A 24V	Tactile SPST Switch	TE Connectivity ALCOSWITCH Switches	FSM4JSMA
46	3	TP13,TP15,TP16	RS Pro, 1mm	Test point	ANY	ANY
47	5	TP28,TP30,TP31,TP32,TP33,	TEST POINT	Test point	Keystone Electronics	5000
48	1	U3	IC REG LINEAR 3.3V 800MA, DPAK	800 mA fixed and adjustable output very low drop voltage regulator	ST	LD29080DT33R
49	5	U9,U10,U11,U14,U15	TSV912IDT,8-SOIC(0.154", 3.90mm Width), SO-8	Wide-bandwidth (8MHz) rail to rail input/output 5V CMOS Op-Amps, dual	ST	TSV912IDT

Item	Q.ty	Ref.	Part / Value	Description	Manufacturer	Order code
50	4	U12,U25,U26,U27	IC COMPARATOR LP DUAL 8-SOIC, SO-8	Low power dual voltage comparator	ST	LM393DT
51	1	U22	ESDA6V1,SOT23- 3L	Dual-Element Uni- Directional TVS Diode	ST	ESDA6V1L
52	1	U24	STM32G474VET6, LQFP 100 14x14x1.4 mm	MAINSTREAM ARM CORTEX-M4+ MCU 17	ST	STM32G474VET6

Table 4. STDES-60KWLLCWRR bill of materials

Item	Q.ty	Ref.	Part / Value	Description	Manufacturer	Order code
1	28	C1,C2,C3,C4,C5,C 6,C7,C8,C9,C10,C 11,C12,C13,C14,C 15,C16,C17,C18,C 19,C20,C21,C22,C 23,C24,C25,C26,C 27,C28	12nF 1200V	Ceramic capacitor	KEMET	CKC21C123KEGACAUTO

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